

2 **PLANNING PROCESS**

This section of the Plan describes the mitigation planning process undertaken by Mecklenburg County and participating municipalities in the preparation of this Hazard Mitigation Plan. This section consists of the following five subsections:

- OVERVIEW OF HAZARD MITIGATION PLANNING
- PREPARING THE 2005 PLAN
- PREPARING THE 2010 PLAN UPDATE
- PREPARING THE 2015 PLAN UPDATE
- MULTI-JURISDICTIONAL PARTICIPATION
- SUMMARY OF 2010 PLAN UPDATES
- SUMMARY OF 2015 PLAN UPDATES

OVERVIEW OF HAZARD MITIGATION PLANNING

Local hazard mitigation planning is the process of organizing community resources, identifying and assessing hazard risks, and determining how to best minimize or manage those risks. This process results in a hazard mitigation plan that identifies specific mitigation actions, each designed to achieve both short-term planning objectives and a long-term community vision. To ensure the functionality of each mitigation action, responsibility is assigned to a specific individual, department or agency along with a schedule for its implementation. Plan maintenance procedures are established to implement, as well as evaluate and enhance the plan as necessary. Developing clear plan maintenance procedures ensures that Mecklenburg County's Hazard Mitigation Plan remains a current, dynamic and effective planning document over time.

Mitigation planning offers many benefits, including:

- saving lives and property;
- saving money;
- speeding recovery following disasters;
- reducing future vulnerability through wise development and post-disaster recovery and reconstruction;
- enhancing coordination within and across participating jurisdictions;
- expediting the receipt of pre-disaster and post-disaster grant funding; and
- demonstrating a firm commitment to improving community health and safety.

Typically, mitigation planning is described as having the potential to produce long-term and recurring benefits by breaking the repetitive cycle of disaster loss. A core assumption of hazard mitigation is that pre-disaster investments will significantly reduce the demand for post-disaster assistance by lessening the need for emergency response, repair, recovery and reconstruction. Furthermore, mitigation practices will enable local residents, businesses and industries to re-establish themselves in the wake of a disaster, getting the community economy back on track sooner and with less interruption.

The benefits of mitigation planning go beyond reducing hazard vulnerability. Measures such as the acquisition or regulation of land in known hazard areas can help achieve multiple community goals, such

as preserving open space, improving water quality, maintaining environmental health and enhancing recreational opportunities. Thus, it is vitally important that any local mitigation planning process be integrated with other concurrent local planning efforts, and any proposed mitigation strategies must take into account other existing community goals or initiatives that will help complement or hinder their future implementation. Mecklenburg County and participating jurisdictions have embraced this approach, identifying multiple opportunities to link the Plan with preexisting programs, policies, plans and initiatives.

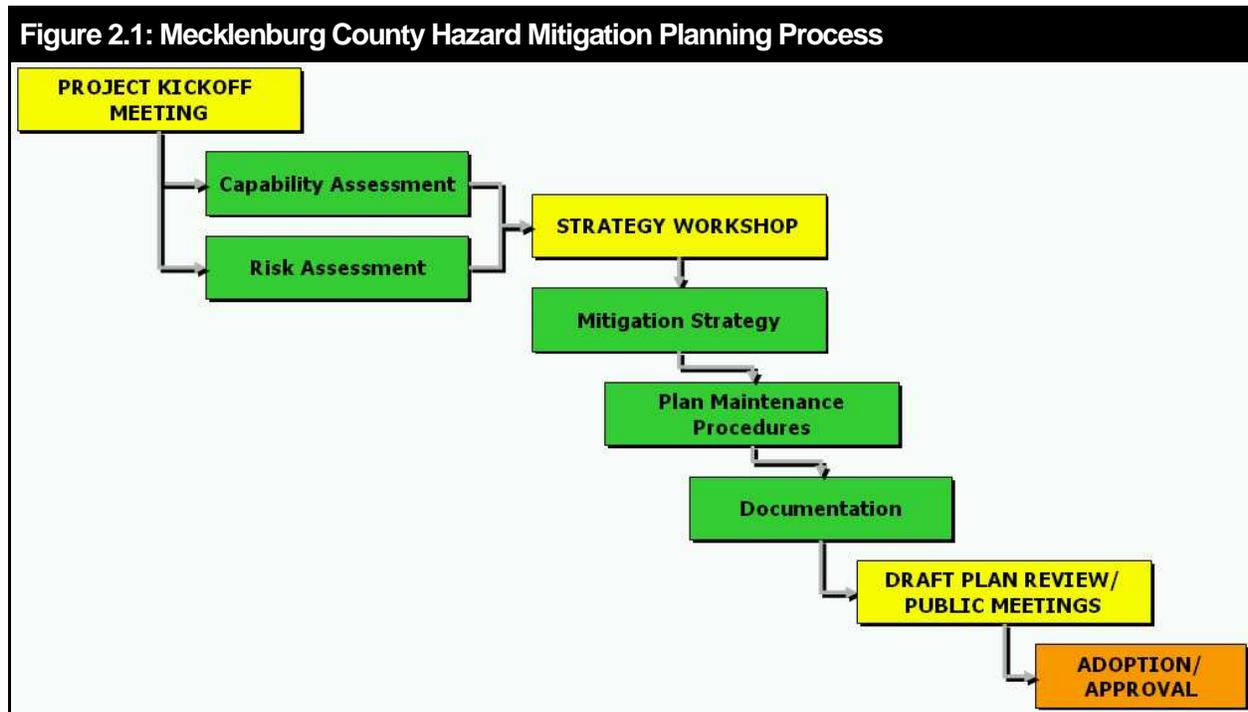
PREPARING THE 2005 PLAN

44 CFR Requirement

Part 201.6(c)(1): The plan shall include documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process and how the public was involved.

Mecklenburg County utilized the multi-jurisdictional planning process recommended by the Federal Emergency Management Agency (FEMA Publication Series 386) to develop the initial version of this Plan. *A Local Mitigation Plan Review Tool*, found in Appendix B, provides a detailed summary of FEMA's current minimum standards of acceptability for compliance with the Disaster Mitigation Act of 2000 and notes the location of where each requirement is met within the Plan. These standards are based upon FEMA's Interim Final Rule as published in the Federal Register on February 26, 2002, in Part 201 of the Code of Federal Regulations (CFR).

The planning process included nine (9) major steps that were completed over the course of approximately seven months. These steps are illustrated in **Figure 2.1**.



Each of the planning steps illustrated in Figure 2.1 resulted in critical products and outcomes that collectively make up the Hazard Mitigation Plan. These work elements have been included as separate sections of the Plan, each of which is introduced in Section 1: *Introduction* (see Plan Outline).

MECKLENBURG COUNTY MITIGATION PLANNING COMMITTEE

A well-rounded community-based planning team contributed heavily to the development of this Plan. Mecklenburg County engaged local government officials in local meetings and planning workshops to discuss and complete tasks associated with preparing the Plan. This working group coordinated all aspects of the Plan's development and became formally recognized as the Mecklenburg County Mitigation Planning Committee. In addition to regular meetings, committee members routinely communicated and were kept informed through a dedicated e-mail distribution group maintained by Mecklenburg County Stormwater Services. Additional participation and input from county residents and other identified stakeholders was sought through the distribution of survey questionnaires and the facilitation of public meetings that described the planning process, the findings of the risk assessment, and proposed mitigation actions.

The participants listed in **Table 2.1** represent the members of the Mitigation Planning Committee who were responsible for participating in the initial development of the Plan. Committee members are listed in alphabetical order by last name.

Table 2.1: Mitigation Planning Committee Members (2005)

NAME	AGENCY, JURISDICTION AND/OR ROLE
David Barley	Town of Pineville
Leamon Brice	Town of Davidson
Melonee Brock	Mecklenburg County
Wayne Broome	Charlotte-Mecklenburg Emergency Management Office
Roger Buell	City of Charlotte Department of Transportation
Dave Christopher	City of Charlotte Department of Transportation
Mitch Combs	Charlotte-Mecklenburg County Stormwater Services
Rodney Crisco	N. Mecklenburg County 911 Communications Center
Tom Drake	Charlotte-Mecklenburg Plus Comm
Bill Garrison	Town of Mint Hill
Jennifer Gloffely	Charlotte Storm Water Services
Pam Holbrook	Town of Huntersville
Kevin Icard	Town of Pineville
Todd Lamb	Town of Mint Hill
Ken Martin	City of Charlotte Department of Transportation
Ralph Messera	Town of Matthews Public Works
Douglas Morris	City of Charlotte Department of Transportation
Ricky Overcash	Town of Cornelius
Rick Prosser	Watershed Concepts
Bill Pruitt	City of Charlotte Storm Water Services
Darrin Punchard	PBS&J
Brian Richards	Town of Huntersville
Tim Rogers	City of Charlotte Fire Department
Gavin Smith	PBS&J
Bill Tingle	Mecklenburg County Storm Water Services
Tim Trautman	Mecklenburg County Storm Water Services

COMMUNITY MEETINGS AND WORKSHOPS

The preparation of the Plan required a series of meetings and workshops intended to facilitate discussion and initiate data collection efforts with local community officials. More importantly, the meetings and workshops prompted continuous input and feedback from local officials throughout the drafting of the Plan.

Below is a summary of the key meetings and workshops conducted by the multi-jurisdictional Mitigation Planning Committee.¹ In some cases, additional meetings were held to accomplish specific planning tasks, such as the completion of the *Capability Assessment Survey* and the

¹ Copies of the agendas, sign-in sheets and handout materials for all meetings and workshops are available through Mecklenburg County upon request.



Members of Mecklenburg County’s Mitigation Planning Committee gathered early in the planning process to discuss necessary tasks and individual roles and responsibilities for preparing the multi-jurisdictional plan.

approval of locally-specific mitigation actions for inclusion in their Mitigation Action Plan. Individual meetings were also held by each participating jurisdiction and their designated staff in order to identify additional mitigation actions beyond those created during the second mitigation planning committee meeting.

First Mitigation Planning Committee Meeting

The first meeting of the Mitigation Planning Committee meeting was held on September 20, 2004 during which the mitigation planning project was introduced to representatives of participating jurisdictions and other invited stakeholders. The intent of this meeting was to educate officials on the mitigation planning process being sponsored by Mecklenburg County, as well as to explain the DMA 2000 multi-jurisdictional planning requirements and the individual roles being required and assigned to each of the committee members. The meeting also served to initiate the preliminary data collection efforts for the risk and capability assessment tasks associated with the development of the Plan.

The meeting began with a detailed presentation on the mitigation planning process led by the project team from PBS&J.² During the presentation, the concept of hazard mitigation was introduced, followed by a more detailed discussion of the local mitigation planning process. Ideas on how to improve and/or expedite the process were solicited from committee members, along with potential strategies for overcoming known barriers to accomplishing project tasks in a timely fashion. Specific data collection needs were thoroughly explained, including the need for accurate GIS data as well as any unique local hazard risk data available for specific areas of concern. A preliminary draft of the proposed outline for the Plan was also shared with the committee for review and comment.

During the presentation, the Mitigation Planning Committee reached consensus on those natural hazards that should be addressed in the risk assessment, and subsequently those that participating jurisdictions would possibly focus their mitigation efforts. **Table 2.2** documents the decision-making process as it relates to those hazards that were to be identified, analyzed and assessed through the preparation of the countywide risk assessment. Some of the hazards included in this table are only referenced here along with an explanation as to why they were ruled out for local, State, and/or regional consideration.

² Copies of all Microsoft® PowerPoint® presentation slides are available through Mecklenburg County upon request.

Table 2.2 Selection of Natural Hazards for Inclusion in Risk Assessment

HAZARD	PLAN SECTION(S) IN WHICH HAZARD IS ADDRESSED		
	HAZARD IDENTIFICATION	HAZARD ANALYSIS	VULNERABILITY ASSESSMENT
Avalanche	No. This hazard is only relevant to the western United States. ³		
Coastal Erosion	No. Mecklenburg County lies more than 200 miles inland.		
Dam/Levee Failure	Yes	Yes	Yes
Drought	Yes	Yes	Yes
Earthquake	Yes	Yes	Yes
Extreme Heat	Included in the discussion of drought, where applicable.		
Erosion	Yes	No. Although soil and streambank erosion is a known localized hazard, it rarely threatens property or causes life/safety issues of concern to this planning effort.	
Flood	Yes	Yes	Yes
Hail	Yes. Hail is addressed as part of the Severe Thunderstorm hazard.		
Hurricanes and Tropical Storms	Yes	Yes	Yes
Landslide	Yes	Yes	Yes
Lightning	Yes. Lightning is addressed as part of the Severe Thunderstorm hazard.		
Severe Thunderstorm	Yes	Yes	Yes
Sinkhole	Yes	Yes	Yes
Storm Surge	No. Mecklenburg County lies more than 200 miles inland.		
Tornado	Yes	Yes	Yes
Tsunami	No. Mecklenburg County lies more than 200 miles inland.		
Volcano	No. There are no active volcanoes present in the eastern United States.		
Wildfire	Yes	Yes	Yes
Winter Storm	Yes	Yes	Yes

Following the presentation on the mitigation planning process, the project team from PBS&J addressed any questions and concerns raised by the committee. These were primarily related to the hazards to be addressed in the planning process and the methods and data requirements for completing the risk and capability assessments, and the types of mitigation actions each jurisdiction should consider for inclusion in their Mitigation Action Plans. The committee also briefly discussed the need to expand committee membership or at least invite additional stakeholders to the next committee meeting, which was scheduled for February 9, 2005.

Data collection efforts were launched through the distribution and explanation of the *Capability Assessment Survey* to each member of the committee. Each committee member was assigned the task of returning to their respective agency or jurisdiction and meeting with appropriate officials to complete the survey questionnaire. The committee determined that the surveys would be completed and returned to PBS&J through Mecklenburg County by October 8, 2004 (approximately three weeks from the date of the initial meeting to allow sufficient time to complete each survey completely and accurately).

Second Mitigation Planning Committee Meeting: “Mitigation Strategy Workshop”

The second Mitigation Planning Committee meeting was held on February 9, 2005 in the form of a four hour “Mitigation Strategy Workshop.” The workshop began with a detailed presentation by PBS&J on the findings of the risk assessment and capability assessment. This provided county and municipal officials with a more thorough understanding of the hazard risks in their communities, along with the varied levels of

³ According to FEMA's *Multi-hazard Identification and Risk Assessment*.

local capabilities available to address them. This information was to be used by participants in creating meaningful mitigation planning goals and specific, achievable mitigation actions that are designed to reduce the impacts of the identified hazards.

The following findings were presented and discussed during the workshop.⁴

Risk Assessment Findings

- Total dollar exposure for property within Mecklenburg County is estimated to be approximately \$99.3 billion. This figure is based on an estimated 298,426 residential, commercial, industrial and other buildings located throughout the county.
- Mecklenburg County has experienced five presidential disaster declarations since 1965, in addition to numerous state-declared disasters and local emergency events.
- The top five natural hazards based upon the qualitative assessment are: (1) flood; (2) hurricanes and tropical storms; (3) winter storms; (4) severe thunderstorms; and (5) tornadoes.
- The top five natural hazards based upon the quantitative assessment (ranked by estimated annualized loss) are: (1) hurricanes and tropical storms; (2) flood; (3) earthquakes; (4) drought; and (5) winter storms.
- Based upon a combination of findings for the qualitative and quantitative assessments and the general consensus of the Mitigation Planning Committee, the five “high” risk hazards for Mecklenburg County are flood, hurricanes and tropical storms, winter storms, severe thunderstorms and tornadoes. The three “moderate” risk hazards are earthquakes, drought and wildfire.

Following the presentation of the risk assessment findings, an interactive session was held to address questions and discuss potential concerns. In addition, each workshop attendee was issued a survey form titled, *Unique Hazard Risks to Local Jurisdictions*, designed to capture data on hazards not identified in the risk assessment presentation. Most of the questions raised at this point of the meeting were related to the qualitative and quantitative assessments of Mecklenburg County’s identified natural hazards. In particular, it was determined that more information needed to be collected for the dam/levee failure hazard (such as historical dam breach information and potential inundation maps from Duke Power, if available).

Capability Assessment Findings

- Mecklenburg County and all participating municipalities have joined the National Flood Insurance Program (NFIP).
- Mecklenburg County, Charlotte and Pineville are actively participating in the NFIP’s Community Rating System (CRS).
- All jurisdictions have a Building Code Effectiveness Grading schedule of 4.
- Most participating jurisdictions have already adopted and implement/enforce a comprehensive plan, building codes and zoning ordinances.
- Most of the jurisdictions have already adopted a floodplain management plan.
- Few communities have prepared a continuity of operations plan, evacuation plan or disaster recovery plan.

⁴ For more detailed information on the findings presented at the Mitigation Strategy Workshop, please refer to the PowerPoint slides available through Mecklenburg County upon request.

- Mecklenburg County, the City of Charlotte and the Town of Huntersville have relatively higher administrative and technical capability than the other participating jurisdictions.
- Mecklenburg County, the City of Charlotte, and the towns of Huntersville, Cornelius and Davidson have a “high” overall capability rating. Jurisdictions receiving a “moderate” overall capability rating include the towns of Matthews, Pineville and Mint Hill.

Following the presentation of the capability assessment findings, the Mitigation Planning Committee reviewed the quantitative scoring system applied to the capability assessment survey results. This was followed by one-on-one meetings with PBS&J representatives to address gaps or conflicts in initial survey responses, and to verify that all data submitted as part of the capability assessment was as accurate as possible. It was agreed that officials from each jurisdiction will closely review the capability assessment narrative when included and distributed as part of the draft Plan to ensure that all information is up-to-date and accurately reflects their existing local capabilities.

Cardstorming Exercise

Upon completing the presentation and discussions on the findings of the risk and capability assessments, PBS&J facilitated a “cardstorming” exercise—an interactive brainstorming session for workshop attendees to begin building general countywide consensus on the mitigation goals for the Hazard Mitigation Plan. Participants were asked to identify specific mitigation actions that their community could undertake to become less vulnerable to the hazards identified through the risk assessment. Each participant was encouraged to keep their own jurisdiction’s existing capabilities in mind, to not only ensure that the mitigation actions they recommend are achievable but to also capitalize on existing gaps, weaknesses or opportunities for program enhancement.

As part of the exercise, workshop participants were asked to discuss potential mitigation policies or projects with official representatives from their community and instructed to record their proposed mitigation actions on cards that would then be posted along the wall of the meeting room. This exercise resulted in a variety of potential mitigation strategies, goals or actions being submitted and posted on the wall for further review, discussion and consideration by the committee. Community officials used this time to elaborate upon each of their proposed mitigation action items, and to share concerns and thoughts related to each one as a group.

The cardstorming technique required input from every workshop participant and resulted in both broad and very specific types of proposed mitigation actions for inclusion in the *Mitigation Strategy*. Following the open discussion, the exercise continued with the categorization of each mitigation action according to the general consensus of the group. Using the cards placed along the wall, workshop participants began to arrange the mitigation actions into agreed upon columns that represented separate mitigation categories.



The Mitigation Planning Committee proposed a variety of possible mitigation actions to consider during the cardstorming exercise.

The intended purpose of this categorization was the identification of common themes that could then translate into goal statements for the Plan.

Upon completion of the exercise, six (6) different categories were identified and labeled with separate column headings generated by consensus of the group. Workshop participants were informed that these categories would later serve as the basis for goal statements for the Plan. Categories consist of the following:

- Planning and Policy
- Education and Outreach
- Warning
- Training
- Traffic Control
- Special Projects

Another outcome of the cardstorming exercise was the preliminary identification of potential mitigation actions for Mecklenburg County and participating jurisdictions to consider for incorporation into their own individual Mitigation Action Plans. These actions are summarized in **Table 2.3**.⁵

Table 2.3: Potential Mitigation Actions for Mecklenburg County			
PROPOSED ACTION	CATEGORY	HAZARD	JURISDICTION
How to deal with future development in flood zones	Planning & Policy	Flood	Pineville
Develop recovery plan dealing with sewer treatment plant (flooding)	Planning & Policy	Flood	Pineville
Formulate disaster recovery plan	Planning & Policy	All	Pineville
Consider hazards in growth policies	Planning & Policy	All	Davidson
Identify and develop plan to address cleaning of "recurring problem" of street drainage issues	Planning & Policy	Flood	Charlotte/ Stormwater
Form an ERT to clear storm drains of debris during and after the event	Planning & Policy	Flood	Charlotte/DOT
Develop a stormwater management plan	Planning & Policy	Flood	Davidson
Join the Community Rating System (CRS)	Planning & Policy	Flood	Cornelius
Join the Community Rating System (CRS)	Planning & Policy	Flood	Huntersville
Improve awareness and education of the NFIP	Education & Outreach	Flood	Huntersville
NFIP education for citizens near lake areas	Education & Outreach	Flood	Cornelius
Develop/enhance multi-hazard awareness programs	Education & Outreach	All	Cornelius

⁵ As the cardstorming exercise results relate to the final *Mitigation Action Plans* presented in Section 9, some *potential* actions were identified by the Mitigation Planning Committee (as shown in Table 2.3) but were determined to be not appropriate for implementation due to various factors such as cost effectiveness, community priorities, environmental objectives, etc.

Table 2.3: Potential Mitigation Actions for Mecklenburg County

PROPOSED ACTION	CATEGORY	HAZARD	JURISDICTION
Enhance public education of the NFIP, and benefits in "minor system" areas	Education & Outreach	Flood	Charlotte
Gain additional support for tree pruning from Duke Power	Education & Outreach	Winter Storm (ice)	Matthews
Information dissemination (planning maps, broadcasts, website, list servers)	Education & Outreach	All	Charlotte
Sustain / fund FACT program for citizens	Education & Outreach	Flood	Charlotte/Fire
Acquire more information on lake levels and storage capacity	Warning	Hurricanes/ Storms	Mecklenburg County
Enhance Automated flood warning system to include forecasting and inundation mapping	Warning	Flood	Mecklenburg County
Consolidate map and/or computer-driven GIS with real-time flood inundation zones	Warning	All	Charlotte/Fire
Train and equip emergency responders and managers for flood emergencies	Training	Flood	Charlotte/Fire
Provide training and technology for 911 dispatchers during natural disasters	Training	All	Charlotte/Fire
Provide / conduct disaster drills for division managers	Training	All	Charlotte/Fire
Develop and provide safety training for city/county employees during floods/storms	Training	All	Charlotte/Fire
Provide and maintain NIIMS training for all KBE's, division heads and key government officials	Training	All	Charlotte/Fire
Train staff and educate the community on its vulnerability to hazards	Training	All	Pineville
Detours during reconstruction (road closures, utility restoration)	Traffic Control	All	Charlotte
How to deal with traffic during a natural disaster (flooding or ice) in a high traffic commercial area	Traffic Control	All	Pineville
Coordinate efforts in city ROW to minimize closure time	Traffic Control	All	Charlotte/DOT
Traffic control (barricades, barriers, cones, signs)	Traffic Control	All	Charlotte/DOT
Develop evacuation routes (can't be affected by local flooding)	Traffic Control	All	Charlotte
Acquire / elevate flood prone structures for willing property owners	Special Projects	Flood	Mecklenburg County
Floodproofing for non-residential structures for willing property owners	Special Projects	Flood	Mecklenburg County
Provide information (encroachments, abandonments, construction, leases)	Special Projects	All	Charlotte
Mitigate localized flooding caused by road and railroad structures	Special Projects	Flood	Matthews
Develop functioning EOC	Special Projects	All	Davidson
Equip emergency responders with swift water rescue resources	Special Projects	Flood	Charlotte/Fire

Before the meeting concluded, PBS&J distributed and explained several handouts for workshop participants to use in identifying specific mitigation actions for incorporation into their own respective Mitigation Action Plans. This included *Mitigation Action Worksheets* (forms for proposing individual mitigation actions), along with a variety of planning tools and reference guides for considering and evaluating possible mitigation action alternatives.⁶ Workshop participants were instructed to take these materials back to their individual jurisdictions to identify and prioritize additional mitigation actions as appropriate.⁷

Third Mitigation Planning Committee Meeting

The third meeting of the Mitigation Planning Committee meeting was held on March 24, 2005 during which the draft Hazard Mitigation Plan was reviewed, discussed and prepared for final submission to NCEM and FEMA. After going through each section of the draft Plan, emphasis was placed on addressing missing information in each jurisdiction’s Mitigation Action Plan. The meeting also provided an opportunity for the County and participating municipalities to add new mitigation actions.

Following the meeting, Mecklenburg County distributed specific instructions to officials to provide final review comments on the draft Plan no later than March 29, 2005. They were strongly encouraged to meet with their appropriate agency executive and elected officials to gain additional support for the draft Plan prior to its submission for state and federal approval. Three public meetings were held on March 24, 2005 to solicit feedback on the draft Plan and discuss specific hazard concerns as described in the Public Participation Survey.

INVOLVING THE PUBLIC

<p>44 CFR Requirement</p> <p>Part 201.6(b)(1): The planning process shall include an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.</p>
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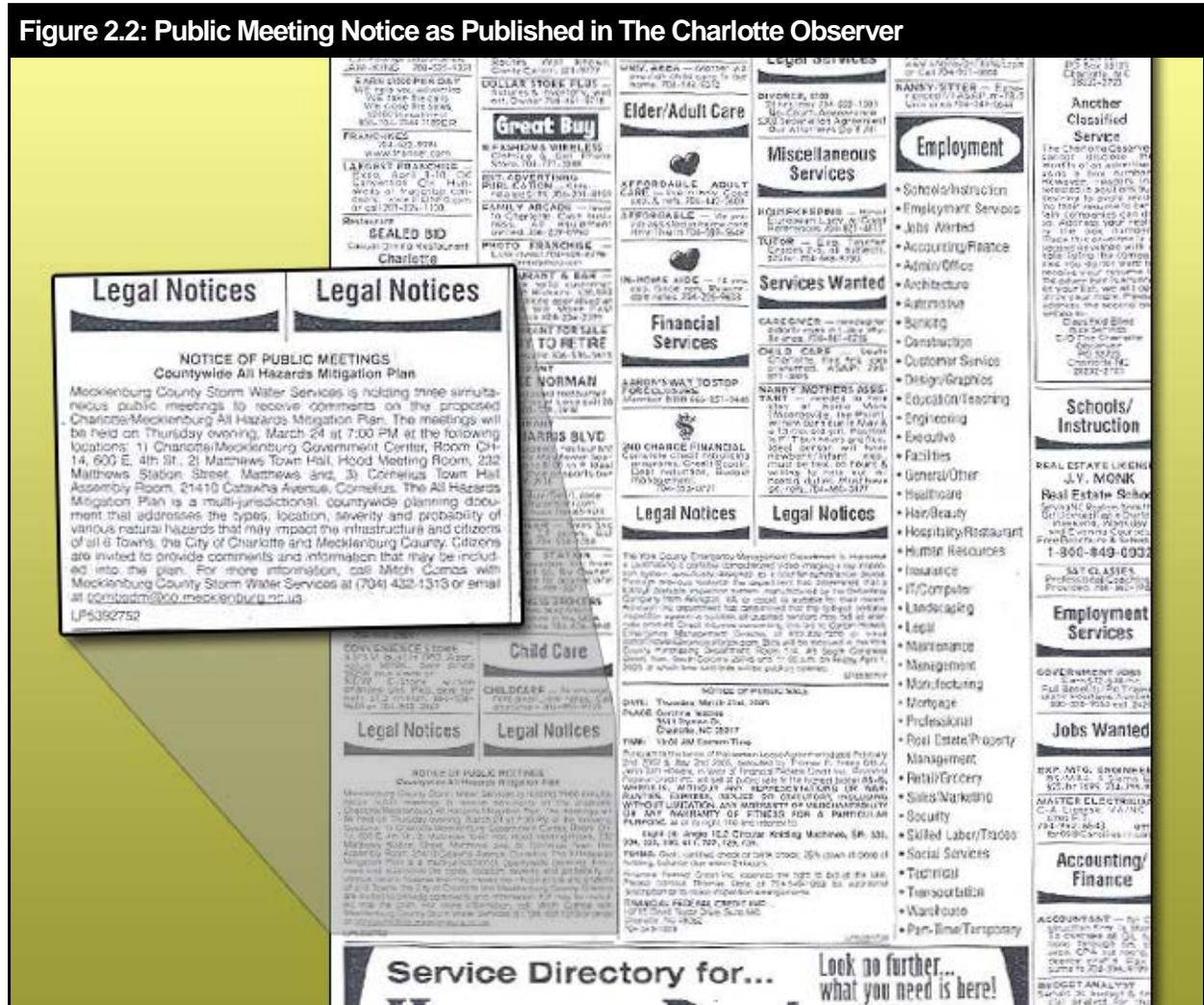
An important component of Mecklenburg County’s community-based mitigation planning process involves public participation. Individual citizen involvement provides the Mitigation Planning Committee with a greater understanding of local concerns and ensures a higher degree of mitigation success by developing community “buy-in” from those directly affected by the planning decisions of public officials. As citizens become more involved in decisions that affect their life and safety, they are more likely to gain a greater appreciation of the natural hazards present in their community and take personal steps to reduce their potential impact. Public awareness is a key component of an overall mitigation strategy aimed at making a home, neighborhood, school, business or city safer from the potential effects of natural hazards.

Public input was sought using three methods: (1) open public meetings; (2) the creation of a public participation survey instrument; and (3) the posting of the draft Hazard Mitigation Plan on Internet Web sites and at government offices. County-level public meetings were held at two stages of the planning process; following the completion of the draft Plan and prior to adoption by each participating jurisdiction.

⁶ Copies of all planning tools and reference guides distributed at the meeting are available through Mecklenburg County upon request.

⁷ It was agreed by the Mitigation Planning Committee that prioritizing mitigation actions was to be based on the following five (5) factors: (1) effect on overall risk to life and property; (2); ease of implementation; (3) political and community support; (4) a general economic cost/benefit review; and (5) funding availability.

Three public meetings were held on the evening of March 24, 2005 at the City of Charlotte, the Town of Matthews, and the Town of Cornelius, respectively. The meetings were advertised through the posting of a public meeting notice at county and municipal offices, along with a newspaper advertisement posted in the Charlotte Observer on the week of March 21, 2005 (Figure 2.2). The intent of the meetings was to inform citizens about the importance of hazard mitigation, describe the mitigation planning process and discuss the findings of the risk assessment. A *Public Participation Survey* was created in order to collect additional information from citizens about local hazard concerns and was available at each public meeting.



Source: The Charlotte Observer

Upon completion of the final draft Plan, the document was posted on the Mecklenburg County public Web site for citizen review and comment. In order to make the draft Plan available to those without Internet access, the Plan was also made available for review at county and municipal offices. On May 17, 2005, a second series of eight public meetings was held by Mecklenburg County and each participating jurisdiction prior to the execution of plan adoption procedures. The meetings provided citizens with the opportunity to review the content of each of the Plan's sections, to ask questions and suggest possible final revisions.

INVOLVING STAKEHOLDERS

44 CFR Requirement

Part 201.6(b)(2): The planning process shall include an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process.

A range of stakeholders, including neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties were invited and encouraged to participate in the development of the Hazard Mitigation Plan. Stakeholder involvement was encouraged through Mecklenburg County’s notifications and invitations to agencies or individuals to participate in Mitigation Planning Committee meetings and the Mitigation Strategy Workshop. The invitation and attendance of these stakeholders at the Mitigation Strategy Workshop are documented in **Table 2.4**.

In addition to the Mitigation Planning Committee meetings, Mecklenburg County encouraged more open and widespread participation in the mitigation planning process through the design and publication of newspaper advertisements that promoted the open public meetings. These media advertisements and survey instruments provided local officials, residents and businesses with an opportunity to be involved and offer input throughout the local mitigation planning process.

Table 2.4: Stakeholder Involvement in the Planning Process⁸

STAKEHOLDER GROUP	INVITED TO MITIGATION STRATEGY WORKSHOP	ATTENDED MITIGATION STRATEGY WORKSHOP
Leamon Brice, Town of Davidson, Town Manager	✓	✓
Wayne Broome, Charlotte-Mecklenburg EM	✓	✓
Mitch Combs, Mecklenburg Storm Water Services	✓	✓
Dave Christopher, Charlotte DOT	✓	✓
Rodney Crisco, N. Mecklenburg 911 Comm.	✓	✓
Kevin Icard, Town of Pineville	✓	✓
Ralph Messera, Town of Matthews	✓	✓
Douglas Morris, Charlotte DOT	✓	✓
Ricky Overcash, Town of Cornelius	✓	✓
Bill Pruitt, City of Charlotte Storm Water Services	✓	✓
Brian Richards, Town of Huntersville	✓	✓
Tim Rogers, Charlotte Fire Department	✓	✓
Bill Tingle, Mecklenburg Storm Water Services	✓	✓
Tim Trautman, Mecklenburg Storm Water Services	✓	✓

⁸ These individuals were contacted by written letter followed up with e-mail and telephone calls.

PREPARING THE 2010 PLAN UPDATE

In preparing the 2010 plan update, Mecklenburg County continued to follow the multi-jurisdictional planning process recommended by FEMA as most recently published in its *Local Multi-Hazard Mitigation Planning Guidance* (July 1, 2008) in addition to plan update guidance materials made available through NCEM. To assist in this process the County contracted with the consulting firm of AECOM in October 2009. The plan update process was scheduled to be completed over the course of nine (9) months, though it truly began earlier 2009 with a series of preliminary meetings and discussions between representatives from AECOM, Charlotte-Mecklenburg Emergency Management Office (CMEMO), Charlotte-Mecklenburg Storm Water Services (CMSWS) and representatives from each of the participating municipal jurisdictions. This included meetings on **May 1, 2009** and again on **July 29, 2009** in which the working group discussed the need to update the 2005 plan, the scope of work and fee options provided by AECOM, the proposed project schedule and project funding. This also included a meeting between the AECOM project manager and Mecklenburg County's Floodplain Administrator and CRS Coordinator on **October 29, 2009** to review and discuss the incorporation, if appropriate, of any existing new plans, studies, reports, and technical information that has become available since the completion of the initial 2005 Plan. Following completion of these scoping meetings and the execution of a contractual agreement, Mecklenburg County moved forward with notifications for reconvening the Mitigation Planning Committee and beginning the plan update process as described below.

RECONVENING THE MITIGATION PLANNING COMMITTEE

One of the first steps in preparing the 2010 plan update was to reconvene the County's Mitigation Planning Committee for a "plan update kickoff" meeting. The following participants represent the members of the Mecklenburg County Mitigation Planning Committee who were responsible for participating in the plan update process, some of who served as committee members during the initial preparation of the initial Plan in 2005. Committee members are listed in alphabetical order according to their last name.

Table 2.5: Mitigation Planning Committee Members (2010 Plan Update)

NAME	AGENCY, JURISDICTION AND/OR ROLE
David Baucom	Lieutenant, Town of Cornelius Police Department
Kevin Black	Captain, Town of Cornelius Police Department
Leamon B. Brice	Town Manager, Town of Davidson
Wayne Broome	Director, Charlotte-Mecklenburg Emergency Management Office
Eric D. Campbell	Assistant City Manager, City of Charlotte
Joe Chapman	Vice President, AECOM
Sharon Foote	Public Information Specialist, Charlotte-Mecklenburg Storm Water Services
Tim Garner	Assistant Director, Town of Mint Hill Public Works Department
Douglas Huss	Land Development Inspector, Charlotte-Mecklenburg Storm Water Services
Kevin Icard	Planning Director, Town of Pineville
Stephen Jackson	Fire Captain, Town of Mint Hill Fire & Rescue Department
Garet Johnson	Assistant Director, City of Charlotte Planning Department
Doug Lozner	City of Charlotte Engineering & Property Management
Dan Martin	Sergeant, Town of Pineville Police Department
Lisa McCarter	Planner, Town of Huntersville Planning Department

Table 2.5: Mitigation Planning Committee Members (2010 Plan Update)

NAME	AGENCY, JURISDICTION AND/OR ROLE
Kim McMillan	Corporate Communications Director, City of Charlotte
Ron McMillan	Operations Supervisor, Town of Davidson
Ralph Messera	Public Works Director, Town of Matthews
Ricky Overcash	Public Works Director, Town of Cornelius
Darrin Punchard	Senior Project Manager, AECOM
John Rowell	Patrol Lieutenant, Town of Mint Hill Police Department
Trim Sawtelle	Chief, Town of Matthews Fire & Rescue Department
James Scanlon	GIS Analyst, AECOM
Jennifer Smith	Storm Water Division Manager, City of Charlotte
Kelly Smith	Corporate Communications, City of Charlotte
Bryan Tarlton	Construction Manager, City of Charlotte Engineering & Property Management
Bill Tingle	Floodplain Administrator, Charlotte-Mecklenburg Storm Water Services
Tim Trautman	Program Manager, Charlotte-Mecklenburg Storm Water Services
Hal Wishon	Administrative Officer, Charlotte-Mecklenburg Emergency Management Office
Bobby Williams	Town Manager's Office, Town of Huntersville
Doug Wright	Public Works Director, Town of Davidson

COMMUNITY MEETINGS AND WORKSHOPS

The preparation of the 2010 plan update required a series of meetings and workshops for facilitating discussion and data collection efforts with local community officials. More importantly, the meetings and workshops prompted continuous input and feedback from local officials throughout the drafting stages of the plan update. Below is a summary of the key meetings and community workshops for the multi-jurisdictional Mitigation Planning Committee. In many cases, additional meetings were held by the individual participating jurisdictions to accomplish planning tasks specific to their community, such as the approval of locally specific mitigation actions for inclusion in their Mitigation Action Plan.

**October 30, 2009
Mitigation Planning Committee Meeting –
“Plan Update Kickoff”**

Mr. Wayne Broome opened the meeting by providing an update on the status on the contract and describing the funding procedures for each of the participating municipal jurisdictions. It was noted that the contract with AECOM will be executed within two weeks and that the City of Charlotte would be seeking financial commitments from each municipal jurisdiction to assist with project fees, in addition to larger funding contributions by the Charlotte-Mecklenburg Emergency Management Office and Storm Water Services.

Mr. Broome continued by explaining the critical role that committee members will play throughout the process. He then asked each of the attendees to introduce themselves and reminded them to complete



Members of the Mitigation Planning Committee reconvene to discuss the 2009/2010 plan update process.

the sign-in sheet circulating around the room. Following introductions, Mr. Broome turned the meeting over to Mr. Darrin Punchard, the lead consultant from AECOM who would be assisting the County in its plan update process.

Mr. Punchard began his presentation by providing some background on the importance of maintaining and updating an approved local hazard mitigation plan and how it relates to State and Federal grant funding eligibility, a description of new plan update requirements per NCEM and FEMA, and the key objectives for the update process as outlined by the City of Charlotte and Mecklenburg County. These objectives include: (1) to evaluate and update each section to reflect current information and best available data; (2) to provide opportunities for the public and identified stakeholders to provide input to the plan update process; (3) to maintain state and federal compliance for all participating jurisdictions; and (4) to maximize Community Rating System (CRS) credit points for floodplain management planning (Activity 510).

Mr. Punchard continued to provide information on each of the specific plan update tasks and the overall project schedule, along with some of the specific methods to be used for data collection and coordination among each of the eight jurisdictions throughout the process. He also presented an overview of current NFIP statistics for each jurisdiction (number of policies, total coverage, number and amount of claims) in order to illustrate how the information has changed a five-year period. The data prompted representatives from the Town of Davidson to inquire as to the location of the 21 historical insured losses identified for their jurisdiction. Bill Tingle indicated that this data is as readily available, but is something that could hopefully be addressed with the risk assessment update (including through the use of a GIS database on NFIP-insured structures that had recently been geo-coded by address, and would be made available to the AECOM project team). Mr. Punchard also used this information to further discuss the incentives for joining and advancing through the CRS as a recommended component of the plan update, while giving the committee members an opportunity to ask questions, raise concerns or suggest ideas on how CRS planning steps would be integrated at the immediate outset of the update process.

After describing the overall approach, schedule and objectives for the plan update process, Mr. Punchard then facilitated a general discussion among committee members focused on the current (2005) multi-jurisdictional hazard mitigation plan. This included going through each of the five-year plan review questions that had been established in the plan maintenance procedures of the current plan, including the following:

- Do the goals and actions address current and expected conditions?
 - Mr. Punchard went through each of the six goals of the current plan and committee members agreed that they were still applicable, but should be revisited again following the completion of updates to the risk and capability assessments.
- Has the nature or magnitude of risks changed?
 - In order to gain some initial feedback from the committee in response to this question, Mr. Punchard facilitated an interactive gaming exercise to capture current perceptions on Mecklenburg County's existing hazard risks and priorities for mitigation planning. After handing out \$20 in mock currency to each committee member (including a \$10 bill, a \$5 bill and five \$1 bills), he asked them all to come to the front of the room and spend their "mitigation money" on the hazards needing the most attention in terms of risk reduction strategies. As each committee member ventured to the front of the room, they found an assortment of labeled cups – one for each natural hazard that had been identified in the initial 2005 plan. Each committee member then deposited their allotted mitigation money into the cups of their choosing (and through the denominations provided, each was forced to deposit at least 50% of their money to one particular hazard). Following completion of the exercise, it was determined that most committee members agreed that the nature

and/or magnitude of most hazard risks haven't changed in the past five years with two notable exceptions: (1) the drought hazard was likely perceived to be a greater hazard threat relative to other hazards; and (2) the hurricane and tropical storm was perceived to be a lesser hazard threat than five years earlier. Committee members also raised several questions regarding the dam/levee failure hazard, which Mr. Punchard explained would again be addressed through the updated risk assessment even though it was deemed a low risk hazard in 2005.

Results of Icebreaker Exercise on Hazard Risks:

HAZARD	TOTAL \$	PERCENT
Flood	\$86	33.1%
Severe Thunderstorms / Tornadoes	\$60	23.1%
Winter Storms	\$59	22.7%
Drought	\$25	9.6%
Hurricanes & Tropical Storms	\$15	5.8%
Dam/Levee Failure	\$6	2.3%
Wildfire	\$5	1.9%
Sinkholes / Landslides	\$2	0.8%
Earthquake	\$2	0.8%

- Are current resources adequate to implement the Plan? Should additional local resources be committed to address identified hazard threats?
 - The committee was in general agreement that current resources are appropriate, with the potential exception being limited fiscal capabilities. Mr. Punchard explained that the issue of current resources for implementing the plan will be addressed more specifically in the updated local capability assessment for each participating jurisdiction.
- Are there any issues that have limited the current implementation schedule?
 - No specific issues or problems with regard to plan implementation were raised by the committee.
- Have the implementation of identified mitigation actions resulted in expected outcomes?
 - Minimal comments were provided by the committee. Mr. Trautman asked whether or not the group was going to be responsible for documenting what has been done since the 2005 plan was completed. Mr. Punchard explained that yes, each jurisdiction will have to provide an update to each of their proposed actions (was it completed, deferred or in need of deletion) as part of the plan update process, in addition to identifying newly proposed mitigation action items.
 - Bill Tingle (Mecklenburg County Storm Water Services) indicated that he's maintained status update reports on proposed mitigation actions for some local jurisdictions as part of his annual CRS reporting requirements and would make these available to the AECOM project team.
 - Mr. Punchard explained that this issue will be addressed more specifically in the updated local status reports on mitigation actions for each participating jurisdiction.
- Has the Mitigation Planning Committee measured the effectiveness of completed hazard mitigation projects in terms of specific dollar losses avoided?
 - While there has not been a lot of effort aimed and documenting losses avoided due to completed mitigation projects, it is believed that some of this information has been or can

be quantified for Mecklenburg County's floodplain acquisitions (for example, the recent flooding of Cavalier Apartments). The County has also recently completed a HAZUS study to demonstrate potential losses avoided due to the enforcement of higher regulatory standards for floodplain management based on projected build-out conditions and would make this report available to the AECOM project team.

- Did the jurisdictions, agencies and other partners participate in the plan implementation process as proposed?
 - Most committee members were in agreement that the jurisdictions, agencies and other partners participated in the plan implementation process as expected. It was noted however that the plan maintenance procedures as adopted in the current plan should be significantly revised as part of the plan update process to make monitoring, evaluating and amending the plan more straightforward.

Following discussion on the five-year plan review questions, some additional questions and comments were shared in an open discussion, including:

- Who else needs to be involved on the Mitigation Planning Committee?
 - It was suggested that representatives from the City of Charlotte's Department of Transportation be invited to participate (might need more than one person); someone from the City's Fire Department and/or Swift Water Rescue Team; someone from Charlotte Area Transit System (CATS) and possibly Charlotte Douglas International Airport; along with representatives from the local chapter of the American Red Cross. It was noted that further consideration would be made on their direct involvement with the committee, but at a minimum each of these agencies would be included as targeted stakeholders to review and provide input on the draft plan update.
- What is the greatest need for improvement in the existing plan?

Some suggested improvements included more realistic and achievable mitigation actions for each jurisdiction (i.e. eliminate those that are not specific enough or aren't practical or measurable); better integration of land use planning and policy alternatives in local mitigation action plans; updating repetitive loss inventory data; revising plan maintenance procedures.
- What is the best strategy for generating public interest, soliciting citizen input and enlisting additional partners in the plan update process?
 - Kim McMillan described a variety of potential means for public outreach efforts including utility bill inserts, newspaper ads, local public access television (including concurrent with open public meetings) and website forums. In order for January meetings to be properly advertised through utility bill inserts, documents would need to be submitted by December 8th.
 - It was agreed that Darrin Punchard would coordinate with Kim on determining the methods and costs associated with potential public outreach strategies, and would report back to Wayne Broome with recommended options to further consider.
 - It was determined that the existing Storm Water Advisory Committee (SWAC) could serve as the means for organized citizen input to the plan update process. Mr. Punchard explained that having such a separate planning advisory committee made up of more than 50 percent representing members of the general public would help maximize CRS credit points.
 - It was asked whether or not someone from an insurance company would want to be a

partner in this effort. It was determined that while such a representative wouldn't be invited for formal participation on the planning committee, the insurance industry should be one of the targeted stakeholders for later review and input on plan update products as part of the broader community outreach activities.

- Are there any new plans, policies, programs, studies, reports, data or technical information that should be reviewed and incorporated into the plan update process?
 - New DFIRM data will be integrated into the risk assessment, along with any other relevant GIS data that has been updated or developed since 2005. The AECOM team has already identified primary GIS points of contact for the project and initiated data collection and cataloging efforts.
 - The County recently completed a debris management plan, a copy of which would be made available to the AECOM team for review.

Upon completion of the general open discussion, committee members were reminded about their forthcoming task assignments, which were to (1) confirm the designation of their jurisdiction's primary point of contact; and (2) ensure the timely completion of plan update surveys that would be sent directly to them to assist the AECOM project team with updating information for each jurisdiction.

Lastly, the next Mitigation Planning Committee meeting was scheduled for January 20, 2010 and the first open public meeting was scheduled for the evening of January 21, 2010.

January 20, 2010

Mitigation Planning Committee Meeting (Second Plan Update Meeting)

Mr. Wayne Broome opened the meeting by welcoming all attendees, having them introduce themselves, and thanking them for their continued support of the 2010 plan update process. He circulated the sign-in sheet and reminded everyone to be certain to document their attendance and provide any updated contact information, if necessary. Mr. Tingle then asked Mr. Punchard, AECOM's lead consultant and project manager for the plan update, to provide a brief description of the plan update process for those committee members who were unable to attend the kickoff meeting.

Following the overview and a brief project update by Mr. Punchard, Mr. Broome provided an update on the contract and payment process and issued further clarification on any financial issues as requested by committee members. It was stated that AECOM will provide three milestone invoices at various stages in the project (50%, 40% and 10%) and that the City would send copies of each invoice to the participating jurisdictions once received. Mr. Broome indicated that he will be making a presentation on the project to the Town of Mint Hill's governing body and would be available to do the same for other jurisdictions upon request. Upon receipt of invoices and payment requests, checks from each of the towns should be sent to Charlotte-Mecklenburg Emergency Management. Mr. Broome also indicated that he would be making paper and electronic copies of the draft plan documents available for each participating jurisdiction at the appropriate time.

The next item on the agenda included approval of meeting minutes. Mr. Broome and Mr. Punchard circulated copies of the meeting minutes from the October 30th Mitigation Planning Committee Meeting which served as the official plan update kickoff. A motion was made to approve the minutes by Mr. Broome, and the motion was seconded by Mr. Tarlton.

Mr. Punchard then launched an overview presentation to provide all committee members with an update on project tasks completed to date, with the major focus of discussion on the risk assessment and capability assessment updates. He reminded everyone that while he had a lot of slides and material to

cover, the presentation should remain interactive and encouraged the active input and feedback from committee members throughout his review of the assessments to date.

In covering the risk assessment update, Mr. Punchard started off by providing an overview of the key differences between the year 2004 (when the current plan was completed) and 2010 for Mecklenburg County as it relates to hazard vulnerability. This included a briefing of some notable hazard occurrences, ranging from severe to extreme drought conditions in 2007-2008 to a major flood event in August 2008, in addition to numerous smaller scale hazard events. This also included a summary of population growth, development trends, the updated inventory of total property exposure (data on buildings and critical facilities), a description of some new GIS hazard layers for the flood and wildfire hazards, and some discussion on mitigation actions completed to date including some large scale acquisition projects as implemented through the County's Floodplain Buyout Program. Mr. Punchard then went through a summary of each natural hazard identified in the plan, covering updated statistics and location data for historical occurrences and documented damages for hazard events (particularly those that have occurred since 2004), updated GIS analyses for determining exposure and potential loss estimates, and updated hazard maps for those hazards that may be spatially defined through GIS technology. Mr. Punchard used PowerPoint slides to showcase many of these enhancements that were being made to the risk assessment as part of the plan update process and reminded committee members that much more information would be available through the draft risk assessment deliverables submitted for their review and comment. In certain cases throughout the presentation Mr. Punchard asked for confirmation of the data or illustrations being shown on the map (such as the identification critical facilities potentially at-risk to hazards), in order to help gain consensus on the preliminary risk assessment findings.

Several questions were raised by committee members during Mr. Punchard's presentation. Mr. Messera asked what the baseline standard or threshold was for including the listing of historical flood hazard occurrences in the plan. Mr. Punchard explained that most of the data came from the County, but is supplemented through the National Climatic Data Center which lists hundreds of events. Mr. Punchard acknowledged that this includes a lengthy listing and noted that one improvement AECOM is making to the tables for historical hazard occurrences is to limit them to only those events that caused documented property damages (though the statistics on the overall number of recorded events would remain in the plan). Committee members were reminded that there are a number of events that go unrecorded, so they are encouraged to review and provide additional historical or anecdotal information for each hazard profile as necessary.

Another question was raised by Bill Tingle regarding the flood exposure analysis completed for each jurisdiction using GIS. He asked if the analysis made any distinction in terms of separating out and excluding accessory structures from the building footprint study. Mr. Punchard explained that no structures were eliminated from the study and agreed that the exposure analysis likely overstates the true monetary exposure for at-risk residential buildings. It was agreed that the analysis would be recalculated to update these figures through the exclusion of structures less than 400 square feet, and a separate analysis would be conducted to exclude structures less than 600 square feet. It is recommended that the exposure analysis be reviewed and possible revised once the results of these new analyses are compared.

Ms. McMillan asked whether distinct housing types associated with NFIP policies can be distinguished (i.e., single family versus multi-family, apartments, etc.). She and Ms. Foote suggested that the media often assumes apartments are the most flood prone housing types and it would be good to clarify whether this is true or not. Mr. Punchard and Mr. Scanlon responded by saying that yes, there are ways to distinguish between housing types through further analysis of the NFIP policy records as provided by FEMA but caution must be used in doing so, as all of the information is protected by the federal Privacy Act.

Mr. Messera asked what the purpose was for differentiating between building types for the annualized hazard loss estimates generated by HAZUS-MH. Mr. Punchard and Mr. Broome explained that it should provide some indication on perhaps where mitigation strategies should be focused (building types at most risk), including the transfer of risk through adequate insurance coverage. Mr. Punchard also explained that FEMA requires information on the types and numbers of buildings, infrastructure, and critical facilities located in the identified hazard areas to be included in the risk assessment portion of the plan.

Mr. Icard inquired as to what the standard was for a dam to be state-regulated (by the North Carolina Division of Land Resources, Dam Safety Office). Mr. Tingle suggested that it is likely tied to a specific height of the dam structure, and Ms. Smith said also likely tied to the size of the drainage area or potential inundation areas, but no firm answer was known. Mr. Punchard indicated that this standard definition would be looked into further. Another issue regarding private dams was raised by Mr. Messera (such as those owned by homeowners associations and possibly not regulated by the State).

Mr. Broome asked Mr. Punchard whether many local hazard mitigation plans also addressed manmade hazards. Mr. Punchard explained that while current legislation (44 CFR Part 201), FEMA and the State only require local mitigation plans to address natural hazards, they do encourage the incorporation of all hazards when it makes sense to do so to the community. Mr. Punchard explained that FEMA has published a specific "How to" guidance document for integrating human-caused hazards such as hazardous materials incidents and terrorism into local plans, but in his experience a relatively small percentage of local communities choose to do so (with a notable exception in Texas where such planning is more routine).

Upon completion of Mr. Punchard's presentation on preliminary risk assessment findings and the subsequent Q&A session, he briefly provided an overview of the preliminary findings of the capability assessment. He thanked all committee members for their timely feedback and responses to the Capability Assessment Survey and asked if anyone had any questions on the updated changes in capability scores from 2004/2005. No questions were raised by the committee, and Mr. Punchard explained that more information would soon be made available in the form of a Section 7 (Capability Assessment) deliverable for people to review. He also indicated that he's going to need some more information that would be collected from each jurisdiction on an individual basis, including some updated information for Section 3 (Community Profile), and would also be encouraging each to consider conducting a "safe growth audit" as recommended and outlined by David Godschalk from UNC.

The agenda item on "Public Involvement" was moved up so that Ms. McMillan could provide an update to some of the City's public outreach efforts. She indicated that the evening public meeting scheduled for January 21 will be broadcast on Cable Channel 16 (Time Warner) and streamed over the Internet on charmeck.org, and that viewers would be able to submit questions via e-mail to publicinput@charlottenc.gov that can be addressed in live form during the broadcast. Ms. McMillan also informed the committee that the online public participation survey was already posted, and along with the public meeting, was being heavily advertised through mass e-mails, advertisements in local publications (including the Charlotte Observer and independent weeklies) and general word of mouth. It was requested that committee members inform Sharon Foote if they knew of any elected officials or other community representatives were planning to attend the public meeting so that they could be recognized accordingly.

Next, Mr. Punchard walked the committee members again through the currently established mitigation goals for the plan as currently written. He explained that these were reviewed at the kickoff meeting, and were now to be evaluated for relevance again following the presentation of the risk assessment and capability assessment findings. After subsequent discussion (including a focus on how hazard mitigation is integrated into local planning activities and Planning Commission decisions), and some additional

questions and answers, the general consensus of the committee was to keep the established mitigation goals for the plan as they are currently written.

Following the discussion on mitigation goals, Mr. Punchard led the committee members through some more presentation slides that focused the various mitigation categories included for the plan and some general examples and evaluations of specific strategies or actions for each. He then walked through the “Decision Tree” interactive PDF document made available through the North Carolina Division of Emergency Management, and noted that it was already posted to the project FTP site that each committee member had access to along with other helpful resources for mitigation action planning (including the CRS Coordinator’s Manual and other hazard-specific mitigation documents). Subsequent discussion focused on the differences between traditional mitigation and preparedness/response activities, and Mr. Punchard encouraged committee members to focus their own mitigation planning activities on true risk reduction actions versus those focused on emergency services and first response – though both are acceptable activities to be included in the plan, each jurisdiction must have identifiable mitigation actions included in the plan in order to receive FEMA and State plan approval.

Mr. Tarlton asked whether outreach activities may include schools, and Mr. Broome indicated that such outreach programs are available but not implemented regularly unless requested by the schools themselves. Mr. Punchard indicated that the American Red Cross is often engaged in such activities and encouraged committee members to get information on their “Masters of Disaster” curriculum for children. Mr. Tingle mentioned the FACT program, and Mr. Broome highlighted the Transportation Evacuation Plan, Debris Management Plan and CERT program as other additional examples of ongoing activities that are in support of the established mitigation goals.

Finally, Mr. Punchard indicated that he would make himself available to work with local community officials in preparing and updating their individual mitigation action plans in addition to providing the aforementioned “helpful resource” documents.

Before adjourning the meeting, Mr. Punchard facilitated another interactive mitigation strategy exercise for committee members as a follow-up to the one conducted during the plan update kickoff meeting, and in order to gain some initial feedback from the committee in terms of preferred mitigation techniques. After handing out \$20 in mock currency to each committee member (including a \$10 bill, a \$5 bill and five \$1 bills), he asked them all to come to the front of the room and spend their “mitigation money” on the general categories of available mitigation techniques as outlined and described in the mitigation plan and earlier in the meeting (including Prevention, Property Protection, Natural Resource Protection, Structural/Engineered Projects, Public Education & Awareness and Emergency Services).

As each committee member ventured to the front of the room, they found an assortment of labeled cups – one for each mitigation category. Each committee member then deposited their allotted mitigation money into the cups of their choosing (and through the denominations provided, each was forced to deposit at least 50% of their money to one particular mitigation category). While this gaming exercise was being completed, Mr. Punchard explained that the online public participation survey was asking citizens of Mecklenburg County to do much the same thing, in terms of asking them to prioritize the types of mitigation activities they believe their local jurisdiction should be pursuing as part of the local mitigation planning process. Following completion of the exercise, it was determined that preventative activities ranked first in order of importance to committee members, followed closely by emergency services, structural/engineered projects and property protection measures.

Results of Mitigation Strategy Exercise:

MITIGATION TECHNIQUE	TOTAL \$	PERCENT
Prevention	\$88	27.5%
Emergency Services	\$61	19.1%
Structural/Engineered Projects	\$59	18.4%
Property Protection	\$54	16.9%
Public Education & Awareness	\$37	11.6%
Natural Resource Protection	\$21	6.6%

Following completion of the exercise, Mr. Punchard reminded everyone of the instructions for accessing and downloading project information from AECOM's dedicated project FTP site and indicated that he would be back in touch with everyone regarding the status reports and updating of mitigation actions for each jurisdiction in the near future. He stated that this will be a critical next step for the mitigation plan update, and similar to other data collection efforts to date, would rely heavily on local participation and involvement in the process. He explained that he will be sending the primary points of contact for each jurisdiction another survey-type instrument to help begin this next step, and will be asking for status reports and initially identified mitigation actions for the plan update to be submitted by everyone no later than February 12, 2010.

Prior to adjourning, the next Mitigation Planning Committee meeting was scheduled for March 17, 2010. It was also noted that the plan would again be presented to the Charlotte-Mecklenburg Stormwater Advisory Committee (SWAC) on March 18, 2010.

**March 17, 2010
Mitigation Planning Committee Meeting (Third Plan Update Meeting)**

Mr. Wayne Broome opened the meeting by thanking all the committee members for attending and for their efforts in supporting the process to update the countywide mitigation plan to date. Following a few updates on invoicing and billing procedures between the City of Charlotte and the towns, Mr. Broome turned the meeting over to Darrin Punchard, lead consultant from AECOM who is assisting with the plan update process. Mr. Punchard circulated the sign-in sheet and reminded everyone to be certain to document their attendance and provide any updated contact information, if necessary. He then distributed copies of the meeting agenda and minutes from the last Mitigation Planning Committee meeting held on January 20, 2010. Mr. Punchard provided an update on some of the action items noted from the last meeting and then asked for a motion to approve the minutes. A motion was made to approve the minutes by Mr. Messera, and the motion was seconded by Mr. Icard. Mr. Punchard noted that the minutes from all committee meetings will be included in the final plan documents, and then began a PowerPoint presentation for the committee to.

The presentation started with a brief overview of the plan update process and schedule, along with a summary of the findings and conclusions from the last meeting which focused on the risk and capability assessments. Mr. Punchard reminded everyone that updated draft plan deliverables have been posted to the project FTP site, and thanks everyone for their review comments to date. He indicated that everyone will have the opportunity to again review the final plan submitted to NCEM and FEMA for approval and request any further changes to the document prior to proceeding with local adoption procedures. Mr. Tingle asked about the specific timeline for finalizing and submitting the plan update to FEMA. Mr. Punchard indicated that the target submittal date for the final plan to NCEM was April 8, 2010 following the completion of updating mitigation action plans for all participating jurisdictions. Mr. Punchard went on to state that while he didn't expect any major issues or delays to prevent a timely turnaround by NCEM or

FEMA on the updated plan, technically FEMA has up to 45 days to review and approve submitted local hazard mitigation plans and it would be important to stress the importance of a quick turnaround to NCEM staff in order to keep things moving forward due to the forthcoming plan expiration date of June 2, 2010. In order to help facilitate local plan adoption procedures, Mr. Punchard recommended to the committee that they consider presenting the final plan to their local governing bodies in advance of receiving the "Approval Pending Adoption" letter from FEMA due to the fact that there would very likely be no fundamental changes to the document beyond that point.

Mr. Punchard continued his presentation by stating that the goal of today's meeting was to review the results of the public input process (including the online survey) and to finalize the elements required for updating sections 8-10 of the plan, with particular emphasis on identifying and prioritizing new mitigation actions for each jurisdiction. However, he first provided a brief progress report on the project tasks completed to date along with some information on those tasks still pending completion. This included a description of the recent updates to each of the sections of the draft plan per the input or comments from committee members or outside plan reviewers to date, and an explanation of any changes in the results or findings as a result of any new information provided (which were minimal). The discussion generated few questions or comments, and ended with Mr. Punchard encouraging each of the committee members to review the updated plan deliverables as posted to the project FTP site prior to the submittal of a final plan to NCEM and FEMA in April 2010.

Next, Ms. McMillan provided an update on the public input process to date including a description of the open public meeting held on January 21, 2010, as well as all the advertising and media coverage that made the City's outreach efforts a success. Mr. Punchard then went through a series of slides that summarized the results of the online public survey to date. This interactive session generated some discussion as it relates to the preferred method for providing the public its next opportunity for providing input into the process. The survey results suggested, and Ms. McMillan confirmed, that open public meetings are not the most effective means for gaining public participation into the plan update process. It was generally agreed among committee members that most members of the general public are not that interested in the subject of planning for natural hazards unless they are imminently threatening them or their property, but may become more engaged through electronic means such as Web sites (for posting of plan materials), the use of social media, online surveys, Internet blogs and video streaming, as well as any advertised open public hearings held prior to local plan adoption.

Following the presentation and discussion on public participation, Mr. Punchard described the use of a "Safe Growth Survey" for enhancing the recently completed Capability Assessment. He noted that it was based on a technique proposed by David Godschalk at the University of North Carolina at Chapel Hill and is designed to provide a concise evaluation of the extent to which each of Mecklenburg County's local jurisdictions are positioned to grow safely relative to natural hazards, with the ultimate goal of identifying possible safety issues, policy gaps or conflicts, and hazard mitigation opportunities associated with future development and resilience to natural disasters. He encouraged each of the committee members to work with their jurisdiction's local planning department staff to complete and return the surveys as soon as possible, and to contact him should they require any additional information.

Following the break for lunch, Mr. Punchard reviewed each of the six mitigation goals in preparation of a more focused discussion on the unique Mitigation Action Plans under development for each participating jurisdiction. He reminded committee members that their new Mitigation Action Plans should reflect and be based on the following: (1) updated mitigation goals; (2) updated risk assessment and capability assessment; (3) lessons learned since 2005; and (4) some focus on the NFIP and CRS activities. He reminded everyone that the draft plan deliverables and a number of helpful planning resources remained available to them on AECOM's dedicated project FTP site and that he himself was available to discuss specific mitigation alternatives as committee members finalized the updating of their mitigation strategies.

He also suggested that committee members coordinate with other representatives of their own jurisdictions (such as planning and public works staff) on the development of the final Mitigation Action Plans, particularly those designed to meet mitigation Goal #5 which is focused on planning and policy measures.

After distributing a copy of each jurisdiction's draft Mitigation Action Plan to date (including status updates for 2005 actions), along with jurisdictional-level flood and wildfire hazard maps for each, Mr. Punchard continued his presentation with a description of some additional mitigation measures specifically recommended for each jurisdiction to further consider for their action plans. This included a range of various mitigation measures cutting across all established categories for mitigation techniques, and for a range of the high and moderate risk hazards facing Mecklenburg County. Mr. Punchard also shared some examples of best practices to consider for how local jurisdictions may consider addressing the implications of global climate change through local planning or policy measures focused on mitigation of greenhouse gases, in addition to adaptation strategies for the anticipated long-term consequences of climate change on natural hazards. The subsequent discussion focused mostly on some general questions and answers with regard to the specific mitigation actions being recommended for jurisdictions to consider, along with the sharing of some ideas or examples from committee members on how best to approach their own action plans from here out.

Prior to adjourning the meeting, committee members were asked by Mr. Punchard to submit their updated, final Mitigation Action Plans as soon as possible in addition to completing and submitting their Safe Growth Surveys. They were again encouraged to consult the helpful resources made available through the project FTP site, in addition to reviewing and providing comments on the final plan deliverables that were also posted to the site. Mr. Punchard also indicated that he'd make himself available to meet with any local staff to provide further assistance in completing action plans, on request. A deadline of March 31, 2010 was established for all committee members to complete these actions and submit their information to Darrin Punchard for incorporating into the final updated plan documents.

It was noted that the next formal Mitigation Planning Committee meeting would be held following the receipt of comments from NCEM and FEMA on the final plan and prior to completing local adoption procedures.

INVOLVING THE PUBLIC

Public involvement in the 2010 plan update was sought using multiple methods including: (1) an open public meeting during the drafting stage that was broadcast live on local television and streamed online; (2) an online public participation survey instrument; (3) a dedicated citizen advisory committee; (4) the advertising and posting of the final plan update on Internet Web sites; and (5) open public hearings held by each participating jurisdiction's governing body prior to formal adoption of the plan update.

Open Public Meetings

The first open public meeting on the 2010 plan update was held at the Charlotte-Mecklenburg Government Center in downtown Charlotte on **January 21, 2010** from 6:30pm to 8:00pm. For those interested citizens who could not attend in person, the meeting was simultaneously broadcast live on local television (Time Warner Cable Channel 16) and streamed live online at charmeck.org, and viewers were provided with the opportunity to provide input or ask questions via email at publicinput@charlottenc.gov. The meeting was facilitated by Kim McMillan, City Corporate Communications Director and included three speakers. Wayne Broome, Director of Charlotte-Mecklenburg Emergency Management, led the meeting off by providing a summary of the plan update process and describing why it's important to keep the multi-jurisdictional plan current and in good standing with NCEM and FEMA. Darrin Punchard, Senior Project Manager with AECOM, provided a description of the current mitigation plan and the process being followed to complete a

comprehensive five-year update. Mr. Punchard's presentation also include a description of the natural hazards faced by Mecklenburg County, the conclusions of the risk assessment update, the mitigation goals established for the plan update, and a description of the available mitigation techniques or strategies being considered by the Mitigation Planning Committee for the 2010 update. Bill Tingle with Charlotte-Mecklenburg Storm Water Services then walked through a detailed presentation on the flood hazards facing the area and the mitigation strategies and projects previously implemented or ongoing to help minimize eliminate future flood risks and associated losses. After each of the three speakers had spoken, Kim McMillan facilitated an open discussion and Q&A session, and called upon each of the speakers to help provide responses or further clarifications as necessary. Prior to ending the meeting, attendees were reminded to go online and complete the public participation survey.

In addition to the open public meeting held during the drafting stage of the plan update, a series of eight separate public hearings were held by the local governing bodies of each jurisdiction prior to formal adoption. This provided the public with a final opportunity to comment on the plan update that had already been posted for public review and comment.

Online Public Participation Survey

The online public participation survey was designed to capture data and information from citizens across Mecklenburg County that might not be able to attend open public meetings or participate through other means in the plan update process. The survey, which served the dual purpose for citizen input as well as education and awareness, focused on questions related to natural hazards, known problem areas and possible solutions through various mitigation techniques. The survey was posted to charmeck.org from January 11th through March 1st, and hard copies were distributed at the open public meeting on January 21st. A total of 28 responses to the public participation survey were received which provided valuable input for the Mitigation Planning Committee to further consider in the development of their Mitigation Action Plans. A summary of the survey findings is provided in *Appendix B*, and additional information gained through the use of the survey instrument is available through Mecklenburg County upon request.

Citizens Advisory Committee

In order to gain additional citizen input to the plan update process, the Mitigation Planning Committee determined that it would call upon the pre-existing *Charlotte-Mecklenburg Stormwater Advisory Committee (SWAC)* to serve as a separate committee in which to present plan update findings and seek feedback for changes or updates to the current plan. The Storm Water Advisory Committee is made up entirely of citizen (non-governmental) volunteers and was established to review policies; hear appeals and decide on violations, fee credits, service charges and adjustments; evaluate capital and operational programs and budgets; and make recommendations or comments to elected officials regarding the storm water programs of the City of Charlotte and Mecklenburg County. SWAC membership is by nomination and subsequent appointment by the Mecklenburg Board of County Commissioners, Charlotte City Council, Charlotte Mayor, Town Boards, or SWAC members themselves.



Members of the Charlotte-Mecklenburg Storm Water Advisory Committee provided additional input for the 2010 plan update.

The 2010 hazard mitigation plan update was presented to the SWAC for additional input and feedback on three separate occasions. An overview of the plan update process was shared with the committee on **January 21, 2010** with the discussion focused on the key objectives for the plan update and some preliminary conclusions of the updated risk assessment. A second presentation on the plan update was delivered on **March 18, 2010** with the focus of discussion being on the updated mitigation goals and mitigation action plans from each of the County's participating jurisdictions.

Posting of Final Plan Update

Upon completion of a final plan update, each of the plan sections was posted online at the Charlotte-Mecklenburg Emergency Management's Web site at charmeckem.net on **April 30, 2010**, and then hyperlinks to this dedicated Web site were posted on the local Web sites of participating local jurisdictions. In addition to making all final plan sections available for review, the dedicated Web site provided visitors with the opportunity to submit written comments or questions on the plan to CharMeckEM@charlottenc.gov or by calling Wayne Broome, Emergency Management Director (contact information provided). Review and feedback on these draft plan deliverables were encouraged by means of verbal and written communication (including press releases and targeted e-mail messages as described below) by the Charlotte Emergency Management Office and City of Charlotte Corporate Communications office.

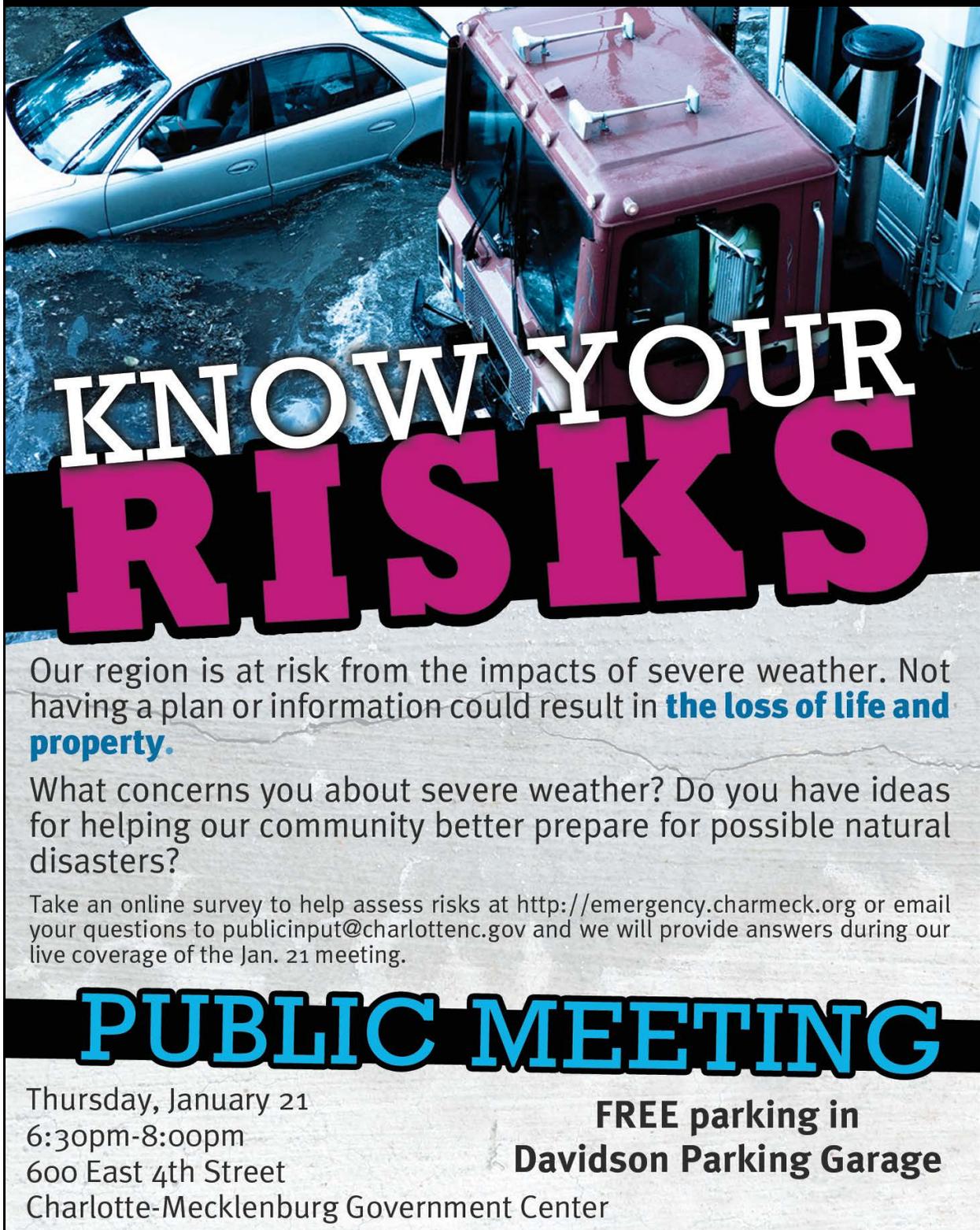
PUBLIC OUTREACH AND NOTIFYING STAKEHOLDERS

Notifications on the open public meetings, online public participation survey and posting of the final plan update were sent to a variety of targeted distribution lists maintained by the City of Charlotte, Mecklenburg County and participating towns. This included extensive outreach to local media outlets in the entire Charlotte regional market such as the *Charlotte-Observer*, *WBTV* (local CBS affiliate in Charlotte) and *Carolina News 14* which prepared and delivered stories to help promote widespread public and stakeholder involvement in the plan update process. This also included the design and widespread distribution of catchy meeting advertisements for local publication (**Figure 2.3**) as well as postings to the City, County and town Internet Web sites.

Through the City of Charlotte Corporation Communication Office, "e-blasts" promoting input on the plan as well as public meeting attendance were shared with distribution lists across multiple agencies including the local Council of Governments (Centralina), the Centralina Area Agency on Aging, the Red Cross, Salvation Army, National Weather Service, and various neighborhood groups and homeowners' associations. In addition, public meeting information was sent to all City and County employees (approximately 11,500 total), posted to the City of Charlotte's public event calendar on charmeck.org, the Government Channel bulletin, and CMail (bi-weekly e-newsletter containing City of Charlotte news and events, shared with over 1,100 subscribers). Mecklenburg County also contributed to outreach efforts by sending the e-blast to their town distribution lists of elected officials.

Through these means, in addition to presentations at SWAC committee meetings (described above) and through open public hearings held by each local jurisdiction's governing body prior to adopting the final 2010 plan update, written and oral comments and recommendations on the plan update process and the posting of draft and final plan updates were solicited from the general public and a wide range of targeted stakeholders.

Figure 2.3: Advertisement for Open Public Meeting Held January 21, 2010



KNOW YOUR RISKS

Our region is at risk from the impacts of severe weather. Not having a plan or information could result in **the loss of life and property.**

What concerns you about severe weather? Do you have ideas for helping our community better prepare for possible natural disasters?

Take an online survey to help assess risks at <http://emergency.charmeck.org> or email your questions to publicinput@charlottenc.gov and we will provide answers during our live coverage of the Jan. 21 meeting.

PUBLIC MEETING

Thursday, January 21
6:30pm-8:00pm
600 East 4th Street
Charlotte-Mecklenburg Government Center

**FREE parking in
Davidson Parking Garage**

PREPARING THE 2015 PLAN UPDATE

In preparing the 2015 plan update, Mecklenburg County continued to follow the multi-jurisdictional planning process recommended by FEMA as most recently published in its *Local Mitigation Planning Handbook* (March 2013) in addition to plan update guidance materials made available through NCEM. To assist in this process the County contracted with the consulting firm of AECOM in October 2014. The plan update process was scheduled to be completed over the course of six (6) months, however the process truly began with a series of conference calls and meetings between the AECOM project manager, Charlotte-Mecklenburg Emergency Management, and members of the Hazard Mitigation Planning Team on **June 4, 2014**, **June 26, 2014**, and **September 3, 2014** to discuss the upcoming plan update and to review and discuss the incorporation, if appropriate, of any existing new plans, studies, reports, and technical information that had become available since the 2010 plan update. Discussions also included ways to secure public involvement and stakeholder participation throughout the process, as well as ways to maximize CRS credit points in an effort to move Mecklenburg County from a Class 5 to a Class 4. Following completion of these scoping meetings and the execution of a Notice to Proceed, Mecklenburg County moved forward with notifications for reconvening the Hazard Mitigation Planning Team and officially beginning the plan update process as described below.

RECONVENING THE HAZARD MITIGATION PLANNING TEAM

One of the first steps in preparing the 2015 plan update was to reconvene the County's Hazard Mitigation Planning Team for a "plan update kickoff" meeting, including relevant stakeholders and citizens, as was done for the 2005 development of the plan as well as the 2010 plan update. The following participants represent the members of the Mecklenburg County Hazard Mitigation Planning Team who were responsible for participating in the plan update process, some of whom served as committee members during the initial preparation of the initial Plan in 2005. Committee members are listed in alphabetical order according to their last name and represent a wide range of community representatives and stakeholders..

Table 2.6: Hazard Mitigation Planning Team Members (2015 Plan Update)

NAME	AGENCY, JURISDICTION AND/OR ROLE
Sam Ascunce	Graduate Research Assistance, UNC-Chapel Hill
Jesse Bouk	Operations Supervisor for Public Works, Town of Davidson
Corey Copley	Lieutenant, Pineville Police Department
Sandy D'Elosha	Corporate Communications and Marketing Director, City of Charlotte
Jeffrey Dulin	Mecklenburg County Emergency Management Director
Sharon Foote	Public Information Specialist, Charlotte-Mecklenburg Storm Water Services
Matthew Gustis	Engineering Program Manager, Charlotte-Mecklenburg Storm Water Services
Christina Hallingse	Public Information Officer, Charlotte-Mecklenburg Emergency Management
David Leath	Chief, Mint Hill Fire Department
David Love	Project Manager, Charlotte-Mecklenburg Storm Water Services
Chris Matthews	Natural Resources Manager, Mecklenburg County Park & Recreation
Ralph Messera	Public Works Director, Town of Matthews
Stacie Neal	Planner, Charlotte-Mecklenburg Emergency Management
Becky Partin	Communications Specialist, Town of Cornelius
Nicole Ramsey	Strategic Communications Manager, City of Charlotte
Mike Robinson	Senior Planner, AECOM
Jennifer Smith	Storm Water Division Manager, City of Charlotte
Bill Tingle	Floodplain Administrator, Charlotte-Mecklenburg Storm Water Services
Michael Tobin	Planner, Charlotte-Mecklenburg Emergency Management
Tim Trautman	Program Manager, Charlotte-Mecklenburg Storm Water Services
Mandy Vari	Long Range Planning, Charlotte-Mecklenburg Planning Department
Bobby Williams	Town Manager's Office, Town of Huntersville
Julia Zweifel	Town Planner, Town of Pineville

COMMUNITY MEETINGS AND WORKSHOPS

The preparation of the 2015 plan update required a series of meetings and workshops for facilitating discussion and data collection efforts with local community officials. More importantly, the meetings and workshops prompted continuous input and feedback from local officials throughout the drafting stages of the plan update. Below is a summary of the key meetings and community workshops for the multi-jurisdictional Hazard Mitigation Planning Team. In many cases, additional meetings were held by the individual participating jurisdictions to accomplish planning tasks specific to their community, such as the approval of locally specific mitigation actions for inclusion in their *Mitigation Action Plan*.

**October 21, 2014
Hazard Mitigation Planning Team Meeting #1 – “Plan Update Kickoff”**

Ms. Stacie Neal opened the meeting by providing an update on the status of the contract with AECOM, the overall process the County would be following to complete the plan update, and the critical role that committee members would play throughout the process. She then asked each of the attendees to introduce themselves and reminded them to complete the sign-in sheet circulating around the room. Following introductions, Ms. Neal turned the meeting over to Mr. Mike Robinson, the lead consultant from AECOM who would be assisting the County in its plan update process.

Mr. Robinson began his presentation by providing background on the importance of maintaining and updating an approved local hazard mitigation plan and how it relates to State and Federal grant funding eligibility, a description of new plan update requirements per NCEM and FEMA, and the key objectives for the update process as outlined by the City of Charlotte and Mecklenburg County. These objectives include: (1) to evaluate and update each section to reflect current information and best available data; (2) to provide opportunities for the public and identified stakeholders to provide input to the plan update process; (3) to maintain state and federal compliance for all participating jurisdictions; and (4) to maximize Community Rating System (CRS) credit points for floodplain management planning (Activity 510).

Mr. Robinson then facilitated an interactive gaming exercise to capture current perceptions on Mecklenburg County’s existing hazard risks and priorities for mitigation planning. After handing out \$20 in mock currency to each committee member (including a \$10 bill, a \$5 bill and five \$1 bills), he asked them all to line up at the side of the room and spend their “mitigation money” on the hazards needing the most attention in terms of risk reduction strategies. As each committee member moved to the side of the room, they found a line of labeled cups – one for each natural hazard that had been identified in the initial 2005 plan. Each committee member then deposited their allotted mitigation money into the cups of their choosing (and through the denominations provided, each was forced to deposit at least 50% of their money to one particular hazard). Following completion of the exercise, it was determined that most committee members agreed that the nature and/or magnitude of most hazard risks haven’t changed in the past five years with two notable exceptions: “severe thunderstorms and tornadoes” and “droughts,” both of which advanced a bit on the list as compared with the 2010 exercise.

Results of Icebreaker Exercise on Hazard Risks:

HAZARD	TOTAL \$	PERCENT
Flood	\$107	53.5%
Winter Storms	\$33	16.5%
Severe Thunderstorms / Tornadoes	\$28	14%
Sinkholes / Landslides	\$15	7.5%
Hurricanes & Tropical Storms	\$9	4.5%
Dam/Levee Failure	\$5	2.5%
Erosion	\$1	0.5%
Other	\$1	0.5%
Wildfire	\$1	0.5%
Drought	\$0	0%
Earthquake	\$0	0%

Mr. Robinson continued to provide information on each of the specific plan update tasks and the overall project schedule, along with some of the specific methods to be used for data collection and coordination among each of the eight jurisdictions throughout the process.

After describing the overall purpose, objectives, approach and schedule for the plan update process, Mr. Robinson then facilitated a general discussion among committee members focused on the current (2010) multi-jurisdictional hazard mitigation plan. One of the primary areas focused on during this discussion was the hazard identification section of the plan and one of the specific questions asked of the group was, “Do we have any cause to re-think the existing list of hazards for this plan update?” At this point in time, the answer from the group was predominately “no,” although several people asked about a variety of technological hazards such as hazardous materials sites, infectious diseases, etc. The planning team agreed that the plan update would move forward focusing solely on natural hazards. (Following this

meeting, several citizens concerned about the potential effects of geomagnetic storms came forward to encourage the planning team to investigate this hazard for inclusion in the plan. After appropriate discussions the planning team agreed to move forward with identifying geomagnetic storms as a natural hazard that could potentially impact Mecklenburg County and appropriate mitigation actions were subsequently developed.)

Following discussion on the risk assessment portion of the 2010 plan, the mitigation goals from the existing plan were presented and summarized for the group for discussion. Specific questions that were posed to the group as part of this discussion included the following:

- It's been **five years** since the last plan update...are these goals still **applicable/appropriate**?
- Where has there been **new development**?
- Are there changes to **local hazard risk**?
- Have there been changes in **local capability**?
- Have there been changes to local **funding options**?
- Are there opportunities for new **grants**?

The planning team agreed that the goals were still current, relevant and effective for addressing future risk to the natural hazards being addressed in the Plan and that forthcoming revisions to the risk and capability assessments would help answer some of these questions. Other questions that were asked during the ongoing discussion covered the following topics:

- Who else needs to be involved on the Hazard Mitigation Planning Team?
 - Ms. Neal proposed to review the current distribution list and to help ensure that the list included all appropriate representation from stakeholders, especially the participating jurisdictions. She also recommended that each person attending the kick-off meeting consider any other invitees that should be included in subsequent meetings. Mr. Robinson pointed out that typically attendance needs to be the largest and broadest in terms of technical experts, academia, and decision makers at Meeting #3 (the Mitigation Strategy Workshop) due to the proposed agenda for that half-day meeting.
- What is the greatest need for improvement in the existing plan?
 - One of the primary goals for the 2015 plan update is to increase CRS credit points where possible.
- What is the best strategy for generating public interest, soliciting citizen input and enlisting additional partners in the plan update process?
 - A variety of potential means for public outreach efforts was discussed, including utility bill inserts, newspaper ads, local public access television, website forums (including a project website), and social media.
 - The group discussed and agreed upon the use of SurveyMonkey for an online public participation survey which would be promoted on County, City, and Town websites and also via email and social media outlets such as Facebook and Twitter. It was decided the survey would be made available through the end of the year.
 - It was determined that the existing Storm Water Advisory Committee (SWAC) could serve as the means for organized citizen input to the plan update process. Mr. Robinson explained that having such a separate planning advisory committee made up of more than 50 percent representing members of the general public would help maximize CRS credit points.

- Are there any new plans, policies, programs, studies, reports, data or technical information that should be reviewed and incorporated into the plan update process?
 - New DFIRM data effective February 2014 will be integrated into the risk assessment, along with any other relevant GIS data that has been updated or developed since 2010.

Mr. Robinson then went over an organizational chart for the plan update process and proposed streamlined communications channels for submitting “homework assignments,” fulfilling data collection requests, etc., and emphasized that participation and responsiveness would be key in light of a fairly aggressive project schedule, which included a series of major holidays.

Mr. Robinson also presented a preliminary outline for a Public Outreach Strategy, citing a series of goals, specific opportunities for participation, and various products and resources that would be created for use as part of the planning process. The final Public Outreach Strategy can be found in Appendix E.

A final opportunity was given for planning team members to discuss potential opportunities with this plan update, possible obstacles or barriers, and other local issues, concerns or ideas. There was minimal discussion at this point and upon completion of this general open discussion time, committee members were reminded about their forthcoming task assignments, which were to (1) confirm the designation of their jurisdiction’s primary point of contact; and (2) ensure the timely completion of plan update surveys that would be sent directly to them to assist the AECOM project team with updating information for each jurisdiction.

Lastly, the next Hazard Mitigation Planning Team meeting was scheduled for December 3, 2014 from 1:30 p.m. to 3:30 p.m. and the first open public meeting was scheduled for November 20 from 5:30 p.m. to 7:30 p.m.

December 3, 2014 Hazard Mitigation Planning Team Meeting #2

During this meeting, Mr. Ryan Cox (NCEM Mitigation Planning Supervisor) and Ms. Stacie Neal covered a variety of topics, including natural hazards typically addressed in the State of North Carolina, data requirements for the 2015 plan update, instructions for the *Local Capability Assessment Survey*, *National Flood Insurance Program (NFIP) Survey* and *Safe Growth Survey*, planning resources available, and other related topics. In addition, Ms. Nicole Ramsey distributed a marketing plan for review and discussion.

In terms of the marketing plan and public outreach campaign, the following points and discussion topics were covered:

- A public notice was sent out documenting the planning team meeting.
- A series of videos was proposed including one on winter storms. These will be distributed via social media and local government websites.
- An E-Newsletter will be published every two weeks with information regarding the 2015 plan update.
- GovDelivery pushed out a message about the first Hazard Mitigation Planning Team meeting and can do something similar for future meetings.
- A ticker has been added on the GovChannel that runs during public meetings.
- A citywide employee email was sent out with meeting information and copies of the survey instruments.
- Graphics were added to CMGC.
- Flyers were developed for upcoming public meetings including a link to the online public participation survey (w/QR code) for public meeting participants to take home after the meeting.

- Added educational information to the County website and can link to CMEMO web pages.
- An alert will be sent out via CharMeck Alerts.
- Advertising in utility bills will be utilized
- Status update on the number of responses received via the public participation survey (301 at that point)
- Bobby Williams volunteered the use of specific Huntersville channels to promote meeting awareness and also help coordinate with Planning Board Meetings

A discussion also took place regarding the potential addition of the Solar Events hazard, including geomagnetic storms. It was decided that if the group chose to add the hazard as part of the 2015 plan update, the plan should address it on a high level including the hazard's overall potential effect on the planning area. It was explained that if a geomagnetic interference incident were to occur, only the local government entities (i.e., the County, City and Towns) would potentially be eligible for mitigation grant funds (no private companies who would actually be the ones most directly impacted). It was discussed that there was interest in adding the Solar Events hazard based on the input of concerned citizenry. It was explained that the State of North Carolina does not currently address this hazard nor is there established methodologies and approaches for incorporating this hazard into a local hazard mitigation plan. It was decided that the plan would identify the hazard and offer two to three mitigation actions at the county level to begin to address the concern within the planning area.

Dates were then discussed for the next planning team meeting (to be held January 14, 2015), the next public meeting, and other key dates and deadlines.

January 14, 2015

Hazard Mitigation Planning Team Meeting #3 – “Mitigation Strategy Workshop”

Ms. Stacie Neal opened the meeting by providing a general update on the overall status of the project then asked each of the attendees to introduce themselves and reminded them to complete the sign-in sheet circulating around the room. She then turned the workshop over to Mr. Mike Robinson from AECOM to cover the specific agenda items agreed upon for the meeting. This included an update on public outreach activities and a report on the public participation survey results; an overview of preliminary risk assessment findings; an overview of capability assessment results, a mitigation strategy exercise, an open discussion period and an overview of next steps.

Mr. Robinson presented a series of charts and graphs summarizing the responses from the public participation survey which was live from October 13, 2014 through January 7, 2015. In total, 347 surveys were completed by citizens throughout the planning area. 72% of respondents said they had personally experienced a disaster, lending real-world experience and personal viewpoints to the planning process. Also, 46% of the respondents said they had lived in Mecklenburg County for 20 years or more, lending seniority and awareness of the planning area and its hazards to the planning process as well. A list of all questions asked and a compilation of all responses received can be found in Appendix B.

The risk assessment portion of the presentation began with an overview of the hazards identified for inclusion in the plan update and an explanation that there have been no new Major Presidential Disaster Declarations since 2004. A table was presented showing population change from the 2000 census to the 2010 census for each participating jurisdiction. (Section 3: *Community Profile* and the risk assessment go on to include 2013 and 2014 population estimates as well.) The planning team pointed out that one of the main reasons for some of the more significant increases and decreases in population is recent annexations. (For example, Pineville has seen a 116.8% increase in population between the 2000 and

2010 census counts, Cornelius has seen a 107.8% increase, and Mecklenburg County has seen a 31.2% decrease.)

A status update was provided on the use of the latest version of Hazus-MH loss estimation software (Version 2.2) to update the loss estimates and annualized losses for flood, earthquake and hurricane wind. A detailed overview was then provided for each hazard (flood, hurricanes and tropical storms, severe thunderstorms, tornadoes, winter storms, earthquakes, landslides, sinkholes, drought, wildfire, dam/levee failure, and geomagnetic storms). Each overview included a summary of hazard occurrences since the last plan update, updated maps if appropriate, an explanation of any observed changes in trends or hazard conditions, and other relevant pieces of information. (All of this information is provided in the risk assessment sections of this updated Plan.) As stated earlier in this section, a new hazard (geomagnetic storms) was proposed for this plan update and this hazard was covered in detail at this meeting. Also, Mr. Bill Tingle suggested that a section be added to cover extreme heat separate from drought/extreme heat. Annualized loss estimates and PRI rankings were reviewed and the planning team agreed that the results of the risk assessment were very similar to previous versions of the plan and that no significant changes are inherent in hazard risk across the planning area.

The discussion then shifted to a report on the *Local Capability Assessment Surveys* that were completed as “homework assignments” by each participating jurisdiction. This began with a review of the primary components of local capability (planning and regulatory capability, administrative and technical capability, fiscal capability, education and outreach capability, political capability, and self assessment). At the time of the meeting, all jurisdictions had submitted their surveys (thus 100% participation) and an overall average score of 56.75 – High Capability was presented for the planning area along with a breakout by jurisdiction of each community’s individual score. All of this information is included in Section 7: *Capability Assessment*.

As the meeting transitioned to the mitigation strategy development portion of the workshop, a sample vision statement was presented and discussed by the group. This statement was as follows: “Through a coordinated multi-jurisdictional planning effort, create and implement an effective hazard mitigation plan that will identify and reduce risk to natural hazards in order to protect the health, safety, quality of life, environment and economy of Mecklenburg County.” The planning team had no initial comments on this draft vision statement and the meeting moved forward with this idea in mind. The next topic covered was the proposed organization of the *Mitigation Strategy* section and the guiding principles for its purpose and update, including the required elements for the updating of the *Mitigation Action Plans* for each jurisdiction. From there the various types of mitigation actions (i.e., mitigation techniques) as defined by FEMA and the CRS program were described to the group.

At that point, the meeting participants were divided into three small groups for discussion and a series of focus questions was displayed on the overhead screen for the group to consider in their small group discussions. The first focus question was, “Broadly speaking, what would have to happen for Mecklenburg County to truly be more resilient to natural hazards?” This was a discussion only question and no work products were produced. The second focus question was, “What specific actions would need to be taken to accomplish this?” While this question was being discussed within the small groups, Mr. Robinson passed out giant Post-It notes for the small groups to use to document one mitigation action per Post-It note. As the groups completed this task and turned their Post-It notes in, Mr. Robinson placed all of them on the wall for the entire planning team to see. The final question in the series was, “How do all of our ideas come together?” As the large group discussed similarities and connections between the various actions, the actions were reorganized on the wall to form patterns in the types of actions that were being proposed, how they associate with the established mitigation goals for the planning area, how they relate to local capabilities, etc. Photographs were taken of the wall so that the thought process could be captured and used to help inform ongoing mitigation strategy development.

The meeting concluded with an explanation of *Mitigation Action Plan* “homework assignments,” which primarily consisted of reviewing previously adopted mitigation actions and providing a status update for each, then proposing any new mitigation actions the jurisdictions felt were appropriate for the 2015 plan update.

February 11, 2015
Hazard Mitigation Planning Team Meeting #4

Mr. Ryan Cox, Mitigation Planning Supervisor for NCEM, led this meeting along with Ms. Stacie Neal. The following is a summary of the key points covered during this meeting:

- Mr. David Love offered to answer any NFIP and/or CRS related questions for the jurisdictions in light of Mr. Bill Tingle’s retirement.
- Most of the jurisdictions had not gotten to the point of adding new mitigation actions. They agreed to focus on this moving forward.
 - Mr. Cox focused on public outreach and education items that could be considered new mitigation actions.
 - Mr. Cox emphasized that the plan must state “why” previously adopted actions are to be deleted if that is part of the jurisdiction’s status update.
- Jurisdictions were encouraged to focus on the prioritization of their actions (if actions should be moved “up” or “down” as part of the 5-year update.
- Potential funding sources should be included with all actions.
- The Town of Pineville indicated that they would be adding flood-related mitigation actions.
- For the *Plan Maintenance* section Mr. Cox stressed that more meetings could lead to more CRS points. Some communities may be better off getting their points another way.
- Mr. Cox encouraged the jurisdictions at this point in the process to begin pushing out emails related to plan amendment and local adoption.
- March 18 was proposed as the ultimate goal for submission to NCEM.
- Goal is to have approval letter out in July.
- The decision was made that a capability assessment did not need to be completed for geomagnetic storms.

March 16, 2015
Hazard Mitigation Planning Team Meeting #5

Mr. Robinson began this meeting by asking all participating planning team members to introduce themselves. He then went over the agenda and handouts for the meeting. The bulk of the meeting focused on an overview of the working draft of the plan, including the updated plan’s organization, a brief status update on each section of the plan, an explanation of the upcoming planning team’s review/comment window for the draft plan, suggested areas of focus for the internal review, the availability of the files, and instructions for submitting review comments.

A general overview was also provided to describe the types of changes made throughout the plan document, including the addition of the solar events hazard. The meeting also provided an opportunity for additional coordination regarding the final public meeting, including the ongoing public outreach theme and logistics for the meeting. Mr. Robinson also delivered a short series of slides on “Maintaining Momentum and Implementing the Plan,” which highlighted numerous recommendations from FEMA’s *Local Mitigation Planning Handbook*.

The meeting concluded with a list of next steps, including the planning team’s review/comment window for the draft plan, the timeframe for AECOM to make final revisions to the draft plan prior to its submission to the State, a walkthrough of the review and approval process to be expected from the State and FEMA, and the local adoption process.

An additional meeting took place with Gary Thompson, State Geodetic Officer, who provided assistance to Mecklenburg County and AECOM with the Solar Events section of the Plan (see Section 4: *Hazard Identification*). His stakeholder involvement also included setting up and hosting a conference call/WebEx with NOAA for a detailed presentation on solar storms. He also attended a working session with citizen stakeholder Tom Drake to help draft the Solar Events section.

MULTI-JURISDICTIONAL PARTICIPATION

44 CFR Requirement

Part 201.6(a)(3): Multi-jurisdictional plans may be accepted as long as each jurisdiction has participated in the planning process.

The Mecklenburg County Hazard Mitigation Plan is multi-jurisdictional and includes the participation of county officials and the following municipalities:

- City of Charlotte
- Town of Cornelius
- Town of Davidson
- Town of Huntersville
- Town of Matthews
- Town of Mint Hill
- Town of Pineville

To satisfy multi-jurisdictional participation requirements, each of the local jurisdictions performed the following tasks as part of the initial plan development in 2005 and as part of the plan update process for 2010 and 2015:

1. Designate appropriate officials to serve on the Hazard Mitigation Planning Team;
2. Participate in all mitigation planning meetings and workshops;
3. Provide best available data as required for the risk assessment portion of the Plan;
4. Complete the *Local Capability Assessment Survey* and provide copies of any mitigation or hazard-related documents for review and incorporation into the Plan;
5. Support the development of a countywide Mitigation Strategy, including the design and adoption of general goal statements for all jurisdictions to pursue;
6. Develop a local Mitigation Action Plan with specific mitigation actions for their jurisdiction;
7. Review and provide timely comments on all draft components of the Plan;

8. Adopt the Mecklenburg County Multi-jurisdictional Hazard Mitigation Plan, including the local *Mitigation Action Plan* specific to their jurisdiction.

Through the completion of these tasks each participating municipality fully participated with Mecklenburg County in the development and update of this Plan. Further, through the preparation, reporting and updating of their own local *Mitigation Action Plans*, each jurisdiction was responsible for addressing their most significant hazard concerns. This separate component of the planning document provides the opportunity for jurisdictions to monitor and update their own specific Plan implementation responsibilities without necessarily having to meet with the countywide Hazard Mitigation Planning Team. It also enables each of the jurisdictions to be solely responsible and accountable for those actions that apply to their jurisdiction. All jurisdictions participated in all mitigation planning meetings and workshops, as well as reviewed and provided timely comments on all draft components of the plan.

SUMMARY OF PLAN UPDATES (2010)

As part of the 2010 plan update, Mecklenburg County’s planning consultant and members of the Mitigation Planning Committee reviewed and analyzed each section of the Plan and made recommendations for necessary updates or revisions. Many of these changes to the initial 2005 Plan were made based on updated data and technical information, as well as necessary changes to the current status for mitigation actions assigned to each participating jurisdiction. **Table 2.6** briefly describes how each section of the Plan was updated through the 2010 plan update process. All revisions made to the 2005 Plan were made using Microsoft Word “track changes” in documents that remain available through Mecklenburg County upon request.

Table 2.6: Summary of Plan Updates (2010)

SECTION	DESCRIPTION OF PLAN UPDATES
Section 1: Introduction	<ul style="list-style-type: none"> • Revisions made to narrative text describing Disaster Mitigation Act of 2000 • Minor revisions to statements of “Purpose” • Detailed outline of each Plan section was moved to Section 1 from Section 2, and revised where necessary.
Section 2: Planning Process	<ul style="list-style-type: none"> • Detailed outline of each Plan section was moved to from Section 2 to Section 1, and revised where necessary. • Detailed synopsis of the 2010 plan update process was added, including a description of the process used, who served on the Mitigation Planning Committee, how the public was involved, summaries/minutes of all meetings, photos from meetings and how the general public and targeted stakeholders were invited and encouraged to participate.
Section 3: Community Profile	<ul style="list-style-type: none"> • Updated all maps, tables, charts and narrative text with updated information. This includes a new base map, the addition of “<i>Community Quickfacts</i>” and new or improved data on population, housing, and demographics as well as growth trends and land use for each of Mecklenburg County’s jurisdictions as well as new economic data (employment and industry). Members of the Mitigation Planning Committee and representatives from each jurisdiction provided new information for their community along with recommendations for any changes to their community’s profile as described in the 2005 Plan.
Section 4: Hazard Identification	<ul style="list-style-type: none"> • It was determined early on in the project that the identification and descriptions of hazards as written in the 2005 Plan were adequate and did not necessitate significant changes, and that the planning team’s time would be better spent updating other sections of the Plan. • Some of the minor updates to Section 4 included the elimination of any outdated or irrelevant data (i.e. national flood damages statistics table). The outdated Fujita Scale was updated to include the new “Enhanced Fujita Scale” for tornadoes.

Table 2.6: Summary of Plan Updates (2010)

SECTION	DESCRIPTION OF PLAN UPDATES
<p>Section 5: Hazard Analysis</p>	<ul style="list-style-type: none"> • A comprehensive review and update was made to Section 5. For each hazard identified, all historical data was updated to include descriptions of any events taking place since the 2005 risk assessment, but also updated to revise any changes to the documented historical event data from prior years. • Disaster declaration data was reviewed for any changes according to FEMA databases, but no revisions were determined necessary. • All narrative text, tables and figures were revised according to the updated data and subsequent GIS analysis. This included updated DFIRM data for flood hazards (current and future), new hazard probability data for wildfire (SWRA), updated NFIP statistics and new information as recorded in the NCDC's storm events database. • Some tables were simplified to list descriptions of only those hazard events that caused recorded damages and/or casualties. • New, more locally-relevant photos were added courtesy of Mecklenburg County. • All of the maps were graphically enhanced using a new underlying data (i.e., hillshade) and symbology design for map layouts. • Data on the probability of future hazard occurrences was updated as necessary.
<p>Section 6: Vulnerability Assessment</p>	<ul style="list-style-type: none"> • Similar to Section 5, a comprehensive update was completed for Section 6 using best available data that had changed since the 2005 risk assessment. This includes new historical data and new GIS data for hazard layers (particularly flood and wildfire) as well as local data on parcels, structures, critical facilities and land use. The new data was utilized to completely re-run the vulnerability assessment for Mecklenburg County. This included the generation of new exposure and loss estimates for each hazard through GIS-based and HAZUS-driven assessments using the latest versions of ArcGIS (9.3) and HAZUS (MR4). • All narrative text, tables, figures and maps were updated to reflect the new data and subsequent vulnerability assessments for each hazard. This includes the addition of new building exposure and hazard maps. One particular improvement to the 2005 plan is the addition of local jurisdictional hazard maps for flood and wildfire using best available data. • Improved data on repetitive loss properties was provided following a detailed GIS-based review of data made available through FEMA, as required per their latest national planning guidance (July 2008). • All conclusions were redrawn and described at the end of Section 6 based on the completion of the vulnerability assessment for each hazard and discussion among the Mitigation Planning Committee.
<p>Section 7: Capability Assessment</p>	<ul style="list-style-type: none"> • Section 7 was updated to include the results of a newly completed capability assessment for Mecklenburg County and its participating jurisdictions, which included the completion of another capability assessment survey for each. The capability assessment also incorporated any new information as taken from any new hazard-related plans, policies, programs, studies, reports, and technical documentation that became available since the completion of the 2005 Plan. Particular attention was focused on updating information for each jurisdiction on their current administration of the NFIP as required by FEMA per their latest national planning guidance (July 2008). • A "Safe Growth Survey" was incorporated into assessment in order to better identify opportunities to better integrate hazard mitigation principles into existing planning mechanisms at the local jurisdictional level, including comprehensive plans, zoning ordinances, subdivision regulations and capital improvements programs. • All results and conclusion in Section 7 were updated based on the completion of the 2009-2010 capability assessment.
<p>Section 8: Mitigation Strategy</p>	<ul style="list-style-type: none"> • During the 2010 plan update, each of the Mitigation Goals listed in Section 8 (established in 2005) were reviewed and discussed with the Mitigation Planning Committee, as well as members of the general public as well as targeted stakeholders. The goal statements were all reaffirmed for 2010, with no substantive revisions required. • Additional documentation was added to Section 8 to describe how the Mitigation Planning Committee reviewed and discussed the identification, analysis and selection of mitigation techniques to consider including in the 2010 plan update – including the use of NCEM's "Decision Tree," FEMA's "Mitigation Ideas" publication, CRS-related guidance and other sources.

Table 2.6: Summary of Plan Updates (2010)	
SECTION	DESCRIPTION OF PLAN UPDATES
Section 9: Mitigation Action Plans	<ul style="list-style-type: none"> The comprehensive update to Section 10 included the detailed review and update of every single mitigation action listed for each participating jurisdiction in Mecklenburg County. The status report for each action included whether the action was completed, deferred or deleted as well as an explanation for reaching that determination. The 2010 update also included the identification and assignment of newly proposed mitigation actions for each jurisdiction according to the same format adopted in the 2005 Plan. This resulted in the identification of many new actions for all jurisdictions in Mecklenburg County, including actions specifically focused on continued NFIP compliance as required by FEMA and NCEM. A table of contents was added to the introductory page of this section to include the page number along with active hyperlinks for each jurisdiction's individual Mitigation Action Plan, making it easier for users of electronic plan files to jump to the specific action plan they're interested in viewing.
Section 10: Plan Maintenance Procedures	<ul style="list-style-type: none"> Section 10 was updated with the goal of simplifying the procedures required for Mecklenburg County to follow in implementing, monitoring, evaluating and enhancing the Plan.
Appendix A: Plan Adoption	<ul style="list-style-type: none"> Appendix A has been updated with copies of the new (2010) local resolutions passed by each of Mecklenburg County's local jurisdictions requesting approval of the Plan.
Appendix B: Public Participation Survey Results	<ul style="list-style-type: none"> Appendix B has been added to include the results of the 2010 Public Participation Survey, which included a total of 28 responses.
Appendix C: Key Federal Mitigation Funding Sources	<ul style="list-style-type: none"> Appendix C has been added to provide some general information on some of the key federal mitigation funding sources as administered by FEMA and other agencies.
Appendix D: Local Hazard Mitigation Plan Update Checklist	<ul style="list-style-type: none"> Appendix D has been updated to include a copy of NCEM's <i>Local Hazard Mitigation Plan Update Checklist</i>, as completed following the 2010 plan update process.

SUMMARY OF PLAN UPDATES (2015)

As part of the 2015 plan update, Mecklenburg County's planning consultant and members of the Hazard Mitigation Planning Team reviewed and analyzed each section of the Plan and made recommendations for necessary updates or revisions. Many of these changes to the initial 2005 plan and 2015 plan update were made based on updated data and technical information, as well as necessary changes to the current status for mitigation actions assigned to each participating jurisdiction. **Table 2.7** briefly describes how each section of the Plan was updated through the 2015 plan update process. All revisions made to the 2015 Plan were made using Microsoft Word "track changes" in documents that remain available through Mecklenburg County upon request.

Table 2.7: Summary of Plan Updates (2015)	
SECTION	DESCRIPTION OF PLAN UPDATES
Section 1: Introduction	<ul style="list-style-type: none"> Minor revisions related to updated terminology, programmatic changes, etc.
Section 2: Planning Process	<ul style="list-style-type: none"> Detailed synopsis of the 2015 plan update process was added, including a description of the process used, who served on the Hazard Mitigation Planning Team, how the public was involved, summaries/minutes of all meetings and how the general public and targeted stakeholders were invited and encouraged to participate.
Section 3: Community Profile	<ul style="list-style-type: none"> Updated all maps, tables, charts and narrative text with updated information. This includes a new base map and new or improved data on population, housing, and demographics.

Table 2.7: Summary of Plan Updates (2015)

SECTION	DESCRIPTION OF PLAN UPDATES
Section 4: Hazard Identification	<ul style="list-style-type: none"> • It was determined early on in the project that the identification and descriptions of hazards as written in the 2005 Plan were adequate and did not necessitate significant changes, and that the planning team's time would be better spent updating other sections of the Plan. • A section was added to introduce Solar Events as a new hazard. • The Data Sources section was updated to reflect the source of the information added for Solar Events.
Section 5: Hazard Analysis	<ul style="list-style-type: none"> • A comprehensive review and update was made to Section 5. For each hazard identified, all historical data was updated to include descriptions of any events taking place since the 2010 plan update, but also updated to revise any changes to the documented historical event data from prior years. • Disaster declaration data was reviewed for any changes according to FEMA databases, but no revisions were determined necessary. • All narrative text, tables and figures were revised according to the updated data and subsequent GIS analysis. This included updated DFIRM data for flood hazards (current and future), new hazard probability data for wildfire (SWRA), updated NFIP statistics and new information as recorded in the NCDC's storm events database. • Maps were updated where appropriate.
Section 6: Vulnerability Assessment	<ul style="list-style-type: none"> • Similar to Section 5, a comprehensive update was completed for Section 6 using best available data that had changed since the 2010 plan update. This includes new historical data and new GIS data for hazard layers (particularly flood) as well as local data on parcels, structures, critical facilities and land use. The new data was utilized to partially re-run the vulnerability assessment for Mecklenburg County. This included the generation of new exposure and loss estimates for each hazard through GIS-based and Hazus-driven assessments using the latest versions of ArcGIS and Hazus-MH. • All narrative text, tables, figures and maps were updated to reflect the new data and subsequent vulnerability assessments for each hazard where appropriate.
Section 7: Capability Assessment	<ul style="list-style-type: none"> • Section 7 was updated to include the results of a newly completed capability assessment survey for Mecklenburg County and its participating jurisdictions. Particular attention was placed on updating information for each jurisdiction on their current administration of the NFIP as required by FEMA per their latest national planning guidance.
Section 8: Mitigation Strategy	<ul style="list-style-type: none"> • During the 2015 plan update, each of the Mitigation Goals listed in Section 8 (established in 2005) were reviewed and discussed with the Hazard Mitigation Planning Team, as well as members of the general public and targeted stakeholders. The goal statements were all reaffirmed for 2015, with no substantive revisions required.
Section 9: Mitigation Action Plans	<ul style="list-style-type: none"> • The comprehensive update to Section 9 included the detailed review and update of every single mitigation action listed for each participating jurisdiction in Mecklenburg County. The status report for each action included whether the action was completed, in progress, deferred or deleted as well as an explanation for reaching that determination. The 2015 update also included the identification and assignment of newly proposed mitigation actions for each jurisdiction according to the same format adopted in the 2005 Plan. This resulted in the identification of some new actions for jurisdictions in Mecklenburg County.
Section 10: Plan Maintenance Procedures	<ul style="list-style-type: none"> • Minor updates were made to Section 10 to clarify the procedures required for Mecklenburg County to follow in implementing, monitoring, evaluating and enhancing the Plan.
Appendix A: Plan Adoption	<ul style="list-style-type: none"> • Appendix A has been updated with copies of the new (2015) local resolutions passed by each of Mecklenburg County's local jurisdictions requesting approval of the Plan.
Appendix B: Public Participation Survey Results	<ul style="list-style-type: none"> • Appendix B has been updated to include the results of the 2015 Public Participation Survey, which included a total of 347 responses.
Appendix C: Key Federal Mitigation Funding Sources	<ul style="list-style-type: none"> • Appendix C has been updated to reflect changes in information regarding the key federal mitigation funding sources identified during the 2010 plan update.
Appendix D: Local Mitigation Plan Review Tool	<ul style="list-style-type: none"> • Appendix D has been updated to include a copy of NCEM's <i>Local Mitigation Plan Review Tool</i>, as completed following the 2015 plan update process.

