

LOCAL MITIGATION PLAN REVIEW CROSSWALK

INSTRUCTIONS FOR USING THE PLAN REVIEW CROSSWALK FOR REVIEW OF LOCAL MITIGATION PLANS

Attached is a Plan Review Crosswalk based on the **Local Multi-Hazard Mitigation Planning Guidance**, published by FEMA in July, 2008. This Plan Review Crosswalk is consistent with the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* (Stafford Act), as amended by Section 322 of the *Disaster Mitigation Act of 2000* (P.L. 106-390), the *National Flood Insurance Act of 1968*, as amended by the *National Flood Insurance Reform Act of 2004* (P.L. 108-264) and *44 Code of Federal Regulations (CFR) Part 201 – Mitigation Planning*, inclusive of all amendments through October 31, 2007.

SCORING SYSTEM

N – Needs Improvement: The plan does not meet the minimum for the requirement. Reviewer's comments must be provided.

S – Satisfactory: The plan meets the minimum for the requirement. Reviewer's comments are encouraged, but not required.

Each requirement includes separate elements. All elements of a requirement must be rated "Satisfactory" in order for the requirement to be fulfilled and receive a summary score of "Satisfactory." A "Needs Improvement" score on elements shaded in gray (recommended but not required) will not preclude the plan from passing.

When reviewing single jurisdiction plans, reviewers may want to put an N/A in the boxes for multi-jurisdictional plan requirements. When reviewing multi-jurisdictional plans, however, all elements apply. States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements. Optional matrices for assisting in the review of sections on profiling hazards, assessing vulnerability, and identifying and analyzing mitigation actions are found at the end of the Plan Review Crosswalk.

The example below illustrates how to fill in the Plan Review Crosswalk.:

Assessing Vulnerability: Overview				
Requirement §201.6(c)(2)(ii): <i>[The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.</i>				
Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan include an overall summary description of the jurisdiction's vulnerability to each hazard?	Section II, pp. 4-10	The plan describes the types of assets that are located within geographically defined hazard areas as well as those that would be affected by winter storms.		<input type="checkbox"/>
B. Does the new or updated plan address the impact of each hazard on the jurisdiction?	Section II, pp. 10-20	The plan does not address the impact of two of the five hazards addressed in the plan. Required Revisions: • Include a description of the impact of floods and earthquakes on the assets. Recommended Revisions: This information can be presented in terms of dollar value or percentages of damage.	<input type="checkbox"/>	
SUMMARY SCORE			<input type="checkbox"/>	

LOCAL MITIGATION PLAN REVIEW CROSSWALK

LOCAL MITIGATION PLAN REVIEW SUMMARY

The plan cannot be approved if the plan has not been formally adopted. Each requirement includes separate elements. All elements of the requirement must be rated "Satisfactory" in order for the requirement to be fulfilled and receive a score of "Satisfactory." Elements of each requirement are listed on the following pages of the Plan Review Crosswalk. A "Needs Improvement" score on elements shaded in gray (recommended but not required) will not preclude the plan from passing. Reviewer's comments must be provided for requirements receiving a "Needs Improvement" score.

SCORING SYSTEM

Please check one of the following for each requirement.

N – Needs Improvement: The plan does not meet the minimum for the requirement. Reviewer's comments must be provided.

S – Satisfactory: The plan meets the minimum for the requirement. Reviewer's comments are encouraged, but not required.

Prerequisite(s) (Check Applicable Box)

1. Adoption by the Local Governing Body: §201.6(c)(5) OR

NOT MET	MET

2. Multi-Jurisdictional Plan Adoption: §201.6(c)(5)
AND

3. Multi-Jurisdictional Planning Participation: §201.6(a)(3)

Planning Process

4. Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)

N	S

Risk Assessment

5. Identifying Hazards: §201.6(c)(2)(i)

N	S

6. Profiling Hazards: §201.6(c)(2)(i)

7. Assessing Vulnerability: Overview: §201.6(c)(2)(ii)

8. Assessing Vulnerability: Addressing Repetitive Loss Properties. §201.6(c)(2)(ii)

9. Assessing Vulnerability: Identifying Structures, Infrastructure, and Critical Facilities: §201.6(c)(2)(ii)(B)

10. Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)

11. Assessing Vulnerability: Analyzing Development

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Trends: §201.6(c)(2)(ii)(C)

12. Multi-Jurisdictional Risk Assessment: §201.6(c)(2)(iii)

*States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements.

Mitigation Strategy

13. Local Hazard Mitigation Goals: §201.6(c)(3)(i)

14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)

15. Identification and Analysis of Mitigation Actions: NFIP Compliance. §201.6(c)(3)(ii)

16. Implementation of Mitigation Actions: §201.6(c)(3)(iii)

17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)

N	S

Plan Maintenance Process

18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(ii)

19. Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)

20. Continued Public Involvement: §201.6(c)(4)(iii)

N	S

Additional State Requirements

County and City participation documentation (ie: sign-in sheets, meeting agendas/minutes, etc)

Full documentation of providing opportunities for participation, comment and incorporation (neighboring, regional, business, public)

Critical Facility Inventory completed on-line

Critical Facility Inventory reports and maps included in the Plan

Submitted Plan and Appendix materials in hard copy and digital formats.

N	S

Plan Approval Status

Plan Approved by State of Georgia

Plan Approval by FEMA

N	Y	Date

LOCAL MITIGATION PLAN REVIEW CROSSWALK**Local Mitigation Plan Review and Approval Status**

Jurisdiction: Camden County with incorporated cities	Title of Plan: Camden County Joint Hazard Mitigation Plan Update	Date of Plan: March 2010
Local Point of Contact: Mark Crews	Address: 131 N Lee Street Kingsland, GA 31548	
Title: Emergency Management Director		
Agency: Camden County Emergency Management Agency		
Phone Number: 912-576-0422	E-Mail: mcrews@co.camden.ga.us	

State Reviewer:	Title:	Date:
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FEMA Reviewer:	Title:	Date:
Date Received in FEMA Region [Insert #]		
Plan Not Approved		
Plan Approved		
Date Approved		

Jurisdiction:	NFIP Status*			
	Y	N	N/A	CRS Class
1. City of Kingsland	√			10
2. City of St. Marys	√			10
3. City of Woodbine	√			10
4. Camden County	√			10
5. [ATTACH PAGE(S) WITH ADDITIONAL JURISDICTIONS]				

LOCAL MITIGATION PLAN REVIEW CROSSWALK

*** Notes:** **Y = Participating** **N = Not Participating** **N/A = Not Mapped**

LOCAL MITIGATION PLAN REVIEW CROSSWALK

PREREQUISITE(S)

1. Adoption by the Local Governing Body

Requirement §201.6(c)(5): [The local hazard mitigation plan **shall** include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Has the local governing body adopted new or updated plan?	Chapter One; page 11; Chapter Six, page 1			
B. Is supporting documentation, such as a resolution, included?	N/A			
SUMMARY SCORE				

2. Multi-Jurisdictional Plan Adoption

Requirement §201.6(c)(5): For multi-jurisdictional plans, each jurisdiction requesting approval of the plan **must** document that it has been formally adopted.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Does the new or updated plan indicate the specific jurisdictions represented in the plan?	Chapter One; page 10			
B. For each jurisdiction, has the local governing body adopted the new or updated plan?	Chapter One; page 11; Chapter Six, page 1			
C. Is supporting documentation, such as a resolution, included for each participating jurisdiction?	N/A			
SUMMARY SCORE				

LOCAL MITIGATION PLAN REVIEW CROSSWALK

3. Multi-Jurisdictional Planning Participation

Requirement §201.6(a)(3): Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process ... Statewide plans will not be accepted as multi-jurisdictional plans.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Does the new or updated plan describe how each jurisdiction participated in the plan's development?	Chapter One; page 5			
B. Does the updated plan identify all participating jurisdictions, including new, continuing, and the jurisdictions that no longer participate in the plan?	Chapter One; pages 5,6			
SUMMARY SCORE				
State of Georgia Requirements: County and City participation documentation and narration (ie: sign-in sheets, meeting agendas & minutes, etc)	Appendix E, Pages 223 -254			

PLANNING PROCESS: §201.6(b): An open public involvement process is essential to the development of an effective plan.

4. Documentation of the Planning Process

Requirement §201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Requirement §201.6(c)(1): [The plan **shall** document] 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.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan provide a narrative description of the process followed to prepare the new or updated plan?	Chapter One; pages 5 – 7; Appendix E, Pages 223 -254			
B. Does the new or updated plan indicate who was involved in the current planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, etc.?)	Chapter One; pages 5,6; Appendix E, Pages 223 -254			

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4. Documentation of the Planning Process

Requirement §201.6(b): *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:*

- (1) *An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
- (2) *An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
- (3) *Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

Requirement §201.6(c)(1): *[The plan **shall** document] 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.*

			SCORE	
C. Does the new or updated plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?)	Chapter One; pages 6 and 7 Chapter Six, page 3			
D. Does the new or updated plan discuss the opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?	Chapter One; pages 5,6			
E. Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?	Chapter One; page 7; Appendix C, pages 147-181			
F. Does the updated plan document how the planning team reviewed and analyzed each section of the plan and whether each section was revised as part of the update process?	Chapter One; page 7			
SUMMARY SCORE				
State of Georgia Requirements: Full documentation of providing opportunities for participation, comment and incorporation (neighboring, regional, business, public)	Chapter One; page 7; Appendix E, Pages 223 -254			

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RISK ASSESSMENT: §201.6(c)(2): *The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.*

5. Identifying Hazards

Requirement §201.6(c)(2)(i): *[The risk assessment **shall** include a] description of the type ... of all natural hazards that can affect the jurisdiction.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan include a description of the types of all natural hazards that affect the jurisdiction?	Chapter Two, page 1, 3, 5, 7, 10, 13, 14, 17, 20, 22, 25; Worksheet One in Appendix D, page 212			
SUMMARY SCORE				

6. Profiling Hazards

Requirement §201.6(c)(2)(i): *[The risk assessment **shall** include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan **shall** include information on previous occurrences of hazard events and on the probability of future hazard events.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the risk assessment identify the location (i.e., geographic area affected) of each natural hazard addressed in the new or updated plan?	Chapter Two, page 4, 5, 8, 10, 11, 13, 15, 18, 19, 20, 23, 24, 26			
B. Does the risk assessment identify the extent (i.e., magnitude or severity) of each hazard addressed in the new or updated plan?	Chapter Two, page 4, 5, 8, 10, 11, 13, 15, 18, 19, 20, 23, 24, 26			
C. Does the plan provide information on previous occurrences of each hazard addressed in the new or updated plan?	Chapter Two, page 4, 5, 8, 10, 11, 13, 15, 18, 19, 20, 23, 24, 26			
D. Does the plan include the probability of future events (i.e., chance of occurrence) for each hazard addressed in the new or updated plan?	Chapter Two, page 4, 6, 9, 11, 13, 15, 23, 26; Appendix D, page 211			

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SUMMARY SCORE

7. Assessing Vulnerability: Overview

Requirement §201.6(c)(2)(ii): *[The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan include an overall summary description of the jurisdiction's vulnerability to each hazard?	Chapter Two, page 5,7,9,12, 14,17,19, 22, 25, 27			
B. Does the new or updated plan address the impact of each hazard on the jurisdiction?	Chapter Two, page 5,7,9,12, 14,16,19, 22, 25, 26			
SUMMARY SCORE				
State of Georgia Requirement: Critical Facility Inventory completed on-line	yes			
State of Georgia Requirements: Critical Facility Inventory reports and maps included in the Plan	yes			

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8. Assessing Vulnerability: Addressing Repetitive Loss Properties

Requirement §201.6(c)(2)(ii): [The risk assessment] **must** also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe vulnerability in terms of the types and numbers of <i>repetitive loss properties</i> located in the identified hazard areas?	Chapter Two, page 10; Appendix A, page 10	Note: This requirement becomes effective for all local plans approved after October 1, 2008.		
SUMMARY SCORE				

9. Assessing Vulnerability: Identifying Structures

Requirement §201.6(c)(2)(ii)(A): The plan **should** describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe vulnerability in terms of the types and numbers of existing buildings, infrastructure, and critical facilities located in the identified hazard areas?	Chapter Two, page 4,6,9,12, 14,16,19, 21, 24, 26	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
B. Does the new or updated plan describe vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities located in the identified hazard areas?	Chapter Two, page 4,6,12, 14, 16, 21, 23	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
SUMMARY SCORE				

10. Assessing Vulnerability: Estimating Potential Losses

Requirement §201.6(c)(2)(ii)(B): [The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan estimate potential dollar losses to vulnerable structures?	Chapter Two, page 4,6,9,12, 14,16,19, 21, 24, 26	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
B. Does the new or updated plan describe the methodology used to prepare the estimate?	Chapter Two, page 4,6,9,12,	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		

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	14,16,19, 21, 24, 26			
SUMMARY SCORE				

11. Assessing Vulnerability: Analyzing Development Trends

Requirement §201.6(c)(2)(ii)(C): [The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe land uses and development trends?	Chapter Two, page 4,6,9,12, 14,16,19, 22, 24, 26	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
SUMMARY SCORE				

12. Multi-Jurisdictional Risk Assessment

Requirement §201.6(c)(2)(iii): For multi-jurisdictional plans, the risk assessment **must** assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan include a risk assessment for each participating jurisdiction as needed to reflect unique or varied risks?	Chapter Two, page 5,7,9,12, 14,16,19, 22, 25, 26			
SUMMARY SCORE				

MITIGATION STRATEGY: §201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

13. Local Hazard Mitigation Goals

Requirement §201.6(c)(3)(i): [The hazard mitigation strategy **shall** include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A Does the new or updated plan include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards?	Chapter Four, pages 2-3			
SUMMARY SCORE				

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14. Identification and Analysis of Mitigation Actions

Requirement §201.6(c)(3)(ii): *[The mitigation strategy **shall** include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan identify and analyze a comprehensive range of specific mitigation actions and projects for each hazard?	Chapter Four, pages 4, 8, 25, 29, 45, 47, 66, 76, 84, 92			
B. Do the identified actions and projects address reducing the effects of hazards on new buildings and infrastructure?	Chapter Four, pages 4, 9, 26, 30, 45, 48, 67, 77, 84, 92			
C. Do the identified actions and projects address reducing the effects of hazards on existing buildings and infrastructure?	Chapter Four, pages 4, 9, 26, 30, 45, 48, 67, 77, 84, 92			
SUMMARY SCORE				

15. Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance

Requirement: §201.6(c)(3)(ii): *[The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe the jurisdiction (s) participation in the NFIP?	Chapter Two, page 6, 12, 16	Note: This requirement becomes effective for all local mitigation plans approved after October 1, 2008.		
B. Does the mitigation strategy identify, analyze and prioritize actions related to continued compliance with the NFIP?	Chapter Four, page 52	Note: This requirement becomes effective for all local mitigation plans approved after October 1, 2008.		
SUMMARY SCORE				

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16. Implementation of Mitigation Actions

Requirement: §201.6(c)(3)(iii): [The mitigation strategy section **shall** include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated mitigation strategy include how the actions are prioritized ? (For example, is there a discussion of the process and criteria used?)	Chapter Four, pages 3, 4, 7, 25, 29, 45, 48, 66, 67, 77, 83, 84, 91			
B. Does the new or updated mitigation strategy address how the actions will be implemented and administered, including the responsible department, existing and potential resources and the timeframe to complete each action?	Chapter Four pages 4, 10, 16, 18, 26, 30, 46, 48, 54, 67, 78, 85, 93			
C. Does the new or updated prioritization process include an emphasis on the use of a cost-benefit review to maximize benefits?	Chapter Six page 2			
D. Does the updated plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged (<i>i.e.</i> , deferred), does the updated plan describe why no changes occurred?	Chapter Four pages 7, 24, 28, 44, 65, 75, 83, 90, 100, Appendix D, page 215 - 222			
SUMMARY SCORE				

17. Multi-Jurisdictional Mitigation Actions

Requirement §201.6(c)(3)(iv): For multi-jurisdictional plans, there **must** be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan include identifiable action items for each jurisdiction requesting FEMA approval of the plan?	Chapter Four pages 4, 10, 16, 18, 26, 30, 46, 48, 54, 67, 78, 85, 93			
B. Does the updated plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress,	Chapter Four pages 7, 24, 28, 44, 65, 75,			

LOCAL MITIGATION PLAN REVIEW CROSSWALK

and if activities are unchanged (<i>i.e.</i> , deferred), does the updated plan describe why no changes occurred?	83, 90, 100			
SUMMARY SCORE				

PLAN MAINTENANCE PROCESS

18. Monitoring, Evaluating, and Updating the Plan

Requirement §201.6(c)(4)(i): [The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe the method and schedule for monitoring the plan, including the responsible department?	Chapter One, page 11 Chapter Six, page 1, 3			
B. Does the new or updated plan describe the method and schedule for evaluating the plan, including how, when and by whom (<i>i.e.</i> the responsible department)?	Chapter Six, page 3			
C. Does the new or updated plan describe the method and schedule for updating the plan within the five-year cycle?	Chapter Six, page 3			
SUMMARY SCORE				

19. Incorporation into Existing Planning Mechanisms

Requirement §201.6(c)(4)(ii): [The plan **shall** include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan identify other local planning mechanisms available for incorporating the mitigation requirements of the mitigation plan?	Chapter Six, page 2			
B. Does the new or updated plan include a process by which the local government will incorporate the mitigation strategy and other information contained in the plan (<i>e.g.</i> , risk assessment) into other planning mechanisms, when appropriate?	Chapter Six, page 2			
C. Does the updated plan explain how the local government incorporated the mitigation strategy and other information contained in the plan (<i>e.g.</i> , risk assessment) into other	Chapter Six, page 2			

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planning mechanisms, when appropriate?				
SUMMARY SCORE				

20. Continued Public Involvement

Requirement §201.6(c)(4)(iii): *[The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.*

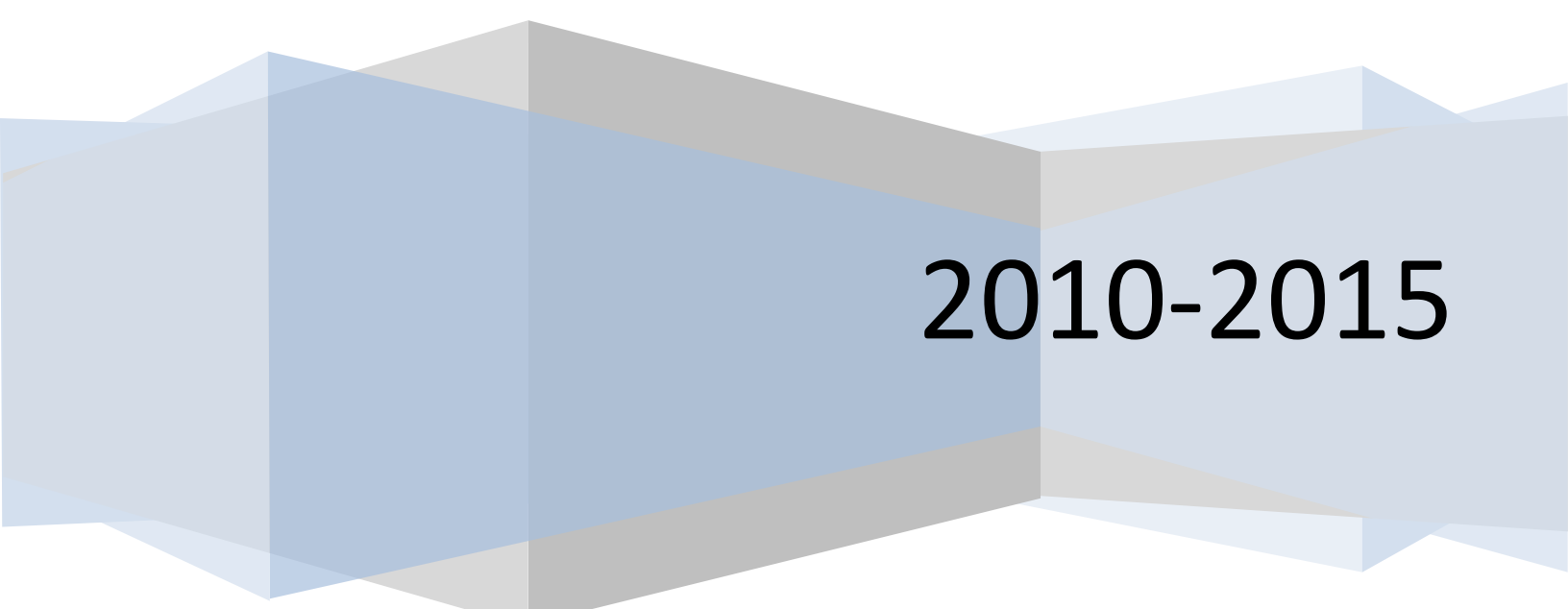
Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan explain how continued public participation will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?)	Chapter Six, page 3			
SUMMARY SCORE				
State of Georgia Requirements:				
Full documentation of providing opportunities for participation, comment and incorporation (neighboring, regional, business, public)				

Grant Services & Consulting, Inc.

Camden County Joint Hazard Mitigation Plan Update

Camden County Emergency Management Agency

Mark Crews, Director



2010-2015

Camden County Hazard Mitigation Plan Update



*Prepared for the Camden County Board of Commissioners
PO Box 99
Woodbine, Georgia 31569*

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Appendix

APPENDICES

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	c. Maps
Section II –	Coastal Storms
	a. Description
	b. Data
	c. Maps
Section III –	Drought
	a. Description
	b. Data
	c. Maps
Section IV –	Flooding
	a. Description
	b. Data
	c. Maps
Section V –	Hailstorms
	a. Description
	b. Data
	c. Maps
Section VI –	Hurricane
	a. Description
	b. Data
	c. Maps
Section VII –	Tornado
	a. Description
	b. Data
	c. Maps
Section VIII –	Water Contamination
	a. Description
	b. Data
	c. Maps
Section IX –	Wildfire
	a. Description
	b. Data
	c. Maps
Section X –	Windstorms
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CHAPTER 1 – Introduction to the Planning Process

Table 1.1 provides a brief description of each section in this chapter and a summary of the changes that have been made to the 2005 Camden County Joint Hazard Mitigation Plan.

Chapter 1 Section	Updates to Section
I. Purpose and need of the plan, authority & statement of problem	<ul style="list-style-type: none">Includes information regarding authority of federal and state regulations
II. Local methodology, brief description of plan update process, Participants in update process	<ul style="list-style-type: none">Section updated to include list of participants, committee organization, and enhanced public notification procedures.
III. Description of how each section of the original plan was reviewed and analyzed and whether it was revised	<ul style="list-style-type: none">Section updated with narrative on plan development process.
IV. Organization of the plan	<ul style="list-style-type: none">Text revised, content unchanged from previous plan.
V. Local Hazard, Risk, and Vulnerability (HRV) summary, local mitigation goals and objectives	<ul style="list-style-type: none">Section added to address disaster events occurring since 2005 plan, and changes to list of hazards for study.
VI. Multi-Jurisdictional special considerations (HRV, goals, special needs)	<ul style="list-style-type: none">Updated to include multi jurisdictional considerations.
VII. Adoption, implementation, monitoring and evaluation (a general description of the processes)	<ul style="list-style-type: none">No changes
VIII. Community Data (demographics, census, commerce, history, etc.)	<ul style="list-style-type: none">Updated to include current information.

Section I – Purpose and need of the plan, authority, and statement of problem.

This document, referred to as the Camden County Joint Hazard Mitigation Plan, is the official update to the plan submitted to and approved by the Federal Emergency Management Agency (FEMA) Region IV in April 2005. The contents of this document are intended to provide the framework for hazard mitigation strategies and actions undertaken by local governments within Camden County. The purpose of completing these proposed hazard mitigation actions is ultimately the reduction of the overall level of exposure and risk to the citizens of Camden County, Georgia. The Hazard Mitigation Plan Update will meet the requirements of the Disaster Mitigation Act of 2000 Public Law 106-390, October 30, 2000, as stipulated in the Interim Final Rule 44 CFR 201.4 Standard State Plan criteria, published on February 26, 2002. Meeting the regulations will allow Camden County to maintain eligibility and qualify to secure all federally declared disaster assistance, including certain types of Public Assistance and hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended).

The purpose of the Camden County Joint Hazard Mitigation Plan is to create a safer community for Camden County residents by reducing the potential for devastation to life and property posed by natural and/or human caused disasters. This purpose will be accomplished by creating a planning document that becomes the foundation for Emergency Management planning, training and preparedness, and by identifying those hazard mitigation projects that will reduce the impact of hazardous events.

Authority: The Disaster Mitigation Act of 2000 (DMA 2000)

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. DMA 2000 is the latest legislation to improve the planning aspect of that process. The Act reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. The Act establishes a pre-disaster hazard mitigation program and designates new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP). Section 322 of the Act identifies the new requirements for planning activities and increases the amount of HMGP funds available to states that have developed a comprehensive mitigation plan prior to disaster.

State and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities. To implement the new DMA 2000 requirements, the Federal Emergency Management Agency (FEMA) prepared an Interim Final Rule, published in the Federal Register on February 26, 2002 at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for states and local communities. The Rule identifies criteria for detailed Hazard, Risk, and Vulnerability (HRV) assessments.

Failure to meet the new criteria will make state and local governments ineligible for Stafford Assistance, and thus forfeit some types of emergency assistance.

The following section describes the existing state planning initiatives and mitigation programs.

Georgia Planning Act

The Georgia General Assembly adopted the Georgia Planning Act in 1989 as a means to encourage better management of growth in previously developed and developing areas of the State while encouraging smart development in less prosperous areas. Although supporting development, the legislature still strives for the conservation and protection of natural and historic resources, protection and promotion of quality of life through proper land use planning, and protection of community facilities. The cornerstone of the coordinated planning program is the preparation of a long-range comprehensive plan by each local government. This plan is intended to highlight community goals and objectives as well as determine how the government proposes to achieve those goals and objectives. With the passage of the Georgia Planning Act of 1989, all of Georgia's 159 and 529 cities were designated "Qualified Local Governments". Each of these local governments must maintain their status in order to remain eligible for a range of state and federal assistance programs. Continuing efforts strive for integrating the local hazard mitigation planning with the local comprehensive planning process.

1.9.6 Coastal Marshland Protection

OCGA 12-5-280

The Coastal Marshland Protection Act provides the Coastal Resources Division with the authority to protect tidal wetlands. The Coastal Marshland Protection Act limits certain activities and structures in marsh areas and requires permits for other activities and structures. Erecting structures, dredging, or filling marsh areas require a Marsh Permit administered through the Coastal Management Program.

Erosion and Sedimentation Control

OCGA 12-7-1

The Georgia Erosion and Sedimentation Act requires that each county or municipality adopt a comprehensive ordinance establishing procedures governing land-disturbing activities based on the minimum requirements established by the act. The Erosion and Sedimentation Act is administered by the EPD of the Georgia DNR and local governments. Permits are required for specified land-disturbing activities, including the construction or modification of manufacturing facilities, construction activities, some activities related to transportation facilities, activities on marsh hammocks, and others.

1.9.8 River Corridor Protection

OCGA 12-2-1

The statute informally known as the Mountain and Corridor Protection Act authorizes DNR to develop minimum standards for the protection of river corridors (and mountains, watersheds, and wetlands) that can be adopted by local governments. The EPD administers the act. All rivers in Georgia with an average annual flow of 400 cubic feet per second are covered by the act, except those within the jurisdiction of the Coastal Marshlands Protection Act. Some of the major provisions of the act include: requirements

for a 100-foot vegetative buffer on both sides of rivers, consistency with the Georgia Erosion and Sedimentation Act, and local governments' identification of river corridors in land-use plans developed under their respective comprehensive planning acts.

1.9.9 Shore Protection

OCGA 2-5-230

The Shore Protection Act is the primary legal authority for protection and management of Georgia's shoreline features including sand dunes, beaches, sandbars, and shoals, collectively known as the sand-sharing system. The value of the sand-sharing system is recognized as vitally important in protecting the coastal marshes and uplands from Atlantic storm activity, as well as providing valuable recreational opportunities. The Shore Protection Act limits activities in shore areas and requires a permit for certain activities and structures on the beach. Construction activity in sand dunes is limited to temporary structures on the beach. Construction activity in sand dunes is limited to temporary structures such as crosswalks, and then only by permit from the Georgia Coastal Resources Division. Structures such as boat basins, docks, marinas, and boat ramps are not allowed in the dunes.

The Watershed and Flood Prevention Act, PL 83-566, August 4, 1954 (16 U.S.C. 1001-1008) authorized the establishment of programs to aid in protecting the lives and property threatened by natural disasters related to watersheds (such as flooding and erosion). Prior to fiscal year 1996, separate programs addressed small watershed planning activities and cooperative river basin surveys and investigations. After the 1996 appropriations act, the activities specified under the Watershed and Flood Prevention Act were combined into the single program known as the Emergency Watershed Protection (EWP) program. The purpose of the EWP program is to assist federal, state, and local agencies and tribal governments to protect watersheds from damage caused by erosion, floodwater, and sediment as well as to conserve and develop water and land resources. Resource concerns addressed by the program include water quality, water conservation, wetland protection and restoration, water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for wildlife and forest-based industries. Methods of planning and surveying addressed by the program include specific watershed plans, river basin surveys, flood hazard analyses, and floodplain management assistance. The purpose of the plans and surveys is to identify solutions that use land treatment and nonstructural measures to resolve resource problems.

Federal Hazard Mitigation Programs

Because GEMA administers federal hazard mitigation programs for Georgia, GEMA's planning process is inherently integrated into these federal programs, specifically the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), the National Flood Insurance Program (NFIP), the Community Rating System (CRS), Flood Mitigation Assistance Program (FMA), the Map Modernization Project, Repetitive Flood Claims Program (RFC) and Severe Repetitive Loss Program (SRL). The Hazard Mitigation Grant Program (HMGP), authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, provides grants to states and local governments to implement long-term hazard mitigation measures after a major

disaster declaration in order to reduce the loss of life and property due to hazard events and to enable the implementation of mitigation measures during the immediate recovery period.

The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter- Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). The RFC program provides funds to assist States and communities in reducing flood damages to insured properties that have had one or more claims to the National Flood Insurance (NFIP) Fund. RFC grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds. Georgia has utilized project grants in the first two years of this program’s existence to permanently mitigate NFIP insured structures through property acquisition.

Section II - Planning Methodology

Development of the 2010 Camden County Joint Hazard Mitigation Plan Update was a concerted effort on the part of Camden County and the Cities of Kingsland, St. Marys, and Woodbine.

To meet federal requirements for the plan review and update process, the Camden County Board of Commissioners approved the following scope of work for the development of the plan:

- Selection of Grant Services & Consulting to provide consultation, meeting facilitation, data collection and plan development services;
- Formation of the Camden County Joint Hazard Mitigation Plan Update Committee, to be chaired by Camden County Emergency Management Agency Director, Mark Crews.

The committee membership was expanded to include representatives from the following organizations and agencies:

- University of Georgia County Extension Service – represented by Robbie Eldago
- Camden County Chamber of Commerce – represented by Christine Daniel
- Georgia Power Company- represented by Joel Hanner and David Brown
- Okefenokee Electric Membership – represented by Royce Proctor
- Camden County GIS Mapper – represented by Angie Eaton
- City of Kingsland GIS Mapper – represented by Paul Speich
- Georgia Department of Natural Resources Law Enforcement– represented by Jesse Cook
- College of Coastal Georgia – represented by Holly Christenson
- Southeast Georgia Health System – represented by Howard Sepp and Shannon Wainwright
- City of Kingsland Public Works – represented by Bill Coleman

- City of St. Marys Public Works – represented by Chad Kinzly
- Camden County Attorney – represented by Brent Green
- Camden County Joint Development Authority – represented by David Keating
- Camden County Solid Waste – represented by Orville Saunders
- Camden County Tax Assessor’s Office – represented by Mary Hoover

Agencies continuing to participate with some changes to representatives include as follows:

- Camden County Emergency Management Agency, Mark Crews and Phyllis Keffer
- St. Marys Fire Chief, Robert Horton and Tom Lackner
- Camden County - County Administrator, Steve Howard
- Georgia Forestry Commission, James Armstrong, and Mark McClellan
- Kings Bay Naval Subbase Station, Dave Ford
- Camden County Fire and Rescue, Dennis Gailey
- American Red Cross, Martin Turner and Emily Keller
- Camden County Planning & Development, Conn Cole
- Camden County Commissioner, David Rainer
- WalMart Supercenter, Ken Bradley
- Camden County Board of Education, Mark Stewart
- Salvation Army, Nanette Hamilton
- Camden County Roads Department, Scott Brazell
- Bayer Crop Science, Chuck Carnes
- City of Woodbine, Debra Carter
- Georgia Department of Public Health, Janet Duffield
- City of Kingsland, Lee Spell
- City of Kingsland Fire and Rescue, Cecil Stephens
- Camden County Environmental Health, Terry Ferrel
- City of St. Marys Planning Department, Roger Weaver
- City of St. Marys Police Department, Tim Hatch
- Camden County Sheriff’s Office, Tommy J. Gregory

The plan update process included facilitated monthly committee meetings to review Hazard, Risk and Vulnerability (HRV) assessment data and formulate mitigation actions based on collected assessments and local capabilities; agendas and minutes at each committee meeting; and advertised public meetings at least twice during the planning process with a public review of the draft plan scheduled.

The Plan Update process began with a public hearing on June 22, 2009. Enhancements to public notification were aided by posting links on the county’s website (www.co.camden.ga.us) to state and federal resources for hazard mitigation planning. The public was invited to participate in the draft review process in March 2010. The process was advertised in the local newspaper. The public was invited to download the draft from the county’s website as well as receive a copy of the draft from the Emergency

Management Agency Office. Public comments were received via email and telephone. All comments received were discussed at the public hearing March 30, 2010. Revisions were suggested in an attempt to make the document less confusing to the layperson. Changes to the document were incorporated as recommended.

SECTION III - Include a **Description** of how each section of the original plan was reviewed and analyzed and whether it was revised. Summarize the changes that were made and the process used to determine if an update was necessary.

For the plan update process, several additional planning documents were reviewed and successfully incorporated, including the 2009 Georgia County Guide, the 2008 – 2018 Camden County Joint Comprehensive Plan, the 2008 Consolidated Tax Digest, the Georgia Hazard Mitigation Strategy, and the 2008-2013 Camden County Strategic Plan.

The contracted planner had primary responsibility for collecting updated information and presenting data to the committee. The approved 2005 plan was provided to each committee member and was posted as a downloadable document on the county's website available for public review. Each chapter was reviewed chronologically with updated hazard, risk, and vulnerability data, as well as previous accomplishments of mitigation strategy efforts. Formal meetings of the Plan Update Committee were held monthly. Irregularly attending participants were kept informed with monthly emails containing minutes from the previous meeting.

Each section of the 2005 plan has been revised in some manner. Therefore, the first section of each chapter will list those changes. Major plan changes include removing "severe winter storms and vector-borne diseases" from the list of natural hazards and adding "hailstorms." In addition, two technological hazards were removed from the plan update: "Lost local income" and "terrorism." One hazard, "radiological issues," was added to hazardous material spills.

SECTION IV – PLAN ORGANIZATION

The Hazard Mitigation Plan Update is organized to incorporate the requirements listed in the Interim Final Rule 44 CFR 201.4 Standard State Plan criteria in several chapters. This chapter, "Chapter 1: Introduction to the Planning Process", includes an overview of the document, assurances of compliance, an overview of the various state and federal authorizing authorities, the overall goals of the plan, and details of the planning process, as stipulated by Interim Final Rule 44 CFR 201.4(c)(1).

Chapter 2 outlines the natural hazard history in terms of events and losses, identifies current hazard exposures, assesses the jurisdiction's risks and vulnerabilities, and analyzes potential losses, as stipulated by Interim Final Rule 44 CFR 201.4(c)(2).

Chapter 3 outlines the technological hazard history in terms of events and losses, identifies current hazard exposures, assesses the jurisdiction's risks and vulnerabilities, and analyzes potential losses, as stipulated by Interim Final Rule 44 CFR 201.4(c)(2).

Chapter 4 outlines the cities and county's hazard mitigation priorities and goals, related policies, programs, and capabilities at the local level, mitigation actions and activities and specific contributions, and sources of mitigation project funding from all levels, as stipulated by Interim Final Rule 44 CFR 201.4(c)(3).

Chapter 5 outlines the cities and county's technological hazard mitigation priorities and goals, related policies, programs, and capabilities at the local level, mitigation actions and activities and specific contributions, and sources of mitigation project funding from all levels, as stipulated by Interim Final Rule 44 CFR 201.4(c)(3).

Chapter 6 outlines the process of plan maintenance, including the methods and schedule of updates, monitoring the implementation of mitigation efforts, and reviewing progress of achieving the goals outlines in Chapter Four, as stipulated by Interim Final Rule 44 CFR 201.4(c) (4).

Finally, Chapter 7 summarizes the planning effort and provides reference material used for the update process.

The summary of changes is included in the overview section of every chapter as a table that details each section and the changes that have occurred within the section since the last approval (2005).

Section V – Local Hazard, Risk, and Vulnerability Summary Mitigation Goals & Objectives

A local risk assessment was accomplished by compiling data on the hazards that could affect Camden County and its residents, profiling these past hazard events, and then assessing the community's vulnerability to these hazards. The Camden County Joint Hazard Mitigation Plan Update Committee accomplished the risk assessment by conducting the following steps:

- (1) Hazard Identification
- (2) Hazard Event Profiling
- (3) Vulnerability Assessment
- (4) Potential Loss Estimates

(1) *Hazard Identification*: Maps and historical data sources were studied and reviewed in order to identify the geographic extent, intensity, and probability of occurrence for various hazard events. FEMA Worksheet #1 (Identify the Hazard) was used in this process. A copy of this worksheet is provided in Appendix D.

The Camden County Joint Hazard Mitigation Plan Update addresses the following hazards considered by committee members to pose the most threat to the residents, property and economy of Camden County:

- coastal erosion
- coastal storms
- drought
- flooding
- hailstorms
- hurricanes
- tornadoes
- water contamination issues
- wildfires
- windstorms
- hazardous material issues
- radiological hazards

A comprehensive hazard history for Camden County is provided in Appendix A.

(2) *Hazard Event Profiling* : Past hazard event data were collected through an extensive process that utilized input from Camden County Joint Hazard Mitigation Plan Update Committee members, research on past disaster declarations in the County, information provided from the National Climatic Data Center and the National Weather Service, a review of current Flood Insurance Rate Maps (FIRM), internet and newspaper data searches, This source data was used to complete a Hazard Frequency Table for committee analysis purposes. A copy of the Hazard Frequency Table is provided in Appendix D.

The committee analyzed the causes and characteristics of each hazard, how the hazard had affected Camden County in the past, and what part of Camden County's population and infrastructure had historically been vulnerable to each specific hazard. FEMA Worksheet #2 (Profiling Past Hazards) was used to complete this process. A profile of each hazard discussed in this plan is provided in *Chapter 2*. A copy of Worksheet #2 is provided in Appendix D.

(3) *Vulnerability Assessment*: The asset inventory component of the HRV assessment data included the development of a database that provides county infrastructure and critical facilities data as well as estimated structure dollar values for loss estimates. This critical facilities database was developed by the Emergency Management Agency office, local planners and the tax assessor's office. Information collected includes structure location, value, contact information and facility type.

A critical facility, for the purposes of this plan, is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response and/or disaster recovery functions. The

critical facilities identified by the committee in the County are governmental services facilities; water and waste water treatment plants and lift stations; electric and communication utilities; hazardous waste sites; schools; public safety facilities; healthcare facilities; and essential roadways and bridges.

A community's vulnerability can be described in terms of the assets located within the extent of a hazard event and the potential losses if such an event occurs. Therefore, the vulnerability assessment was accomplished by comparing each previously identified hazard with the inventory of affected critical facilities and population exposed to each hazard. GEMA Worksheet # 3a, provided in Appendix D, outlines this step of the HRV assessment.

Assessing vulnerability, for the purposes of this plan, also included a review of the Camden County Joint Comprehensive Plan to assess general land use patterns and development trends. This review can be found in Appendix B.

(4) Potential Loss Estimates: Using the best available data and mathematical modeling, estimated damages and financial losses likely to be sustained in a geographic area during a hazard event were calculated. Describing vulnerability in terms of dollar losses provides the county with a common framework in which to measure the effects of hazards on critical facilities.

The number and type of structures in the County have been determined for potential loss estimations. The source of the information was the County Tax Assessor's Office. Additional information can be found in Appendix D.

An example of the type of data available using this database is the impact of a major hurricane in Camden County and unincorporated Camden County: 74,265 persons would be impacted by this storm threat and a potential \$6,070,686,765 in damages could occur. The number of persons that could be affected represents the resident population and the workforce population. Further clarification of population categories is located on Worksheet 3a located in Appendix D.

The Camden County Joint Hazard Mitigation Plan Update Committee used the results of the Hazard, Risk and Vulnerability assessment, as well as the Report of Accomplishments to identify and prioritize appropriate further mitigation goals, objectives and related actions. The Planning Committee identified mitigation strategies over the course of two formal meetings. Input into strategy development was increased as members interviewed staff from their prospective agencies for additional mitigation actions.

After ensuring that all interested persons had been given ample opportunity to contribute to strategy development, mitigation action steps were next given priority status by committee members. To evaluate priorities, committee members used as a guide a planning tool prepared by FEMA known as STAPLEE (Social, Technical,

Administrative, Political, Legal, Economic, and Environmental) criteria. Each mitigation strategy step was evaluated using STAPLEE criteria as the guiding principle to identify those steps best for Camden County. Steps were ranked as high priority, medium priority, or low priority. Past occurrences of disasters and historical trend data aided committee members in assigning priorities.

Section VI – Multi-Jurisdictional Considerations

The Cities of Kingsland, St. Marys, and Woodbine and unincorporated Camden County were active participants in the planning process. A few mitigation goals, objectives and action items identified in this plan update may apply to selected jurisdictions. These steps are identified in the appropriate sections. Most steps apply equally to all jurisdictions. The Emergency Management Agency (EMA) Director will coordinate with the appropriate city agency personnel in order to execute multijurisdictional steps. The EMA Director does not have authority to implement items in the jurisdictions; however, the committee has chosen to coordinate communication efforts to implement and document progress towards goals with the EMA agency.

Section VII - Plan Implementation & Maintenance

Upon final approval by GEMA and FEMA Region IV, the Camden County Board of Commissioners and the governing bodies for the Cities of Kingsland, St. Marys and Woodbine will formally adopt the Camden County Joint Hazard Mitigation Plan.

After formal adoption of the Camden County Joint Hazard Mitigation Plan, the County Commissioners and City Councils will keep in consideration the Priority Task List and oversee the implementation of said tasks using branches of city and county government when appropriate.

Camden County and unincorporated Camden County currently utilize comprehensive land use planning, capital improvements planning and building codes to guide and control development in the county. The Camden County Joint Hazard Mitigation Plan will be presented to the Committees and persons responsible for updating Comprehensive Plans and Capitol Improvement plans, for their use in incorporating the Hazard Mitigation goals and strategies. In addition, the Commission and City Councils will require that the local authorities responsible for the previous plans listed, along with the Local Emergency Operations Plan (LEOP) and other multi-jurisdictional plans utilize guidance from this Hazard Mitigation Plan.

The Camden County Joint Hazard Mitigation Plan Update Committee has developed a method to ensure that regular review and update of the Plan occurs. The Emergency Management Agency Director will assemble, in January of each odd-numbered year, a Hazard Mitigation Plan Review Committee. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. The committee will review each goal and objective to determine relevance to changing

situations in the County, as well as changes in state and federal policy and to ensure that goals are addressing current and expected conditions. The committee will also review the risk assessment portion of the Plan to determine if this information should be updated or modified.

The parties responsible for the various implementation actions, as assigned by the County Commission and City Councils, will provide a project status report and will include which implementation processes worked well, any difficulties encountered, how coordination efforts were proceeding, and which strategies should be revised.

The County Commission and City Councils will review recommendations of the committee in of every odd-numbered year. County Commissioners and City Council members will evaluate and update the Plan to ensure mitigation action steps are being established and that existing programs are utilizing the guidance provided by the Hazard Mitigation Plan. The Emergency Management Agency Director will then forward any changes to Georgia Emergency Management Agency's Hazard Mitigation Officer.

Camden County and unincorporated Camden County is dedicated to involving the public directly in the continual reshaping and updating of the Hazard Mitigation Plan. The Plan Review Committee is responsible for the biennial review and update of the Plan. Although they will represent the public to some extent, the public will be able to directly comment on and provide feedback about the Plan.

Copies of the Plan will be available on the Camden County local government website and at Camden County Emergency Operations Center. The existence and location of these copies will be publicized in the local newspaper. All comments and questions will be directed to the Emergency Management Agency Director for follow-up. The publicly declared County Commission meeting to evaluate and update the Plan will provide the public a forum for which they can express concerns, opinions, or ideas about the Plan.

Section VIII – Community Data

The county dates back to 1777 as a political entity, and was named after Charles Pratt, Earl of Camden. Pratt was an outspoken proponent of home rule for the colonies when he was the Lord Chancellor of England. Camden County was the second county organized in Georgia. Cumberland Island is the site of the ruins of Dungeness, the mansion of the family of Andrew Carnegie. Dungeness was built in the 1880s.

The county includes unspoiled Cumberland Island. Largely owned by the U.S. Department of the Interior, the island is accessible only by boat or plane. Nevertheless, Cumberland Island has almost 40,000 visitors annually.

Camden County is the site of the Naval Submarine Base, Kings Bay, home of the Trident Nuclear Submarine. Employment associated with construction of the base made Camden County the fastest growing county in the state in the 1980s.

Camden County is the southernmost county on the Georgia coast. The creation of the Kings Bay Naval Submarine Base has had the largest impact on the growth of Camden County. Construction on the naval base began in 1978, and it was operational a year later.

According to the 2000 U.S. Census the population of Camden County was 43,664 (75 percent white, 20.1 per cent black, and 3.6 per cent Hispanic). The population in 1980 was just 13,371, making Camden one of the fastest growing counties outside of the Atlanta metropolitan region.

St. Marys (from New Georgia Encyclopedia)

St. Marys has been described at different times over the centuries as a bustling seaport, a sleepy tourist resting place, or a strategic military location.

Close to the Georgia-Florida state line (on Route 40, off Interstate 95), it is located on the St. Marys River, within six miles of the Atlantic Ocean. It served as Camden County's seat from 1869 until 1923. Today many of its residents earn their livelihood by catering to the tourists who visit the St. Marys National Historic District, which includes beautiful nineteenth-century buildings, offices, and shops and the Oak Grove Cemetery. According to the 2000 U.S. census, the population is 13,761.



Shrimp Boats

Established on the site of an abandoned Timucuan Indian village, Tlathlothlaguphta, St. Marys sits on land confiscated from two brothers of royal governor James Wright. Their Royalist sympathies resulted in their banishment after the American Revolution (1775-83) and the loss of their huge estates.

The history of the town's name is not clear. Accounts differ regarding the origin of the name itself—some say it is named after the St. Marys River, while others say it comes from a seventeenth-century Spanish mission, Santa Maria, on nearby Amelia Island, Florida. (Histories also differ regarding whether the new town was known as St. Patrick's for a few years—until 1792—or whether that name actually referred to another town close by.) After the departure of its royalist owners, the land belonged to Jacob Weed, an early planter and state legislator. Weed sold 1,672 acres along the St. Marys River to nineteen other men, and the twenty laid out the new town together in 1788. Early maps show the streets were 100 feet wide, interspersed with two 16-acre public squares. Each one of the twenty founders was authorized to use the squares and received a mixture of good, marshy land in his purchase.



First Presbyterian
Church of St. Marys

Soon after the town was laid out, the area became home to Acadian refugees (later called Cajuns). The French-speaking Acadians, having been deported from Canada by the British, had settled in many places, including the French colony of Saint-Domingue on the Caribbean island of Hispaniola. Some fled Toussaint L'Ouverture's slave rebellion there, arriving in St. Marys in 1791. St. Marys was established by an act of the state

legislature on December 5, 1792. It was not officially incorporated, however, until November 1802.

Wartime Involvement

The strategic location of St. Marys on the Atlantic Coast just above Florida led to its involvement in several of the major military conflicts in U.S. history. Troops were sent from New York to the area during the American Revolution. It was captured by the British during the War of 1812 (1812-15), and Union gunboats shelled its waterfront buildings during the Civil War (1861-65). Its military connections have continued with the establishment of Kings Bay Naval Submarine Base.

Early Population Losses

The losses to the city's population caused by the calamities of war were serious, a combination of casualties sustained during attacks and the migration of frightened civilians inland to avoid danger. In addition to war, raids by smugglers and Native Americans, and epidemics of yellow fever repeatedly occurred throughout the nineteenth century, killing many and causing others to leave. In one attempt to correct the loss of population, free land was offered to settlers in 1877.

Industrial Growth

Industrial development had been coming along since the post-Civil War (1861-65) days,



Pulpwood

initially in the form of a lumber mill built by the company Fox and Burns. More sawmills followed, as well as several canning plants specializing in preserving local shrimp, beans, and sweet potatoes. Lumber and fishing provided the main sources of income for townspeople for decades, supplemented in the twentieth century by fertilizer and chemical plants using menhaden and porgy (two types of Atlantic fish) for raw material. Cotton and tobacco warehouses lined the riverfront.

The establishment of the Gilman Paper Company's St. Marys Kraft Corporation plant in 1941 was a welcome impetus to growth. Gilman Paper was purchased by the Durango Paper Company in 1999 and renamed the Durango-Georgia Company in 2000. After sixty-one years in Camden County the plant closed its doors in fall 2002, causing hardship to many in the local lumber industry who lost their jobs.

Shipbuilding, important in the town's earliest days, again gained importance in the twentieth century.



Kings Bay Naval Submarine Base

The opening of Kings Bay Naval Submarine Base in 1979 brought with it a healthy infusion of new residents to complement the hospitality industry-based population. As of 2002 the Kings Bay workforce included more than 9,000 military and civilian personnel. As a growing retirement and bedroom community, however, St. Marys has been able to withstand the population losses associated with these changes to the local economy.

Tourist Economy

Although a hotel built in 1916 catered to such travelers as the author Marjorie Kinnan Rawlings, who wrote the children's book *The Yearling* (1938), and cartoonist Roy Crane, creator of such comics as "Buzz Sawyer,"

it was not until the 1970s that St. Marys developed its current tourist economy. Calling itself "The Gateway to Cumberland Island," the town is the departure point for those taking the ferry (the only transportation) to the Cumberland Island National Seashore. St. Marys is now well known as an ecotourism center, with a reputation for being friendly to newcomers, whether they are settling or just visiting.



Cumberland Island Beach

Kingsland (*from the City of Kingsland website www.kingslandgeorgia.com*)

The City of Kingsland History

In 1788, the King family bought large amounts of land west of St. Marys. The Kings named the plantation Woodlawn. The great-grandson of John King, William King, later built a home on "King's Land." On Christmas day in 1893 the first passenger train (the Florida Central and Peninsular Railroad, today's CSX Railroad) rolled into Camden County right across King's property. As Mr. William King's house was the only one in site, the railroad company named the area "Kings Land." With the coming of the railroad, people from all areas began to build in and around Kings Land setting a new era in motion. After the railroad was developed, William Henry King mapped out the town to be located on his property and named it in his honor. Stores and businesses were open and he became the first mayor when the City of Kingsland was incorporated in 1908. Presumably, this was when the town's two-word title became only one word. The first Kingsland newspaper was published on April 5, 1895 by the *Southeast Georgian*.

Kingsland was expanding and streets were graded, kerosene streetlights were installed in the business sections, and a jail was built. That same year, the first bank (State Bank of Kingsland) was established and was located on Railroad Ave. It is told that the first bank

robbery was in 1928 and the bank's original cashier, Mr. Perry was killed in that robbery. Citizen's Bank was built after WWII and was located on Lee St. which is also known as Hwy 17. It is now located on King St. or Hwy 40. That same year, the nation's first Maine to Miami road, known in Georgia as the Dixie Highway, was being planned, although it wouldn't open and pass through Kingsland until 1927. Until that time most people used the St Marys River ferry to cross back and forth between St Marys and Kingsland. Before the wide spread use of automobiles, water traffic was an essential means of transportation for the residents and businesses of Kingsland. Besides the ferry, there were other large vessels available for passengers to use from Kingsland that was approx four miles south of town.

The rails also played an important part of travel between St Marys and Kingsland. On July 11, 1908 passenger service was begun on the St Marys-Kingsland Railroad and passenger cars were normally used to transport people, but sometimes they had to share room with cargo. In 1911 a motor car that looked like a delivery wagon was designed and put into operation. In the late 1920's, "The Trolley" was built that was a box shape contraption with a wooden body on a Model T chassis.

The first depot was located just off of King St. The water tank was located just south of the depot. In December 1914, the original depot burned and was replaced with the current structure. That building was donated to the City in 2005 and was moved to its present location on King St. It will be renovated in 2008 and will be used as a welcome center and museum dedicated to the early train system.

In 1915, the Kingsland Coca-Cola Works was opened. In 1927 the sub-franchise was not renewed and the plant became known as the Claxton Bottling Works. The plant created many jobs for Kingsland residents until it closed in 1953. Even before the Highway was paved, Kingsland was flourishing and in the early 1920's, already on "main street" were homes, Ford Motor Company Garage, a bakery, a drugstore, a market, grocery store and at least one hotel. These were in addition to other businesses. This was Kingsland on Railroad Avenue.

Another early business established in Kingsland was the first Black retail business which was the grocery store of Orange Edwards. The business was an outgrowth of a peddling business he had started as a young man. O.F. Edwards School would later be named after him as well as a street in the City.

In 1922 a new school house was built on the block that was bordered by William, Chester and Satilla Streets. It was used as a school until 1950's. Kingsland Women's Club rented it until 1969 and City Hall was located there in the 1960's. In the "name of progress" it was torn down in 1969 to make room for a new grocery store.

The Dixie Highway was rerouted to the east of the railroad in 1927 and renamed the Atlantic Coastal Highway (U.S. 17). The ferry was replaced by a modern cement and steel bridge at the Georgia Florida line and all highway maps recognized Kingsland as the last stop in Georgia. The ribbon cutting for the bridge was a big event for Kingsland. Homes along U.S. 17 were decorated for the event and it brought dignitaries from all

parts of Florida and Georgia. Around the 1970's the bridge was painted blue and is known locally as the "Blue Bridge."

Major businesses shifted from the railroad to the new highway and the business district flourished in the late 1920s. The drug store was one of the businesses that moved and the Camden Hotel was built. It was said to be the most modern hotel between Brunswick and Jacksonville. In 1993, the Camden Hotel was remodeled to become City Hall and Welcome Center and in 2007 the City purchased and remodeled Hill's Drug Store for the Planning and Zoning Department.

With the automobile age and the major highway going through Kingsland, gas became an important commodity. By 1938, there were at least three service stations and three car dealerships to cater to the traffic. In addition, around this time, the first Greyhound Bus Station was opened and in 1939 a restaurant and tourist court with a wild-life attraction was also opened. There is documentation in the form of a plaque that The City of Kingsland Public Works Department exists back to the 1930's.

During the 1930's and 1940's, horse races were an important annual event. The race track was located just east of Kingsland on highway 40 near what is now the I-95 interchange. *The Southeast Georgian* (December 1, 1937 issue) reported about the 5th Annual Race which took place at the Camden Park Track. The admission was \$.40 for adults and .20 for children and if you wanted to sit in the grand stand, it was an additional \$.25. It was reported that 3,500 people attended. The 9th annual race was run on April 26, 1941 and the beginning of WWII brought an end to the horse races.

1940's Fire Department



The City's Police and Volunteer Fire Departments have been traced back to 1942 and 1943, respectively. The first fire truck in the 1940's consisted of an army wagon with a pump on it that would be pulled by the first pickup truck to get there. In the 1950's the first fire truck was built by putting the old tank and pump on a 1953 Chevrolet chassis. The first factory built truck was purchased in 1968. In 1973, the first ambulance license was issued to Kingsland Fire Rescue and they served the whole county. Until that time, the funeral homes would transport people to the hospital. The current year's budget allows for 47 full time police employees and 27 paid fire positions as well as approx 40 volunteer fire fighters. Including the one in this year's budget, the fire department owns nine trucks, three ambulances, and three stations. In April 2007, the largest wild fire in Georgia history started in the nearby Okefenokee Swamp. The fire was not contained until June 22 and heavy smoke was blown as far away as south Florida. Kingsland was blanketed in smoke many of these days. Kingsland Fire and Rescue assisted around the clock and was instrumental in finally containing the fire.

The 1950's and 1960's saw a steady growth for the City. The City has always grown and the population has never declined. According to the US census figures, the City had a population of 190 in 1910 and 1500 in 1970. The largest growth was yet to come at that time.

Both Kingsland and Camden County experienced immense growth during the 1970s, due to the buildup of the Kings Bay Naval Submarine Base. In July 1978 the base was commissioned and its original mission was to be a support base to submarines. The Navy funded a four year, \$125 million construction program that was the largest peacetime project ever undertaken by the Navy.

In 1980, the base's mission changed and it was announced that it would be home port to the Atlantic Fleet and eventually be home port to 10 Ohio class submarines that would carry the Trident II nuclear missile. The total program took 9 years to complete at a cost of \$1.3 billion. The first submarine arrived in 1989 and the last in 1997. Not all people embraced the growth or the nuclear subs, but the growth continued. It was around 1985 that the City formed an official planning and zoning department to prepare for the influx of people and homes.

Around that same time, the Kings Bay Impact Coordinating Committee (KBICC) was formed to assist the Cities and the County with impact money from the Federal government. The base was going to change the small sleepy town and the government recognized that. Some of the buildings Kingsland constructed with this money were a new fire station, police station, and city hall. The growth was such that in 1993 city hall was moved to the present location in the old Camden Hotel and the former city hall was renamed Municipal Services Building and housed several support departments such as finance.

In the early 1970's, Interstate 95 was completed and ran about two miles east of the Atlantic Hwy. This was now the major thoroughfare from Maine to Florida. As the years went by, more businesses began to build around the Interstate due to the heavy traffic. In the 1980's with the new people coming in and the traffic passing through, Kingsland began to grow rapidly. It was the next to last exit before entering Florida. The shift had begun away from what was once a thriving downtown area and the Interstate area began to grow. At the end of 2007, there are 16 chain hotels around Exit 3. Three more major ones are under construction and there are plans for at least three more. The revenues from the hotel/motel tax are being used to totally pay for a new Welcome Center at Exit 3.

An extensive streetscaping project was undertaken by the City in 1994 to return the downtown area to the grandeur of its historic past. The entire brick paving project was funded with ISTEA grant funds. The project also included a nostalgic street clock and street lighting.

In 1994 the City was looking at ways to grow in an orderly fashion and decided to build a municipal golf course to allow for a more upscale community. Laurel Island Links opened in November 1996 and was sold in May 2006. The City did what it intended to do. The land surrounding the golf course was worth approx \$1.8 million in taxable property in 1995 and in 2006 it is worth almost \$126 million. The golf course itself is on the tax roll at a value of over \$4.2 million in 2007. The increased values benefit all of Camden County as it is taxed by the County and School Board.

As Kingsland entered the 21st century, it was still feeling growing pains. It was a challenge keeping up with the infrastructure but with good planning, the City managed and the 2008 budget reflects that.

According to the U.S. Bureau of Census, the City of Kingsland's population was 2,008 in 1980; 4,699 in 1990; and 10,506 in 2000. That represents an increase in growth of 134% and 124%, respectively. In the 2005 estimate by the Census, Kingsland's population count increased approximately 20% to 12,700 people.

The City's rich history has led to Kingsland being listed on the National Register of Historic Places. Kingsland has also been named a Department of Community Affairs (DCA) Better Community. In 2005, with the reactivation of the Downtown Development Authority (DDA) Board, the downtown area was renamed the Royal District. The Royal District houses many types of businesses, including antiques and fine arts, and historic homes and buildings dating back to the 1920s. Kingsland prides itself on having a small town atmosphere with enhanced city amenities. Due to the City's prime location, many government offices, the County library, Camden County High School, County Industrial Park, the County's consolidated recreational services, and the Coastal Georgia Community College are all located in Kingsland.

City of Woodbine

Woodbine, the county seat of Camden County, was incorporated on August 13, 1908.



Woodbine is the common English name for the honeysuckle, *Lonicera*. The railroad that began the town was the Savannah and Western line.

Woodbine participates in the Better Hometown Program run by the Georgia Department of Community Affairs. This community development program is a public-private partnership intended to revitalize small communities with populations between 1,000 and 5,000. These cities have access to technical assistance and fiscal resources designed to stimulate downtown revitalization.

Woodbine History (*from City of Woodbine website www.woodbinegeorgia.net*)

Woodbine is located in Camden County, one of Georgia's original counties, created when the state constitution was adopted in February 1777. Bordered by the Atlantic Ocean to the east and Florida to the south, we are in the very southeastern corner of the State of Georgia. This spot has a rich, diverse history, beginning with the men and women who struggled to carve out a life in the colonial days of Coastal Georgia.

Records of the site where Woodbine is located date back to 1765, when William Trowin, John Brown, William Struthers, and John McGillvary petitioned for and received fourteen hundred acres on the south side of the Great Satilla River at a place referred to

as Pile's Bluff. The exact location is no longer certain, but historical records locate Piles Bluff near the current site of the town of Woodbine.

The State of Georgia granted the land known as the Woodbine Plantation to Elijah Clarke in 1808. The plantation, as with most plantations throughout Coastal Georgia, became the center of activity for the area. In 1835, it was purchased by John Bailey, who maintained ownership until what remained of the plantation was purchased by James King Bedell after the War Between the States.

Mr. Bedell built a new house on the plantation, the original having been burned during the war, and the plantation again became the center of activity in the area. In 1893, when the railroad was laid through Camden County, Mr. Bedell sold the right of way through his plantation. His stipulation for the sale was that the first community that grew up around the railroad would be called Woodbine. On August 17, 1908, the Town of Woodbine name was approved by the people of the settlement and a charter for incorporation was drawn up.



Woodbine really began to grow when the Atlantic Coastal Highway was built through the area in 1927, with more businesses and residents moving in 1928, when the county seat was relocated to Woodbine.

The town was re-incorporated in 1953 as the City of Woodbine, and has continued to develop in fits and starts ever since, all the while its citizens striving to create a better place for residents and visitors alike.

CHAPTER 2 – NATURAL HAZARD RISK AND VULNERABILITY (HRV) SUMMARY

The Hazard, Risk, and Vulnerability assessment of the Camden County Joint Hazard Mitigation Plan Update provides the scientifically sound foundation for the goals, objectives, tasks, and actions steps that are proposed in the plan.

The Camden County Joint Hazard Mitigation Plan Update Committee reviewed those hazards initially identified as most likely to impact the county. The original FEMA Worksheets #1 (Identify the Hazards) and the Worksheet #2 (Profile Hazard Events) were reviewed along with the updated hazard event data. Past hazards event data was collected on a Hazard Frequency Table, and reviewed alongside the table from the approved plan. Using this review method, the planning committee determined that eleven natural hazard studied for the 2005 plan could be changed to ten hazards. The original plan studied the following hazards: Coastal storms, coastal erosion, drought, flooding, hurricanes, severe winter storms, tornados, thunderstorm winds, water contamination issues, and vector-borne diseases. Committee members chose to remove severe winter storms and vector born diseases from the list of hazards due to lack of events in the years following the plan approval. The committee members added hailstorm events to the hazard list as the recorded frequency of these events has increased.

Chapter 2 Section	Updates to Section
I. Natural Hazard Coastal Erosion	<ul style="list-style-type: none">Content revised to include new research, asset profile, and estimate of potential losses
II. Natural Hazard Coastal Storms	<ul style="list-style-type: none">Data added concerning current events
III. Natural Hazard Drought	<ul style="list-style-type: none">Updated data research;
IV. Natural Hazard Flooding	<ul style="list-style-type: none">Data added concerning current events; content added to address losses associated with each hazard
V. Natural Hazard Hailstorms	<ul style="list-style-type: none">Added new storm event
VI. Natural Hazard Hurricanes	<ul style="list-style-type: none">Updated data research
VII. Natural Hazard Tornado	<ul style="list-style-type: none">Updated data research; content added to address losses associated with each hazard
VIII. Natural Hazard Water Contamination	<ul style="list-style-type: none">Updated source concerns
IX. Natural Hazard Wildfire	<ul style="list-style-type: none">Updated data research; content added to address losses associated with each hazard
X. Natural Hazard Windstorm	<ul style="list-style-type: none">Updated data research; content added to address losses associated with each hazard

Table 2.1: Overview of updates to Chapter 2: Local Natural Hazard, Risk and Vulnerability (HRV)

The Georgia Emergency Management Agency defines hazard, risk, vulnerability, and mitigation as presented in the *Georgia Hazard Mitigation Plan Standard and Enhanced*, published March 31, 2008, as follows:

“A hazard is a potential threat or actual event that impacts a population, infrastructure, or environment. Hazards are spatially and temporally definable but vary in terms of range. For example, compare the examples of a flood and a tornado. Floods are more easily spatially defined than tornadoes due the historical record (and other sources) showing a distinct pattern of flooding events (within flood plain) and a less distinct pattern of tornado events (narrow down to regions of occurrence). For another example, compare earthquake events to drought events in terms of temporality. Earthquake events have a shorter temporal impact (usually a matter of seconds) while drought events by definition can have a longer temporal impact (more than a decade). A wide range of hazards exist and are sometimes categorized as either natural or anthropogenic. However, modern-day hazards are more complex and intertwined, with anthropogenic hazards further complicating natural hazards. For example, a hurricane causes a levee to fail, which floods a town and causes the deposition of toxic chemicals in the water supply. Attempting to categorize this event is fruitless. This type of complexity gives validity to the recent all-hazard approaches to emergency management that also account for the fact that hazards are either wholly or partly a social product and, therefore, must be analyzed in context (social, political, historical, and environmental).

Risk is a quantifiable probability of a specific hazard event actually occurring. This probability is typically based on hazard history profile-driven statistical modeling. Risk is as temporally and spatially variable as hazard events. For example, the risk (probability of occurrence) of a severe winter storm in Georgia is highly seasonal while the risk of an earthquake has no seasonality. In terms of spatiality, the risk of a flood is defined in terms of types of flood plains (100 year, 500 year) while the risk of drought spans the entire State of Georgia. Calculating the risk of a hazard proves difficult at times because of the absolute dependency on data availability and accuracy as well as reliable statistical modeling.

Vulnerability is essentially the potential for loss. Vulnerability describes the ability and capacity not only to survive the event but also to recover from the event’s impacts in both the short and long term phases. Various types of vulnerability exist including independent, social, and biophysical. Independent vulnerability refers to an individual person or structure’s susceptibility to harm from the hazard event. The individual’s unique characteristics determine this susceptibility (such a person’s physical disability or a building’s low structural integrity). Social vulnerability refers to a particular population’s general susceptibility to harm from a hazard event. Typically socioeconomic variables are utilized to determine this type of vulnerability. Along the same scale as social vulnerability is the idea of the vulnerability of the built environment. In other words, the general susceptibility of the infrastructures in an area versus the individual building create a broader view of vulnerability. Finally, geophysical vulnerability is essentially synonymous with hazard exposure and includes variables like magnitude,

duration, frequency, impact, rapidity of onset, and proximity. Like hazards and risk, vulnerability is subject to temporal and spatial variability. For example, the characteristics of the infrastructure and population of an area obviously change through time. However, given the same time period, the characteristics depend on the scale of analysis, whether the analysis occurs at a state, county, or smaller scale.”

Mitigation refers to the activities undertaken to reduce or eliminate the threat, occurrence, or the effects of natural hazard events. Mitigation activities serve to protect public health and property and to break the damage-repair cycle in hazardous areas. Mitigation activities often fall into one of two categories: structural and non-structural. Structural mitigation approaches include constructing levees as a form of flood control while non-structural mitigation approaches include using insurance to compensate for flood damage.

The asset inventory component of the assessment data included the development of a database that provides county infrastructure and critical facilities data as well as estimated structure dollar values for loss estimates. The committee utilized FEMA Worksheets #3a and #3b (Inventory Assets) to determine the potential dollar losses to vulnerable structures in the region. The figures on the worksheets and included in this text were derived using formulas provided by FEMA and GEMA and represent structure potential loss estimations based on use, square footage, and replacement value. Each of the potential loss estimates is addressed for the individual hazards in the following text. For more specific details, refer to Worksheets #3a and #3b provided in Appendix D.

SECTION I – COASTAL EROSION

A. Hazard Identification - Coastal erosion is the wearing away of coastal land. The term is commonly used to describe the horizontal retreat of the shoreline along the ocean. Erosion is considered a function of larger processes of shoreline change, which includes erosion and accretion. Erosion results when more sediment is lost along a particular shoreline than is re-deposited by the water body. Accretion results when more sediment is deposited along a particular shoreline than is lost. When these two processes are balanced, the shoreline is said to be stable.

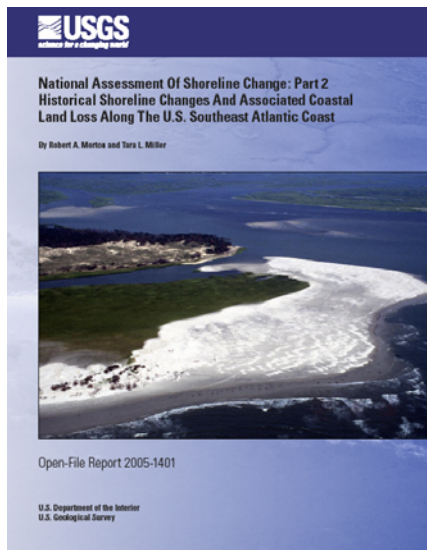
When evaluating coastal erosion, the focus should be on the long-term impacts. However, in the short-term it is important to understand that storms can erode a shoreline that is, over the long-term, classified as accreting, and vice-versa.

Erosion can be caused by a number of events including coastal storms and floods; changes in the geometry of tidal inlets, river outlets, and bay entrances; man-made structures and human activities such as shore protection structures and dredging; long-term erosion; a rise in sea-level; and local scour around buildings and other structures.

B. Hazard Profile - Scientific data to support coastal erosion issues for the purposes of the Camden County Joint Hazard Mitigation Plan is scarce. For the 2005 plan, data on annual rate of erosion could not be found to complete the FEMA Risk assessment. Coastal erosion issues, from anecdotal data, included a loss to the economy when the

fishing industry became impacted due to silting of the river channels and when damage to waterfront businesses occurred. Barrier Islands afford Camden County some protection from erosion issues. The barrier islands off Camden County include Cumberland and Little Cumberland islands.

For the plan update process, the committee studied the *National Assessment of Shoreline Change: Part 2 Historical Shoreline Changes and Associated Coastal Land Loss along the U.S. Southeast Atlantic Coast*. Open File Report 2005-1401. This report indicates



that in Georgia, coastal land loss is caused primarily by erosion of the Atlantic Ocean beaches. Open lagoons are not present landward of the barrier islands and estuaries are small, so erosion of back barrier shores and interior marshes is not a significant component of coastal land loss in Georgia as it is in other states. Analysis of long term historical shoreline change indicates that 65% of the Georgia shore was stable or accreting, with an overall average shoreline change rate of 1.0 ± 2.7 m/yr.

Since passage of the 2005 plan, Camden County has been exposed to 1 high surf event and 5 tropical storms.

C. Assets Exposed to Hazard – The Camden County Joint Hazard Mitigation Plan Update Committee determined that the assets exposed to coastal and riverine erosion include Crooked River State Park, Cumberland and Little Cumberland Island. For the plan update process, committee members increased asset exposure to targeted residential areas in St. Marys.

Proposed development pressure, because of their proximity to the water and coastal marshland, and therefore, to the impacts of coastal erosion are the areas north of White Oak Creek to Spring Bluff on both sides of Interstate 95, Dover Bluff Road, and the northern end of the county. Development pressures have eased in St. Marys at present, as most of the suburban area development is taking place north and west of the original City Center. The majority of land in St. Marys is developed.

D. Estimate of Potential Losses – The potential dollar losses of vulnerable structures due to the effects of coastal erosion are determined to be 3% of the structures in Camden County and unincorporated Camden County, excluding agriculture, deemed to be at no risk. The value of structures at risk is estimated to be \$185,113, 463. Estimates for St. Marys residential is increased to 5% of the structures and value, estimated at risk value is \$62,844,496.

E. Land Use and Development Trends - Land use and Developmental trends were identified in the 2008 Camden County Joint Comprehensive Plan. At that time, residential growth was recognized as the primary source of future growth. Large tracts of

land are currently under residential development and these tracts are located in close proximity to river and stream banks.

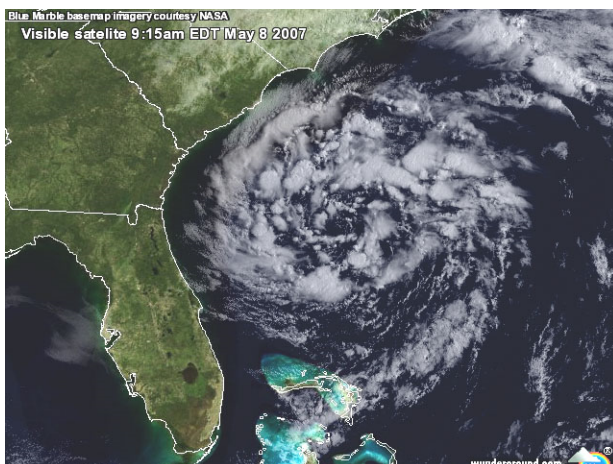
F. Multi-jurisdictional Concerns – The coastal areas of the county and Cumberland Island are especially vulnerable to the affects of coastal erosion while the interior of the county and inland cities are not. Cumberland Island National Seashore, a 36,500-acre island containing marshes, mudflats, tidal creeks, and an abundant mix of coastal wildlife, enhances the rural feel of Camden County, acting as a draw for tourism and playing a significant role in resident’s quality of life.

G. Hazard Summary - The committee is concerned that coastal erosion is an economic issue for Camden County. They feel the issue is exacerbated by the frequency of coastal storm events and the geographic location of the county. Failure to plan for and protect these assets may detract from Camden County’s rich biodiversity, and the quality of life, and the draw these assets have for potential residents, tourists, and businesses.

SECTION II – COASTAL STORMS

A. Hazard Identification - Coastal storm systems are characterized by heavy rains and gale force winds. The worst effect of these storms comes from the sea. As the storms move coastward and cross the continental shelf, the storm’s strong winds drive massive amounts of sea water onto land, sometimes increasing mean water level by more than 18 feet. This storm surge is often coupled with normal astronomical tides and wind waves. This coastal flooding has potential to cause severe flooding that not only dampens but destroys exposed structures. The storms can last for several days and can be very large – 1,000 mile wide storms are not uncommon.

B. Hazard Profile- Camden County has suffered heavy property damage from coastal storms in the past two hundred years. Details of the storms that impacted Camden County in years 1804, 1898, and 1964 can be found in the book *Early Days on the Georgia Tidewater* written by local historian, Buddy Sullivan and are available in Appendix A, Section II. The storm that hit Georgia on September 7, 1804 is described as the worst to hit the Georgia coast since 1752, as the eye of the storm passed directly over St. Simons Island and Darien (p.69). Details of the widespread damage are not available.



Details included in the history book describe the storm on October 2, 1898, as particularly severe along the coast from Sapelo to Fernandina, Florida (p. 421). The storm blew in off the Atlantic Ocean and its center crossed over Sapelo Island at high tide, which created widespread flooding. Reports told of two- story homes completely under water.

The coastal storm of June 6, 1995, spawned two tornadoes in Camden County, causing more than \$950,000 in damages. Damage was reported to the Crooked River Elementary School and to several local businesses. Reference data on this event is found in Appendix A, Section VII.

Updates to the hazard profile include 5 tropical storms including two storms in 2004, and one storm in each year 2005, 2006, and 2008. Three of these events resulted in more than \$2 million in county-wide flood damages. Impacts of storms to specific places are available as noted in the National Climatic Data Center.

Statistically, the coastal storm frequency for Camden County has increased from that of 0.02 percent in any given year to 0.10 percent in any given year.

C. Assets Exposed to Hazard – All structures and facilities within Camden County could be damaged by a coastal storm, including all public safety facilities, government buildings, water and wastewater treatment facilities, public utilities, education centers, the public library and commercial and residential areas.

Proposed development areas, as identified in the 2008 Camden County Joint Comprehensive Plan, include areas east of Gross Road, south of Laurel Island Parkway, north of State Highway 40, and west of Winding Road. These areas may change from Agriculture/Forestry to low-medium residential development or planned unit development. At present, most of the suburban area development is taking place south and north of Kingsland, along U.S. Highway 17, and the northern end of the county. The highest development pressure, because of their proximity to water and coastal marshlands are the areas north of White Oak Creek to Spring Bluff on both sides of Interstate 95, Dover Bluff Road, and the northern end of the county. These areas include primarily high-end single family developments. In St. Marys, the area preparing to undergo the most rapid change is the Durango site. This site was recently purchased and is slated for demolition and redevelopment. The northwest part of the city between the Kingsland City limits and the Naval Submarine Base Kings Bay is a prime area for rapid development.

D. Estimate of Potential Losses – A coastal storm could potentially impact 52,744 structures in Camden County and unincorporated Camden County at an estimated dollar value of \$3,319,893,360 and could impact 74,265 persons. The number of persons represents the resident population and all the workforce. The number may vary during a standard working weekday as opposed to an evening/weekend timeframe. Further clarification of population categories is found on Worksheet 3a located in Appendix D.

E. Land Use and Development Trends – The greatest concerns during a coastal storm event are the impacts of flooding caused by heavy rainfall and storm surge combined with the impact of high winds. Unincorporated Camden County and the Cities of Kingsland, St. Marys, and Woodbine participate in the National Flood Insurance Program (NFIP), as well as adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code. The minimum standards established by these

codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards. The Unified Development Code was adopted November 18, 2008 by the county, and includes proper setbacks from water sources and provisions for home elevations in flood zones. All other jurisdictions have adopted codes that include similar provisions.

F. Multi-Jurisdictional Concerns – Due to St. Marys location in relation to the coast, that city is at greater risk for coastal storms than Kingsland or Woodbine. Data indicate that 31.8 per cent of the population of Camden County will be affected by flooding events caused by coastal storms within the City of St. Marys as compared to 26.8 per cent in the City of Kingsland and 2.8 per cent in the City of Woodbine. These figures are reflected in the floodplain maps located in Appendix A, Section IV. All of Camden County could potentially be affected by coastal storms. Proposed mitigation steps related to coastal storms have been undertaken on a countywide basis. Completed steps include updating local FEMA FIRM maps and assessing effectiveness of storm water run-off and watershed plans. A further mitigation step, employing a flood warning system, will be implemented with the Code Red system in 2009.

Additional mitigation actions have been proposed to alleviate potential impacts from this hazard.

G. Hazard Summary – Camden County has a high probability for exposure to potential damages caused by coastal storms and the storms would impact all facilities and structures within the county. Due to St. Marys location in relation to the coast, it is at greater risk for coastal storms than Kingsland or Woodbine. Considerable damage would be caused, particularly from heavy rainfall and high winds. Many mitigation action steps as outlined in the 2005 plan are completed or are currently underway; proposed action steps will further reduce the impacts of a storm.

SECTION III – DROUGHT

A. Hazard Identification – The 2008 *Georgia Hazard Mitigation Plan Standard and Enhanced* defines drought as a normal, recurrent feature of climate consisting of a deficiency of precipitation over an extended period of time (usually a season or more). Therefore, a drought is a protracted lack of rain or periods of abnormally dry weather sufficiently prolonged for the lack of water to cause a serious hydrologic imbalance in the affected area. Drought conditions affect the cultivation of crops as well as a water availability and water quality. Drought is also a key factor in wildfire development. Drought conditions make natural fuels (grass, brush, trees, and dead vegetation) more flammable. More than 66 per cent of Camden County is considered Agricultural-Forestry.

Drought conditions may endure from months to decades, which implicate droughts as having high potential to cause devastation on a given area. The duration characteristic of

droughts is so important that droughts are classified in terms of length of impact. Droughts lasting 1 to 3 months are considered short term, while droughts lasting 4 to 6 months are considered intermediate and droughts lasting longer than 6 months are long term.

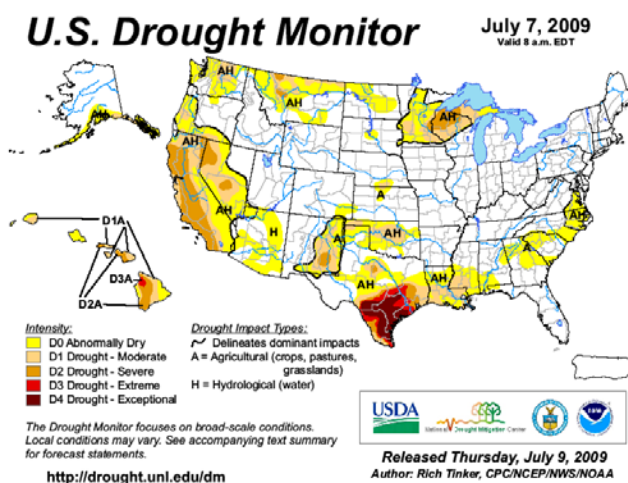
B. Hazard Profile – Coastal Georgia has experienced a prolonged drought period since 1999. In response to this situation, the United States Department of Agriculture issued an Emergency Disaster Declaration on October 18, 2002. The declaration was in response to continuous drought conditions since January 2002. This declaration allowed agricultural businesses in the indicated counties to become eligible for emergency farm loans.

On February 22, 2001, then Governor Roy Barnes secured Economic Disaster Relief from the Small Business Administration for Georgia's seafood industry in response to the impact of drought. Camden County was named in the declaration.

Drought conditions have increased in frequency, magnitude and intensity in recent years. Current Georgia Governor, Sonny Perdue, declared a State of Emergency in Drought Executive Order 011808 on October 20, 2007 that was extended on November 20, 2007 and again on December 19, 2007. Because the condition was declared a Level 4 drought for most of the state, increased levels of drought response are necessary. Thus, the executive order called for establishment of the Drought Response Unified Command and the Drought Response Working Group to be consistent with the Georgia Emergency Operations Plan. The order also called for the implementation of the State of Georgia Drought Response Strategy. More information regarding the drought response can be found on the Drought Response Unified Command's website

(<https://www.piersystem.com/go/site/1619/>) as well as the Conserve Water Georgia's website (http://www.conservewatergeorgia.net/Documents/georgia_drought.html). Also, the most up to date drought monitoring information can be found at the National Drought Mitigation Center's website (<http://www.drought.unl.edu/index.htm>).

Because of the slow rate of onset and long duration of droughts in Georgia, long-term management and mitigation measures are appropriate. The Environmental Protection Division (EPD) of Georgia's Department of Natural Resources (DNR) publishes the Georgia Drought Management Plan, which addresses both pre-drought mitigation strategies and drought response strategies.



On June 10, 2009, Governor Sonny Perdue announced that due to significant rainfall and improved water supplies, the Georgia Environmental Protection Division has issued a non-drought schedule for outdoor water use for the first time since June 2006.

For the Plan Update process, committee members reviewed National Climatic Data Center information indicating that the

prolonged drought conditions resulted in \$7500 in crop damages. Of great risk for the county and municipalities is that drought conditions contribute to the severity of Wildfire Hazards. The National Interagency Coordination Center indicated on January 16, 2003, that the Eastern Area will see an above normal fire season. Data from the 48-month Standardized Precipitation Index indicate that the Camden County area is very dry. The Hazard Frequency Table in Appendix D presents historical data from the past fifty nine years.

Statistically, Camden County can expect a drought frequency of 0.03 percent in any given year.

C. Assets Exposed to Hazard – Drought conditions typically pose little or no threat to structures, however, fires can occur as a result of dry weather. The Camden County Joint Hazard Mitigation Plan Update Committee concluded that drought, in itself, presents no credible threat to critical facilities. Wildfire, as a result of drought, was considered, and the Committee determined that this hazard does bear a significant threat to the community.

The Georgia Forestry Commission is in the process of updating Camden County's Fire Wildfire Risk Assessment. This assessment includes enhanced mapping features that will be published in the Community Wildfire Protection Plan. This plan will provide for greater mitigation efforts in the Hazard Mitigation Plan Update.

D. Estimate of Potential Losses –Potential drought losses are calculated on the value of agriculture in the county. According to the 2002 Census of Agriculture County Profile, the market value of production in 2002 was \$995,000. Crop sales accounted for \$828,000 of the total value. Livestock sales accounted for \$167,000 of the total value.

E. Land Use & Development Trends - Camden County and unincorporated Camden County currently have no land use or development trends related to drought conditions. The expectation is for guidance to come from the State and Coastal Regional Water Plans for local governments to implement. The plans are expected to be available early 2011.

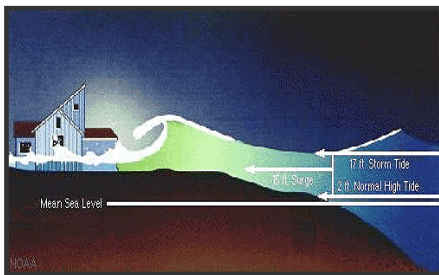
F. Multi-Jurisdictional Concerns – All of Camden County could potentially be affected by drought conditions, particularly as concerns the seafood industry and the threat of wildfire. Detailed jurisdictional information will be available with the Community's Wildfire Risk Assessment. Jurisdictional mitigation efforts will be addressed in the Community Wildfire Protection Plan.

G. Hazard Summary – Drought can cause severe economic stress to not only the agricultural and forestry interests in Camden County, but to the entire State. The potential negative affects of sustained drought are numerous. In addition to an increased threat of wildfires, drought can affect municipal and industrial water supplies, stream-water quality, water recreation facilities, as well as agricultural and forest resources. The Camden County Joint Hazard Mitigation Plan Update Committee reviewed previous

mitigation efforts. Those efforts to increase surface water irrigation and to promote use of surface artesian flow for irrigation are currently underway. Further actions will depend on the guidance coming from the State and Coastal Regional Water plans.

SECTION IV – FLOODING

A. Hazard Identification – Camden County is located in a known floodplain. Flooding from major hazardous events has occurred many times in the past 200 years. Flooding occurs during prolonged rainfall or intense rainfall over a short period of time; rivers overflow the banks; severe thunderstorms bring heavy rain in the spring and summer; coastal storms and hurricanes are a constant threat to coastal areas in the summer and fall months.



A flood is a natural event for rivers and streams. Excess water from rainfall or storm surge accumulates and overflows onto the banks and adjacent floodplains. Floodplains are lowlands, adjacent to rivers and oceans that are subject to recurring floods. Adverse impacts may include structural damages, temporary backwater effects in sewers and drainage systems, and unsanitary

conditions by deposition of materials during recession. Floods are loosely classified as either coastal or riverine. Camden County is vulnerable to both types. Coastal flooding is typically the result of storm surge from the sea. The storm surge is often coupled with astronomical tides and wind waves. This coastal flooding has the potential to cause severe flooding that not only dampens but destroys exposed structures. The storm surge is often the catalyst behind many of the deaths associated with coastal storms and hurricanes. Riverine flooding occurs from inland water bodies such as streams and rivers. Riverine flooding is often classified based on rate of onset, and is typically slow to build, peak, and recede - often allowing sufficient time for evacuations. The Camden County Joint Hazard Mitigation Plan Update Committee examined historical data from the National Climatic Data Center to update research on the effects of flooding in Camden County.

B. Hazard Profile - Within Camden County, flooding has caused significant damage on several occasions. Repetitive loss properties include seven residential properties. Specific locations are not provided. Data is located on Worksheet 3-b in the Appendix. Winter storms and tropical storms in 1994 and 1995 resulted in excess of \$56,000 in flood damages. The flooding on October 11, 1994 was a result of Tropical Depression #10. Flooding damage occurred at the Mission Trace subdivision in St. Marys. The heavy rainfall from the storm overwhelmed the drainage systems and back-up flooding damaged numerous homes. Several roads closed including Colerain Rd., Spur 40, and N. River Causeway. Georgia Highway 40 was closed periodically throughout October 12th. Camden County received Presidential Disaster Declaration status on October 19th.

Hurricane Jerry brought heavy rainfall to the area August 25, 1995. Most flooding conditions occurred in Woodbine and south of White Oak, causing several washed out and impassable roads.

On October 7, 1996, heavy rainfall (4to 8 inches) from Tropical Storm Josephine caused flooding across most of Camden County. The flooding closed many roads which closed the public schools for two days.

Severe flooding damage occurred on March 1, 1998, from the effects of El Nino. Flooding occurred mainly along the St. Marys and Satilla Rivers. More than 200 homes were damaged in this event.

Flooding on September 18, 1998, closed numerous streets in St. Marys and Kingsland. One family was relocated by the Red Cross. Flooding events in 1998 resulted in excess of \$3,500,000 in damages. The total dollar value of damages paid by GEMA/FEMA as a result of flooding events is in excess of 3.6 million dollars. (National Climatic Data Center information located in Appendix A, Section IV.) Most flooding issues occur as the rivers overflow banks and during periods of heavy rainfall. Many of the newly developed residential areas are located close to the rivers.

Three additional flooding events have occurred since the approval of the 2005 plan resulting in greater than \$2 million in reported damages. In 2002, urban and small stream flooding occurred at Highway 40 overpass to Interstate 95, on Spur 40 near Crooked River Elementary School. Roads flooded to one foot in depth. Numerous secondary roads flooded in St. Marys. On September 9, 2004, twelve roads closed in the Browntown area from flooding caused by Hurricane Frances. On October 7, 2005, a low level vorticity center, mesoscale low, developed over northeast Florida and moved along the Georgia coast. This storm was a separate incident from Tropical Storm Tammy.

Due to St. Marys location in relation to the coast and its flood area size in relation to other cities, the city is at greater risk for flooding than Kingsland or Woodbine. The data indicate that 31.8 per cent of the population of Camden County will be affected by flooding events within the City of St. Marys as compared to 26.8 per cent in the City of Kingsland and 2.8 per cent in the City of Woodbine.

Statistically, Camden County can expect a flood event frequency of 0.20 percent in any given year.

C. Assets Exposed to Hazard – Vulnerability to flooding does not contrast much between jurisdictions. Using the updated FEMS flood maps, which indicated an increased vulnerability to flood hazards, and the expectation that scheduled LIDAR mapping will corroborate these updated FIRM maps, the committee decided that 100 per cent of the municipalities' structures, value, and persons are vulnerable to the impacts of flooding. Camden County continues with nearly 100 per cent vulnerability except for that 10 percent of agriculture devoted to silvaculture. A concern within Camden County, related to flooding, is evacuation of residents during storm events. Many of the residential areas are accessed by county roads that would quickly be flooded during storm surge or flooding events. Some areas of the County would have limited access by Emergency Services personnel during and after a flooding event.

Proposed development areas, as identified in the 2008 Camden County Joint Comprehensive Plan, include areas east of Gross Road, south of Laurel Island Parkway, north of State Highway 40, and west of Winding Road. These areas may change from Agriculture/Forestry to low-medium residential development or planned unit development. Presently, most of the suburban area development is taking place south and north of Kingsland, along U.S. Highway 17, and at the northern end of the county. Because of proximity to water and coastal marshlands, the highest development pressure is occurring in areas north of White Oak Creek to Spring Bluff on both sides of Interstate 95, Dover Bluff Road. These areas include primarily high-end single family developments. In St. Marys, the area preparing to undergo the most rapid change is the Durango Mill site. This site was recently purchased and is slated for demolition and redevelopment. The northwest part of the city between the Kingsland City limits and the Naval Submarine Base Kings Bay is a prime area for rapid development.

D. Estimate of Potential Losses – An estimate of potential losses is 60,918 structures at a value of \$6,062,497,860.

E. Land Use & Development Trends – Unincorporated Camden County and the Cities of Kingsland, St. Marys, and Woodbine participate in the National Flood Insurance Program (NFIP), as well as adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code. The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards. The Unified Development Code was adopted November 18, 2008 by the county, and includes proper setbacks from water sources and provisions for home elevations in flood zones. All other jurisdictions have adopted codes that include similar provisions. Repetitive loss estimates are located in the Appendix.

F. Multi-Jurisdictional Concerns – A major portion of Camden County could potentially be affected by flood conditions, particularly as concerns a hurricane or coastal storm event. Due to St. Marys location in relation to the coast and its flood area size in relation to other cities, it is at greater risk for flooding than Kingsland or Woodbine. Mitigation steps taken related to flooding should be undertaken on a countywide basis and include the Cities of Kingsland, St. Marys, and Woodbine.

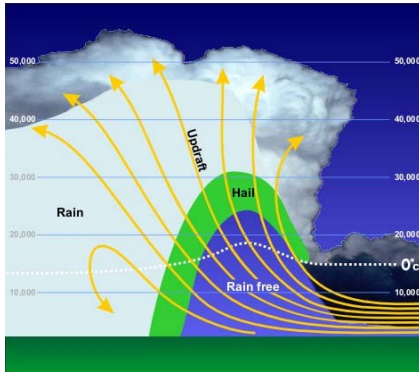
G. Hazard Summary – Severe flooding has inflicted significant damage in Camden County in the past due to heavy rainfall and river rising events. The committee reviewed previous mitigation action steps proposed in the approved 2005 plan. Assessments of stormwater and runoff issues were a major factor in flooding problems in the 2005 plan. These issues are currently being addressed. Building codes have addressed the setback issues. Maintaining stormwater facilities and drainage ditches will be an ongoing task. Committee members approved of the past community awareness efforts by the American Red Cross Community Disaster Education programs and seek to continue those efforts.

Many of the assets in the County remain extremely vulnerable to flooding events, and committee members recognized the destructive nature of flooding and identified as a high priority many mitigation measures.

SECTION V – HAILSTORMS

A. Hazard Identification –

Hail is precipitation that is formed when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere. Hail can damage aircraft, homes and cars, and can be deadly to livestock and people.



Hailstones grow by collision with super cooled water drops. (Super cooled drops are liquid drops surrounded by air that is below freezing which is a common occurrence in thunderstorms.) There are two methods by which the hailstone grows, wet growth and dry growth, and which produce the "layered look" of hail.

In wet growth, the hailstone nucleus (a tiny piece of ice) is in a region where the air temperature is below freezing, but not super cold. Upon colliding with a super cooled drop the water does not immediately freeze around the nucleus. Instead liquid water spreads across tumbling hailstones and slowly freezes. Since the process is slow, air bubbles can escape resulting in a layer of clear ice. With dry growth, the air temperature is well below freezing and the water droplet immediately freezes as it collides with the nucleus. The air bubbles are "frozen" in place, leaving cloudy ice.

B. Hazard Profile – Data for this hailstorm profile was produced by the Spatial Hazard Event and Loss Database for the United States (SHELDUS) and the National Climatic Data Center (NCDC) database. In the years following the original Hazard Mitigation Plan, 32 events have been recorded. No losses in crop damages have been reported. Although committee members could report damages by hail events to homes and vehicles, insurance claim data was not available to the committee. The frequency of events appears to be increasing. Hazard frequency data must consider that data collection and accuracy have been much better in the past 10 to 20 years (NCDC weather records). Of the 61 recorded events in the 59 year recorded storm history, 49 events occurred in the past ten years. This increased frequency provides the major concern for including the storm events in the Plan Update. As stated in the Georgia State Plan, Georgia has experienced so many severe weather events that they have become common.

Statistically, Camden County can expect a hail storm frequency of 1.0 percent in any given year.

C. Assets Exposed to Hazard – Vulnerable assets in the county include all buildings, and crops, excluding timber. The silvaculture industry was felt to be immune from damages. The timber industry is aggregated in the agricultural category. Therefore, that portion of the agriculture category was excluded from the vulnerability data. Proposed

development will not effect or increase mitigation efforts but will add to potential losses if development occurs.

D. Estimate of Potential Losses – For Camden County, 93 per cent of the agriculture category was excluded, providing the number of structures in the hazard area as 59,356 valued at \$5,916,689,918 and exposing 74,166 persons to a storm event. In Kingsland, 100 per cent of the agriculture category was excluded, providing the number of structures in the hazard area as 14,248 structures valued at \$1,137,098,204, and exposing 19,650 persons to the hazard. In St. Marys, 91 per cent of the agriculture was excluded, providing 18,900 structures valued at \$1,321,377,539 and 29,931 persons vulnerable to the hazard. In Woodbine, 89 percent of the agriculture was excluded, providing 1,794 structures valued at \$74,486,850 and exposing 1,885 persons to the hazard.

E. Land Use & Developmental Trends – Camden County and unincorporated Camden County currently have no land use or development trends related to hailstorm events.

F. Multi-Jurisdictional Concerns – All of Camden County can potentially be negatively impacted by hailstorm events, and the impacts of storms are not pinpointed to specific places.

G. Hazard Summary – Hailstorms are an element of severe weather that may include lightning and tornadoes. Typically these storm events afford communities some advance warning. The National Weather Service issues storm warnings and advisories as these storms approach. Advance warning may allow citizens to protect life and some property, but crops, buildings and automobiles may sustain severe damage. Also, motorists pose an additional danger on roads and highways.

SECTION V – HURRICANES

A. Hazard Identification – A hurricane is a category of tropical storm of wind speeds greater than 74 or more miles per hour. Hurricanes develop over warm waters and are caused by the atmospheric instability created by the collision of warm air with cooler air. Hurricane winds blow in a large spiral around a calm center called the eye, which can be 20-30 miles wide. When a hurricane nears land, it may bring torrential rains, high winds, storm surges, coastal flooding, inland flooding, and sometimes, tornadoes. A single hurricane can last for more than two weeks over water and can extend outward 400 miles. The hurricane season for the Atlantic coast is June 1 to November 30. On average, five hurricanes strike the United States every year. In a two-year period, an average of three significant (category 3 or higher) hurricanes will strike the United States. Some hurricanes are characterized primarily by water – a rainy or wet hurricane – while others are primarily characterized by wind - a windy or dry hurricane. Wet hurricanes can flood both coastal and inland areas, even as the storm dissipates in wind strength; while windy hurricanes primarily affect coastal areas with their high winds and storm surge. Because



hurricanes are large moving storm systems, they can affect entire states or entire coastlines.

B. Hazard Profile – Hurricane data from the Tropical Prediction Center of NOAA (reference in Appendix A, Section V) indicates that Camden County has been affected by the following hurricanes:

Hurricane Dora	September 9, 1964
Hurricane Bertha	July 11, 1996
Hurricane Fran	September 3, 1996
Hurricane Floyd	September 14, 1999

The 2005 Hurricane Katrina evacuations affected all Georgia counties. The data from the Tropical Prediction Center shows affects, but not necessarily a direct hit, from these hurricanes on Camden County. Accounts of the impact of Hurricane Dora in the Camden area can be found in the book *Early Days on the Georgia Tidewater* written by local historian, Buddy Sullivan and are available in Appendix A, Section V. Dora tracked in during the day on September 9, 1964, then made landfall just north of St. Augustine, Florida (p 755). The lower Georgia coastline was locked squarely in the path of the strong –side counterclockwise winds. The heavy winds created tidal surges and caused damage as far north as Tybee Island. Sustained winds of 90 to 100 mph along with torrential rains and higher than normal tides caused an estimated 8 million dollars of damage for the Georgia coast.

Hurricane Bertha and Fran threatened, but missed the Georgia coastal counties.

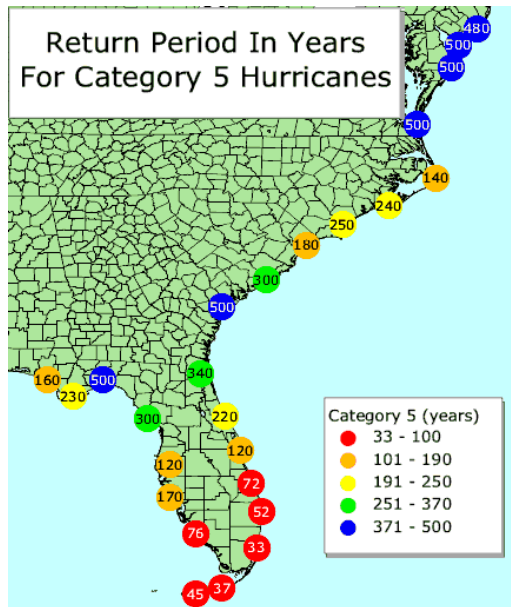
Hurricane Floyd, September 16, 1999, caused the largest peacetime evacuation in history. Approximately 350,000 coastal residents joined more than 2 million people from Florida, South Carolina and North Carolina. Floyd was a Category 5 storm while at sea, but was downgraded to a Category 2 when it made landfall near Cape Fear, North Carolina. The coastal Georgia counties were spared hurricane damage.

Due to St. Marys location in relation to the coast and its flood area size in relation to other cities, the city is at greater risk for hurricane damage from rain and winds than Kingsland or Woodbine. The data indicate that 31.8 per cent of the population of Camden County will be affected by flooding events caused by coastal storms within the City of St. Marys as compared to 26.8 per cent in the City of Kingsland and 2.8 per cent in the City of Woodbine.

The probability of a hazardous event caused by a hurricane in Camden County is 0.005 per cent per year. Besides the threat of flooding and high winds, hurricanes also carry the added threat of tornadoes.

C. Assets Exposed to Hazard – All structures and facilities within Camden County could be damaged by a hurricane event, including all public safety facilities, government buildings, water and wastewater treatment facilities, public utilities, education centers, the public library and commercial and residential areas.

Proposed development areas, as identified in the 2008 Camden County Joint Comprehensive Plan, include areas east of Gross Road, south of Laurel Island Parkway, north of State Highway 40, and west of Winding Road. These areas may change from Agriculture/Forestry to low-medium residential development or planned unit development. At present, most of the suburban area development is taking place south



and north of Kingsland, along U.S. Highway 17, and the northern end of the county. The highest development pressure, because of their proximity to water and coastal marshlands are the areas north of White Oak Creek to Spring Bluff on both sides of Interstate 95, Dover Bluff Road, and the northern end of the county. These areas include primarily high-end single family developments. In St. Marys, the area preparing to undergo the most rapid change is the Durango site. This site was recently purchased and is slated for demolition and redevelopment. The northwest part of the city between the Kingsland City limits and the Naval Submarine Base Kings Bay is a prime area for rapid development.

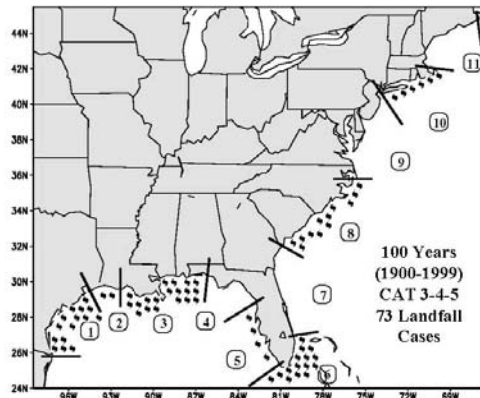
D. Estimate of Potential Losses – A hurricane could potentially impact 60,918 structures in Camden County at an estimated dollar value of \$6,062,497,860, and could impact 74,265 persons. The number of persons represents the resident population and all workforces. The number may vary during a standard work weekday versus evening weekend timeframe. Further clarification of population categories is found on Worksheet 3a located in Appendix D.

E. Land Use & Developmental Trends – The largest concerns during a hurricane event are the impacts of flooding caused by heavy rainfall and storm surge and the impact of high winds. Unincorporated Camden County and the Cities of Kingsland, St. Marys, and Woodbine participate in the National Flood Insurance Program (NFIP), as well as adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code. The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards. The Unified Development Code was adopted November 18, 2008 by the county, and includes proper setbacks from water sources and provisions for home elevations in flood zones. All other jurisdictions have adopted codes that include similar provisions.

F. Multi-Jurisdictional Concerns – All of Camden County could potentially be affected by a hurricane event. The committee reviewed previous mitigation action steps proposed in the approved 2005 plan. Assessments of stormwater and runoff issues were a major factor in flooding problems in the 2005 plan. These issues are currently being addressed.

Building codes have addressed the setback issues. Maintaining stormwater facilities and drainage ditches will be an ongoing task. Committee members approved of the past community awareness efforts by the American Red Cross Community Disaster Education programs and seek to continue those efforts. The Public Address system through the Code Red program has been successfully implemented providing for early warning systems and early evacuation. Planned evacuation processes and reentry processes remain a concern.

G. Hazard Summary - Camden County has a high probability for exposure to potential



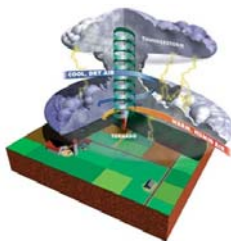
damages caused by hurricanes. The worst effect of tropical cyclonic storms, especially powerful hurricanes, comes from the sea. As the storm moves coastward and crosses the continental shelf, the storm's strong winds drive massive amounts of sea water onto land, sometimes increasing mean water level by more than 18 feet. This storm surge is often coupled with normal astronomical tides and wind waves. This coastal flooding has potential to cause severe flooding that not only dampens but destroys exposed

structures.

The rate of onset of a storm surge has a smaller range than the storm itself. While the storm may show signs of approach up to days before the storm peaks, the storm surge will often appear somewhat suddenly. This rapid rate of onset is the major contributor to the many deaths associated with storm surge. The duration of the surge event depends on the depth of the surge and other environmental factors such as drainage capability. The waters from the surge may remain for days in certain areas. Although Georgia has not sustained a direct hit from a tropical cyclonic system in the recent record, Georgia's coastal counties have experienced some coastal flooding. Georgia's coastal counties have great potential for a massive tropical cyclone to hit directly, causing an overwhelming storm surge.

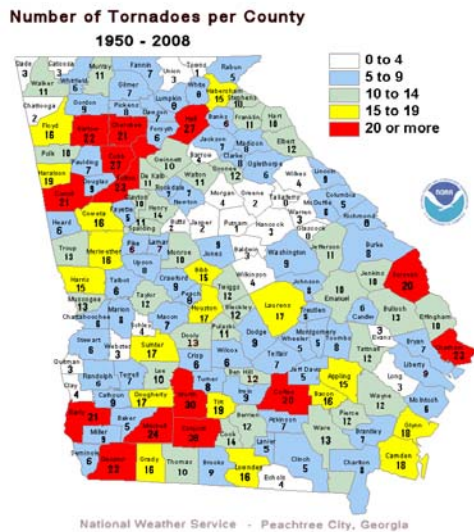
SECTION VII – TORNADO

A. Hazard Identification – A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 miles per hour or more. Damage paths can be seen in excess of 1-mile wide and 50-miles long. Tornadoes are among the most unpredictable of weather phenomena. Tornado season typically from March through August; however, tornadoes can strike at any time of the year if the essential conditions are present.



Thunderstorms and hurricanes spawn tornadoes when cold air overrides a layer of warm air, causing the warm air to rise rapidly. The winds produced from hurricanes and wildfires have also been known to produce tornadoes.

B. Hazard Profile – According to records maintained by the National Climatic Data Center (see Appendix A, Section VII), Camden County has been impacted by 16 tornadoes in the last 59 years. Frequency of occurrence can be expected at .27 per cent per year. Tornado events in Camden County have resulted in more than 7 million dollars in property damage. Six tornado events occurred in the period from 2002 to 2009 resulting in more than \$250,000 in property damage.



On October 24, 2009, an F0 tornado occurred near Tarboro area near New Post Road and Highway 252. Debris from the vortex resulted in \$50,000 in property damages.

On June 13, 2006, an F0 tornado blew down numerous power lines from St. Marys to Kings Bay Naval Base.

On January 13, 2006, a tornado classified as a weak F0 event touched down along Interstate 95 about five miles southeast of Woodbine. Many trees were snapped off in a swath along Interstate 95. A tractor-trailer was lifted and blown off the interstate along the southbound

lanes. The tractor-trailer was carrying other cars, which were damaged in the accident from colliding with each other. Another vehicle was hit by a snapped tree. This event resulted in \$200,000 in property damage claims.

On August 15, 2004, a tornado briefly touched down in the vicinity of State Road 40, Kings Bay Road and Windy Road.

Another F0 event occurred on December 24, 2002 resulting in \$50,000 in damages. The storm severely damaged two roofs on homes near Colerain Road and another house at Natures End near Pointe Peter. Large trees were felled.

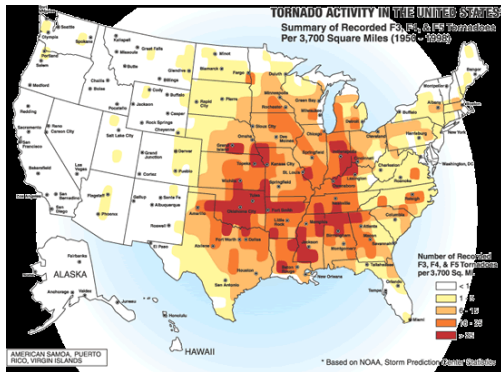
On October 2, 1994, a tornado classified as F2, touched down in St. Marys along Bartlett St., Wheeler St., Norris St., and New Point Peter Road. Eighty homes were damaged; ten of these homes were completely destroyed.

The coastal storm of June 6, 1995, spawned two tornadoes in Camden County, causing more than \$950,000 in damages. Damage was reported to the Crooked River Elementary School and to several local businesses. Both tornadoes touched down in St. Marys and caused extensive damage to the elementary school and slight damage to buildings in the

Kings Bay Naval submarine Base. Trees and power lines were knocked down in a four block area down Wheeler Street and along Seagrove Street.

C. Assets Exposed to Hazard –All structures and facilities within Camden County could be damaged by a tornado, as tornados are among the most unpredictable of weather phenomena and are indiscriminate as to when or where they strike.

D. Estimate of Potential Losses – A severe tornado event could potentially impact



60,918 structures in Camden County at an estimated dollar value of \$6,062,497,860 and could impact 74,265 persons. The number of persons represents the resident population and all workforces. The number may vary during a standard work weekday versus evening weekend timeframe. Further clarification of population categories is found on Worksheet 3a located in Appendix D.

E. Land Use & Developmental Trends –

Camden County is located in wind zone III, which is associated with 200-miles per hour wind speeds. The county currently has no land use or development trends related to tornados. In unincorporated Camden County, the local continuous design wind speed is 120 miles per hour.

F. Multi-Jurisdictional Concerns – All of Camden County has the same design wind speed of 200 mph as determined by the American Society of Civil Engineers (ASCE). The Unified Development Code was adopted November 18, 2008 by the county, and includes proper wind strength and safety regulations that are consistent with state and federal regulations. All other jurisdictions have adopted codes that include similar provisions. Some county and city buildings have been retrofitted to better withstand strong winds. Further accomplishments include implementing the Code Red system for community awareness, educating the public on tornado awareness procedures such as the use of storm shutters, and removing loose objects before they can become projectiles.

G. Hazard Summary – Due to the threat of a tornado occurrence during a hurricane, coastal storm or thunderstorm event, Camden County has a fairly high potential for damage from tornados. Camden County residents need to be prepared for a tornado event as much as is possible. Should a tornado hit certain portions of the county that are highly concentrated with homes, or any of the critical facilities identified, depending upon the strength and duration of the event, significant damage could occur. Due to the destructive nature of tornados, mitigation actions related to tornados should be implemented.

SECTION VIII – WATER CONTAMINATION

A. Hazard Identification – The quality of groundwater is degraded when water carries contaminants downward infiltrating through the soil to the ground water without being adequately filtered or naturally treated. Once a ground water aquifer is contaminated, all water wells drawing water from that aquifer are at risk of being polluted. A contaminated water well can result in health problems and a costly cleanup process.

B. Hazard Profile – The Camden County Joint Hazard Mitigation Plan Update Committee reviewed updated information on water contamination issues. Although saltwater intrusion into the Floridan Aquifer remains a concern, the issue is receiving more attention on the state and federal level. Guidance for local governments is expected to be forthcoming. The Georgia Environmental Protection Division (EPD) “Coastal Georgia Water and Wastewater Permitting Plan for Managing Salt Water Intrusion” was completed in 2006 and is based on the results of a seven year study called the Sound Science Initiative.

The state is developing a Comprehensive State-Wide Water Management Plan to align with the Comprehensive State-wide Water Management Planning Act. (The Water Planning Act) that was adopted by the General Assembly and signed by Governor Sonny Perdue in 2004.

Water contamination after storm events remains a serious concern; therefore, committee members chose to study possible actions steps to reduce this impact. The concern for the committee is after a major flooding event. Water contamination could be the result of septic systems as well as debris such as refrigerators, trash, boats, oil containers, vehicles, etc. after a major flooding event.

The source of possible contamination concerns includes the water and wastewater treatment plants. The water supply source for the City of Kingsland is provided by community groundwater wells. There are currently two water treatment facilities in Kingsland. The South Grove Boulevard water treatment facility was built in 1966. The nearby storage facilities, which have a maximum capacity of 750,000 gallons, were built in 1977. The other treatment facility is located on East Colerain Road, and was built in 1999. It has a maximum storage capacity of 250,000 gallons. There are two storage facilities built in 1995. One is located on Harrietts Bluff Road, and the other at Howard Peeples Park. The two storage units each have a maximum capacity of 500,000 gallons, for a total of 1 mgd storage capacity at this site. The estimated useful life for all facilities is 50 years. Kingsland’s water supply system currently serves 6,095 households. According to the City’s Public Works Director, there are five households within the City limits that are served by private wells and no business/industries rely on private water supply systems. There is one wastewater treatment plant (WWTP) that serves the City of Kingsland. It is located at 960 South Grove Boulevard, and was constructed in 1976. The estimated useful life of the system is 50 years. The City of Kingsland’s wastewater collection and treatment system currently serves 5,080 households and 500 businesses. There are 55 households and no businesses within the City limits that utilize private on-site septic disposal systems.

The water supply for the City of St. Marys is provided by four wells that draw from the Upper Floridan Aquifer. The system currently serves 6,470 households and 525 businesses. Due to recent annexations, it is not known exactly how many households and businesses are served by private wells, but it is estimated that 350 households and 20 businesses utilize private wells as a main source for potable water. The City of St. Marys maintains a water supply and treatment system that consists of four treatment plants and three storage facilities. Treatment Plant 2, located on North Dandy Street, was built in 1976 and upgraded in 1986. Treatment Plant 3, located on Douglas Drive, was built in 1986. The Colerain Road treatment plant, or Plant 4, was built in 1995. Additional storage at Plant 5 is accomplished through a 500,000 gallon storage tank built in 2005 near the Cumberland Harbour development.

Woodbine's water supply is provided from two municipal wells. The wells and pumping facilities are located at 105 East 8th Street and 220 Conservation Lane. The system currently serves 510 households and 50 businesses. Three households and one business utilize private wells for water supply. The City of Woodbine water treatment plant is located at 220 Conservation Lane and a separate storage tank is located at 264 Plantation Road. The facility was constructed in 1976 and has a useful life of 50 years. Ten households within the city limits are served by private on-site septic disposal systems.

Unincorporated Camden County currently relies on the three municipalities for public water supply and distribution capabilities, as well as sewage collection and treatment. Areas not served by a municipal system utilize individual wells and on-site septic disposal systems that must be approved by the Camden County Health Department, Environmental Health Office.

C. Assets Exposed to Hazard – Determining the assets involved in water contamination issues is difficult, as the scope of the problem could be widespread or localized.

Given the seriousness of the issue, and the level of concern in the area for water issues, the committee felt it best to cover the entire county as possible exposure to this hazard. In evaluating assets that may potentially be impacted by the affects of water contamination issues, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible.

D. Estimate of Potential Losses - A water contamination issue could potentially impact 51,558 persons which represent the number of persons living in Camden County. An additional 5,281 commercial entities and 194 industries could be impacted by water contamination issues.

E. Land Use & Developmental Trends – The Land Use Plan identifies unsuitable areas in the county for installing septic systems. Strict environmental health permitting ensures that no new systems are installed improperly.

F. Multi-Jurisdictional Concerns – All of Camden County can potentially be negatively impacted by water contamination issues. The municipalities maintain water and sewer systems. Major storm events create a cause for concern for these systems.

Multijurisdictional concerns include that the City of Kingsland water service infrastructure is aging and capital improvements will be needed to replace these lines. Unincorporated Camden County currently relies on the three municipalities for public water supply and distribution capabilities, as well as sewage collection and treatment. Areas not served by a municipal system utilize individual wells and on site disposal systems that must be approved by the Camden County Health Department, Environmental Health Office.

G. Hazard Summary – Although the risk of a water contamination event is historically low for Camden County, committee members feel this is a relevant issue to include in the Camden County Joint Hazard Mitigation Plan. Many of the proposed action steps from the 2005 plan have been completed including increasing wellhead waterproofing, monitoring water quality at well sites, implementing a cross connection plan and backflow prevention program, performing an inventory of septic and well systems in Camden County, and ensuring septic systems are the required distance from well heads. These steps were intended to prevent water contamination from occurring from faulty septic systems. The concern now is preventing contamination after a major flooding event, and informing residents whether water supplies are safe so that they may safely return home after an evacuation.

SECTION IX– WILDFIRE

A. Hazard Identification – A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and spread quickly and are usually signaled by dense smoke that fills the area for miles. Naturally occurring and non-native species of grasses, brush and trees fuel wildfires.

A wildland fire is a wildfire in an area in which development is essentially nonexistent, except for roads, railroads, power lines and similar facilities.

An urban-wildland interface fire is a wildfire in a geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels. A concern for Camden County is the increasing amount of residential “sprawl” that dilutes a definitive line between urban/rural areas.

Communities with a large amount of wooded brush and grassy areas are at highest risk of wildfires. Additionally, areas that have experienced prolonged droughts, or are excessively dry, are also at risk of wildfires. People start more than four out of every five wildfires, usually as debris burns, arson, or carelessness. Lightning strikes are the next leading cause of wildfires.

The Georgia Forestry Commission tracks the following causes of fires: campfire, children, debris burning, incendiary, lightning, machine use, miscellaneous, and smoking.

There are three different classes of wildfires. A “surface fire” is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A “ground fire” is usually started by lightning and burns on or below the forest floor in the humus layer down to the mineral soil. “Crown fires” spread rapidly by wind and move quickly by jumping along the tops of trees.

B. Hazard Profile – The Camden County Joint Hazard Mitigation Plan Update Committee worked closely with the Georgia Forestry Commission to collect information and formulate mitigation strategies. Camden County has a history of wildfire hazards, with more than 848 wildfire events in the past thirteen years. One event began June 24,



2008 on Cumberland Island. Brush fires grew from 50 acres to around 710 acres in 24 hours resulting from strong thunderstorm wind gusts west of the island. On the 27th, the fire on the north end of the island grew to 1,200 acres. By July 4th, the fire had grown to 2,400 acres on the island. The fire was contained on July 9th but burned 2,600 acres.

NASA Satellite Captures Image of Georgia Wildfires
05.02.07

The historic frequency per cent chance per year in Camden County for a wildfire event is 65.23 per cent.

C. Assets Exposed to Hazard – All areas of Camden County can be negatively impacted



by a rural fire spreading into an urban area. Wildfire has not threatened the municipalities often, but fire has occurred in the past. Therefore, in evaluating assets that are susceptible to wildfire, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible and at risk.

Record-setting drought and tinder-dry vegetation fueled destructive wildfires across parts of Georgia last year. (Photo courtesy National Interagency Fire Center Archive.)

Proposed development areas, as identified in the 2008 Camden County Joint Comprehensive Plan, include areas east of Gross Road, south of Laurel Island Parkway, north of State Highway 40, and west of Winding Road. These areas may change from Agriculture/Forestry to low-medium residential development or planned unit development. At present, most of the suburban area development is taking place south and north of Kingsland, along U.S. Highway 17, and the northern end of the county. The highest development pressure, because of their proximity to water and coastal marshlands are the areas north of White Oak Creek to Spring Bluff on both sides of Interstate 95, Dover Bluff Road, and the northern end of the county. These areas include primarily high-end single family developments. In St. Marys, the area preparing to undergo the most rapid change is the Durango site. This site was recently purchased and is slated for demolition and redevelopment. The northwest part of the city between the Kingsland City limits and the Naval Submarine Base Kings Bay is a prime area for rapid development.

D. Estimate of Potential Losses – The committee determined that multijurisdictional differences occur with wildfire hazards. In Woodbine, an event could impact 1,802 structures at a value of \$75,636,093 and 1,892 persons. These figures represent 100 per cent of Woodbine's assets due to Woodbine's proximity to forest and brush. For St. Marys, the potential losses are also considered to be at 100 per cent. This vulnerability would include 18,920 structures valued at \$1,823,291,626 and 23,953 persons. Kingsland is considered to be vulnerable at 100 per cent which would include 14,299 structures valued at \$1,310,305,095 and 19,669 persons. Camden County is considered 65 per cent vulnerable, excluding agriculture considered to be 100 per cent vulnerable. The potential impact on Camden County's assets could include 40,186 structures valued at \$3,996,692,711, and could impact 48,310 persons. The number of persons represents the resident population and all workforces. The number may vary during a standard work weekday versus evening weekend timeframe. Further clarification of population categories is found on Worksheet 3a located in Appendix D.



E. Land Use & Developmental Trends – Camden County is dominated by large tracts of undeveloped land, much of it in state or federal ownership, or held in commercial forest land by pulp and paper companies. According to the Forest Inventory and Analysis Report for year 2007, 66 per cent of the land in Camden County is considered Agricultural-Forestry (a-F), dominated by forestry. The Georgia Forestry Commission is in the process of updating Camden County's Fire Wildfire Risk Assessment. This assessment includes enhanced mapping features that will be published in the Community Wildfire Protection Plan. This plan will provide for greater mitigation efforts in the Hazard Mitigation Plan Update.

F. Multi-Jurisdictional Concerns – Most of the wildfire danger is in the county, but as lightening strikes can cause a wildfire in any location, any mitigation steps taken related

to wildfire should be undertaken on a countywide basis and include the Cities of Kingsland, St. Marys, and Woodbine.

G. Hazard Summary – As so much of Camden County is forest, wildfire remains a critical threat and remains a frequently occurring hazard. Wildfire threatens not only structures, but the health and safety of county residents. Forestry is a vital element of the county's economy as well. Due to the destructive nature of wildfires, the committee feels that mitigation strategies for reducing the likelihood or impact of wildfire are critical to the health and safety of Camden County residents. Action steps from the 2005 plan have been, for the most part, completed. These steps including seeking enhanced training, equipment, and tankers. More importantly, burn permits can now be enforced. Woodbine is a Firewise Community. This important initiative involves the community in the mitigation of wildfire and the committee seeks to continue the program county wide.

SECTION X – WINDSTORM

A. Hazard Identification –Thunderstorms are formed when moist air near the earth's surface is forced upward through some catalyst (convection or frontal system). As the moist air rises, the air condenses to form clouds. Because condensation is a warming process, the cloud continues to expand upward. When the initial updraft is halted in the upper atmosphere, the characteristic anvil shape forms as well as a downdraft. This system of updrafting and downdrafting air columns is termed a "cell". As the process of updrafts and downdrafts feeds the cell, the interior particulates of the cloud collide and combine to form rain and hail which falls when the formations are heavy enough to push through the updraft. The collision of the water and ice particles within the cloud creates a large electrical field that must discharge to reduce charge separation. This discharge is the lightning that occurs from cloud to ground or cloud to cloud in the thunderstorm cell. In the final stage of development, the updraft weakens as the downdraft-driven participation continues until the cell dies. Thunderstorm winds are generally short in duration involving straight-line winds and/or gusts in excess of 50 mph. Thunderstorm winds tend to affect areas of the county with significant tree stands, as well as areas with exposed property and infrastructure, and above ground utilities. Thunderstorm winds can cause power outages, transportation and economic disruptions, significant property damage and pose a high risk for injuries and loss of life.

Lightening is a major threat during thunderstorms. Lightening is very unpredictable, which increases the risk to individuals and property. Lightening is the second leading cause, following human-caused, of wildfires.

Another threat accompanying thunderstorms is the threat of tornadoes.

B. Hazard Profile – A prevalent natural hazard event occurring in Camden County is thunderstorm winds. During the spring and summer months, the county typically experiences countless thunderstorms, some packing significant winds. Over the course of

the past fifty-nine years, 140 thunderstorm wind events have been recorded within the county. Significant property damage (\$386,800) has been inflicted by thunderstorm winds. The most prevalent damage caused by the high winds is to trees and power lines; trees falling on homes and buildings are causes of property damage.

A summary of the data from the National Climatic Database Center is located in Appendix A, Section X.



Statistically, Camden County can expect a storm frequency of 2.37 percent in any given year.

C. Assets Exposed to Hazard – In evaluating assets that are susceptible to thunderstorm winds, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible to thunderstorm winds.

D. Estimate of Potential Losses – A severe thunderstorm event could potentially impact 60,918 structures in Camden County at an estimated dollar value of \$6,062,497,860 and could impact 74,265 persons. The number of persons represents the resident population and all workforces. The number may vary during a standard work weekday versus evening weekend timeframe. Further clarification of population categories is found on Worksheet 3a located in Appendix D.

Camden County is located in wind zone III, which is associated with 200-miles per hour wind speeds. The county currently has no land use or development trends related to thunderstorms. The local continuous design wind speed in the unincorporated area is 120 miles per hour.

E. Land Use & Developmental Trends – Camden County and unincorporated Camden County currently have no land use or development trends related to thunderstorm winds.

F. Multi-Jurisdictional Concerns – All of Camden County has the same design wind speed of 200 mph as determined by the American Society of Civil Engineers (ASCE). The Unified Development Code was adopted November 18, 2008, by the county and includes proper wind strength and safety regulations that are consistent with state and federal regulations. All jurisdictions have adopted codes with similar provisions. Some county and city buildings have been retrofitted to better withstand strong winds. Further accomplishments include implementing the Code Red system for community awareness, educating the public on tornado awareness procedures such as the use of storm shutters, and removing loose objects before they can become projectiles.

G. Hazard Summary - Overall, thunderstorm winds pose a great threat to Camden County in terms of property damage. Thunderstorm winds occur frequently and have the greatest chance of affecting the county each year. Based on the frequency of this hazard, as well as its ability to negatively impact anywhere in the county, the hazard mitigation committee identified critical facilities in need of wind retrofitting as a high priority for implementation.

CHAPTER 3 – TECHNOLOGICAL HAZARD RISK AND VULNERABILITY (HRV) SUMMARY

Disasters are events that can cause loss of life and property, environmental damage, and disruption of governmental, social, and economic activities. They occur when hazards impact human settlements and the built environment. Throughout the Cold War, the focus of emergency management planning was on responding to and recovering from nuclear attack by foreign enemies. During the 1990s, this emphasis shifted to address natural disasters such as hurricanes, earthquakes, tornadoes, and floods. The need to incorporate new threats into emergency management planning, manmade hazards such as radiological and technological disasters has commenced. Human-caused hazards are distinct from natural hazards primarily in that the hazards originate from human activity.

The 2005 Camden County Joint Hazard Mitigation Plan included the hazards of terrorism and technological events. These planned mitigation activities were in response to real threats at the time as demonstrated by the September 11, 2001 attacks on New York City and Washington, DC and the July 2001 hazardous material train derailment and fire in Baltimore, Maryland. Additionally, the anthrax attacks, the 1996 bombing at the summer Olympics in Atlanta, the 1995 destruction of the Murrah Federal Building in Oklahoma City, the 1993 World Trade Center bombing, and scores of smaller scale incidents and accidents reinforced the need for communities to reduce their vulnerability to future terrorist acts and technological disasters. The Lost Local Income profile was included in response to past closure of industries and businesses and how those closures impacted the ability of the community to respond to disaster situations.

The Plan Update process deleted the terrorism threat as well as the Lost Local Income section. The committee chose to continue its study of Hazardous Material Accidents and to include Radiological Accidents in the Plan Update. The threat of a terrorism attack is not reduced, nor the impact of Lost Local Income due to recent economic conditions. The committee reviewed the instigated actions steps for these events, and concluded that the processes were in place to respond to these events to the best of the community's ability. Hazardous material and radiological accidents remain a threat to citizens because of the community's proximity to the interstate, railroad, several local industries, and King's Bay Naval substation.

Chapter 3 Section	Updates to Section
I. Technological Hazard – Hazardous Material Spills	<ul style="list-style-type: none">Data added concerning current events; content added to address losses associated with each hazard
II. Technological Hazard – Radiological Accidents	<ul style="list-style-type: none">Added new hazard

SECTION I – HAZARDOUS MATERIAL SPILLS

A. Hazard Identification – Chemicals are a natural and important part of our environment. A major chemical emergency is an accident that releases a hazardous



amount of a chemical into the environment. Accidents can happen underground, on water, on railroad tracks or highways, and at manufacturing plants. These accidents sometimes result in a fire or explosion, but many times the hazardous material cannot be seen or smelled. Facilities that produce, dispose of, process, treat, or store hazardous materials or waste are at higher risk, as well as the counties in which they are located or surrounded. Types of industrial accidents are either fixed (industrial Facility) or from transport.

B. Hazard Profile – The committee reviewed historical data maintained by the Coast Guard and the National Response Center to research hazardous material spills in Camden County. The threat of a hazardous material spill event comes from transportation of materials along the Interstate 95 corridor, Highway 17 corridor, railroad corridors, and from vessels traveling on the waterways. Camden County has industrial businesses that require an array of chemical shipments. The Kings Bay Naval Substation receives hazardous materials by road, rail, and sea. Research indicates that of the incidents reported, 321 hazardous events have occurred from 1990 to 2009. No injury to life or property was reported.

C. Assets Exposed to Hazard – The most vulnerable asset exposed to hazardous material spills is often the environment, with waterways being the most impacted. Research indicates that the waterways most often impacted by hazardous material spills are Cumberland Sound and the Satilla River. Major facilities in Camden County produce large amounts of hazardous materials. Historical data indicates most fixed location spills have been minor in nature, consisting of diesel or fuel oil.

Furthermore, these incidents generally occur at a specific location such as a building rather than encompassing a wide area such as a floodplain. An asset specific approach, identifying potentially at-risk critical facilities and systems in the community has been chosen by the committee as the best approach to mitigating this hazard.

A hazardous event spill occurring around the Interstate 95 corridor could impact a one mile corridor around the spill. Danger to critical facilities would be minimal; however, when spills do occur, whether inside or outside facilities, or whether along roadways: shutdowns, lost time, and expended man-hours are all factors mitigation planners must take into account.

D. Estimate of Potential Losses - The extensive damage that would occur to the environment in the event of a hazardous material spill is difficult to determine. Losses would depend on the chemical released, nature of the release (accidental or intentional),

,and wind currents, the capability of the hazardous materials response team, and the overall uniqueness of the event. Camden County has no recorded instances of critical facilities or other property being damaged as a result of hazardous material spills.

Multijurisdictional differences were calculated into the estimate of losses. The differences account for the jurisdictional proximity to possible accident sites. Therefore, the potential impact for the county is estimated to be 40 per cent equating to 23,696 structures valued at \$2,363,132,965 but more importantly, 26,859 persons. The City of Kingsland may be impacted at 40 per cent equating to 5,697 structures valued at \$452,042,921, and would place 7,827 persons at risk. The concern for potential impact in the City of St. Marys is more grave and estimated at 100 per cent. An event has the potential to impact 18,920 structures with an estimated value of \$1,823,291,626 and place 23,953 persons at risk. The City of Woodbine is farther away from potential accident sites but may still have a 20 per cent vulnerability. This vulnerability could equate to 360 structures exposed with an estimated value of \$14,994,611, and could place 375 persons at risk of injury.

Proposed development areas, as identified in the 2008 Camden County Joint Comprehensive Plan, include areas east of Gross Road, south of Laurel Island Parkway, north of State Highway 40, and west of Winding Road. These areas may change from Agriculture/Forestry to low-medium residential development or planned unit development. At present, most of the suburban area development is taking place south and north of Kingsland, along U.S. Highway 17, and the northern end of the county. The highest development pressure, because of their proximity to water and coastal marshlands are the areas north of White Oak Creek to Spring Bluff on both sides of Interstate 95, Dover Bluff Road, and the northern end of the county. These areas include primarily high-end single family developments. In St. Marys, the area preparing to undergo the most rapid change is the Durango site. This site was recently purchased and is slated for demolition and redevelopment. The northwest part of the city between the Kingsland City limits and the Naval Submarine Base Kings Bay is a prime area for rapid development.

E. Land Use & Development Trends - Camden County currently has no land use or development trends related to hazardous material spills. A transportation study is under review. The study recommends designing multiple transportation modes that could assist Emergency Management Planners develop safety and evacuation strategies.

F. Multi-Jurisdictional Concerns – As the Interstate 95 corridor travels through the center of Camden County, all of Camden County can potentially be affected by a hazardous spill event. The risk assessments indicate a higher concern for St. Marys. However, proposed mitigation steps taken related to hazardous materials are intended to be undertaken on a countywide basis and include the Cities of Kingsland, St. Marys, and Woodbine.

G. Hazard Summary – Although minor in scope, hazardous material spills are a relatively common occurrence in Camden County. The types of hazardous materials passing through the county are many and varied. The County responded after the 2005

Plan by implementing several measures. Ranking at the top of those implementation measures was the opening of the state of the art Emergency Operations Center in 2009. Other mitigation steps completed include the establishment of a Citizen Corps and Camden Partnership task force to develop inter-governmental collaboration for Emergency response, county participation in a hazardous Material team, attendance at specialized training events, and the implementation of the Code Red public notification system.

SECTION II – RADIOLOGICAL ACCIDENTS

A. Hazard Identification – A radiological accident is an event that involves the release of potentially dangerous radioactive materials into the environment. This release is usually in the form of a cloud or plume and could affect the health and safety of anyone in its path. Radiological accidents can occur anywhere that radioactive materials are used, stored, or transported. However, operations of facilities and the transport and disposal of radioactive waste are closely regulated by a variety of federal and local organizations, so the likelihood of an incident is remote. In addition to nuclear power plants, hospitals, industries, major highways, railroads, and shipyards could be the site of a radiological accident.

Radioactive materials are composed of atoms that are unstable. An unstable atom gives off its excess energy until it becomes stable. The energy emitted is radiation. Radioactive materials are dangerous because of the harmful effect of certain types of radiation on the cells of the body. The longer a person is exposed to radiation, the greater the risk. The Camden County Joint Hazard Mitigation Plan Update Committee chose to include this hazard in the update process because the community is located on major transportation routes and shares Emergency Response processes with the King's Bay Naval Submarine Base. An accident would involve civilian emergency response and medical personnel, and would require community warning systems.

B. Hazard Profile – Radiological disasters occur infrequently enough that there are few relevant records that can help determine how the hazard may affect the planning area. Camden County has not experienced an accident.

C. Assets Exposed to Hazard - In evaluating assets that may potentially be impacted by Lost Local Income, the committee determined that more data needed to be collected on the issues.

D. Estimate of Potential Losses – The extensive damage that could occur to the environment in the event of an accident is difficult to determine. According to the Disaster Handbook 1998 National Edition Institute of Food and Agricultural Sciences University of Florida, about three million shipments of radioactive materials are made

each year by highway, railroad, aircraft and ship. No deaths or serious injuries have ever been attributed to the radioactive nature of any materials involved in a transportation accident. People receive some radiation exposure each day from the sun, radioactive elements in the soil and rocks, household appliances like televisions and microwave ovens and medical x-rays. The worst nuclear power plant accident in U.S. history occurred at the Three Mile Island nuclear power plant near Harrisburg, Pennsylvania in 1979. A minor mechanical malfunction compounded by human error damaged the nuclear reactor core and threatened to release radioactive materials into the environment. With assistance from government officials and nuclear scientists, a serious release of radioactive materials was avoided, although officials were able to detect radiation up to 20 miles from the site.

Multijurisdictional differences were calculated into the estimate of losses. The differences account for the jurisdictional proximity to possible accident sites. Therefore, the potential impact for the county is estimated to be 40 per cent equating to 23,696 structures valued at \$2,363,132,965 but more importantly, 26,859 persons. The City of Kingsland may be impacted at 40 per cent equating to 5,697 structures valued at \$452,042,921, and would place 7,827 persons at risk. The concern for potential impact in the City of St. Marys is more grave and estimated at 100 per cent. An event has the potential to impact 18,920 structures with an estimated value of \$1,823,291,626 and place 23,953 persons at risk. The City of Woodbine is farther away from potential accident sites but may still have 20 per cent vulnerability. This vulnerability could equate to 360 structures exposed with an estimated value of \$14,994,611, and could place 375 persons at risk of injury.

Proposed development areas, as identified in the 2008 Camden County Joint Comprehensive Plan, include areas east of Gross Road, south of Laurel Island Parkway, north of State Highway 40, and west of Winding Road. These areas may change from Agriculture/Forestry to low-medium residential development or planned unit development. At present, most of the suburban area development is taking place south and north of Kingsland, along U.S. Highway 17, and the northern end of the county. The highest development pressure, because of their proximity to water and coastal marshlands are the areas north of White Oak Creek to Spring Bluff on both sides of Interstate 95, Dover Bluff Road, and the northern end of the county. These areas include primarily high-end single family developments. In St. Marys, the area preparing to undergo the most rapid change is the Durango site. This site was recently purchased and is slated for demolition and redevelopment. The northwest part of the city between the Kingsland City limits and the Naval Submarine Base Kings Bay is a prime area for rapid development.

E. Land Use & Developmental Trends – Camden County currently has no land use or development trends related to Radiological accidents.

F. Multi-Jurisdictional Concerns – These concerns are stated in section D.

G. Hazard Summary – Radiation exposure poses a threat because it cannot be detected by sight, smell or any other sense. Thirty eight states, particularly those in the eastern half of the contiguous 48 states and the West Coast states have at least one full power, licensed reactor. Nearly three million Americans live within 10 miles of an operating nuclear power plant. According to the Oxford Journals for February 2010, analysis of radiation accidents over a 50 year period shows that simple cases, where the initiating events were immediately recognized, the source identified and under control, the medical input confined to current handling, were exceptional. After large scale accidents, the situation becomes more complicated, either because of management or medical problems or both. The review of selected accidents which resulted in severe consequences shows that most of them could have been avoided; lack of regulations, contempt for rules, human failure and insufficient training have been identified as frequent initiating parameters. The Camden County Joint Hazard Mitigation Plan Update Committee intends to avoid these in initiating causes.

CHAPTER 4 – NATURAL HAZARD MITIGATION GOALS & OBJECTIVES

Table 4.1 provides a brief description of each section in this chapter and a summary of the changes that have been made

Chapter 4 Section	Updates to Section
I. Natural Hazard Coastal Erosion	<ul style="list-style-type: none">Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
II. Natural Hazard Coastal Storms	<ul style="list-style-type: none">Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
III. Natural Hazard Drought	<ul style="list-style-type: none">Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
IV. Natural Hazard Flooding	<ul style="list-style-type: none">Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
V. Natural Hazard Hailstorms	<ul style="list-style-type: none">New hazard with new goals and actions
VI. Natural Hazard Hurricanes	<ul style="list-style-type: none">Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
VII. Natural Hazard Tornado	<ul style="list-style-type: none">Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
VIII. Natural Hazard Water Contamination	<ul style="list-style-type: none">Goal text revised, content changed from previous plan to eliminate saltwater intrusion issues. Revision of objectives, tasks, and actions steps to meet recommendations of committee
IX. Natural Hazard Wildfire	<ul style="list-style-type: none">Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
X.. Natural Hazard Windstorm	<ul style="list-style-type: none">Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee

The Camden County Joint Hazard Mitigation Plan Update Committee analyzed the updated risk assessment data, and reviewed the implementation status of the 2005 goals, objectives and mitigation strategies. This update confirmed that Camden County experiences the greatest amount of damage from: 1.) Hazard events that create flooding issues, causing erosion and water contamination; 2.) Hazard events that create high winds, causing destruction of property; 3.) and from Hazard events that create wildfire issues. Committee members chose to continue to expand the scope of the plan to address technological hazards including hazardous material spills, and radiological accidents, but to discontinue the study of loss of income and acts of terrorism.

Goals and objective statements have been changed from the 2005 Plan to reflect the shift in focus to the updated hazards list and enhanced mitigation strategies. Camden County has implemented many of the previously identified mitigation strategies. Additional mitigation actions have been added that contain those steps still felt to be relevant from the previously approved plan and new steps have been taken to create a safer community for all Camden County residents. The new strategies reflect the committee's concern for reinforcing critical facilities to withstand storm events, educating the community about protecting their families and property, and ensuring that the community can react, respond, and recover quickly from a disaster.

The goals and objectives developed by the Camden County Joint Hazard Mitigation Plan update Committee are as follows:

Goal 1: Reduce flood damage in Camden County

Objective 1.1: Minimize losses to existing and future structures, especially critical facilities, due to flooding caused by coastal storms and hurricanes

Objective 1.2: Minimize losses to existing and future structures, especially critical facilities, in low-lying areas of the county due to flooding caused by excessive rainfall

Objective 1.3: Promote acquisition by conservation organizations of flood-prone areas for community parks and recreation areas

Objective 1.4: Reduce the threat of water contamination caused by flooding

Goal 2: Reduce damage caused by high winds in Camden County

Objective 2.1: Protect life, health and property of residents from force of tornadoes

Objective 2.2: Protect life, health and property of residents from high winds from hurricanes, severe winter storms, windstorms and coastal storms

Goal 3: Reduce economic impact of drought in Camden County

Objective 3.1: Minimize damage to local crops

Objective 3.2: Reduce threat of wildfire occurrence during periods of drought

Goal 4: Prevent damage caused by wildfire in Camden County

Objective 4.1: Prevent destruction of forests and structures

Objective 4.2: Protect life and health of residents from threat of wildfire

Goal 5: Build and support local capacity and commitment to become continuously less vulnerable to hazards

Objective 5.1: Provide public safety related prevention programs

Objective 5.2: Ensure that the continuity of local government operations will not be significantly disrupted by disaster

Objective 5.3: Maintain and enhance local government's capacity to continually make Camden County less vulnerable to hazards

Goal 6: Protect health and safety of residents of Camden County

Objective 6.1: Minimize the effect of hazardous material spills

Objective 6.1: Minimize the effect of radiological spills

Goal 7: Reduce the threat of coastal and riverine erosion in Camden County.

Objective 4.1: Minimize losses to structures and existing land caused by erosion resulting from impact of coastal storms and hurricanes

Objective 4.2: Minimize losses to structures and existing land caused by erosion resulting from impact of heavy rainfall

Goal 8: Reduce the losses associated with hail events

To evaluate action step priorities, committee members used a planning tool prepared by FEMA known as STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) criteria as a guide. Each mitigation strategy step was evaluated using STAPLEE criteria as the guiding principle to identify those steps best for Camden County. Based on these considerations, steps were ranked as high priority, medium priority, or low priority. Past occurrences of disasters and historical trend data aided committee members in assigning priorities. The ranking of each step is listed under the appropriate section for that strategy.

Goals, objectives and action steps detailed in this Plan are applicable to and will be implemented within all jurisdictions party to this plan. The goals, objectives, and action steps may vary between jurisdictions.

Each of the sections will identify the completed, deleted, or deferred mitigation actions as a benchmark for progress. If activities are deferred, an explanation will be provided describing the reasons for including the steps in the update. However, the committee chose to add hazards and to delete some hazards from this update that were no longer relevant to the planning area. The status of those actions steps can be found in Appendix D – Review of Accomplishments.

SECTION I – COASTAL EROSION

A. Community Mitigation Goals – The Camden County Joint Hazard Mitigation Plan Update Committee developed the goal of reducing the threat of riverine and coastal erosion in Camden County to minimize losses to structures and existing land. Storm events create the tidal surge, winds, and heavy rainfall that erode the land supporting roads, bridges and structures in the county.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan Update Committee identified non-structural mitigation measures to ensure that the community adequately addresses relevant erosion issues.

2 - Current land use policies and building codes have been reviewed and erosion and sedimentation control statutes have been enacted. The committee recommends continued enforcement and further study into stormwater assessments, as well as the design of shoreline guidelines.

3 -The proposed strategies hold no inherent risk for historic or special considerations in the community. These strategies will contribute to the community's sense of place as a coastal community and uphold the values expressed in the Comprehensive Plan Update; therefore, support is strong for the enactment of these measures. The STAPLEE criteria worksheet scores well for the erosion action steps. A shortcoming exists in the legal section for existing legal authority. All other considerations apply affirmatively as many mitigation steps have been identified in the recently updated Comprehensive Plan.

4 – New buildings and infrastructure planned near waterways will be subjected to mitigation steps if enacted.

5 – Existing buildings and infrastructure adjacent to river corridors will be impacted by changes in stormwater run-off plans and drainage systems, if enacted. These measures should provide a measure of relief from the flooding issues causing erosion problems.

C. Mitigation Strategy for Coastal and Riverine Erosion -

MITIGATION GOAL #1:

Reduce the threat of coastal erosion in Camden County

Objective #1.1:

Minimize losses to structures and existing land caused by erosion resulting from impact of coastal storms and hurricanes

Action Step 1.1.1: Assess storm water run-off and watershed plan, evaluate effectiveness of present drainage systems, and study erosion control issues in the county including waterways and tributaries.

Responsible Department	Planning & Development
Anticipated cost	Variable – Staff time
Existing and Potential funding sources	General Fund; grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.1.2: Support the St. Marys River Management Plan developed by the St. Marys River Management Committee (SMRMC) - an intergovernmental entity of elected and appointed members from four counties along the St. Marys River including Charlton, Camden, Nassau and Baker counties. The committee meets monthly to discuss, develop and implement plans and programs in regard to the St. Marys River

Responsible Department	Planning & Development; Office of Strategic Planning
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.1.3: Continue to enforce erosion and sedimentation control statutes

Responsible Department	Planning & Development
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	High
Status (Deferred or New)	New

Action Step 1.1.4: Design shoreline guidelines/incentives e.g. river corridor, vegetative buffers and setbacks

Responsible Department	Planning & Development
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Objective 1.2:

Minimize losses to structures and existing land caused by erosion resulting from impact of heavy rainfall

Action Step 1.2.1: Promote bank to bank legislation to unify recreation and wildlife management laws

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.2: Evaluate each County and city's land use pattern as reflected in their Comprehensive Plans and encourage consistency with river protection, using Best Management Practices (BMPs), and similar measures

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

D. Special Multi-Jurisdictional Strategy and considerations – The River Corridor Protection Act requires a 100-foot buffer of natural vegetation along both sides of any protected river. Additionally, the Georgia Erosion and Sedimentation Act does not allow for any land-disturbing activity within 25 feet of the banks of any State waters. In Camden County, the Satilla River and the St. Marys River are designated as Protected Rivers under this act. Camden County has adopted river corridor protection plans for the Satilla and St. Marys rivers, and the City of Woodbine has adopted a river corridor protection plan for the Satilla River. The Comprehensive Plan Update Short Term Work Program for the City of Kingsland includes a step to adopt the River Corridor Protection Plan.

Coastal erosion conditions affect all of Camden County. Critical facilities and vulnerable populations are located in the Cities of Kingsland, St. Marys, and Woodbine as well as in unincorporated areas of the county. The City of St. Marys has a greater proportion of residential, commercial, and critical facilities.

E. Local Public Information and Awareness Strategy – The Camden County Joint Hazard Mitigation Plan Update Committee incorporates several methods of public information and awareness strategies regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. A kick-off informational meeting was held to provide a general introduction of the planning process to the public. Two public hearings were held. Camden County posted all relevant information on its website. Many of these information and awareness strategies for keeping residents informed include implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through a public safety marketing campaign.

F. Completed and deleted action steps from original plan.

Completed: Update FEMA Firm maps
Review building codes

G. Unchanged action steps.

Assess storm water run-off and watershed plans.

This action step remains valid as flooding from storm events creates many of the losses to property throughout Camden County. The STAPLEE criteria worksheet scores well for the erosion action steps. A shortcoming exists in the legal section for existing legal authority. All other considerations apply affirmatively as many mitigation steps have been identified in the recently updated Comprehensive Plan.

SECTION II – COASTAL STORMS

A. Community Mitigation Goals – Coastal storms cause damage in Camden County through the impact of heavy rainfall, storm surges, flooding and high winds. Exposure to coastal storms impacts critical facilities as well as all populations of Camden County. Specific mitigation measures identified by the planning committee are designed to lessen the effects of flooding and wind damage in the future, as well as address evacuation procedures, educate the public on storm preparation measures, and enhance the ability of local governments to recover quickly from a catastrophic event.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan update Committee identified the full range of mitigation options, both structural and non-structural mitigation measures, to ensure that the community adequately addresses relevant coastal storm issues. Structural actions include property protection measures retrofitting critical facilities to withstand storm winds, and building stormwater retention facilities. Several non-structural measures were identified, including assessing storm water runoff issues and supporting American Red Cross Disaster Initiatives. Suggested mitigation measures include protection of natural resources, and enhancing the ability of emergency services to respond.

2- Current land use policies and building codes have been reviewed and measures have been implemented. Existing FEMA Firm maps have been recently updated. LIDAR (Light Detection and Ranging) mapping has been scheduled for winter and spring of 2010. This mapping technique is expected to yield more valuable elevation data for many of the proposed measures, including the flood hazard analysis and hydrologic modeling. The proposed measures correlate with those strategies published in the Comprehensive Plan and the Camden County Strategic Plan.

3 - A proposed strategy recommends wind important historic facility in St. Marys. 1830, is located within the St. Marys was listed on the National Register of May 7, 1973. The STAPLEE criteria well for the coastal storm action steps. exist for the Technical section under the feasibility consideration; the Administrative



retrofits to an Orange Hall c. 1830, is located within the St. Marys was listed on the National Register of May 7, 1973. The STAPLEE criteria well for the coastal storm action steps. Shortcomings

section under the funding consideration; and Economic section for the costs of actions and outside funding will be required considerations. The Social, Political, Legal, and Environmental considerations are affirmative as many mitigation steps have been identified in the recently updated Comprehensive Plan.

4 – New buildings and infrastructure may be subject to stronger building requirements to withstand wind and flood conditions.

5 – Existing buildings and infrastructure will be included in recommendations to retrofit to withstand wind and flood damage.

C. Mitigation Strategy for Coastal Storms -

MITIGATION GOAL #1:

Reduce flood damage in Camden County

Objective #1.1:

Minimize losses to existing and future structures, especially critical facilities, due to flooding caused by coastal storms and hurricanes

Action Step1.1.1: Identify the critical facilities, roads, and bridges in potential flood and surge zones and develop a plan to relocate or retrofit to withstand hazards

Responsible Department	County, Cities
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step1.1.2: When LIDAR mapping data becomes available, update flood elevation and flood boundary calculations for streams previously studied. Calculate BFE's and inundation limits for flooding sources not included in prior studies

Responsible Department	GIS
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.1.3: Inventory wetland areas and seek methods to preserve to assure that excess water can be captured

Responsible Department	Planning & Development; Administration, Dept. of Natural Resources
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.1.4: Seek funding to construct more storm water retention facilities, storm drain improvements and channel improvements to protect existing and new developments

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time; variable
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Objective 1.2: Minimize losses to existing and future structures, especially critical facilities, in low-lying areas of the county due to flooding caused by excessive rainfall

Action Step 1.2.1: Assess storm water run-off and watershed plans and evaluate effectiveness of present drainage systems

Responsible Department	Planning & Development
Anticipated cost	Variable – Staff time
Existing and Potential funding sources	General Fund; grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.2.2: Implement Stormwater Master Plan

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund; GEFA
Jurisdiction	St. Marys
Timeframe	ongoing
Priority	High
Status (Deferred or New)	New

Action Step 1.2.3: Modify subdivision regulations to require the preservation of sensitive/unique natural areas including streams, wetlands, rivers and marshlands

Responsible Department	County and Cities
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.4: Maintain ditch systems to manage stormwater drainage

Responsible Department	Camden County Public Works
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Objective 1.3: Promote acquisition by conservation organizations of flood prone area for community parks and recreation areas

Action Step 1.3.1: Implement Green Infrastructure Master Plan

Responsible Department	Planning & Development; Administration; Office of Strategic Planning
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Camden County
Timeframe	2010-2012
Priority	Low
Status (Deferred or New)	New

Action Step 1.3.2: Consider implementing Greenprint (2008) recommendations

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	St. Marys
Timeframe	2010
Priority	Low
Status (Deferred or New)	New

Action Step 1.3.3: Preserve existing City-owned marsh and waterfront access points

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	St. Marys
Timeframe	2010
Priority	High
Status (Deferred or New)	New

Action Step 1.3.4: Establish requirements for developers to link open spaces together into a publicly accessible open space network

Responsible Department	County, Cities
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.3.5: Review opportunities/ create incentives, to acquire properties that are suitable for providing public access to the rivers, streams and marshes and keep existing public access at street ends into the marsh, rivers, or streams

Responsible Department	St. Marys
Anticipated cost	Staff time, Unknown
Existing and Potential funding sources	Land conservation funds, Property owner donations, grant funds
Jurisdiction	St. Marys
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Objective 1.4: Reduce the threat of water contamination caused by flooding

Action Step 1.4.1 Educate public about proper disposal of hazardous waste products that have the potential to contaminate water sources after a disaster

Responsible Department	Environmental Health, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.2: Educate public on local resources available for testing water quality

Responsible Department	Environmental Health, Emergency Management Agency, County Extension Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action step 1.4.3: Complete inventory of all septic and well systems in Camden County and seek methods to remove contaminated systems

Responsible Department	Environmental Health
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.4.4: When LIDAR mapping is available, ensure well head elevations are above known flooding levels

Responsible Department	Environmental Health; GIS Department
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011-2012
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.4.5: Replace dilapidated sanitary sewers in downtown and old city areas

Responsible Department	Kingsland
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Kingsland
Timeframe	2010-2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.6: Inventory downtown sewer lines to eliminate storm water infiltration issues, including downspouts into the sanitary sewer

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	St. Marys
Timeframe	2010
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.7: Develop a plan for alternative septic waste disposal in disaster situations

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.8: Provide river spill control for contaminants in rivers and creeks (St. Marys River, North River, Borrell Creek, Dark Entry Creek, etc.)

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	\$15,000
Existing and Potential funding sources	General Fund, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Goal 2: Reduce damage caused by high winds in Camden County

Objective 2.1: Protect life, health and property of residents from high winds from hurricanes, severe winter storms, windstorms and coastal storms

Action Step 2.1.1: Identify critical facilities and those facilities that shelter vulnerable populations; seek funding to retrofit structures to strengthen resistance to damage. Include these buildings in plan:

- (1) St. Marys Airport (2) Sheriff's Office Main Center (3) St. Marys Police Department (4) St. Marys Fire Department (5) Kingsland Police Department (6) Kingsland Fire Department (7) St. Marys Water Treatment Plant (8) Kingsland Water Treatment Plant (9) Woodbine Water Treatment Plant (10) All Water City Systems and wells (11) Camden County Jail (12) St. Marys Public Works (13) Camden County Road Department (14) Kingsland Public Works (15) St. Marys Public Works (16) Camden Fire and Rescue (17) Southeast Georgia Health System Camden Campus (18) Woodbine City Hall (19) St. Marys City Hall (20) Kingsland City Hall (21) Health Department

Responsible Department	County and Cities
Anticipated cost	Staff time, Variable
Existing and Potential funding sources	General Funds, GEMA, grants, GEFA
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2015
Priority	High
Status (Deferred or New)	New

Action Step 2.1.2: .Install hurricane shutters on Orange Hall

Responsible Department	St. Marys
Anticipated cost	\$20,000
Existing and Potential funding sources	General Fund, GEMA, grants
Jurisdiction	St. Marys
Timeframe	2012
Priority	High
Status (Deferred or New)	New

Action Step 2.1.3: At existing airport, provide emergency generation for runway lights and tower light

Responsible Department	St. Marys
Anticipated cost	\$30,000
Existing and Potential funding sources	General Fund, Grants, GEMA
Jurisdiction	St. Marys
Timeframe	2015
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.4: Provide education for proper methods to install utility lines underground that keep lateral roots of trees intact. Seek funding to purchase equipment that diminishes damage to tree roots, alleviating further damage to trees during high winds

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time, unknown
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Low
Status (Deferred or New)	New

Goal 3: Build and support local capacity and commitment to become continuously less vulnerable to hazards

Objective 3.1: Provide public safety related prevention programs

Action Step 3.1.1: Promote the American Red Cross Community Disaster Education Preparedness presentations (educating adults, children and families)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.1.2: Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.1.3: Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.1.4: Recommend that homeowners install stronger windows and doors

Responsible Department	Camden County Community Housing Team; Emergency Management Agency; Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 3.1.5: Recommend that homeowners install permanent shutters to protect windows

Responsible Department	Camden County Community Housing Team; Emergency Management Agency, Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 3.1.6: Increase public awareness of the new Public Address System, Code Red, and Severe Weather Radios by posting articles on the County's website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 3.1.7: Develop and implement a public safety marketing campaign to increase awareness of those resources available throughout community provided by Environmental Health, Public Health, Georgia Forestry, Cooperative Extension Service, Emergency Management Agency, law enforcement, fire protection services, and the American Red Cross. Campaign topics to focus on include hazardous waste disposal, mold and mildew issues, water quality testing, care of septic systems, controlled burn issues, surface water usage, policies to adhere to during periods of drought, safety procedures to follow during disaster situations, preparing the home to withstand strong winds, pandemic disease issues, and, but not limited to, safety procedures to follow during hail, lightening storms

Responsible Department	Camden County Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012 then ongoing
Priority	Medium
Status (Deferred or New)	New

Objective 3.2: Ensure that the continuity of local government operations will not be significantly disrupted by disaster

Action Step 3.2.1: Develop a Community Master Plan for contingency methods to continue administrative, clerical, and financial government functions during increased absenteeism caused by federally declared natural disasters/pandemic situations

Responsible Department	Planning & Development; Administration; Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012, then ongoing
Priority	Medium
Status (Deferred or New)	New



Action Step 3.2.2: Implement Public Safety Communications Plan (public works, school board, sheriff, police, fire, EMS) with Cities

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Objective 3.3: Maintain and enhance local governments' capacity to continually make Camden County less vulnerable to hazards

Action Step 3.3.1: Coordinate emergency planning services with the Cities

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.2: Update all Emergency Response Plans

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 3.3.3: Become a Storm Ready community

Responsible Department	Emergency Management Agency, Cities and county
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	High
Status (Deferred or New)	New

Action Step 3.3.4: Maintain Code Red System

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	New

Action Step 3.3.5: Continue coordinated emergency planning efforts with Naval Submarine Base Kings Bay

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.3.6: Continue public awareness campaign of evacuation routes and safety procedures by posting articles on the county website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.3.7: Install New Emergency Generator for Gas Pumps at Public Works Building and at Water Plant #4 (two adequately sized for the use intended)

Responsible Department	St. Marys
Anticipated cost	\$40,000
Existing and Potential funding sources	General Fund, GEMA, grants
Jurisdiction	St. Marys
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.8: Continue to support the Citizen Corps Program

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010and ongoing
Priority	High
Status (Deferred or New)	Deferred

D. Special Multi-Jurisdictional Strategy and considerations–

Coastal storm conditions affect all of Camden County. Critical facilities and vulnerable populations are located in the Cities of Kingsland, St. Marys, and Woodbine as well as in unincorporated areas of the county. Alerting all residents of impending high winds and potential flooding conditions is a county-wide concern. Multi-jurisdictional considerations include differences in proposed needs, as indicated.

E. Local Public Information and Awareness Strategy – The Camden County Joint Hazard Mitigation Plan Update Committee incorporates several methods of public information and awareness strategies regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. A kick-off informational meeting was held to provide a general introduction of the planning process to the public. Two public hearings were held. Camden County posted all relevant information on its website. Many of these information and awareness strategies for keeping residents informed include implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through a public safety marketing campaign.

F. Completed and deleted action steps from original plan

Completed: Update FEMA Firm maps

Review building codes

Update local Land Use Plans

Review zoning and land use regulations, building codes and standards and add, if necessary, proper setbacks, elevations and requirements

Deleted: Seek funding to assist moving property owners who are in areas continually subject to disaster. Not warranted at this time

Determine the elevation of critical facilities in known flood areas and seek funding to relocate if necessary. Waiting for mapping tools -step has been amended to be more specific as to which facilities need retrofits

Suggest that new subdivisions place all utility lines underground. Change in strategy. Decision should be on a per development basis. This step is very costly and not always appropriate

G. Unchanged action steps

Assess storm water run-off and watershed plans

Update community hurricane evacuation plans to reflect population changes, additional residential and commercial development, and longer clearance times

Promote the American Red Cross Community Disaster Education Preparedness presentations (educating adults, children and families)

Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities)
Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning)
Seek funding to retrofit public buildings to reinforce windows, doors, and roofs
Increase public awareness of evacuation routes and safety procedures by publishing articles in the local newspaper and providing bulletins to local schools
Promote public awareness through the education system
Recommend that homeowners install stronger windows and doors
Recommend that homeowners install permanent shutters to protect windows

These action steps remain valid as flooding and wind from storm events creates many of the losses to property throughout Camden County. The STAPLEE criteria worksheet scores well for these action steps. Shortcomings exist in the economic and administrative sections as pertain to funding allocations. All other considerations apply affirmatively as many mitigation steps have been identified in the recently updated Comprehensive Plan.

SECTION III – DROUGHT

A. Community Mitigation Goals – Drought conditions can negatively impact the local economy by affecting the seafood and agricultural industry. Silviculture accounts for much of the agriculture concerns in the county; however, crop and livestock sales in 2002 were a little under one million dollars.

The greatest threat posed by drought conditions for the county is the potential for wildfires. Forest fires are generally the result of dry conditions combined with lightning or human carelessness. Much of the county is made up of forest and woodlands. The Camden County Joint Hazard Mitigation Plan Update Committee remains concerned about the correlation between drought conditions and the threat of wildfire. Mitigation goals are intended to mitigate drought through efforts to reduce the impact of wildfire and through methods to conserve water.

B. Identification and Analysis of Range of Mitigation Options –

1 -The Camden County Joint Hazard Mitigation Plan Update Committee has identified several non-structural mitigation measures to minimize the potentially destructive effects of drought-inflicted wildfires. The planning committee's focus is on the preservation of life and property, with particular emphasis on vulnerable populations and critical facilities.

2 - Suggested measures may result in modifications to current policies and the implementation of local ordinances to ensure suggested mitigation measures are initiated.

3 - The proposed strategies hold no inherent risk for historic or special considerations in the community, but do take into consideration the needs and location of vulnerable populations. STAPLEE criteria scores well for all measures. Shortcomings are in the Legal section as the local governments are still waiting for guidance and authority from the state in the Coastal Regional Water Plan.

4. New buildings and infrastructure will not be impacted by these proposed measures.

5. Existing buildings and infrastructure will not be impacted by these proposed measures.

C. Mitigation Strategy for Drought -

MITIGATION GOAL #1:

Reduce economic impact of drought in Camden County

Objective #1.1:

Minimize damage to local crops

Action Step 1.1.1: Follow guidelines as established in the Coastal Regional Water Plan for increased surface water usage for irrigation

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Plan 1.1.2 Follow guidelines as established in the Coastal Regional Water Plan for usage of surface artesian flow for irrigation

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.1.3: Investigate implementation of water plans

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Objective 1.2: Reduce threat of wildfire occurrence during periods of drought.

Action Step 1.2.1: Educate public during periods of drought; ask them to delay outside burning

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.2.2: Implement County-wide initiative for water

Responsible Department	Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	New

D. Special Multi-Jurisdictional Strategy and considerations

All areas of Camden County could potentially be affected by drought conditions, particularly the seafood industry, silvaculture, and agriculture interests. The committee's

greatest concern is potential for the threat of wildfire. The Georgia Forestry Commission is in the process of updating Camden County's Fire Wildfire Risk Assessment. This assessment will include enhanced mapping, strategies and detailed mitigation action steps. Detailed jurisdictional information and mitigation efforts will be addressed in the Community Wildfire Protection Plan.

E. Local Public Information and Awareness Strategy – As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers.

F. Completed and deleted action steps from original plan

- | | |
|------------|---|
| Completed: | All steps have been deferred or deleted. Much progress has been made including the installation of dry hydrants, the purchase of equipment, and the creation of additional fire stations. Many steps are ongoing processes that the committee wishes to emphasize in the plan update. |
| Deleted: | Seek input from DNR and fishing industry to enact procedures during drought and to predict water usage
Promote increased surface water usage for irrigation
Promote usage of surface artesian flow for irrigation |

G. Unchanged action steps

- Seek funding to install more dry hydrants
- Seek funding for more fire tankers (2000 to 3000 gallons) for local fire departments
- Strictly follow GFC guidelines for control burns and permits.
- Educate public during periods of drought; ask them to hold off on outside burning
- Create an ordinance to enforce burn permits at the local level
- Continue GFC service of construction of firebreaks around forests and structures
- Maintain fuel breaks along abandoned road beds

Mass media publicity concerning the threat of destructive wildfires detailing preventative steps homeowners and landowners can take

These action steps remain valid as ongoing processes. The STAPLEE criteria worksheet scores well for these action steps. Shortcomings are in the Legal section as the local governments are still waiting for guidance and authority from the state in the Coastal Regional Water Plan.

SECTION IV – FLOODING

A. Community Mitigation Goals – Flooding has caused considerable damage in Camden County in the past 200 years. Flooding issues can be the result of many types of hazard events, including heavy rainfall and storm surge coming from coastal storms, hurricanes, thunderstorms and winter storms. Adverse impacts may include structural damages, temporary backwater effects in sewers and drainage systems, and unsanitary conditions by deposition of materials during recession. Floods are loosely classified as either coastal or riverine. Camden County is vulnerable to both types. Coastal flooding is typically the result of storm surge from the sea. The storm surge is often coupled with astronomical tides and wind waves. This coastal flooding has the potential to cause severe flooding that not only dampens but destroys exposed structures. The storm surge is often the catalyst behind many of the deaths associated with coastal storms and hurricanes. Riverine flooding occurs from inland water bodies such as streams and rivers. Riverine flooding is often classified based on rate of onset, and is typically slow to build, peak, and recede - often allowing sufficient time for evacuations. Mitigation measures are designed to buttress structures, especially critical facilities, provide for more early warning measures, prepare better evacuation processes, and minimize the potential for water contamination.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan update Committee identified the full range of mitigation options, both structural and non-structural mitigation measures, to ensure that the community adequately addresses relevant flooding issues. Structural actions include property protection measures retrofitting critical facilities to withstand storm surges, and constructing storm water retention facilities. Several non-structural measures were identified, including assessing storm water runoff issues and supporting American Red Cross Disaster Initiatives. Suggested mitigation measures include protection of natural resources, and enhancing the ability of emergency services to predict and respond to events.

2- Current land use policies and building codes have been reviewed and several measures implemented. Existing FEMA Firm maps have been recently updated. LIDAR (Light Detection and Ranging) mapping has been scheduled for winter and spring of 2010. This mapping technique is expected to yield more valuable elevation data for many of the proposed measures, including the flood hazard analysis and hydrologic modeling. The

proposed measures correlate with those strategies published in the Comprehensive Plan and the Camden County Strategic Plan.

3 – Community values are reflected in the proposed measures. The coastal environment provides a sense of place, recreation, and a quality of life to Camden County residents. The proposed measures are intended to balance the natural ability of the environment to absorb flood waters with the safety measures needed to protect life and property. Special considerations include reinforcing critical facilities and those facilities that may lead to possible water contamination sources after floodwaters recede. The STAPLEE criteria worksheet scores well for the flooding action steps. Shortcomings exist for the Technical section under the feasibility consideration; the Administrative section under the funding consideration; and Economic section for the costs of actions and outside funding will be required considerations. The Social, Political, Legal, and Environmental considerations are affirmative as many mitigation steps have been identified in the recently updated Comprehensive Plan.

4 – New buildings and infrastructure may be subject to stronger building requirements to withstand wind and flood conditions.

5 – Existing buildings and infrastructure will be included in recommendations to retrofit to withstand wind and flood damage.

C. Mitigation Strategy for Flooding –

MITIGATION GOAL #1:

Reduce flood damage in Camden County.

Objective #1.1:

Minimize losses to existing and future structures, especially critical facilities, due to flooding caused by coastal storms and hurricanes

Action Step1.1.1: Identify the critical facilities, roads, and bridges in potential flood and surge zones and develop a plan to relocate or retrofit to withstand hazards

Responsible Department	County, Cities
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	High
Status (Deferred or New)	New

Action Step1.1.2: When LIDAR mapping data becomes available, update flood elevation and flood boundary calculations for streams previously studied. Calculate BFE's and inundation limits for flooding sources not included in prior studies

Responsible Department	GIS
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step1.1.3: Inventory wetland areas and seek methods to preserve to assure that excess water can be captured

Responsible Department	Planning & Development; Administration, Dept. of Natural Resources
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step1.1.4: Seek funding to construct more storm water retention facilities, storm drain improvements and channel improvements to protect existing and new developments

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time; variable
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Objective 1.2: Minimize losses to existing and future structures, especially critical facilities, in low-lying areas of the county due to flooding caused by excessive rainfall

Action Step 1.2.1: Assess storm water run-off and watershed plans and evaluate effectiveness of present drainage systems

Responsible Department	Planning & Development
Anticipated cost	Variable – Staff time
Existing and Potential funding sources	General Fund; grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.2.2: Implement Stormwater Master Plan

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund; GEFA
Jurisdiction	St. Marys
Timeframe	ongoing
Priority	High
Status (Deferred or New)	New

Action Step 1.2.3: Modify subdivision regulations to require the preservation of sensitive/unique natural areas including streams, wetlands, rivers and marshlands

Responsible Department	County and Cities
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.4: Maintain ditch systems to manage storm water drainage

Responsible Department	Camden County Public Works
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Objective 1.3: Promote acquisition by conservation organizations of flood prone area for community parks and recreation areas

Action Step 1.3.1: Implement Green Infrastructure Master Plan

Responsible Department	Planning & Development; Administration; Office of Strategic Planning
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Camden County
Timeframe	2010-2012
Priority	Low
Status (Deferred or New)	New

Action Step 1.3.2: Consider implementing Greenprint (2008) recommendations

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	St. Marys
Timeframe	2010
Priority	Low
Status (Deferred or New)	New

Action Step 1.3.3: Preserve existing City-owned marsh and waterfront access points

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	St. Marys
Timeframe	2010
Priority	High
Status (Deferred or New)	New

Action Step 1.3.4: Establish requirements for developers to link open spaces together into a publicly accessible open space network

Responsible Department	County, Cities
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.3.5: Review opportunities/ create incentives, to acquire properties that are suitable for providing public access to the rivers, streams and marshes and keep existing public access at street ends into the marsh, rivers, or streams

Responsible Department	St. Marys
Anticipated cost	Staff time, Unknown
Existing and Potential funding sources	Land conservation funds, Property owner donations, grant funds
Jurisdiction	St. Marys
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Objective 1.4: Reduce the threat of water contamination caused by flooding

Action Step 1.4.1: Install a weather station in southern end of county to better predict storm and flooding events

Responsible Department	Emergency Management Agency
Anticipated cost	\$15,000
Existing and Potential funding sources	USGS, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.2: Educate public about proper disposal of hazardous waste products that have the potential to contaminate water sources after a disaster

Responsible Department	Environmental Health, Emergency Management Agency, Dept. Of Natural Resources
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.3: Educate public on local resources available for testing water quality

Responsible Department	Environmental Health, Emergency Management Agency, County Extension Service
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.4: Complete inventory of all septic and well systems in Camden County and seek methods to remove contaminated systems

Responsible Department	Environmental Health
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.4.5: Install river gauge to better identify potential flooding events

Responsible Department	Emergency Management Agency
Anticipated cost	\$5,000
Existing and Potential funding sources	USGS, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.6: When LIDAR mapping is available, ensure well head elevations are above known flooding levels

Responsible Department	Environmental Health; GIS Department
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011-2012
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.4.7: Replace dilapidated sanitary sewers in downtown and old city areas

Responsible Department	Kingsland
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Kingsland
Timeframe	2010-2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.8: Inventory downtown sewer lines to eliminate storm water infiltration issues, including downspouts into the sanitary sewer

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	St. Marys
Timeframe	2010
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.9: River spill control for contaminants in rivers/creeks (St. Marys River, North River, Borrell Creek, Dark Entry Creek, etc.)

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	\$15,000
Existing and Potential funding sources	General Fund, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Goal 2: Build and support local capacity and commitment to become continuously less vulnerable to hazards

Objective 2.1: Provide public safety related prevention programs

Action Step 2.1.1: Promote the American Red Cross Community Disaster Education Preparedness presentations (educating adults, children and families)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.1.2: Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.1.3: Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.1.4: Increase public awareness of the new Public Address System, Code Red, and Severe Weather Radios by posting articles on the county website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.1.5: Develop and implement a public safety marketing campaign to increase awareness of those resources available throughout community provided by Environmental Health, Public Health, Georgia Forestry, Cooperative Extension Service, Emergency Management Agency, law enforcement, fire protection services, and the American Red Cross. Campaign topics to focus on include hazardous waste disposal, mold and mildew issues, water quality testing, care of septic systems, controlled burn issues, surface water usage, policies to adhere to during periods of drought, safety procedures to follow during disaster situations, preparing the home to withstand strong winds, pandemic disease issues, and, but not limited to, safety procedures to follow during hail, lightening storms.

Responsible Department	Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012 then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.6: Develop a Community Master Plan for contingency methods to continue administrative, clerical, and financial government functions during increased absenteeism caused by federally declared natural disasters/pandemic situations

Responsible Department	Planning & Development; Administration; Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012, then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.7: Implement Public Safety Communications Plan (public works, school board, sheriff, police, fire, EMS) with Cities

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund Grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Objective 3.3: Maintain and enhance local government capacity to continually make Camden County less vulnerable to hazards

Action Step 3.3.1: Coordinate emergency planning services with the Cities

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.2: Update all Emergency Response Plans

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 3.3.3: Become a Storm Ready community

Responsible Department	Emergency Management Agency, Cities and county
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	High
Status (Deferred or New)	New

Action Step 3.3.4: Maintain Code Red System

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	New

Action Step 3.3.5: Continue coordinated emergency planning efforts with Naval Submarine Base Kings Bay

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.3.6: Continue public awareness campaign of evacuation routes and safety procedures by posting articles on the county website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.3.7: Install New Emergency Generator for Gas Pumps at Public Works Building and at Water Plant #4 (two adequately sized for the use intended)

Responsible Department	St. Marys
Anticipated cost	\$40,000
Existing and Potential funding sources	General Fund, GEMA, grants
Jurisdiction	St. Marys
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.8: Continue to support the Citizen Corps Program

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.3.9: Purchase additional barricades/barrels/cones for traffic and pedestrian control during emergencies

Responsible Department	St. Marys, Emergency Management Agency
Anticipated cost	\$5,000
Existing and Potential funding sources	Grant funds
Jurisdiction	St. Marys
Timeframe	2010
Priority	Medium
Status (Deferred or New)	New

D. Special Multi-Jurisdictional Strategy and considerations

Vulnerability to flooding does not contrast much between jurisdictions. Using the updated FEMS flood maps, which indicated an increased vulnerability to flood hazards, and the expectation that scheduled LIDAR mapping will corroborate these updated FIRM maps, the committee decided that 100 per cent of the municipalities' structures, value, and persons are vulnerable to the impacts of flooding. Due to St. Marys location in relation to the coast and its flood area size in relation to other Cities, it is at greater risk for flooding than Kingsland or Woodbine. Camden County continues with nearly 100 per cent vulnerability except for that 10 percent of agriculture devoted to silvaculture. A concern within Camden County, related to flooding, is evacuation of residents during storm events. Many of the residential areas are accessed by county roads that would quickly be flooded during storm surge or flooding events. Some areas of the County would have limited access by Emergency Services personnel during and after a flooding event.

E. Local Public Information and Awareness Strategy – As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers. The Camden County Joint Hazard Mitigation Plan Update Committee will remain active for the next five years and has committed to developing a public awareness campaign to address identified issues.

F. Completed and deleted action steps from original plan

- Completed: Update local FEMA Firm Maps
Update community hurricane evacuation plans to reflect population changes, additional residential and commercial development, and longer clearance times
Update local Land Use Plans
Review zoning and land use regulations, building codes and standards and add, if necessary, proper setbacks, elevations and requirements.
Recommend that run-off and water retention ditches be cleared
Review set back requirements from top of banks of creeks and from top of banks of major rivers
Seek funding to employ a flood-warning system
Cap wells not in use and increase wellhead waterproofing.
Develop a county contingency plan such as the Cities have.
Adopt ordinances to control building and adding greenspace in known flood prone areas
- Deleted: Seek funding to assist moving property owners who are in areas continually subject to disaster
Seek funding to increase size of retention basins and run off canals
Investigate using available Greenspace funds to acquire property
Approach organizations such as the Nature Conservancy and others to gauge interest in our wetland areas
Promote the preservation of areas in and around watercourses
Seek funding to acquire flood prone properties and convert to low impact uses such as recreation areas

G. Unchanged action steps.

- Promote the American Red Cross Community Disaster Education Preparedness presentations (educating adults, children and families)
Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities)
Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning)
Assess storm water run-off and watershed plans and evaluate effectiveness of present drainage systems.
Determine the elevation of critical facilities in known flood areas and seek funding to relocate if necessary
Inventory wetland areas and seek methods to preserve to assure that excess water can be capture
Seek funding to construct more storm water retention facilities, storm drain improvements and channel improvements to protect existing and new developments

Update flood elevation and flood boundary calculations for streams previously studied. Calculate BFE's and inundation limits for flooding sources not included in prior studies
Ensure well head elevations are above known flooding levels

These action steps remain valid concerns for preparing the community for disasters, providing for better stormwater solutions, and offering better mapping tools.

SECTION V – HAILSTORMS

A. Community Mitigation Goals –

Hazard frequency data indicates that storm events that include hailstorms are increasing in occurrence. The community has reported damages to property; however, no crop damage has been reported. The committee developed mitigation measures aimed at public information and awareness measures.

B. Identification and Analysis of Range of Mitigation Options –

- 1 - The Camden County Joint Hazard Mitigation Plan update Committee identified non-structural mitigation measures to ensure that the community addresses relevant hailstorm issues.
- 2- Current land use policies and building codes have been reviewed. Recommendations can be made for roofing materials that do not require changes to the building code.
- 3 – Suggested measures do not impact community values. The STAPLEE criteria worksheet scores well for all proposed steps.
- 4 – New buildings and infrastructure may receive stronger building recommendations to withstand hailstorm conditions.
- 5 – Existing buildings and infrastructure will not be impacted by the proposed measures.

C. Mitigation Strategy for Hailstorms –

Goal #1: Reduce the losses associated with hail events

Objective #1.1 Minimize impact of hailstorms on life and property

Action Step 1: Educate public about the different roofing materials and select the material that addresses hail, high wind and fire risks

Responsible Department	Emergency Management Agency, Hazard Mitigation Committee
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2: Educate public on safety procedures to follow during hail events

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund,
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011 and ongoing
Priority	Medium
Status (Deferred or New)	New

D. Special Multi-Jurisdictional Strategy and considerations

Vulnerability to hail events does not contrast much between jurisdictions.

E. Local Public Information and Awareness Strategy – As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers. The Camden County Joint Hazard Mitigation Plan Update Committee will remain active for the next five years and has committed to developing a public awareness campaign to address identified issues.

F. Completed and deleted action steps from original plan.

Completed: N/A

Deleted: N/A

G. Unchanged action steps. N/A

SECTION V – HURRICANES

A. Community Mitigation Goals –

The potential for hurricane damage poses great threat to the life and property of residents in Camden County. These tremendous storms create damage from high winds, heavy rainfall, storm surge and possible tornadoes. These events, in turn, create coastal erosion and flooding damages, as well as tremendous property damage.

Exposure to coastal storms impacts critical facilities as well as all populations of Camden County. Mitigation measures reflect the efforts of the Camden Hazard Mitigation Plan Update Committee to continue previous efforts intended to reduce the impacts from the high winds and flooding conditions, as well as a focus to protect the life and property of residents. Specific mitigation measures identified by the planning committee are designed to lessen the effects of flooding and wind damage in the future, as well as address evacuation procedures, educate the public on storm preparation measures, and enhance the ability of local governments to recover quickly from a catastrophic event.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan update Committee identified the full range of mitigation options, both structural and non-structural mitigation measures, to ensure that the community adequately addresses relevant hurricane event issues. Structural actions include property protection measures retrofitting critical facilities to withstand storm winds, and building stormwater retention facilities. Several non-structural measures were identified, including assessing storm water runoff issues and supporting American Red Cross Disaster Initiatives. Suggested mitigation measures include protection of natural resources, and enhancing the ability of emergency services to respond.

2- Current land use policies and building codes have been reviewed and measures have been implemented. Existing FEMA Firm maps have been recently updated. LIDAR (Light Detection and Ranging) mapping has been scheduled for winter and spring of 2010. This mapping technique is expected to yield more valuable elevation data for many of the proposed measures, including the flood hazard analysis and hydrologic modeling. The proposed measures correlate with those strategies published in the Comprehensive Plan and the Camden County Strategic Plan.

3 - A proposed strategy recommends wind retrofits to an important historic facility in St. Marys. Orange Hall c. 1830, is located within the St. Marys Historic District in was listed on the National Register of Historic Places on May 7, 1973. The STAPLEE criteria worksheet scores well for the coastal storm action steps. Shortcomings exist for the Technical section under the feasibility consideration; the Administrative section under the funding consideration; and Economic section for the costs of actions and outside funding will be required considerations. The Social, Political, Legal, and Environmental considerations are affirmative as many mitigation steps have been identified in the recently updated Comprehensive Plan.

4 – New buildings and infrastructure may be subject to stronger building requirements to withstand wind and flood conditions.

5 – Existing buildings and infrastructure will be included in recommendations to retrofit to withstand wind and flood damage.

C. Mitigation Strategy for Hurricanes –

MITIGATION GOAL #1:

Reduce flood damage in Camden County

Objective #1.1:

Minimize losses to existing and future structures, especially critical facilities, due to flooding caused by coastal storms and hurricanes

Action Step1.1.1: Identify the critical facilities, roads, and bridges in potential flood and surge zones and develop a plan to relocate or retrofit to withstand hazards

Responsible Department	County, Cities
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step1.1.2: When LIDAR mapping data becomes available, update flood elevation and flood boundary calculations for streams previously studied. Calculate BFE's and inundation limits for flooding sources not included in prior studies

Responsible Department	GIS
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step1.1.3: Inventory wetland areas and seek methods to preserve to assure that excess water can be captured

Responsible Department	Planning & Development; Administration, Dept. of Natural Resources
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step1.1.4: Seek funding to construct more storm water retention facilities, storm drain improvements and channel improvements to protect existing and new developments

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time; variable
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Objective 1.2. Reduce the threat of water contamination caused by flooding

Action Step 1.2.1 Educate public about proper disposal of hazardous waste products that have the potential to contaminate water sources after a disaster

Responsible Department	Environmental Health, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.2: Educate public on local resources available for testing water quality

Responsible Department	Environmental Health, Emergency Management Agency, County Extension Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action step 1.2.3: Complete inventory of all septic and well systems in Camden County and seek methods to remove contaminated systems

Responsible Department	Environmental Health
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.2.4: When LIDAR mapping is available, ensure well head elevations are above known flooding levels

Responsible Department	Environmental Health; GIS Department
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011-2012
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.2.5: Replace dilapidated sanitary sewers in downtown and old city areas

Responsible Department	Kingsland
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Kingsland
Timeframe	2010-2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.6: Inventory downtown sewer lines to eliminate storm water infiltration issues, including downspouts into the sanitary sewer

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	St. Marys
Timeframe	2010
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.7: Develop a plan for alternative septic waste disposal in disaster situations

Responsible Department	County, Cities, EMA
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.8: Provide river spill control for contaminants in rivers and creeks (St. Marys River, North River, Borrell Creek, Dark Entry Creek, etc.)

Responsible Department	County, Cities, EMA
Anticipated cost	\$15,000
Existing and Potential funding sources	General Fund, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.9: Continue to comply with NFIP requirements

Responsible Department	County, Cities, EMA
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	New

Goal 2: Reduce damage caused by high winds in Camden County

Objective 2.1: Protect life, health and property of residents from high winds from hurricanes, severe winter storms, windstorms and coastal storms

Action Step 2.1.1: Identify critical facilities and those facilities that shelter vulnerable populations; seek funding to retrofit structures to strengthen resistance to damage. Include these buildings in plan:

(1) St. Marys Airport (2) Sheriff's Office Main Center (3) St. Marys Police Department (4) St. Marys Fire Department (5) Kingsland Police Department (6) Kingsland Fire Department (7) St. Marys Water Treatment Plant (8) Kingsland Water Treatment Plant (9) Woodbine Water Treatment Plant (10) All Water City Systems and wells (11) Camden County Jail (12) St. Marys Public Works (13) Camden County Road Department (14) Kingsland Public Works (15) Camden Fire and Rescue (16) Southeast Georgia Health System Camden Campus (17) Woodbine City Hall (18) St. Marys City Hall (19) Kingsland City Hall (20) Health Department

Responsible Department	County and Cities
Anticipated cost	Staff time, Variable
Existing and Potential funding sources	General Funds, GEMA, grants, GEFA
Jurisdiction	Camden County and Cities
Timeframe	2010-2015
Priority	High
Status (Deferred or New)	New

Action Step 2.1.2: Install hurricane shutters on Orange Hall

Responsible Department	St. Marys
Anticipated cost	\$20,000
Existing and Potential funding sources	General Fund, GEMA, grants
Jurisdiction	St. Marys
Timeframe	2012
Priority	High
Status (Deferred or New)	New

Action Step 2.1.3: At existing airport, provide emergency generation for runway lights and tower light

Responsible Department	St. Marys
Anticipated cost	\$30,000
Existing and Potential funding sources	General Fund, Grants, GEMA
Jurisdiction	St. Marys
Timeframe	2015
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.4: Provide education for proper methods to install utility lines underground that keep lateral roots of trees intact. Seek funding to purchase equipment that lessens damage to tree roots alleviating further damage to trees during high winds

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time, unknown
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Low
Status (Deferred or New)	New

Goal 3: Build and support local capacity and commitment to become continuously less vulnerable to hazards

Objective 3.1: Provide public safety related prevention programs

Action Step 3.1.1: Promote the American Red Cross Community Disaster Education Preparedness presentations (educating adults, children and families)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.1.2: Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.1.3: Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.1.4: Recommend that homeowners install stronger windows and doors

Responsible Department	Camden County Community Housing Team; Emergency Management Agency; Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 3.1.5: Recommend that homeowners install permanent shutters to protect windows

Responsible Department	Camden County Community Housing Team; Emergency Management Agency; Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 3.1.6: Increase public awareness of the new Public Address System, Code Red, and Severe Weather Radios by posting articles on the county website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 3.1.7: Develop and implement a public safety marketing campaign to increase awareness of those resources available throughout community provided by Environmental Health, Public Health, Georgia Forestry, Cooperative Extension Service, Emergency Management Agency, law enforcement, fire protection services, and the American Red Cross. Campaign topics to focus on include hazardous waste disposal, mold and mildew issues, water quality testing, care of septic systems, controlled burn issues, surface water usage, policies to adhere to during periods of drought, safety procedures to follow during disaster situations, preparing the home to withstand strong winds, pandemic disease issues, and, but not limited to, safety procedures to follow during hail, lightening storms

Responsible Department	Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund

Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012 then ongoing
Priority	Medium
Status (Deferred or New)	New



Action Step 3.1.8: Continue public awareness campaign of evacuation routes and safety procedures by posting articles on the county website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.1.9: Increase public awareness of public health issues and methods to reduce the threat of pandemic diseases by publishing articles in the local newspaper

Responsible Department	Environmental Health, Community Health Department, Southeast Georgia Health System
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Objective 3.2: Ensure that the continuity of local government operations will not be significantly disrupted by disaster

Action Step 3.2.1: Develop a Community Master Plan for contingency methods to continue administrative, clerical, and financial government functions during increased absenteeism caused by federally declared natural disasters/pandemic situations

Responsible Department	Planning & Development; Administration; Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012, then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 3.2.2: Implement Public Safety Communications Plan (public works, school board, sheriff, police, fire, EMS) with Cities

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 3.2.3: Develop multi-purpose facility (fire, police, administration) in west Kingsland

Responsible Department	Kingsland
Anticipated cost	\$1,500,000
Existing and Potential funding sources	General funds, SPLOST
Jurisdiction	Kingsland
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 3.2.4: Explore co-locating community facilities, i.e., sheriff and fire departments, as well as meeting spaces for training, voting, etc.

Responsible Department	County, Administration, Office of Strategic Planning
Anticipated cost	Variable
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Action Step 3.2.6: Continue to support the Point of Distribution process used by Community Health to distribute vaccines

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Objective 3.3: Maintain and enhance local governments' capacity to continually make Camden County less vulnerable to hazards.

Action Step 3.3.1: Coordinate emergency planning services with the Cities

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.2: Update all Emergency Response Plans

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 3.3.3: Become a Storm Ready community

Responsible Department	Emergency Management Agency, Cities and county
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	High
Status (Deferred or New)	New

Action Step 3.3.4: Maintain Code Red System

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	New

Action Step 3.3.5: Continue coordinated emergency planning efforts with Naval Submarine Base Kings Bay

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.3.6: Install New Emergency Generator for Gas Pumps at Public Works Building and at Water Plant #4 (two adequately sized for the use intended)

Responsible Department	St. Marys
Anticipated cost	\$40,000
Existing and Potential funding sources	General Fund, GEMA, grants
Jurisdiction	St. Marys
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.7: Continue to support the Citizen Corps Program

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 3.3.8: Create a community action group designated to certain areas to make sure people have evacuated to shelters

Responsible Department	Emergency Management Agency, Community Health, American Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.9: Provide adequately sized surge protection grids at the St. Marys Fire Department between tower and emergency generator and other emergency equipment

Responsible Department	St. Marys
Anticipated cost	\$15,000
Existing and Potential funding sources	General Fund, grants
Jurisdiction	St. Marys
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.10: Provide additional barricades /barrels/cones for traffic and pedestrian control during emergencies

Responsible Department	St. Marys, Emergency Management Agency
Anticipated cost	\$5,000
Existing and Potential funding sources	Grant funds
Jurisdiction	St. Marys
Timeframe	2010
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.11: Implement a Safe Growth Policy; integrate public safety policies with the county's smart/quality growth policies

Responsible Department	County Office of Strategic Planning
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Camden County
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.12: Participate with GEMA on emergency evacuation processes, routes and capacities

Responsible Department	County, Cities, Georgia Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Camden County
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.13: Work with GEMA and GDOT to resolve the negative economic impact of inadequate evacuation routes in event of a natural or man-made disaster

Responsible Department	County, Cities, Georgia Emergency Management Agency, Department of Transportation
Anticipated cost	Variable
Existing and Potential funding sources	General Fund, state funds, city funds, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011
Priority	High
Status (Deferred or New)	New

Action Step 3.3.14: Construct bridges to increase evacuation routes

Responsible Department	County, Cities, Public Works Department of Transportation
Anticipated cost	Variable
Existing and Potential funding sources	General Fund, state funds, city funds, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.15: Upgrade Fire Station #2 for use as a field emergency communication center (hurricane rated garage doors upgrade, hurricane shutters for windows and doors, and other miscellaneous items)

Responsible Department	St. Marys
Anticipated cost	\$80,000
Existing and Potential funding sources	General Fund, GEMA, grants
Jurisdiction	St. Marys
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 3.3.16: Provide multiple frequency backup portable and enhanced repeater tower for communications

Responsible Department	St. Marys
Anticipated cost	\$50,000
Existing and Potential funding sources	General Fund, GEMA, grants
Jurisdiction	St. Marys
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

D. Special Multi-Jurisdictional Strategy and considerations

Hurricane conditions affect all of Camden County. Critical facilities and vulnerable populations are located in the Cities of Kingsland, St. Marys, and Woodbine as well as in unincorporated areas of the county. Alerting all residents of impending high winds and

potential flooding conditions is a county-wide concern. A concern within Camden County, related to flooding, is evacuation of residents during storm events. Many of the residential areas are accessed by county roads that would quickly be flooded during storm surge or flooding events. Some areas of the County would have limited access by Emergency Services personnel during and after a flooding event.

E. Local Public Information and Awareness Strategy – As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers. The Camden County Joint Hazard Mitigation Plan Update Committee will remain active for the next five years and has committed to developing a public awareness campaign to address identified issues.

F. Completed and deleted action steps from original plan

Completed: Update FEMA Firm maps

Review building codes

Update local Land Use Plans

Review zoning and land use regulations, building codes and standards and add, if necessary, proper setbacks, elevations and requirements

Deleted: Seek funding to assist moving property owners who are in areas continually subject to disaster. Not warranted at this time

Determine the elevation of critical facilities in known flood areas and seek funding to relocate if necessary. Waiting for mapping tools -step has been amended to be more specific as to which facilities need retrofits

Suggest that new subdivisions place all utility lines underground. Change in strategy. Decision should be on a per development basis. This step is very costly and not always appropriate.

G. Unchanged action steps.

Assess storm water run-off and watershed plans

Update community hurricane evacuation plans to reflect population changes, additional residential and commercial development, and longer clearance times

Promote the American Red Cross Community Disaster Education

Preparedness presentations (educating adults, children and families)

- Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities)
- Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning)
- Seek funding to retrofit public buildings to reinforce windows, doors, and roofs
- Increase public awareness of evacuation routes and safety procedures by publishing articles in the local newspaper and providing bulletins to local schools
- Promote public awareness through the education system
- Recommend that homeowners install stronger windows and doors
- Recommend that homeowners install permanent shutters to protect windows

These action steps remain valid as flooding and wind from storm events creates many of the losses to property throughout Camden County. The STAPLEE criteria worksheet scores well for these action steps. Shortcomings exist in the economic and administrative sections as pertain to funding allocations. All other considerations apply affirmatively as many mitigation steps have been identified in the recently updated Comprehensive Plan.

SECTION VII – TORNADOES

A. Community Mitigation Goals –

The potential for injury, loss of life, and property damage caused by a tornado event in Camden County is great. The threat of a tornado event can come from many of the other hazard events that impact the county, including hurricanes, thunderstorms and wildfires. Tornado events in Camden County have resulted in more than 7 million dollars in property damage. Six tornado events occurred in the period from 2002 to 2009 resulting in more than \$250,000 in property damage. The Camden County Emergency



Management Agency has implemented the Code Red Weather Warning system. This service delivers severe weather warnings affecting the area to telephones within seconds after being issued by the National Weather Service. The mitigation goals intend to educate the community on safety practices during an event, particularly to shelter in place, provide for quick public service response time, and buttress structures, especially critical facilities.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan update Committee identified the full range of mitigation options, both structural and non-structural mitigation measures, to ensure that the community adequately addresses tornado issues. Structural actions include property protection measures retrofitting critical facilities to withstand strong winds.

Several non-structural measures were identified including supporting American Red Cross Disaster Initiatives. Suggested mitigation measures include enhancing the ability of emergency services to predict, respond, and recover from events.

2- Current land use policies and building codes have been reviewed and several measures implemented. The Unified Development Code was adopted November 18, 2008 by the county, and includes proper wind strength and safety regulations that are consistent with state and federal regulations. All other jurisdictions have adopted codes that include similar provisions. Some county and city buildings have been retrofitted to better withstand strong winds. Further accomplishments include implementing the Code Red system for community awareness, educating the public on tornado awareness procedures such as the use of storm shutters, and removing loose objects before they can become projectiles.

3 – Community values are reflected in the proposed measures, as reflected in concerns expressed in the Strategic Plan and the Comprehensive Plan Update. Special considerations include reinforcing critical facilities and providing for critical operations after an event. Historic considerations include reinforcing Orange Hall to better withstand strong winds. The STAPLEE criteria worksheet scores well for the tornado action steps. Shortcomings exist for the Technical section under the feasibility consideration; the Administrative section under the funding consideration; and Economic section for the costs of actions and outside funding will be required considerations. The Social, Political, Legal, and Environmental considerations are affirmative as many mitigation steps have been identified in the recently updated Comprehensive Plan.

4 – New buildings and infrastructure may be subject to stronger building requirements to withstand wind and flood conditions.

5 – Existing buildings and infrastructure will be included in recommendations to retrofit to withstand wind.

C. Mitigation Strategy for Tornadoes -

MITIGATION GOAL #1:

Reduce damage caused by high winds in Camden County.

Objective #1.1:

Protect life, health and property of residents from force of tornadoes.

Action Step 1.1.1: Identify critical facilities and those facilities that shelter vulnerable populations; seek funding to retrofit structures to strengthen resistance to damage. Include these buildings in plan:

- (1) St. Marys Airport (2) Sheriff's Office Main Center (3) St. Marys Police Department
- (4) St. Marys Fire Department (5) Kingsland Police Department (6) Kingsland Fire Department
- (7) St. Marys Water Treatment Plant (8) Kingsland Water Treatment Plant
- (9) Woodbine Water Treatment Plant (10) All Water City Systems and wells
- (11) Camden County Jail (12) St. Marys Public Works (13) Camden County Road Department (14) Kingsland Public Works (15) Camden Fire and Rescue

(16) Southeast Georgia Health System Camden Campus (17) Woodbine City Hall
 (18) St. Marys City Hall (19) Kingsland City Hall (20) Health Department

Responsible Department	County and Cities
Anticipated cost	Staff time, Variable
Existing and Potential funding sources	General Funds, GEMA, grants, GEFA
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2015
Priority	High
Status (Deferred or New)	New

Action Step 1.1.2: .Install hurricane shutters on Orange Hall

Responsible Department	St. Marys
Anticipated cost	\$20,000
Existing and Potential funding sources	General Fund, GEMA, grants
Jurisdiction	St. Marys
Timeframe	2012
Priority	High
Status (Deferred or New)	New

Action Step 1.1.3: Provide education for proper methods to install utility lines underground that keep lateral roots of trees intact. Seek funding to purchase equipment that lessens damage to tree roots alleviating further damage to trees during high winds

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time, unknown
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Low
Status (Deferred or New)	New

Goal 2: Build and support local capacity and commitment to become continuously less vulnerable to hazards

Objective 2.1: Provide public safety related prevention programs

Action Step 2.1.1: Promote the American Red Cross Community Disaster Education Preparedness presentations (educating adults, children and families)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.1.2: Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.1.3: Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.1.4: Recommend that homeowners install stronger windows and doors

Responsible Department	Camden County Community Housing Team; Emergency Management Agency; Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.5: Recommend that homeowners install permanent shutters to protect windows

Responsible Department	Camden County Community Housing Team; Emergency Management Agency; Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.6: Increase public awareness of the new Public Address System, Code Red, and Severe Weather Radios by posting articles on the county website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.1.7: Develop and implement a public safety marketing campaign to increase awareness of those resources available throughout community provided by Environmental Health, Public Health, Georgia Forestry, Cooperative Extension Service, Emergency Management Agency, law enforcement, fire protection services, and the American Red Cross. Campaign topics to focus on include hazardous waste disposal, mold and mildew issues, water quality testing, care of septic systems, controlled burn issues, surface water usage, policies to adhere to during periods of drought, safety procedures to follow during disaster situations, preparing the home to withstand strong winds, pandemic disease issues, and, but not limited to, safety procedures to follow during hail, lightening storms.

Responsible Department	Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012 then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.8: Educate public on Tornado Awareness and Safety Tips

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Objective 2.2: Ensure that the continuity of local government operations will not be significantly disrupted by disaster

Action Step 2.2.1: Develop a Community Master Plan for contingency methods to continue administrative, clerical, and financial government functions during increased absenteeism caused by federally declared natural disasters/pandemic situations

Responsible Department	Planning & Development; Administration; Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012, then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.2: Implement Public Safety Communications Plan (public works, school board, sheriff, police, fire, EMS) with Cities

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.3: Develop multi-purpose facility (fire, police, administration) in west Kingsland

Responsible Department	Kingsland
Anticipated cost	\$1,500,000
Existing and Potential funding sources	General funds, SPLOST
Jurisdiction	Kingsland
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.4: Explore co-locating community facilities, i.e., sheriff and fire departments, as well as meeting spaces for training, voting, etc.

Responsible Department	County, Administration, Office of Strategic Planning
Anticipated cost	Variable
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Objective 2.3: Maintain and enhance local governments' capacity to continually make Camden County less vulnerable to hazards

Action Step 2.3.1: Coordinate emergency planning services with the Cities

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.3.2: Update all Emergency Response Plans

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.3.3: Become a Storm Ready community

Responsible Department	Emergency Management Agency, Cities and county
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	High
Status (Deferred or New)	New

Action Step 2.3.4: Maintain Code Red System

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	New

Action Step 2.3.5: Continue coordinated emergency planning efforts with Naval Submarine Base Kings Bay.

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.3.6: Continue to support the Citizen Corps Program

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

D. Special Multi-Jurisdictional Strategy and considerations

All structures and facilities within Camden County could be damaged by a tornado, as tornados are among the most unpredictable of weather phenomena and are indiscriminate as to when or where they strike. All of Camden County has the same design wind speed of 200 mph as determined by the American Society of Civil Engineers (ASCE). The Unified Development Code was adopted November 18, 2008 by the county, and includes proper wind strength and safety regulations that are consistent with state and federal regulations. All other jurisdictions have adopted codes that include similar provisions. Some county and city buildings have been retrofitted to better withstand strong winds.

E. Local Public Information and Awareness Strategy – As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers. The Camden County Joint Hazard Mitigation Plan Update Committee will remain active for the next five years and has committed to developing a public awareness campaign to address identified issues.

F. Completed and deleted action steps from original plan.

Completed: Seek funding to implement a Public Address System
Ask school system to review student defensive-posture used in tornado drills

Educate public on Tornado Awareness, the use of storm shutters, and removing loose objects outside from becoming projectiles

Educate public on Tornado Awareness, the use of storm shutters, and removing loose objects outside from becoming projectiles

Promote trimming of tree lines around roads, homes, utilities and businesses

Educate boat owners on proper boat safety tie down procedures by supplying information with boat registration

Deleted: Request that all new education facilities will be designed to serve as public shelters for emergency purposes

Seek funding to construct a Community Safe Shelter

G. Unchanged action steps

Increase public awareness of the new Public Address System, Project Impact – Severe Weather Radios, and Community Safe Shelter by publishing articles in the local newspaper and providing bulletins to local schools

Seek funding to retrofit public buildings to reinforce windows, doors, and roofs

Update all Emergency Response Plans

Promote the American Red Cross Community Disaster Education Preparedness presentations (educating adults, children and families)

Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities)

Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning)

Create a community action group designated to certain areas to make sure people have evacuated to shelters

SECTION VIII – WATER CONTAMINATION ISSUES

A. Community Mitigation Goals –

The Camden County Joint Hazard Mitigation Plan Update Committee revised mitigation goals concerning water contamination. The previous plan studied two sources: saltwater intrusion into the aquifer and the temporary backwater of sewers and drainage systems leading to unsanitary conditions. Although saltwater intrusion into the Floridan Aquifer remains a concern, the issue is receiving more attention on the state and federal level.

Guidance for local governments is expected to be forthcoming. The Georgia Environmental Protection Division (EPD) “Coastal Georgia Water and Wastewater Permitting Plan for Managing Salt Water Intrusion” was completed in 2006 and is based on the results of a seven year study called the Sound Science Initiative.

The state is developing a Comprehensive State-Wide Water Management Plan to align with the Comprehensive State-wide Water Management Planning Act. (The Water Planning Act) that was adopted by the General Assembly and signed by Governor Sonny Perdue in 2004.

Water contamination after storm events remains a serious concern; therefore, committee members chose to study possible actions steps to reduce this impact. The concern for the committee is after a major flooding event. Water contamination could be the result of septic systems as well as debris such as refrigerators, trash, boats, oil containers, vehicles, etc. after a major flooding event.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan update Committee identified both structural and non-structural mitigation measures to ensure that the community adequately addresses relevant water contamination issues. Structural actions include replacing dilapidated sewer systems, and retrofitting waster and water treatment plants to withstand flood and wind. Several non-structural measures were identified aimed at increasing community awareness.

2- Current land use policies and building codes have been reviewed and several measures implemented. Existing FEMA Firm maps have been recently updated. LIDAR (Light Detection and Ranging) mapping has been scheduled for winter and spring of 2010. This mapping technique is expected to yield more valuable elevation data for many of the proposed measures, including the flood hazard analysis and hydrologic modeling. The proposed measures correlate with those strategies published in the Comprehensive Plan and the Camden County Strategic Plan.

3 – Community values are reflected in the proposed measures. The coastal environment provides a sense of place, recreation, and a quality of life to Camden County residents. The proposed measures are intended to balance the natural ability of the environment to absorb flood waters with the safety measures needed to protect life and property. Special considerations include reinforcing critical facilities and those facilities that may lead to possible water contamination sources after floodwaters recede. The STAPLEE criteria worksheet scores well for the flooding action steps. Shortcomings exist for the Technical section under the feasibility consideration; the Administrative section under the funding consideration; and Economic section for the costs of actions and outside funding will be required considerations. The Social, Political, Legal, and Environmental considerations are affirmative as many mitigation steps have been identified in the recently updated Comprehensive Plan.

4 – New buildings and infrastructure may be subject to stronger building requirements to withstand wind and flood conditions.

5 – Existing buildings and infrastructure will be included in recommendations to retrofit to withstand wind and flood damage.

C. Mitigation Strategy for Water Contamination Issues -

MITIGATION GOAL #1:

Reduce flood damage in Camden County

Objective #1.1:

Reduce the threat of water contamination caused by flooding

Action Step 1.4.1 Educate public about proper disposal of hazardous waste products that have the potential to contaminate water sources after a disaster

Responsible Department	Environmental Health, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.2: Educate public on local resources available for testing water quality

Responsible Department	Environmental Health, Emergency Management Agency, County Extension Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action step 1.4.3: Complete inventory of all septic and well systems in Camden County and seek methods to remove contaminated systems

Responsible Department	Environmental Health
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.4.4: When LIDAR mapping is available, ensure well head elevations are above known flooding levels

Responsible Department	Environmental Health; GIS Department
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011-2012
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.4.5: Replace dilapidated sanitary sewers in downtown and old city areas

Responsible Department	Kingsland
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Kingsland
Timeframe	2010-2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.6: Inventory downtown sewer lines to eliminate storm water infiltration issues, including downspouts into the sanitary sewer

Responsible Department	St. Marys
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	St. Marys
Timeframe	2010
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.7: Develop a plan for alternative septic waste disposal in disaster situations

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.4.8: Provide river spill control for contaminants in rivers and creeks (St. Marys River, North River, Borrell Creek, Dark Entry Creek, etc.)

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	\$15,000
Existing and Potential funding sources	General Fund, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Goal 2: Build and support local capacity and commitment to become continuously less vulnerable to hazards.

Objective 2.1: Provide public safety related prevention programs

Action Step 2.1.1: Develop and implement a public safety marketing campaign to increase awareness of those resources available throughout community provided by Environmental Health, Public Health, Georgia Forestry, Cooperative Extension Service, Emergency Management Agency, law enforcement, fire protection services, and the American Red Cross. Campaign topics to focus on include hazardous waste disposal, mold and mildew issues, water quality testing, care of septic systems, controlled burn issues, surface water usage, policies to adhere to during periods of drought, safety procedures to follow during disaster situations, preparing the home to withstand strong winds, pandemic disease issues, and, but not limited to, safety procedures to follow during hail, lightening storms.

Responsible Department	Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012 then ongoing
Priority	Medium
Status (Deferred or New)	New

Objective 2.2: Ensure that the continuity of local government operations will not be significantly disrupted by disaster

Action Step 2.2.1: Develop a Community Master Plan for contingency methods to continue administrative, clerical, and financial government functions during increased absenteeism caused by federally declared natural disasters/pandemic situations

Responsible Department	Planning & Development; Administration; Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012, then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.2: Increase public awareness of public health issues and methods to reduce the threat of pandemic diseases by publishing articles in the local newspaper

Responsible Department	Environmental Health, Community Health Department, Southeast Georgia Health System
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.3: Continue to support the Point of Distribution process used by Community Health to distribute vaccines

Responsible Department	County, Cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.4: Adopt a County Action Plan for Water and Sewer needs in Camden County

Responsible Department	County- Office of Strategic Planning, Planning and Development
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Camden County
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

D. Special Multi-Jurisdictional Strategy and considerations

All areas of Camden County can potentially be negatively impacted by water contamination issues. The Cities maintain water and sewer systems. The concern for these systems is during a major storm event.

Multijurisdictional concerns include the inadequate capacity of St. Marys' wastewater treatment facility to support new development. The City of Kingsland water service infrastructure is aging and capital improvements will be needed to replace these lines. Unincorporated Camden County currently relies on the three municipalities for public water supply and distribution capabilities, as well as sewage collection and treatment. Areas not served by a municipal system utilize individual wells and on site disposal systems that must be approved by the Camden County Health Department, Environmental Health Office.

E. Local Public Information and Awareness Strategy – As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers. The Camden County Joint Hazard Mitigation Plan Update Committee will remain active for the next five years and has committed to developing a public awareness campaign to address identified issues.

F. Completed and deleted action steps from original plan.

Completed: Suggest stringent water use plans.
 Seek funding to monitor water quality at well sites
 Increase public awareness of water conservation issues by publishing articles in the local newspaper and providing bulletins to local schools
 Implement a cross connection plan and back flow prevention program.
 Develop a comprehensive homeowner's education program
 Develop a county contingency plan such as the Cities have
 Seal wells not in use and assess potential health risk of abandoned systems
 Recommend alarm installation and padlocking all community water and commercial well systems
 Investigate an incentive plan to add preventers on all outdoor faucets
 Review building codes and add, if necessary, proper setbacks
 Review required distance from sewer systems to well head and revise if necessary

Deleted: Recommend a reduction of industry ground water production

G. Unchanged action steps.

- Investigate implementation of water plans
- Cap wells not in use and increase wellhead waterproofing
- Ensure well head elevations are above known flooding levels
- Complete inventory of all septic and well systems in Camden County and seek methods to remove contaminated systems
- Increase public awareness of public health issues by publishing articles in the local newspaper and providing bulletins to local schools

These action steps remain valid as ongoing processes. The STAPLEE criteria worksheet scores well for these action steps. Shortcomings are in the Legal section as the local governments are still waiting for guidance and authority from the state in the Coastal Regional Water Plan.

SECTION X – WILDFIRES

A. Community Mitigation Goals – Potential wildfire situations are an extreme threat in Camden County. Much of the County is forest and woodlands, 66 per cent of the county is zoned Agriculture/Forestry. Large tracts of timberland are found in the western portion of the county. Recent drought conditions combined with the threat of lightening strikes from thunderstorms have created a serious potential hazard to the life and property of Camden County residents.

The efforts of the Camden County Joint Hazard Mitigation Plan Update Committee have been focused on continuing the previous successful efforts to reduce the impact of drought conditions on wildfire threats. Additional mitigation efforts are focused on educating citizens on wildfire, its risks, and ways to protect lives and properties, to support fire rescue and suppression efforts, and developing and implementing effective community ordinances and codes.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan Update Committee identified structural and non-structural mitigation measures to reduce the threat of a wildfire event. Non-structural measures may result in alterations to current land use policies and building codes, if necessary; to ensure that proper mitigation measures are undertaken. Non-structural measures include better training and equipment as well as public education efforts. There is strong public will to continue the FireWise Community Initiative, completed in Woodbine only, into the rest of the county. Structural measures propose adding additional fire response strategies in underserved areas.

2- Current land use policies and building codes have been reviewed and several measures implemented. The committee wishes to revisit the developing an ordinance requiring residents to secure a burn permits.

3 – Community values are reflected in the proposed measures. Historic considerations are reflected in an action step to provide more protection for an important community asset at Orange Hall. The STAPLEE criteria worksheet scores well for the wildfire prevention action steps. Shortcomings exist for the Administrative section under the funding consideration; and Economic section for the costs of actions and outside funding will be required considerations. The Technical, Social, Political, Legal, and Environmental considerations are affirmative as many mitigation steps have been identified in the recently updated Comprehensive Plan.

4 – New buildings and infrastructure may be subject to urban interface requirements to reduce destruction of property by wildfire.

5 – Existing buildings and infrastructure will be included in recommendations to retrofit to comply with urban interface requirements.

C. Mitigation Strategy for Wildfires-

MITIGATION GOAL #1:

Prevent damage caused by wildfire in Camden County

Objective #1.1:

Prevent destruction of forests and structures

Action Step 1.1.1: Create an ordinance to enforce burn permits at the local level

Responsible Department	Unincorporated Camden County and Cities
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.1.2: Continue GFC service of construction of firebreaks around forests and structures

Responsible Department	Georgia Forestry
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.1.3: Continue to implement the Firewise Community Initiative – interactive workshop engaging developers, planners, Fire Service, and govt. officials about Firewise concepts within the county

Responsible Department	Georgia Forestry
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.1.4: Continue hazardous fuel reduction by prescribed burning, mechanical or chemical treatment carried out and promoted by GFC guidelines

Responsible Department	Georgia Forestry; Public Works Departments
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.1.5: Maintain fuel breaks along abandoned road beds

Responsible Department	Georgia Forestry; Public Works Departments
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.1.6: Seek funding for transportation expenses involved in implementing Firewise Communities throughout the county

Responsible Department	Georgia Forestry, Emergency Management Agency
Anticipated cost	\$5,000
Existing and Potential funding sources	Grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	New

Objective 1.2: Protect property, life and health of residents from threat of wildfire

Action Step 1.2.1: Seek funding to install more dry hydrants

Responsible Department	Fire and Rescue, Emergency Management Agency
Anticipated cost	\$15,000
Existing and Potential funding sources	Grant funds
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.2.2: Seek funding for more fire tankers (2000 to 3000 gallons) for local fire departments

Responsible Department	Fire and Rescue, Emergency Management Agency
Anticipated cost	\$300,000
Existing and Potential funding sources	Grant funds
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.2.3: Initiate mass media publicity concerning the threat of destructive wildfires detailing preventative steps homeowners and landowners can take

Responsible Department	Georgia Forestry, Emergency Management Agency
Anticipated cost	\$5,000
Existing and Potential funding sources	Grant funds
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.2.4: Seek state and federal grants to acquire additional fire equipment

Responsible Department	Fire and Rescue, Emergency Management Agency
Anticipated cost	\$50,000
Existing and Potential funding sources	Grant funds
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.2.5: Seek grants to train firefighters on tactics and equipment

Responsible Department	Fire and Rescue, Emergency Management Agency
Anticipated cost	\$15,000
Existing and Potential funding sources	Grant funds
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.2.6: Continue to improve wildland fire training at the local fire department level

Responsible Department	Fire and Rescue, Emergency Management Agency
Anticipated cost	\$5,000
Existing and Potential funding sources	Grant funds
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 1.2.7: Purchase an engine, ladder and tanker for fire department

Responsible Department	Camden Administration, Office of Strategic Planning
Anticipated cost	\$500,000
Existing and Potential funding sources	General funds, SPLOST
Jurisdiction	Camden County
Timeframe	2010-2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.8: Purchase, or build and staff, Horse Stamp Fire Station

Responsible Department	Camden Fire and Rescue
Anticipated cost	\$750,000
Existing and Potential funding sources	General funds , SPLOST
Jurisdiction	Camden County
Timeframe	2010 -2012
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.9: Provide six wheel UTV (Utility Terrain Vehicle) with skid pack for use in debris removal and for use in the urban interface

Responsible Department	St. Marys, Emergency Management Agency
Anticipated cost	\$75,000
Existing and Potential funding sources	Grant funds
Jurisdiction	St. Marys
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 1.2.10: Install sprinkler system in Orange Hall

Responsible Department	St. Marys, Emergency Management Agency
Anticipated cost	\$5,000
Existing and Potential funding sources	Grant funds
Jurisdiction	St. Marys
Timeframe	2010
Priority	Medium
Status (Deferred or New)	New

D. Special Multi-Jurisdictional Strategy and considerations

Most of the wildfire danger is in the county, but as lightening strikes can cause a wildfire in any location, any mitigation steps taken related to wildfire should be undertaken on a countywide basis and include the Cities of Kingsland, St. Marys, and Woodbine. The Wildland-Urban Interface from a fire management perspective is commonly defined as

an area where structures and other human development meet or intermingles with undeveloped wildland or vegetative fuels. These conditions exist throughout the county.

The Georgia Forestry Commission is in the process of updating Camden County's Fire Wildfire Risk Assessment. This assessment will include enhanced mapping, strategies and detailed mitigation action steps. Detailed jurisdictional information and mitigation efforts will be addressed in the Community Wildfire Protection Plan.

E. Local Public Information and Awareness Strategy – As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers. The Camden County Joint Hazard Mitigation Plan Update Committee will remain active for the next five years and has committed to developing a public awareness campaign to address identified issues.

F. Completed and deleted action steps from original plan.

Completed:	Request Georgia Forestry install signs on roadways that would give status of local burning conditions Strictly follow GFC guidelines for control burns and permits Suggest immediate evacuation instead of a wait and see attitude Request funding for an inert dumping site that would have a disposal method for tires and contractors' wood waste Consider subdivision regulations that provide for defensible space (30-ft minimum setbacks) between buildings and flammable brush and forestland
Deleted:	Request from state or federal level, Humvees (all terrain vehicles) for fire fighting Improve access to airborne fire protection

G. Unchanged action steps.

Seek state and federal grants to acquire better fire equipment
Improve wildland fire training at the local fire department level
Create an ordinance to enforce burn permits at the local level
Consider the Firewise Community Initiative – interactive workshop engaging developers, planners, EMS, and govt. officials about Firewise concepts within the county
Seek funding to install more dry hydrants

Seek funding for more fire tankers (2000 to 3000 gallons) for local fire departments
Mass media publicity concerning the threat of destructive wildfires detailing preventative steps homeowners and landowners can take
Continue GFC service of construction of firebreaks around forests and structures
Maintain fuel breaks along abandoned road beds
Seek grants to train firefighters on tactics and equipment
Seek funding for better fire fighting equipment
Continue hazardous fuel reduction by prescribed burning, mechanical or chemical treatment carried out and promoted by GFC guidelines

SECTION X – WINDSTORMS

A. Community Mitigation Goals –

Historically, thunderstorms pose a great threat to life and property of Camden County. Thunderstorm winds occur frequently and have a great chance of affecting the county each year. Thunderstorm events pose the additional threat of lightening strikes – a wildfire danger and potentially life threatening event.

Specific mitigation measures identified by the planning committee are designed to lessen the effects of wind damage in the future, as well as educate the public on storm preparation measures, and enhance the ability of local governments to recover quickly from a catastrophic event.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan update Committee identified the full range of mitigation options, both structural and non-structural mitigation measures, to ensure that the community adequately addresses relevant wind storm issues. Structural actions include property protection measures retrofitting critical facilities to withstand storm winds. Several non-structural measures were identified including supporting American Red Cross Disaster Initiatives. Suggested mitigation measures include protection of natural resources, and enhancing the ability of emergency services to respond.

2 - Current land use policies and building codes have been reviewed and several measures implemented. The Unified Development Code was adopted November 18, 2008 by the county, and includes proper wind strength and safety regulations that are consistent with state and federal regulations. All other jurisdictions have adopted codes that include similar provisions. Some county and city buildings have been retrofitted to better withstand strong winds. Further accomplishments include implementing the Code Red system for community awareness, educating the public on tornado awareness procedures such as the use of storm shutters, and removing loose objects before they can become projectiles.

3 - Community values are reflected in the proposed measures, as reflected in concerns expressed in the Strategic Plan and the Comprehensive Plan Update. Special considerations include reinforcing critical facilities and providing for critical operations after an event. Historic considerations include reinforcing Orange Hall to better withstand strong winds. The STAPLEE criteria worksheet scores well for the wind storm action steps. Shortcomings exist for the Technical section under the feasibility consideration; the Administrative section under the funding consideration; and Economic section for the costs of actions and outside funding will be required considerations. The Social, Political, Legal, and Environmental considerations are affirmative as many mitigation steps have been identified in the recently updated Comprehensive Plan.

4 – New buildings and infrastructure may be subject to stronger building requirements to withstand wind and flood conditions.

5 – Existing buildings and infrastructure will be included in recommendations to retrofit to withstand wind.

C. Mitigation Strategy for Windstorms -

MITIGATION GOAL #1:

Reduce damage caused by high winds in Camden County

Objective #1.1:

Protect life, health and property of residents from high winds from hurricanes, severe winter storms, windstorms and coastal storms

Action Step 1.1.1: Identify critical facilities and those facilities that shelter vulnerable populations; seek funding to retrofit structures to strengthen resistance to damage Include these buildings in plan:

- (1) St. Marys Airport (2) Sheriff's Office Main Center (3) St. Marys Police Department
- (4) St. Marys Fire Department (5) Kingsland Police Department (6) Kingsland Fire Department
- (7) St. Marys Water Treatment Plant (8) Kingsland Water Treatment Plant
- (9) Woodbine Water Treatment Plant (10) All Water City Systems and wells
- (11) Camden County Jail (12) St. Marys Public Works (13) Camden County Road Department
- (14) Kingsland Public Works (15) Camden Fire and Rescue
- (16) Southeast Georgia Health System Camden Campus (17) Woodbine City Hall
- (18) St. Marys City Hall (19) Kingsland City Hall (20) Health Department

Responsible Department	County and Cities
Anticipated cost	Staff time, Variable
Existing and Potential funding sources	General Funds, GEMA, grants, GEFA

Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2015
Priority	High
Status (Deferred or New)	New

Action Step 1.1.2: .Install hurricane shutters on Orange Hall

Responsible Department	St. Marys
Anticipated cost	\$20,000
Existing and Potential funding sources	General Fund, GEMA, grants
Jurisdiction	St. Marys
Timeframe	2012
Priority	High
Status (Deferred or New)	New

Action Step 1.1.3: Provide education for proper methods to install utility lines underground that keep lateral roots of trees intact. Seek funding to purchase equipment that lessens damage to tree roots alleviating further damage to trees during high winds

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time, unknown
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Low
Status (Deferred or New)	New

Goal 2: Build and support local capacity and commitment to become continuously less vulnerable to hazards

Objective 2.1: Provide public safety related prevention programs

Action Step 2.1.1: Promote the American Red Cross Community Disaster Education Preparedness presentations (educating adults, children and families)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.1.2: Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.1.3: Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning)

Responsible Department	American Red Cross, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.1.4: Recommend that homeowners install stronger windows and doors

Responsible Department	Camden County Community Housing Team; Emergency Management Agency; Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.5: Recommend that homeowners install permanent shutters to protect windows

Responsible Department	Camden County Community Housing Team; Emergency Management Agency; Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.6: Increase public awareness of the new Public Address System, Code Red, and Severe Weather Radios by posting articles on the county website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.1.7: Develop and implement a public safety marketing campaign to increase awareness of those resources available throughout community provided by Environmental Health, Public Health, Georgia Forestry, Cooperative Extension Service, Emergency Management Agency, law enforcement, fire protection services, and the American Red Cross. Campaign topics to focus on include hazardous waste disposal, mold and mildew issues, water quality testing, care of septic systems, controlled burn issues, surface water usage, policies to adhere to during periods of drought, safety procedures to follow during disaster situations, preparing the home to withstand strong winds, pandemic disease issues, and, but not limited to, safety procedures to follow during hail, lightening storms.

Responsible Department	Camden County Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012 then ongoing
Priority	Medium
Status (Deferred or New)	New

Objective 2.2: Ensure that the continuity of local government operations will not be significantly disrupted by disaster

Action Step 2.2.1: Develop a Community Master Plan for contingency methods to continue administrative, clerical, and financial government functions during increased absenteeism caused by federally declared natural disasters/pandemic situations

Responsible Department	Planning & Development; Administration; Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012, then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.2: Implement Public Safety Communications Plan (public works, school board, sheriff, police, fire, EMS) with Cities

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.3: Develop multi-purpose facility (fire, police, administration) in west Kingsland

Responsible Department	Kingsland
Anticipated cost	\$1,500,000
Existing and Potential funding sources	General funds, SPLOST
Jurisdiction	Kingsland
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.4: Explore co-locating community facilities, i.e., sheriff and fire departments, as well as meeting spaces for training, voting, etc.

Responsible Department	County, Administration, Office of Strategic Planning
Anticipated cost	Variable
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Objective 2.3: Maintain and enhance local governments' capacity to make Camden County continually less vulnerable to hazards

Action Step 2.3.1: Coordinate emergency planning services with the Cities

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.3.2: Update all Emergency Response Plans

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.3.3: Become a Storm Ready community

Responsible Department	Emergency Management Agency, Cities and county
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	High
Status (Deferred or New)	New

Action Step 2.3.4: Maintain Code Red System

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	New

D. Special Multi-Jurisdictional Strategy and considerations

Thunderstorm conditions affect all of Camden County. Critical facilities and vulnerable populations are located in the Cities of Kingsland, St. Marys, and Woodbine as well as in unincorporated areas of the county. Alerting all residents of impending high winds and potential storm conditions is a county-wide concern. All of Camden County has the same design wind speed of 200 mph as determined by the American Society of Civil Engineers (ASCE). The Unified Development Code was adopted November 18, 2008 by the county, and includes proper wind strength and safety regulations that are consistent with state and federal regulations. All other jurisdictions have adopted codes that include similar provisions. Some county and city buildings have been retrofitted to better withstand strong winds. Further accomplishments include implementing the Code Red system for community awareness, educating the public on tornado awareness procedures such as the use of storm shutters, and removing loose objects before they can become projectiles.

E. Local Public Information and Awareness Strategy – As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers. The Camden County Joint Hazard Mitigation Plan Update Committee will remain active for the next five years and has committed to developing a public awareness campaign to address identified issues.

F. Completed and deleted action steps from original plan.

- Completed: Review county and municipal building codes for proper wind strength and safety regulations and for consistency with state and federal regulations
 Increase public awareness of evacuation routes and safety procedures by publishing articles in the local newspaper and providing bulletins to local schools
 Promote public awareness through the education system.
 Update Land Use plans
- Deleted: Suggest that new subdivisions place all utility lines underground

G. Unchanged action steps.

- Seek funding to retrofit public buildings to reinforce windows, doors, and roofs
 Recommend that homeowners install stronger windows and doors.
 Recommend that homeowners install permanent shutters to protect windows
 Update community hurricane evacuation plans to reflect population changes, additional residential and commercial development, and longer clearance times

Chapter 5 - Local Technological Hazard Mitigation Goals and Objectives Overall Community Mitigation Goals, Policies and Values Narrative

Chapter 1 Section	Updates to Section
I. Technological Hazard Hazardous Material Spills	<ul style="list-style-type: none">• Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
II. Technological Hazard Radiological Accidents	<ul style="list-style-type: none">• New hazard with new goals and actions

Table 5.1 provides a brief description of each section in this chapter and a summary of the changes that have been made.

To expand the scope of the Hazard Mitigation Plan, the Camden County Joint Hazard Mitigation Planning Committee elected to address unintentional human-caused acts that may pose a threat to life and property of Camden County residents. Hazardous material accidents and radiological material spills, for the purposes of this plan, are assumed to be unintentional. A serious hazardous material spill could be a very likely event given the amount of traffic on the Interstate 95 corridor and the number of sea-going vessels traveling the Inter-coastal waterways.

The goal of the committee is to better position public safety officials to respond to these events to the best of the community's ability. Hazardous material and radiological accidents remain a threat to citizens because of the community's proximity to the interstate, railroad, several local industries, and King's Bay Naval substation.

SECTION I – HAZARDOUS MATERIAL SPILLS

A. Community Mitigation Goals –

Specific mitigation measures identified by the planning committee are designed to lessen the effects of events through improved training and emergency response procedures, as well as address evacuation procedures, educate local government officials on enactment procedures, and enhance the ability of local governments to recover quickly from a catastrophic event. Hazardous material spills constitute a technological hazard that the Camden County Joint Hazard Mitigation Plan Update Committee identified as potentially damaging to the community. Mitigation of this hazard is best accomplished by close adherence to rules, regulations and procedures established by the chemical manufacturers and the federal government, primarily the Department of Transportation, the Environmental Protection Agency and the Occupational Safety and Health Administration.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan Update Committee identified non-structural mitigation measures related to hazardous material spills to ensure that the community adequately addresses all relevant issues. These measures focus efforts on improved training, collaborative efforts with the military base, improved emergency response and improved citizen notification of disasters.

2- There are currently no land use or policies that deal with hazardous material spills. Mitigation of this hazard is best accomplished by close adherence to rules, regulations and procedures established by the chemical manufacturers and the federal government, primarily the Department of Transportation, the Environmental Protection Agency and the Occupational Safety and Health Administration.

3 – Community values are reflected in the proposed measures as many mitigation steps have been identified in the recently updated Comprehensive Plan. The STAPLEE criteria worksheet scores well for all proposed action steps.

4 – New buildings will not be impacted by proposed measures. New infrastructure may be subject to improved evacuation processes.

5 – Existing buildings will not be impacted by proposed measures. Existing infrastructure may be subject to improved evacuation processes.

C. Mitigation Strategy for Hazardous Material Spills –

MITIGATION GOALS #1:

Protect health and safety of residents of Camden County

OBJECTIVE #11:

Minimize the effect of hazardous material spills

Action step 1.1.1: Seek additional training for fire, police, sheriff, EMS, and 911 concerning hazmat events.

Responsible Department	County, cities, Emergency Management Agency
Anticipated cost	Staff time, variable
Existing and Potential funding sources	General Fund, GEMA
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action step 1.1.2: Continue to train local government officials on proper Enactment procedures for hazardous material spill events

Responsible Department	County, cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund, GEMA
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 1.1.3: Investigate methods to relocate residents if an event occurs

Responsible Department	County, cities, Emergency Management Agency, Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Goal 2: Build and support local capacity and commitment to become continuously less vulnerable to hazards.

Objective 2.1: Provide public safety related prevention programs

Action Step 2.1.1: Develop and implement a public safety marketing campaign to increase awareness of those resources available throughout community provided by Environmental Health, Public Health, Georgia Forestry, Cooperative Extension Service, Emergency Management Agency, law enforcement, fire protection services, and the American Red Cross. Campaign topics to focus on include hazardous waste disposal, mold and mildew issues, water quality testing, care of septic systems, controlled burn issues, surface water usage, policies to adhere to during periods of drought, safety procedures to follow during disaster situations, preparing the home to withstand strong

winds, pandemic disease issues, and, but not limited to, safety procedures to follow during hail, lightening storms.

Responsible Department	Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012 then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.2: Develop a Community Master Plan for contingency methods to continue administrative, clerical, and financial government functions during increased absenteeism caused by federally declared natural disasters/pandemic situations.

Responsible Department	Planning & Development; Administration; Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012, then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.3: Implement Public Safety Communications Plan (public works, school board, sheriff, police, fire, EMS) with cities.

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.4: Increase public awareness of the new Public Address System, Code Red, and Severe Weather Radios by posting articles on the county website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Objective 2.2: Maintain and enhance local governments' capacity to continually make Camden County less vulnerable to hazards

Action Step 2.2.1: Coordinate emergency planning services with the Cities

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.2: Update all Emergency Response Plans

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities

Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.2.3: Maintain Code Red System

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	New

Action Step 2.2.4: Continue coordinated emergency planning efforts with Naval Submarine Base Kings Bay

Responsible Department	County, cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.2.5: Continue to support the Citizen Corps Program

Responsible Department	County, cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County

	and Cities
Timeframe	2010and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.2.6: River spill control for contaminants in rivers/creeks
(St. Marys River, North River, Borrell Creek, Dark Entry Creek, etc.)

Responsible Department	County, cities, Emergency Management Agency
Anticipated cost	\$15,000
Existing and Potential funding sources	General Fund, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.7: Purchase additional barricades/barrels/cones for traffic and pedestrian control during emergencies

Responsible Department	St. Marys, Emergency Management Agency
Anticipated cost	\$5,000
Existing and Potential funding sources	Grant funds
Jurisdiction	St. Marys
Timeframe	2010
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.8: Monitor Homeland Security updates

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time

Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.2.9: Continue to seek training to respond to terrorism events

Responsible Department	Law enforcement, fire and Rescue, Emergency Management Agency
Anticipated cost	\$15,000
Existing and Potential funding sources	General Fund, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.2.10: Create a community action group designated to certain areas to make sure people have evacuated to shelters

Responsible Department	Emergency Management Agency, Community Health, American Red Cross
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.11: Participate with GEMA on emergency evacuation processes, routes and capacities

Responsible Department	County, cities, Georgia Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Camden County
Timeframe	2012
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.12: Work with GEMA and GDOT to resolve the negative economic impact of inadequate evacuation routes in event of a natural or man-made disaster

Responsible Department	County, cities, Georgia Emergency Management Agency, Department of Transportation
Anticipated cost	Variable
Existing and Potential funding sources	General Fund, state funds, city funds, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2011
Priority	High
Status (Deferred or New)	New

D. Special Multi-Jurisdictional Strategy and considerations

Hazardous material spill event issues affect all of Camden County. Critical facilities and vulnerable populations are located in the Cities of Kingsland, St. Marys, and Woodbine as well as in unincorporated areas of the county. Alerting all residents of impending disaster issues is a county-wide concern. As the Interstate 95 corridor travels through the center of Camden County, all of Camden County can potentially be affected by a hazardous spill event. The risk assessments indicate a higher concern for St. Marys. However, proposed mitigation steps taken related to hazardous materials are intended to be undertaken on a countywide basis and include the Cities of Kingsland, St. Marys, and Woodbine.

E. Local Public Information and Awareness Strategy

As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers. The Camden County Joint Hazard Mitigation Plan Update Committee will remain active for the next five years and has committed to developing a public awareness campaign to address identified issues.

F. Completed and deleted action steps from original plan

- | | |
|------------|---|
| Completed: | Promote the American Red Cross Community Disaster Education Preparedness presentations (educating adults, children and families).
Promote the American Red Cross Disaster Resistant Neighborhoods Program (educating communities).
Promote the American Red Cross Business and Industry Preparedness Seminar (educating businesses on business continuity planning).
Seek funding for a local HazMat team.
Implement a Public Address System. |
| Deleted: | Establish a military- civilian Task Force to develop inter-governmental collaboration for Emergency Response (based on the MCTFER model). <i>Change in strategy</i>
Examine the need for an express route outside the city so that trucks with hazardous materials do not pass through highly populated areas. |

G. Unchanged action steps

- Seek better training for fire, police, sheriff, EMS, and 911 concerning hazmat events.
- Train local government officials on proper enactment procedures for hazardous material spill events.
- Investigate methods to relocate residents if an event occurs.

These action steps remain valid as ongoing processes. The STAPLEE criteria worksheet scores well for all action steps.

SECTION II – RADIOLOGICAL ACCIDENTS

A. Community Mitigation Goals –

A. Specific mitigation measures identified by the planning committee are designed to lessen the effects of events through improved training and emergency response procedures, as well as address resident shelter in place procedures, educate local government officials on enactment procedures, and enhance the ability of local governments to recover quickly from a catastrophic event. A radiological accident is an event that involves the release of potentially dangerous radioactive materials into the environment. This release is usually in the form of a cloud or plume and could affect the health and safety of anyone in its path. Radiological accidents can occur anywhere that radioactive materials are used, stored, or transported. However, operations of facilities and the transport and disposal of radioactive waste are closely regulated by a variety of federal and local organization, so the likelihood of an incident is remote. In addition to nuclear power plants, hospitals, industries, major highways, railroads, and shipyards could be the site of a radiological accident.

Radioactive materials are composed of atoms that are unstable. An unstable atom gives off its excess energy until it becomes stable. The energy emitted is radiation. Radioactive materials are dangerous because of the harmful effect of certain types of radiation on the cells of the body. The longer a person is exposed to radiation, the greater the risk. The Camden County Joint Hazard Mitigation Plan Update Committee chose to include this hazard in the update process because the community is located on major transportation routes and shares Emergency Response processes with the King's Bay Naval Submarine Base. An accident would involve civilian emergency response and medical personnel, and would require community warning systems.

B. Identification and Analysis of Range of Mitigation Options –

1 - The Camden County Joint Hazard Mitigation Plan Update Committee identified non-structural mitigation measures related to radioactive accidents to ensure that the community adequately addresses all relevant issues. These measures focus efforts on improved training, collaborative efforts with the military base, improved emergency response and improved citizen notification of disasters.

2- There are currently no land use or policies that deal with radioactive accidents. Mitigation of this hazard is best accomplished by close adherence to rules, regulations and procedures established by the federal government, primarily the Department of Transportation, the Environmental Protection Agency and the Occupational Safety and Health Administration.

3 – Community values are reflected in the proposed measures as many mitigation steps have been identified in the recently updated Comprehensive Plan. The STAPLEE criteria worksheet scores well for all proposed action steps.

4 – New buildings and new infrastructure will not be impacted by proposed measures.

5 – Existing buildings and existing infrastructure will not be impacted by proposed measures.

C. Mitigation Strategy for Radioactive accidents –

MITIGATION GOALS #1:

Protect health and safety of residents of Camden County.

OBJECTIVE #11:

Minimize the effect of radioactive accidents.

Action step 1.1.1: Seek additional training for fire, police, sheriff, EMS, and 911 concerning radioactive accident events

Responsible Department	County, cities, Emergency Management Agency
Anticipated cost	Staff time, variable
Existing and Potential funding sources	General Fund, GEMA
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Action step 1.1.2: Continue to train local government officials on proper Enactment procedures for radioactive spill events

Responsible Department	County, cities, Emergency Management Agency
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Anticipated cost	Staff time
Existing and Potential funding sources	General Fund, GEMA
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	High
Status (Deferred or New)	Deferred

Goal 2: Build and support local capacity and commitment to become continuously less vulnerable to hazards

Objective 2.1: Provide public safety related prevention programs

Action Step 2.1.1: Develop and implement a public safety marketing campaign to increase awareness of those resources available throughout community provided by Environmental Health, Public Health, Georgia Forestry, Cooperative Extension Service, Emergency Management Agency, law enforcement, fire protection services, and the American Red Cross. Campaign topics to focus on include hazardous waste disposal, mold and mildew issues, water quality testing, care of septic systems, controlled burn issues, surface water usage, policies to adhere to during periods of drought, safety procedures to follow during disaster situations, preparing the home to withstand strong winds, pandemic disease issues, and, but not limited to, safety procedures to follow during hail, lightening storms.

Responsible Department	Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012 then ongoing
Priority	Medium

Status (Deferred or New)	New
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Action Step 2.1.2: Develop a Community Master Plan for contingency methods to continue administrative, clerical, and financial government functions during increased absenteeism caused by federally declared natural disasters/pandemic situations.

Responsible Department	Planning & Development; Administration; Camden County Joint Hazard Mitigation Committee
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012, then ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.3: Implement Public Safety Communications Plan (public works, school board, sheriff, police, fire, EMS) with cities

Responsible Department	Planning & Development; Administration
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	New

Action Step 2.1.4: Increase public awareness of the new Public Address System, Code Red, and Severe Weather Radios by posting articles on the county website, distributing materials to the public, and providing bulletins to local schools

Responsible Department	Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund

Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Objective 2.2: Maintain and enhance local governments' capacity to continually make Camden County less vulnerable to hazards

Action Step 2.2.1: Coordinate emergency planning services with the Cities.

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	Ongoing
Priority	Medium
Status (Deferred or New)	New

Action Step 2.2.2: Update all Emergency Response Plans

Responsible Department	Cities, county, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010-2012
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.2.3: Maintain Code Red System.

Responsible Department	Administration, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding	General Fund

sources	
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	New

Action Step 2.2.4: Continue coordinated emergency planning efforts with Naval Submarine Base Kings Bay.

Responsible Department	County, cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.2.5: Continue to support the Citizen Corps Program

Responsible Department	County, cities, Emergency Management Agency
Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	High
Status (Deferred or New)	Deferred

Action Step 2.2.6: Monitor Homeland Security updates

Responsible Department	Emergency Management Agency
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Anticipated cost	Staff time
Existing and Potential funding sources	General Fund
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010 and ongoing
Priority	Medium
Status (Deferred or New)	Deferred

Action Step 2.2.7: Continue to seek training to respond to terrorism events.

Responsible Department	Law enforcement, fire and Rescue, Emergency Management Agency
Anticipated cost	\$15,000
Existing and Potential funding sources	General Fund, grants
Jurisdiction	Unincorporated Camden County and Cities
Timeframe	2010
Priority	Medium
Status (Deferred or New)	Deferred

D. Special Multi-Jurisdictional Strategy and considerations

Radioactive accidents have the potential to affect all of Camden County. Multijurisdictional differences were calculated into the estimate of losses. The differences account for the jurisdictional proximity to possible accident sites. Therefore, the potential impact for the county and the City of Kingsland is estimated to be 40 per cent. The concern for potential impact in the City of St. Marys is more grave and estimated at 100 per cent. The City of Woodbine is farther away from potential accident sites but may still have 20 per cent vulnerability.

E. Local Public Information and Awareness Strategy – As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated. Local public information efforts provide many methods to reach a larger audience with effective strategies at little cost. Many publications are available for free, or can be made available via the county and/or agency websites. All public information efforts are aimed at keeping the citizens of Camden County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and bulletins concerning wildfire dangers. The Camden County Joint Hazard Mitigation Plan Update

Committee will remain active for the next five years and has committed to developing a public awareness campaign to address identified issues.

F. Completed and deleted action steps from original plan.

Completed: N/A

Deleted: N/A

G. Unchanged action steps. N/A

CHAPTER 6 – EXECUTING THE PLAN

Chapter 1 Section	Updates to Section
I. Implementation Action Plan	<ul style="list-style-type: none">Revised to include new schedule of meetings by committee
II. Evaluation, Monitoring, Updating Note whether the original method and schedule worked	<ul style="list-style-type: none">Content unchanged. Previous schedule was successful and resulted in many steps added to Comprehensive Plan Update and to resolution
III. Plan update and maintenance	<ul style="list-style-type: none">Content unchanged

SECTION I – ACTION PLAN IMPLEMENTATION

Administrative Actions

The hazard mitigation planning process was overseen by the Camden County Emergency Management Agency. Facilitation of the planning process was conducted by the Grant Service s& Consulting, Inc. The Camden County Board of Commissioners has authorized the submission of this plan to both GEMA and FEMA for their respective approvals. Upon favorable responses from each of these agencies, the Camden County Commissioners and joint city councils will act to formally adopt this plan.

One positive outcome of the plan review process was the desire by the committee to remain active. The Hazard Mitigation Committee intends to meet at least, but not limited to, six month intervals, to plan and develop coordinated public awareness procedures and to coordinate post evacuation guidelines.

Authority and Responsibility

After formal adoption of the Camden County Joint Hazard Mitigation Plan, the County Commissioners and City Councils will keep in consideration the proposed mitigation action steps and oversee the implementation of said tasks using branches of city and county government when appropriate.

As determined by the planning process, the Camden County Joint Hazard Mitigation Planning Committee has developed a method to ensure that regular review and update of the Plan occurs. The Emergency Management Agency Director will assemble, in January of each odd-numbered year, a Hazard Mitigation Plan Review Committee. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. The committee will review each goal and objective to determine relevance to changing situations in the County, as well as changes in state and federal policy and to ensure that goals are addressing current and expected conditions. The

committee will also review the risk assessment portion of the Plan to determine if this information should be updated or modified.

The parties responsible for the various implementation actions, as assigned by the County Commission and City Councils, will provide a project status report and will include which implementation processes worked well, any difficulties encountered, how coordination efforts were proceeding, and which strategies should be revised.

The County Commission and City Councils will review recommendations of the committee in of every odd-numbered year. County Commissioners and City Council members will evaluate and update the Plan to ensure mitigation action steps are being established and that existing programs are utilizing the guidance provided by the Hazard Mitigation Plan. The EMA Director will then forward any changes to GEMA's Hazard Mitigation Officer.

Prioritization

Members of the Camden County Joint Hazard Mitigation Plan Update Committee prioritized the identified mitigation actions based on what would be perceived as most beneficial to the community. A list of mitigation goals, objectives and related action items was compiled from the input of the planning committee, as well as from others within the community. Several criteria were established to assist committee members in the prioritization of these suggested mitigation actions. Criteria included perceived cost benefit or cost effectiveness, availability of potential funding sources, overall feasibility, measurable milestones, multiple objectives, and both public and political support for the proposed actions. Through this prioritization process, several projects emerged as being a greater priority than others. Some of the projects involved expending considerable amounts of funds to initiate the required actions. The determination of the cost benefit analysis (such as the FEMA B/CA model) of a project will be implemented at time of project application or funding request. Other projects allowed the community to pursue completion of the project using potential grant funding. Still others required no significant financial commitment by the community.

Incorporation of Local Hazard Mitigation Plan into Other Plans

Unincorporated and incorporated Camden County revised its Comprehensive Plan in YR 2010. Many of the previously identified hazard mitigation strategies were incorporated into the Comprehensive Plan Update. The Camden County Joint Hazard Mitigation Plan will be presented to the Committees and persons responsible for updating the Capitol Improvement plans, for their use in incorporating the Hazard Mitigation goals and strategies. In addition, relevant sections of this Hazard Mitigation Plan should be included in the next revision of the Camden County Local Emergency Operations Plan (LEOP). Estimation of potential damages and costs in the event of a natural hazard achieves two ends: it enables the identification of critical economic targets for hazard mitigation measures, as well as to enhance the ability to prioritize post-disaster response in aiding the community to recover.

SECTION II – EVALUATION

The Emergency Management Agency Director assembled a Committee to ensure that approved 2005 plan was monitored and updated at least bi-annually. The method of evaluation consisted of utilizing a checklist to determine what mitigation actions were undertaken, the completion date of these actions, the cost associated with each completed action, and whether actions were deemed to be successful. This method was successful; therefore, a schedule of regular meetings will again provide an opportunity to discuss the progress of the action items and maintain the partnerships that are essential for the sustainability of the mitigation plan.

The EMA Director will ensure the results of the evaluation(s) are reported to the Camden County Board of Commissioners, the Mayor of the Cities of Kingsland, St. Marys, and Woodbine, as well as to any agencies or organizations having an interest in the hazard mitigation activities identified in the plan.

The Emergency Management Agency is the overall implementing agency for projects such as Hazard Mitigation. Camden County and the Cities of Kingsland, St. Marys, and Woodbine have authorized the EMA to act, in a prudent manner, on their behalf.

The Cities of Kingsland, St. Marys, and Woodbine and the unincorporated county were included in the planning process. Participation from each jurisdiction was solicited and received by the Camden County Emergency Management Agency. As a result, a truly multi-jurisdictional plan was created for Camden County with ideas and viewpoints of all participants included.

SECTION III – PLAN UPDATE AND MAINTENANCE

Per the requirements set forth in the Disaster Mitigation Act of 2000, Camden County is required to update and revise the plan every five years. The desire of the Camden County Joint Hazard Mitigation Committee is to review and revise the plan at least bi-annually. At the direction of the EMA Director, the Camden County Joint Hazard Mitigation Planning Committee will convene in order to accomplish this revision.

The revision process should include a firm schedule and timeline, and identify any agencies or organizations participating in the plan revision. The Committee will review the mitigation goals, objectives and action items to determine their relevance to changing situations in the county, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. The Committee will also review the risk assessment portion of the plan to determine if this information should be updated or modified, given any new available data.

Camden County is dedicated to involving the public directly in review and updates of the Hazard Mitigation Plan. During the plan revision process, the Committee conducted public hearings near the completion of the revision process. The 2005 Plan and the proposed update were readily available on the county website. The Emergency

Management Agency was available to answer citizen questions about the hazard mitigation process. Articles were posted in the newspaper.

In December 2009, Camden County received the news that the county had received the Award for Outstanding EMA Organization for 2009 by the Emergency Management Association of Georgia. The Emergency Management Association of Georgia is an association of professionals serving its members by promoting professional development, providing networking opportunities and serving as an advocate for the profession of Emergency Management. There are 159 county EMA agencies in the association; however, there are also Law Enforcements agencies, Fire Departments, and EMS agencies listed as members. The total membership of the Emergency Management Association of Georgia is more than 300 members. "I am very proud of the work and accomplishments of our agency! This would not have been possible without the support and hard work by everyone involved in Camden County Emergency Management," said Mark Crews, Camden County's EMA Director.

Camden County's Emergency Management Agency (EMA) was chosen for this prestigious award for numerous reasons. Revitalizing the old Kingsland post office to create what is now the new Emergency Operations Center (EOC) by using only 1% monies versus normal tax dollars was one of the reasons listed. During 2009, the EOC building was re-engineered to withstand a Category 4 hurricane. It was outfitted with all necessary communications equipment, along with an emergency generator with electrical capacity to run the entire building in the event of a power failure. The entire structure from the roof to the foundation was reinforced to provide a safe and comfortable working environment for our local decision makers and their staffs.

Another reason that Camden County's EMA received this award was because of their efforts in establishing an intergovernmental agreement for CodeRED Weather Warnings coordinated between the County and the cities of Kingsland, St. Marys, and Woodbine. CodeRED is a private enterprise that provides Weather Warnings (SRWW) designed to deliver severe weather warnings to resident's telephone within seconds after being issued by the National Weather Service. CodeRED Weather Warning can provide critical extra time for preparation in case severe weather threatens.

Additionally, Camden County Government was able to realign a County job position from Georgia Forestry to Emergency Management Agency in order to better utilize its resources during this tough economic time, preventing the County from having to add an additional position to the budget. Furthermore, our EMA has exceeded state requirements with planning initiatives and updates throughout 2009. The state requires a "Local Emergency Operations Plan" (LEOP) which is a generic plan outlining what agencies would be primary and secondary depending on the type of emergency. In addition to the LEOP, Camden County's EMA also has a Special Needs Patients evacuation plan, a Debris Management plan, a Hazards Mitigation plan, a Points of Distribution (PODS) plan, as well as an Animals in Disaster plan.

Documentation will be maintained to indicate all efforts at continued public involvement. This documentation will include newspaper clippings reflecting the advertised public hearing notice, sign-in sheets, meeting minutes, etc. All relevant information will be forwarded to GEMA and FEMA as a product of the proposed plan revision.

The EMA Director will ensure the revised plan is presented to the Camden County Board of Commissioners for formal adoption. In addition, all holders of the county plan will be notified of affected changes.

No later than the conclusion of the five-year period following initial approval of the plan, the EMA Director shall submit a revised Hazard Mitigation Plan to the Georgia Emergency Management Agency and the Federal Emergency Management Agency for their review and coordination.

CHAPTER 7 – CONCLUSION

Section I	Summary
Section II	References

SECTION I – SUMMARY

As a result of initiating the hazard mitigation planning process, Camden County officials have obtained a great deal of information and knowledge regarding the County's disaster history, the presence of natural and technological hazards, the likelihood of each of these hazards occurring within the county, and the potential impacts and challenges these hazards present to the community.

The general planning process began with the identification of hazards that have occurred within Camden County over the past fifty-nine years. This was followed with data collection of critical facilities within the community. Assessments were then made to determine the vulnerability of the community to various hazards, and to determine hazard-specific losses. After evaluation of potential losses within the community, mitigation goals, objectives, and related action items were then prioritized and used to formulate a hazard mitigation action plan.

The planning process included the review of accomplished mitigations strategies. The Plan Update Committee, being formally tasked by the Camden County Board of Commissioners, prepared the review. Two public hearings were conducted, providing Camden County citizens with the opportunity to comment on, and offer suggestions concerning disaster mitigation actions within the community.

The Committee found it difficult to predict the geographic threat and resulting impact of some natural disasters as compared to others. Tornados and related severe weather strike randomly, usually affecting a small, localized area. On the other hand, natural disasters such as coastal storms and drought can blanket the entire county, affecting all businesses, public facilities, and residents within.

Recognizing this challenge, the Camden County Hazard Mitigation Planning Committee identified both general and specific measures to aid in the mitigation of several natural and technological hazards most likely to impact Camden County. These measures include, but are not limited to, the protection of public facilities and infrastructure, progressive government policies, and the proactive use of codes and regulations. In many instances, the implementation of one mitigation action step will effectively mitigate several hazards at once.

The mission of the Camden County Pre-Disaster Mitigation Planning Committee *to make our community less vulnerable to the effects of all hazards by identifying risks and community vulnerability, developing wise mitigation strategies and seeking hazard mitigation grant funding to implement chosen strategies to preserve the integrity of the community for future generations.*



The Committee feels that this plan, when implemented, will help to make all of Camden County a safer place to live and work for all of its citizens.

SECTION II – REFERENCES

Numerous sources were utilized to ensure the most complete planning document could be assembled. In an effort to ensure that all data sources consulted are cited, references are listed in the following format: 1) Publications, 2) Web Sites, 3) Other Sources.

Publications:

FEMA Pre-Disaster Mitigation *How-to Guides #1, 2, 3, 4, 5, 6, 7, 8, 9* (FEMA)

GEMA Supplements to FEMA Pre-Disaster Mitigation How-to Guides (GEMA)

2008 Georgia Hazard Mitigation Strategy Standard and Enhanced

2008 Camden County Comprehensive Plan

2008 Camden County Strategic Plan

The Georgia County Guide 2009

Fugro Earthdata Lidar Mapping Fact Sheet

USGS 2008 United States National Seismic Hazard Maps

USGS Droughts In Georgia

Emergency Manager Summer 2007

Georgia Wildfires of 2007 Summary of Facts and Costs of Recovery

National Assessment of Shoreline Change: Part 2

Web Sites:

FEMA (www.fema.gov)

GEMA(www.gema.state.ga.us)

National Climatic Data Center (www.ncdc.noaa.gov)

Other Sources:

American Red Cross

Camden County Tax Assessor

Forest Inventory and Analysis

Georgia Department of Natural Resources

Georgia Forestry Commission

Georgia Power Company

Nuclear Regulatory Commission, Escalated Enforcement Action Reports, 2009

Nuclear Regulatory Commission, Event Notification Reports (1999 through 2009)

Review of Critical Infrastructure and Target Facilities within the City of St. Marys

Tropical Prediction Center, National Weather Service

UNISYS, Individual Storm Summary

United States Coast Guard, National Response Center

United States Department of Agriculture, Drought Information; Southeast Regional Climatic Center; National Drought Mitigation Center, US Drought Impacts

United States Geological Survey, Office of Surface Water; NOAA, Office of Hydrology

United States Geological Survey, Federal Investigative Board
United States Geological Survey, Public Affairs Office