Pre-Hazard Mitigation Plan 2016

Mitigation Plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The planning process is as important as the plan itself. It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters. Hazard mitigation is sustained action taken to reduce or eliminate long-term risk to people and their property from hazards.

WORTH COUNTY AND THE CITIES OF WARWICK, SYLVESTER, POULAN AND SUMNER

Prepared with assistance by:

CONTENTS

CHAPTER 1 – INTRODUCTION

Summary of Changes: There were very few changes to Chapter One.

- The methodology changed somewhat because this is an update to a plan.

I. PROBLEM STATEMENT, PURPOSE, AUTHORITY, AND NEED

Worth County, Georgia is susceptible to natural and technological hazards that have the possibility of causing serious threat to the health and security of the county's citizens. The cost of response to and recovery from potential disasters can be lessened when attention is turned to mitigating impacts and effects before they happen. Each year weather-related disasters in the United States cause approximately 500 deaths and approximately $14 billion in property damage.[1] As the nation's communities continue to expand, carrying with them physical development farther across the landscape, the number of people and developed properties in the path of natural hazards increases significantly. Consequently, the loss of life and property suffered by victims has increased with each disaster, and survivors of these calamities turn to government for redress, increasing the financial burden placed on the nation's taxpayers. In an effort to reduce such losses communities are being prompted to identify how, where and why they are susceptible to natural disasters, and take measures to mitigate, or reduce/eliminate exposure to them and the loss of life and property that so frequently occurs.

Preparation of this document is Worth County's response to the Disaster Mitigation Act of 2000, an amendment to the Robert T. Stafford Disaster Relief and Emergency Assistance Act. This law authorizes release of federal financial assistance to communities that have experienced a disaster of such severity as to receive a presidential declaration. Simply stated, the referenced amendment establishes an additional eligibility requirement; after November 1, 2004, to be eligible for federal financial disaster assistance a community must not only have been declared a

[1] National Oceanic and Atmospheric Administration

disaster area by the president of the United States, but *must have prepared and adopted a federally approved pre-disaster mitigation plan*.

This is not to suggest that mitigation is novel to the community. In recent years, Worth County has been among the state's more aggressive communities in planning and implementing preparedness activities. The current effort expands upon those of previous years by placing an increased emphasis on reducing the losses which commonly occur as a result of disaster so the cost of response and recovery will also be less. The importance of such efforts was clearly manifested locally in March 2007 with the devastating tornadoes that struck the county.

This plan is not intended as a comprehensive identification and assessment of all potential hazards; only those deemed most likely to occur. It is recognized the community could be assailed by a disaster not addressed herein. Neither does it address the local impacts which may result from a disaster occurring elsewhere, such as the burden placed on a community because of its location on a hurricane evacuation route.

II. METHODOLOGY, PARTICIPANTS, PROCESS

In May 2015, the Southwest Georgia Regional Commission (SWGRC) began working with Worth County to update the Pre-Hazard Mitigation Plan. The commission staff formed a committee at the Pre-Hazard Mitigation Plan Kickoff Meeting on May 29th, 2015 consisting of EMA/EMS personnel, Administrators, department heads, Humane Society, and Red Cross officials. It was at this meeting that the newly formed committee decided that since this was an update to the plan, subcommittees would not be necessary because most of the data had already been assembled from the current plan and needed minor updating and tweaking to be usable. The committee that had worked on the previous plan was a diverse group consisting of members from most of the jurisdictions, so the product they had developed was a good base for this update. Worth County and its municipalities each participated in the previous Hazard Mitigation Plan and they continued to do so in this plan. Each section of the plan was scrutinized by the SWGRC and the executive committee to assess the current content and offer additions/alternatives based on the new requirements of FEMA and community goals. Other local documents were scrutinized to determine if any inconsistencies exist. These documents include

Worth County's Comprehensive Plan, Worth County's Emergency Operations Plan and the Southwest Georgia Regional Plan.

As is customary, the comprehensive plan addressed community facilities; most, if not all, of which were identified in this document as critical facilities. Some issues, such as flood plains, were addressed in the natural resources section but have since been updated by FEMA. The local comprehensive plan is scheduled for update by October 31st, 2018.

The emergency operations plan (EOP) was also reviewed and portions were used for preparation of this document. It was found, however, that the LEOP is less concerned about mitigation and more about response, which is the whole point of the plan so much of it although informative proved not very useful in the mitigation plan. A copy of the EOP may be found in Appendix C.

Numerous other sources were used in the course of plan preparation, including the Georgia Department of Natural Resources, Georgia Forestry Commission, Georgia Tornado Database, National Climatic Data Center, National Weather Service, newspaper articles, and interviews with numerous local sources. The information gathered from these sources filled in the gaps and details that tables of data could not provide. By interviewing local sources about conditions during and after storms it provided us with an "eyes on the ground" perspective that may not have been gotten especially if the storm had only isolated pockets of severity. The 2011 Georgia Hazard Mitigation Strategy was also reviewed, and although informative, not enough information specific to Worth County could be gleaned for inclusion. A Flood Mitigation Assistance Plan does not exist for Worth County and could not be reviewed. A Flood Insurance study was completed in 2009 to establish the actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. The 2009 Flood Insurance Study did provide BFE's for a couple of creeks and rivers. The Community Wildfire Protection Plan (CWPP) was reviewed, however wildfires are not considered a priority and therefore the CWPP was not incorporated into this plan.

In May 2015, a HMPC was convened consisting of various department heads and personnel representing Worth County and its municipalities. This group began

examining the existing document and analyzing its contents. Each section of the plan was reviewed and analyzed to determine if the contents are still valid and whether the contents need to be updated. The Local Hazard, Risk, and Vulnerability section was scrutinized to determine the top disasters that face Worth County and it was found that tornados are the biggest threat to Worth County. The prioritized list of hazards affecting Worth County and its municipalities has changed only slightly with winter storms being removed from the list of threats.

Tornados and Thunderstorm Winds are still the top hazards faced by Worth County.

Man-made hazards were reviewed by the HMPC and, although still a threat, the situation relative to this threat in Worth County has not changed and being prepared for these hazards and how to react to these types of hazards is handled within the Worth County Local Emergency Operations Plan, therefore man-made hazards have been removed from this plan.

The goals and objectives were reviewed by the HMPC to first determine whether the goals had changed and if so to what degree. The objectives and tasks were then reviewed based on the following basic criteria:

- Is the objective or task still in line with the goals?
- Are the objectives and tasks appropriate for accomplishing the goal?
- Are the tasks associated with each objective cost effective?
- Are there more efficient ways to accomplish the stated goal and objective?

The Plan Maintenance section was reviewed based on the following criteria:

- Are action steps being overlooked?
- Is measurable progress being made towards goals?
- Is the plan maintenance section cost effective?

There were no changes made to this section because it was determined that the criteria were being met.

After changes had been proposed, the SWGRC looked at the newest requirements for PHMP from FEMA and GEMA and how to reassemble the plan with proposed changes into an initial draft to be presented to GEMA for comments. At this time a public hearing was held to allow public comment.

Executive Committee – comprised of City and County Officials and various stakeholders.

In general, the Executive Committee convened once every 60 days during their months of activity, although some activity extended beyond a month.

Kristen Merritt – Worth County Health Department – Admin. Ops. Coordinator

Sherri Hendley – Best Friends Humane Society - Director

Shelly McPhaul - Best Friends Humane Society - President

Laura Searcy – Worth County Health Department – EHS IV

Issac Adams – Sylvester Code Enforcement - Director

Ronnie Graddy – Sylvester Police Dept - Deputy

Tyree McGee – Sylvester Water, Gas and Light - Director

Cecil Rash – City of Sylvester - Finance Director

Larry Thomas – City of Sylvester – Public Works Superintendent

Jack Colby – City of Sylvester – Fire Chief

Melissa Dobbins – City of Sumner – Interim City Clerk

Christie Foerster – Worth County Schools – Director of Federal Programs

John Merritt – Worth County Public Works - Director

Thomas Whittington – Worth County EMA Director

Steve O'Neil – Southwest Georgia Regional Commission

The Southwest Georgia Regional Commission assisted the committees with data collection, research and analysis, facilitated all committee meetings and public hearings, compiled an extensive cartographic digital database, including GPS collection of critical facilities, and compiled the final written document.

Letters, emails and phone calls were used to contact each jurisdiction and invite them to participate in the Hazard Mitigation Planning process and at the very least send a representative to be a part of the committee. An invitation by email to neighboring EMA directors was also sent out and can viewed in Appendix E. Neighboring counties were invited to provide input at public hearings and before the plan was submitted to GEMA. A copy of the "Invitation to Review" letter is located in Appendix E. Because of their responsibility for promoting the general public welfare and providing emergency response services, there was a very strong local government interest and involvement in plan development from Worth County and its municipalities.

Two publicly advertised meetings will be held during plan development. The first meeting was held during the plan development phase on December 1, 2015 at the Worth County Community Center to inform the general public of the effort and to invite comment and participation. There were no attendees. The second hearing was held on September 5th 2016 and there were no attendees from the public.

III. ORGANIZATION

A detailed analysis of each of the seven natural hazards is presented in Chapter 2. The analyses consist of a description of the hazard and the damage potential, historical frequency and probability of future occurrence, an inventory of assets exposed to the hazard and an estimate of the loss which the community could reasonably be expected to incur, land use patterns as they relate to each hazard, and any aspects of hazards which may be unique to any of the jurisdictions. Presented in Chapter 3 is an itemized list of goals, objectives, tasks and action steps which are proposed for implementation to mitigate likely adverse impacts of specific hazard events. This part of the plan also identifies, prioritizes, and suggests funding sources for hazard mitigation activities. Chapter 4 describes how the plan will be implemented and maintained. Chapter 5 consists of a concluding statement, followed by appendices.

IV. HAZARD RISK VULNERABILITY (HRV) SUMMARY

This plan identifies and assesses community risks to certain natural hazards and identifies how to reduce exposure to them. The assessment provides the factual basis for activities proposed to reduce losses, including a description of the type, location, and extent of natural hazards deemed most likely to befall Worth County. Reference was made to the historical record to compile information on previous events and for use in estimating the probability of hazard recurrence.

Vulnerability includes a summary of past events and their impacts. This is quantified by describing the types and numbers of existing and future buildings, infrastructure, and critical facilities located in identified hazard prone/susceptible areas. Estimates of the potential dollar losses that could reasonably be expected to result from another specified hazard event are also presented.

Land uses and development trends were reviewed for the purpose of identifying mitigation options that can be considered in future land use decisions to reduce each jurisdiction's specific risk.

Based on these assessments a blueprint for reducing potential losses was developed, incorporating expansion and improvement on existing authorities, policies, programs and resources. The blueprint includes goals and objectives to reduce or avoid long-term vulnerabilities to hazards. The end product is a prioritized action plan with specific steps to achieve stated goals. This, in turn, is supplemented with a maintenance process to monitor, evaluate, and update the mitigation plan within a five-year timeframe. The following hazards are addressed in this:

- Tornado
- Thunderstorm Winds
- Flood
- Drought
- Extreme Heat

- Hurricanes
- Dam Failure

Each hazard is identified in Chapters 2 and 3. The impact and past occurrences of each hazard are discussed as well how each jurisdiction is affected. Included are particular vulnerabilities in Worth County and an estimate of potential losses due to damage from each hazard.

In 2015, the Georgia Department of Emergency Management partnered with The Polis Center (Polis) at Indiana University Purdue University-Indianapolis (IUPUI) to develop a detailed risk assessment focused on defining hurricane, riverine flood, coastal flood risks and tornado in Worth County, Georgia. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets.

Hazus-MH Version 2.2 SP1 was used to perform the analyses for Worth County. The Hazus-MH application includes default data for every county in the US. This Hazus-MH data was derived from a variety of national sources and in some cases the data are also several years old. Whenever possible, using local provided data is preferred. Worth County provided building inventory information from the county's property tax assessment system. The full Hazus report is available in Appendix C.

V. LOCAL MITIGATION GOALS AND OBJECTIVES

This plan will serve as guidance for Worth County and the Cities of Warwick, Sylvester, Poulan and Sumner in coordinating and implementing hazard mitigation policies, programs, and projects. This plan will be periodically updated and revised in order to facilitate and direct the ongoing implementation of hazard mitigation activities. Through the preparation of this plan and the implementation of the associated Action Plan, the community plans to achieve the following goals:

GOAL #1 Ensure the public health and safety of the citizens of Worth County and its municipalities

GOAL #2	To facilitate responsible development in Worth County and incorporated areas so as to reduce or eliminate the potential impacts of disasters
GOAL #3	To enhance public awareness and understanding of disaster preparedness
GOAL #4	To extend and increase public awareness of flood insurance as a mitigative measure
GOAL #5	To enhance post-disaster response and recovery activities

VI. MULTI-JURISDICTIONAL CONSIDERATIONS

This document has been developed for unincorporated Worth County and the Cities of Warwick, Sylvester, Poulan and Sumner. The plan includes an identification and analysis of a comprehensive range of specific mitigation actions needed to reduce the adverse effects of specific hazards in each jurisdiction. With few exceptions, each jurisdiction is susceptible to the same natural hazards. However, where applicable some specific mitigation actions have been identified for each jurisdiction.

VII. ADOPTION, IMPLEMENTATION, MONITORING AND EVALUATION

The Worth County Pre-Disaster Mitigation Plan has been formally adopted (see following page) by the Worth County Board of Commissioners and the City Councils of Warwick, Sylvester, Poulan and Sumner after receiving notification from the Georgia Emergency Management Agency that the plan complied with applicable federal regulations.

Presented in Chapter 6 is a description of plan implementation, monitoring, evaluation, and update activities, public participation, and the process of incorporating mitigation into other planning and administrative functions of each

local government. This section details the process that will ensure the Worth County Pre-Disaster Mitigation Plan becomes an integral part of local governance and life in the community.

Milestone	Number of Days to Complete
Initial Planning Meeting for stakeholders	1 day
Identify repetitive loss structures	30 days
Establish a property flood mitigation priority program	30 days
Identify project structures	30 days
Determine mitigation measures for each repetitive loss structure	30 days
Complete Draft Mitigation Plan	30 days
Public Hearing for Review and Comments	30 days
Present Final Mitigation Plan for Approval	15 days
Submit Plan to GEMA for Review	30 days
Submit Plan to FEMA for Review	30 days
Formal Approval and Adoption of Plan	15 days
Implement Changes from FEMA and GEMA Review	15 days
Implementation of Plan	Ongoing
Evaluation of Plan	March - Annually
Update of Plan (Informal – not submitted to GEMA	May - Annually
Update of Plan (Formal – submitted to GEMA	May – 2020

CHAPTER 2 - NATURAL HAZARD, RISK AND VULNERABILITY (HRV) SUMMARY

Summary of changes:

- The Enhanced Fujita scale has been added to replace its predecessor
- All Hazard event tables have been updated to account for storms in the years since creation of the plan.
- Values for critical facilities have been updated.
- GMIS report data has been updated/included in the appendix
- New disasters have been added

I. NATURAL HAZARD – TORNADO

A. Hazard Identification

A tornado is a violently rotating column of air extending from a thunderstorm to the ground, usually spawned when the weather is warm, humid and unsettled; conditions common to the local area. Severe weather conditions, such as a thunderstorm or hurricane, can produce a tornado. Tremendous destruction can occur with the combined action of strong winds (some at speeds in excess of 250 mph) and the impact of wind-borne debris. Damage paths can be in excess of one mile wide and fifty miles long. Although the path may be erratic, storm movement is usually from southwest to northeast. Tornadoes most often occur between 3 and 8 p.m., but may occur at any time of day or night. The official tornado season lasts from March-August with a peak in March-May, but they can occur anywhere, any time of year. Advance planning and quick response are keys to surviving a tornado. Information gleaned from the National Climatic Data Center, The Tornado Project and local newspapers revealed the following history of tornadic activity in the community.

Enhanced Fujita (EF) Scale Rating System for Tornado Strength

Scale	Wind speed		Relative frequency	Potential damage	
	mph	km/h			
EF0	65–85	105–137	53.5%	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e. those that remain in open fields) are always rated EF0.	
EF1	86–110	138–178	31.6%	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.	
EF2	111–135	179–218	10.7%	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.	
EF3	136–165	219–266	3.4%	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.	
EF4	166–200	267–322	0.7%	Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.	
EF5	>200	>322	<0.1%	Explosive damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (300 ft); steel reinforced concrete structure badly damaged; high-rise buildings have significant structural deformation.	

Figure 1. In the USA and some other countries, on February 1, 2007, the Fujita scale was decommissioned in favor of what these scientists believe is a more accurate Enhanced Fujita Scale, which replaces it. The EF Scale is thought to improve on the F-scale on many counts—it accounts for different degrees of damage that occur with different types of structures, both man-made and natural. The expanded and refined damage indicators and degrees of damage standardize what was somewhat ambiguous. It also is thought to provide a much better estimate for wind speeds, and sets no upper limit on the wind speeds for the strongest level, EF5. *Source: NOAA's National Weather Service, Storm Prediction Center*

B. Hazard Profile

All geographical areas of the county are susceptible to the randomness of tornadic activity. Although there have not been any such hazards of disaster proportions to befall the community for well over a half century, small storms have nevertheless been present, and climatic conditions were conducive for others to occur as has been evidenced by the issuance of tornado warnings and watches. Worth County typically see's damage from tornados ranging from simple wind damage, to roof damage and large trees uprooted these are reflected in the magnitude of events to hit Worth County which ranges from F0 to F3 on the older Fujita Scale (EF0 to EF3 on the Enhanced Fajita Scale). Based solely on the historic trend analysis (Appendix A – Hazard Frequencies Table, Page 32) of available data, the community has a 41.5% chance of experiencing a tornado event any given year. The information was not broken down by jurisdiction because accurate data does not exist that would permit that to happen. Information gleaned from the National Climatic Data Center revealed the following history of tornadic activity in the community.

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								2	21	11.602M	2.000M
WORTH CO.	WORTH CO.	GA	01/28/1952	06:30	CST	Tornado	F2	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	03/31/1961	09:00	CST	Tornado	F1	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	04/03/1961	18:00	CST	Tornado	F2	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	12/25/1964	14:30	CST	Tornado	F2	0	3	250.00K	0.00K
WORTH CO.	WORTH CO.	GA	05/16/1966	22:50	CST	Tornado	F2	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	05/16/1966	22:50	CST	Tornado	F2	0	0	250.00K	0.00K
WORTH CO.	WORTH CO.	GA	11/11/1968	03:00	CST	Tornado	F3	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	02/08/1973	17:30	CST	Tornado	F2	0	5	250.00K	0.00K
WORTH CO.	WORTH CO.	GA	04/08/1974	17:45	CST	Tornado	F1	0	0	250.00K	0.00K
WORTH CO.	WORTH CO.	GA	08/01/1974	15:00	CST	Tornado	F1	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	01/12/1975	14:05	CST	Tornado	F2	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	05/08/1978	21:10	CST	Tornado	F1	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	05/16/1983	06:20	CST	Tornado	F1	0	0	250.00K	0.00K
WORTH CO.	WORTH CO.	GA	03/05/1984	15:35	CST	Tornado	F1	0	0	250.00K	0.00K
WORTH CO.	WORTH CO.	GA	05/21/1990	13:00	CST	Tornado	F1	0	0	250.00K	0.00K
WORTH CO.	WORTH CO.	GA	01/30/1991	11:20	EST	Tornado	F1	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	03/03/1991	13:15	EST	Tornado	F0	0	0	25.00K	0.00K
WORTH CO.	WORTH CO.	GA	11/24/1992	10:25	EST	Tornado	F1	0	9	25.00K	0.00K
RED ROCK	WORTH CO.	GA	03/06/1996	11:02	EST	Tornado	F2	0	0	6.000M	2.000M
ISABELLA	WORTH CO.	GA	09/29/1998	16:00	EST	Tornado	F1	0	0	300.00K	0.00K
POULAN	WORTH CO.	GA	06/04/1999	19:37	EST	Tornado	F0	0	0	2.00K	0.00K
BRIDGEBORO	WORTH CO.	GA	03/20/2003	05:25	EST	Tornado	F2	2	0	750.00K	0.00K
SYLVESTER	WORTH CO.	GA	12/05/2005	11:45	EST	Tornado	F1	0	2	750.00K	0.00K
GORDY	WORTH CO.	GA	12/28/2005	16:50	EST	Tornado	F0	0	0	0.00K	0.00K
SYLVESTER	WORTH CO.	GA	12/28/2005	17:00	EST	Tornado	F0	0	0	10.00K	0.00K
BRIDGEBORO	WORTH CO.	GA	03/02/2007	00:12	EST-5	Tornado	EF2	0	0	175.00K	0.00K
SYLVESTER	WORTH CO.	GA	03/02/2007	00:20	EST-5	Tornado	EF2	0	2	275.00K	0.00K
SUMNER	WORTH CO.	GA	03/02/2007	00:30	EST-5	Tornado	EF2	0	0	500.00K	0.00K
WARWICK	WORTH CO.	GA	04/15/2007	02:23	EST-5	Tornado	EF1	0	0	30.00K	0.00K
SYLVESTER	WORTH CO.	GA	12/15/2007	21:03	EST-5	Tornado	EF0	0	0	750.00K	0.00K
LIBERTY HILL	WORTH CO.	GA	06/04/2009	19:50	EST-5	Tornado	EF0	0	0	35.00K	0.00K
Totals:								2	21	11.602M	2.000M

Source: National Climatic Data Center

** Specific injury data not available*

Worth County has had 27 tornado events in the last 65 years that have caused injuries and property loss. The tornadoes have ranged in magnitude from F0 to F3 and have caused upwards of $11.6 million in property damage, two deaths and 21 injuries.

Worth County has not experienced a tornado since 2009.

C. Community Exposure

The random, sudden and violent natures of the tornado place all residents and all physical development throughout the community at risk. The critical facilities identified in Worth County and its cities are schools, governmental facilities, fire and emergency medical facilities, water and wastewater treatment facilities and solid waste sites. The Worth County Pre-Disaster Planning Team used GIS, E-911 information, related websites, GEMA's online database, and other modeling tools to map the county's critical facilities and determine which are most likely to be affected by tornadoes. This, of course, includes all the community's critical infrastructure, identified in Appendix A. According to the critical facilities inventory report (wind) and Worksheet #3A, the most damage in terms of dollars would be in the residential sector. There is a potential of $549.6 million in damage to structures and $66 million in damage to critical facilities. The data for worksheet 3A was from the tax digest and is broken down by jurisdiction in Appendix D. For more specifics on this data please see in Appendix D - for Worksheet #3A Inventory of Assets – Tornado. The Critical Facilities Inventory is in Appendix A (Page 29).

D. Estimate of Potential Losses

Two formats prescribed by the Georgia Emergency Management Agency were used in estimating potential losses: the Georgia Mitigation Information System (GMIS) and the Assets Worksheet. Data input for the Critical Facilities Inventory included the replacement value of each critical facility identified. The value of the critical facilities in Worth County is $66 million. All of the facilities are subject to damage from tornadoes. This information can be reviewed in detail in Worksheet #3A - Tornado, Appendix D. Population data is presented in Appendix B.

Worth County and its municipalities are susceptible to wind speeds ranging from 90 mph to 99 mph.

E. Land Use and Development Trends

Because of the random nature of tornadoes the entire community is at risk. Consequently, there are not any local land use or development trends applicable to the tornado hazard. Building codes are enforced in Worth County and its municipalities. Wind speed threshold for new construction throughout the county is 99 mph. The rural/agricultural nature of Worth County suggests that if a tornado touched down in the county that the losses would likely be minimal, whereas if a tornado touched down in one of the municipalities the losses would be very drastic.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for Worth County or the cities of Sylvester, Poulan, Sumner or Warwick that would be subject to other requirements above and beyond that of the adopted building codes.

F. Multi-Jurisdictional Differences

The Worth County Pre Disaster Mitigation Plan assessed each community to determine if there was a variation in risk from tornadoes. From the assessment it was determined there is no variation in risk of a tornado event in any jurisdiction, or at any location that differs from the risk facing the entire community. Tornados are statistically more likely to hit the unincorporated Worth County because it occupies proportionally more land area than the Municipalities within. Pre-disaster mitigation measures relevant to tornadoes are applicable throughout Worth County. A map of each jurisdiction as it relates to tornadoes is located in Appendix A (Worth County Critical Facilities Map Images – Tornado, Page 17-18).

G. Hazard, Risk and Vulnerability Summary

Tornadoes can strike anywhere in the community, at any time of day and any time of year, with suddenness and with great intensity as a result of weather conditions common to the area. The current state of technology cannot prevent such hazards from occurring. Development regulations can be modified to protect structures from these events, and reduce the loss of property and life. Education and

public awareness is another important step in preventing loss from tornadoes and high winds. The community must prepare in advance, and be able to respond quickly and appropriately to such an event.

No changes have occurred Worth County with regards to development, population, infrastructure, etc. that would increase or decrease the community's vulnerability to tornadoes since the previous plan was approved. Worth County has not experienced a tornado since 2009.

II. NATURAL HAZARD – THUNDERSTORM WINDS

A. Hazard Identification

Thunderstorm winds are generally short in duration involving straight-line winds (as opposed to a rotating column of air) and/or gusts in excess of 50 mph. This hazard tends to affect areas of softwood trees, a feature common in the community, areas with exposed improvements and infrastructure, and above ground utilities. These winds can cause power outages, transportation and economic disruptions, significant property damage and pose a high risk of injuries and loss of life.

B. Hazard Profile

All areas of the county have experienced damage from thunderstorm winds. Although there have not been any such hazards of "disaster" proportions, it is the most common natural hazard to befall the community. Worth County lies entirely in the 90-99 mph wind zone. Examples of local damages include forests, trees blown onto homes, commercial establishments and power lines, moving semi-trailer trucks blown off the highway, roofs torn off buildings and signs blown off businesses. The historic record as compiled by the National Climatic Data Center documents 87 thunderstorm events over the past 65 years. The data cannot be broken down by jurisdiction because the initial data was classified by County only. No deaths or injuries were documented and property damage reportedly totaled $2.46 Million. Extrapolating from the past half century of available data, the community has a 134% probability of experiencing thunderstorm winds any given year (Appendix A- Hazard Frequencies Table, Page 32).

CZ_NAME_STR	BEGIN_LOCATION	BEGIN_DATE	BEGIN_TIME	EVENT_TYPE	MAGNITUDE	DEATHS_DIRECT	INJURIES_DIRECT	DAMAGE_PROPERTY
WORTH CO.		3/30/1970	1300	Thunderstorm Wind	0	0	0	0
WORTH CO.		7/11/1970	1730	Thunderstorm Wind	0	0	0	0
WORTH CO.		3/24/1975	1525	Thunderstorm Wind	0	0	0	0
WORTH CO.		5/30/1979	1500	Thunderstorm Wind	0	0	0	0
WORTH CO.		4/12/1980	1030	Thunderstorm Wind	0	0	0	0
WORTH CO.		7/6/1980	2000	Thunderstorm Wind	55	0	0	0
WORTH CO.		3/5/1984	1530	Thunderstorm Wind	0	0	0	0
WORTH CO.		5/3/1984	1005	Thunderstorm Wind	0	0	0	0
WORTH CO.		11/21/1985	2245	Thunderstorm Wind	0	0	0	0
WORTH CO.		7/29/1986	1725	Thunderstorm Wind	0	0	0	0
WORTH CO.		6/27/1988	1505	Thunderstorm Wind	0	0	0	0
WORTH CO.		5/1/1989	1142	Thunderstorm Wind	0	0	0	0
WORTH CO.		8/26/1989	1630	Thunderstorm Wind	0	0	0	0
WORTH CO.		11/15/1989	2230	Thunderstorm Wind	0	0	0	0
WORTH CO.		1/29/1990	1430	Thunderstorm Wind	0	0	0	0
WORTH CO.		2/10/1990	610	Thunderstorm Wind	0	0	0	0
WORTH CO.		2/16/1990	1215	Thunderstorm Wind	0	0	0	0
WORTH CO.		2/16/1990	1237	Thunderstorm Wind	0	0	0	0
WORTH CO.		5/16/1990	1523	Thunderstorm Wind	0	0	0	0
WORTH CO.		5/16/1990	1545	Thunderstorm Wind	0	0	0	0
WORTH CO.		5/16/1990	1610	Thunderstorm Wind	0	0	0	0
WORTH CO.		3/2/1991	500	Thunderstorm Wind	0	0	0	0
WORTH CO.		4/30/1991	1350	Thunderstorm Wind	0	0	0	0
WORTH CO.		6/1/1991	2000	Thunderstorm Wind	0	0	0	0
WORTH CO.		6/4/1991	1630	Thunderstorm Wind	0	0	0	0
WORTH CO.		7/10/1991	1735	Thunderstorm Wind	0	0	0	0
WORTH CO.		7/10/1991	1858	Thunderstorm Wind	0	0	0	0
WORTH CO.		7/14/1991	1730	Thunderstorm Wind	0	0	0	0
WORTH CO.		7/1/1992	1110	Thunderstorm Wind	0	0	0	0
WORTH CO.		11/24/1992	1025	Thunderstorm Wind	0	0	0	0
WORTH CO.		11/24/1992	1055	Thunderstorm Wind	0	0	0	0
WORTH CO.	Doles	3/31/1993	1530	Thunderstorm Wind	0	0	0	500
WORTH CO.	Sylvester	5/31/1993	1520	Thunderstorm Wind	0	0	0	500
WORTH CO.		5/15/1994	1820	Thunderstorm Wind	0	0	0	50000
WORTH CO.	Bridgeboro	6/11/1994	1300	Thunderstorm Wind	0	0	0	5000
WORTH CO.	Sylvestor	6/24/1994	1430	Thunderstorm Wind	0	0	0	5000
WORTH CO.	Sylvestor	6/26/1994	1300	Thunderstorm Wind	0	0	0	50000
WORTH CO.	Acree	7/4/1994	1820	Thunderstorm Wind	0	0	0	500000
WORTH CO.	Sylvestor	7/22/1994	1835	Thunderstorm Wind	0	0	0	5000
WORTH CO.	Poulan	7/25/1994	1545	Thunderstorm Wind	0	0	0	500
WORTH CO.	Sylvestor	8/5/1994	1515	Thunderstorm Wind	0	0	0	50
WORTH CO.	SYLVESTER	10/25/1997	1635	Thunderstorm Wind	52	0	0	100000
WORTH CO.	COUNTYWIDE	6/5/1998	1845	Thunderstorm Wind		0	0	10000
WORTH CO.	CENTRAL PORTION	9/29/1998	1510	Thunderstorm Wind		0	0	350000
WORTH CO.	SOUTHEAST PORTION	5/6/1999	1905	Thunderstorm Wind		0	0	5000
WORTH CO.	COUNTYWIDE	5/7/1999	945	Thunderstorm Wind		0	0	2000
WORTH CO.	COUNTYWIDE	6/4/1999	1920	Thunderstorm Wind		0	0	25000
WORTH CO.	SYLVESTER	6/4/1999	1935	Thunderstorm Wind		0	0	50000
WORTH CO.	SUMNER	6/4/1999	2015	Thunderstorm Wind		0	0	5000
WORTH CO.	COUNTYWIDE	9/7/1999	1400	Thunderstorm Wind		0	0	8000
WORTH CO.	SUMNER	2/14/2000	35	Thunderstorm Wind		0	0	250000
WORTH CO.	POULAN	3/11/2000	1525	Thunderstorm Wind		0	0	10000
WORTH CO.	POULAN	6/26/2000	1715	Thunderstorm Wind		0	0	10000
WORTH CO.	COUNTYWIDE	1/19/2002	1820	Thunderstorm Wind		0	0	10000
WORTH CO.	NORTHWEST PORTION	8/20/2002	1955	Thunderstorm Wind		0	0	1000
WORTH CO.	COUNTYWIDE	12/24/2002	935	Thunderstorm Wind	55	0	0	50000
WORTH CO.	SYLVESTER	5/2/2003	2235	Thunderstorm Wind	50	0	0	1000
WORTH CO.	SYLVESTER	7/7/2004	1452	Thunderstorm Wind	50	0	0	1000
WORTH CO.	SYLVESTER	7/7/2004	1457	Thunderstorm Wind	50	0	0	1000
WORTH CO.	TEMPY	7/24/2004	2005	Thunderstorm Wind	50	0	0	10000
WORTH CO.	DOLES	12/10/2004	20	Thunderstorm Wind	65	0	0	25000
WORTH CO.	SYLVESTER	12/10/2004	30	Thunderstorm Wind	65	0	0	150000
WORTH CO.	COUNTYWIDE	4/26/2006	1400	Thunderstorm Wind	50	0	0	500

WORTH CO.	COUNTYWIDE	5/10/2006	1812	Thunderstorm Wind	65	0	0	250000
WORTH CO.	SYLVESTER	5/28/2006	1820	Thunderstorm Wind	55	0	0	1000
WORTH CO.	SYLVESTER	7/28/2006	1925	Thunderstorm Wind	55	0	0	2000
WORTH CO.	SYLVESTER	2/13/2007	1445	Thunderstorm Wind	60	0	0	175000
WORTH CO.	SYLVESTER	2/13/2007	1445	Thunderstorm Wind	55	0	0	1000
WORTH CO.	SYLVESTER	2/13/2007	1500	Thunderstorm Wind	55	0	0	10000
WORTH CO.	DOLES	6/5/2007	1850	Thunderstorm Wind	55	0	0	500
WORTH CO.	BRIDGEBORO	6/29/2007	1900	Thunderstorm Wind	45	0	0	5000
WORTH CO.	SYLVESTER	8/9/2007	1735	Thunderstorm Wind	50	0	0	1000
WORTH CO.	OAKFIELD	5/11/2008	900	Thunderstorm Wind	50	0	0	1000
WORTH CO.	SYLVESTER	5/11/2008	900	Thunderstorm Wind	50	0	0	2000
WORTH CO.	DOLES	5/11/2008	904	Thunderstorm Wind	50	0	0	0
WORTH CO.	SYLVESTER	7/22/2008	1650	Thunderstorm Wind	50	0	0	0
WORTH CO.	DOLES	8/6/2008	1818	Thunderstorm Wind	50	0	0	0
WORTH CO.	OAKFIELD	8/6/2008	1826	Thunderstorm Wind	50	0	0	500
WORTH CO.	POULAN	8/7/2008	1459	Thunderstorm Wind	50	0	0	5000
WORTH CO.	DOLES	8/7/2008	1508	Thunderstorm Wind	50	0	0	0
WORTH CO.	RED ROCK	8/7/2008	1538	Thunderstorm Wind	50	0	0	0
WORTH CO.	WILLINGHAM	8/7/2008	1541	Thunderstorm Wind	50	0	0	0
WORTH CO.	SHINGLER	8/7/2008	1650	Thunderstorm Wind	50	0	0	0
WORTH CO.	TERRELL STATION	8/7/2008	1650	Thunderstorm Wind	50	0	0	0
WORTH CO.	POULAN	8/7/2008	1856	Thunderstorm Wind	50	0	0	0
WORTH CO.	DOLES	1/7/2009	505	Thunderstorm Wind	50	0	0	0
WORTH CO.	SUMNER	2/28/2009	1505	Thunderstorm Wind	60	0	0	25000
WORTH CO.	DOLES	2/28/2009	1930	Thunderstorm Wind	60	0	0	10000
WORTH CO.	SUMNER	4/5/2009	1235	Thunderstorm Wind	55	0	0	100000
WORTH CO.	SYLVESTER	4/13/2009	1045	Thunderstorm Wind	55	0	0	5000
WORTH CO.	OAKFIELD	6/15/2010	2015	Thunderstorm Wind	55	0	0	6000
WORTH CO.	RED ROCK	6/20/2010	1916	Thunderstorm Wind	60	0	0	10000
WORTH CO.	ISABELLA	8/1/2010	2120	Thunderstorm Wind	55	0	0	5000
WORTH CO.	POULAN	4/5/2011	145	Thunderstorm Wind	55	0	0	20000
WORTH CO.	SUMNER	9/5/2011	1603	Thunderstorm Wind	50	0	0	1000
WORTH CO.	PARKERVILLE	2/18/2012	2135	Thunderstorm Wind	50	0	0	2000
WORTH CO.	SYLVESTER	2/18/2012	2145	Thunderstorm Wind	50	0	0	5000
WORTH CO.	SUMNER	2/18/2012	2158	Thunderstorm Wind	50	0	0	3000
WORTH CO.	WARWICK	7/1/2012	2030	Thunderstorm Wind	55	0	0	6000
WORTH CO.	SYLVESTER	8/16/2012	1720	Thunderstorm Wind	50	0	0	3000
WORTH CO.	RED ROCK	8/16/2012	1745	Thunderstorm Wind	50	0	0	20000
WORTH CO.	ANDERSON CITY	6/8/2013	1815	Thunderstorm Wind	50	0	0	4000
WORTH CO.	SYLVESTER	8/30/2013	1800	Thunderstorm Wind	50	0	0	5000
WORTH CO.	PRITCHETTS	2/21/2014	805	Thunderstorm Wind	74	0	0	50000
WORTH CO.	SYLVESTER	4/19/2015	1155	Thunderstorm Wind	55	0	0	25000
WORTH CO.	OAKFIELD	4/25/2015	1807	Thunderstorm Wind	50	0	0	0
WORTH CO.	SUMNER	4/25/2015	1848	Thunderstorm Wind	50	0	0	1000
WORTH CO.	WARWICK	5/31/2015	1600	Thunderstorm Wind	50	0	0	1000
WORTH CO.	SYLVESTER	6/17/2015	1845	Thunderstorm Wind	55	0	0	10000
WORTH CO.	TEMPY	6/18/2015	1745	Thunderstorm Wind	50	0	0	0
WORTH CO.	POULAN	6/18/2015	1748	Thunderstorm Wind	50	0	0	0
WORTH CO.	POULAN	6/18/2015	1750	Thunderstorm Wind	50	0	0	0
WORTH CO.	SUMNER	6/18/2015	1803	Thunderstorm Wind	50	0	0	0
WORTH CO.	TEMPY	6/23/2015	1457	Thunderstorm Wind	50	0	0	0
WORTH CO.	OAKFIELD	6/30/2015	1315	Thunderstorm Wind	50	0	0	0
WORTH CO.	OAKFIELD	6/30/2015	1511	Thunderstorm Wind	50	0	0	0
WORTH CO.	SHINGLER	6/30/2015	1552	Thunderstorm Wind	50	0	0	0

National Climatic Data Center

C. Community Exposure

The random, sudden and violent natures of thunderstorms place all residents and all physical development throughout the community at risk. The critical facilities identified in Worth County and its municipalities are schools, governmental facilities, fire and emergency medical facilities, water and wastewater treatment facilities and solid waste sites. The Worth County Pre-Disaster Planning Team used GIS, E-911 information, related websites, GEMA's online database, and other modeling tools to map the county's critical facilities and determine which are most likely to be affected by thunderstorms. This, of course, includes all the community's critical infrastructure, identified in Appendix A. According to the critical facilities inventory report (Thunderstorm) and Worksheet #3A, the most damage in terms of dollars would be in the residential sector. There is a potential of $549.6 million in damage to structures and $66 million in damage to critical facilities. The data for worksheet 3A was from the tax digest and is broken down by jurisdiction in Appendix D. The Critical Facilities Inventory is in Appendix A (Page A29).

The critical facilities identified in Worth County and its municipalities are schools, governmental facilities, fire and emergency medical facilities, and water system. While there was no damage to critical facilities from the thunderstorms winds listed in the data above electricity to those facilities can be severely affected for long periods of time in thunderstorm events due to wind damage and/or lightning. This creates a need for electricity to be restored quickly either through repairing the power lines or obtaining fuel powered generators. This, of course, includes all the community's critical infrastructure, identified in Appendix A.

D. Estimate of Potential Losses

Two formats prescribed by the Georgia Emergency Management Agency were used in estimating potential losses: the Georgia Mitigation Information System (GMIS) and the Assets Worksheet. Data input for the Critical Facilities Inventory included the replacement value of each critical facility identified. This information

can be viewed in Appendix A (Critical Facilities – Wind Hazard Pg 29). According to the critical facilities inventory the replacement value totals $66 million and there was no total for functional use value.

Worth County and its municipalities are susceptible to wind speeds ranging from 90 mph to 99 mph.

E. Land Use and Development Trends

Because of the random nature of thunderstorms the entire community is at risk. Consequently, there are not any local land use or development trends applicable to the thunderstorm hazard. Building codes are enforced in Worth County and it municipalities. Wind speed threshold for new construction in Worth County and it municipalities is 99 mph. The Wind Hazard Scores are based on the 2000 International Building Code, figure 1609 contours showing 3 second gust wind speeds with a 50 year return interval. The Northwest portion of the state scored an additional point for the 250 mph community tornado shelter design zone according to FEMA publications.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for Worth County or the cities of Sylvester, Poulan, Sumner or Warwick that would be subject to other requirements above and beyond that of the adopted building codes.

F. Multi-Jurisdictional Differences

The Worth County Pre Disaster Mitigation Plan assessed each community to determine if there was a variation in risk from thunderstorms. From the assessment it was determined there is no variation in risk of a thunderstorm event in any jurisdiction, or at any location that differs from the risk facing the entire community. The municipalities may not receive as much damage as Worth County but because the development is more concentrated there is more of a probability for flying debris to cause more damage. The county is subject to building codes that requires structures to withstand the 99

mph wind speed threshold which is indicated on the critical facilities map. The critical facilities map of each jurisdiction as it related to thunderstorm winds is located in Appendix A (Worth County Critical Facilities Map Images – Thunderstorm, Page 14-18).

G. Hazard, Risk and Vulnerability Summary

Thunderstorm winds are the community's most common natural hazard event, and have demonstrated the ability to strike anywhere at any time. The current state of technology cannot prevent such hazards from occurring. The community must prepare in advance, and be able to respond quickly and intelligently to such an event.

No changes have occurred in Worth County with regards to development, population, infrastructure, etc. that would increase or decrease the community's vulnerability to thunderstorm winds since the previous plan was approved.

III. NATURAL HAZARD – FLOOD

A. Hazard Identification

The overflow of rivers and streams onto normally dry lands due to severe storms or torrential rains is often a secondary impact of tropical storms or hurricanes. Among the most common factors affecting the extent of flooding are: topography, ground saturation, rainfall intensity and duration, soil type, drainage, drainage patterns, basin size, vegetative cover and development density/impervious surfaces. Flooding may occur slowly as the result of an extended rain or storm event, or as the result of a flash flood sometimes causing dam failure.

B. Hazard Profile

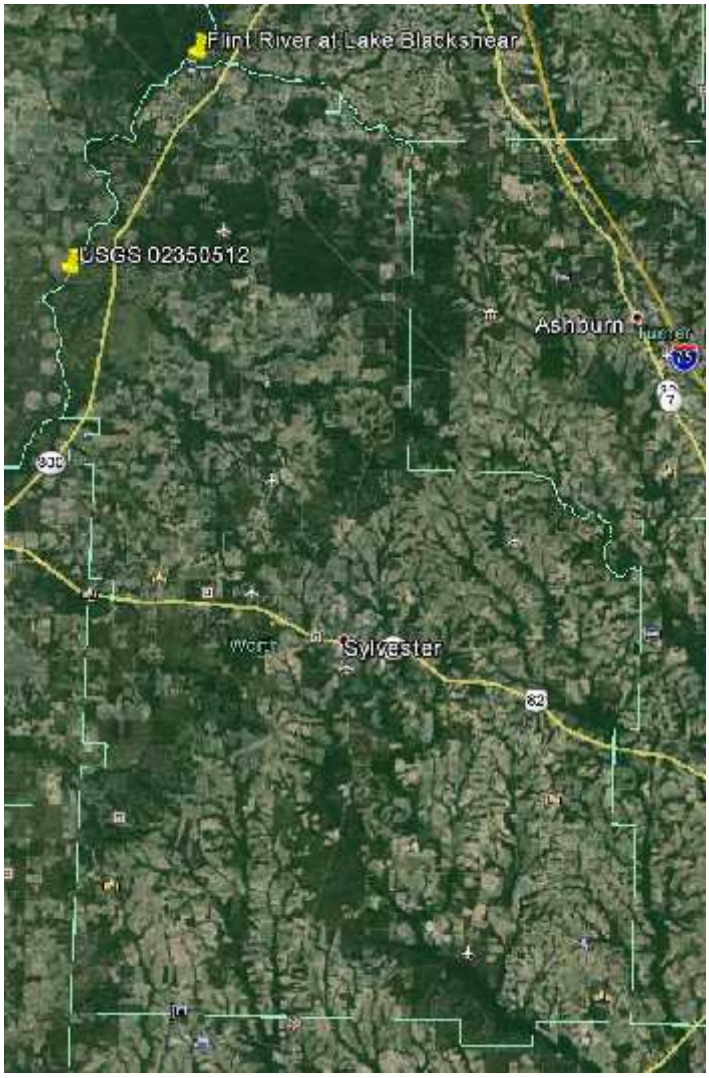
Worth County has seen five flash flood events and eight flood events in the past 19 years. Several rivers and creeks run through the county, though they do not cause Worth as much damage as flash flooding. The City of Sylvester suffer the most from flash flooding.

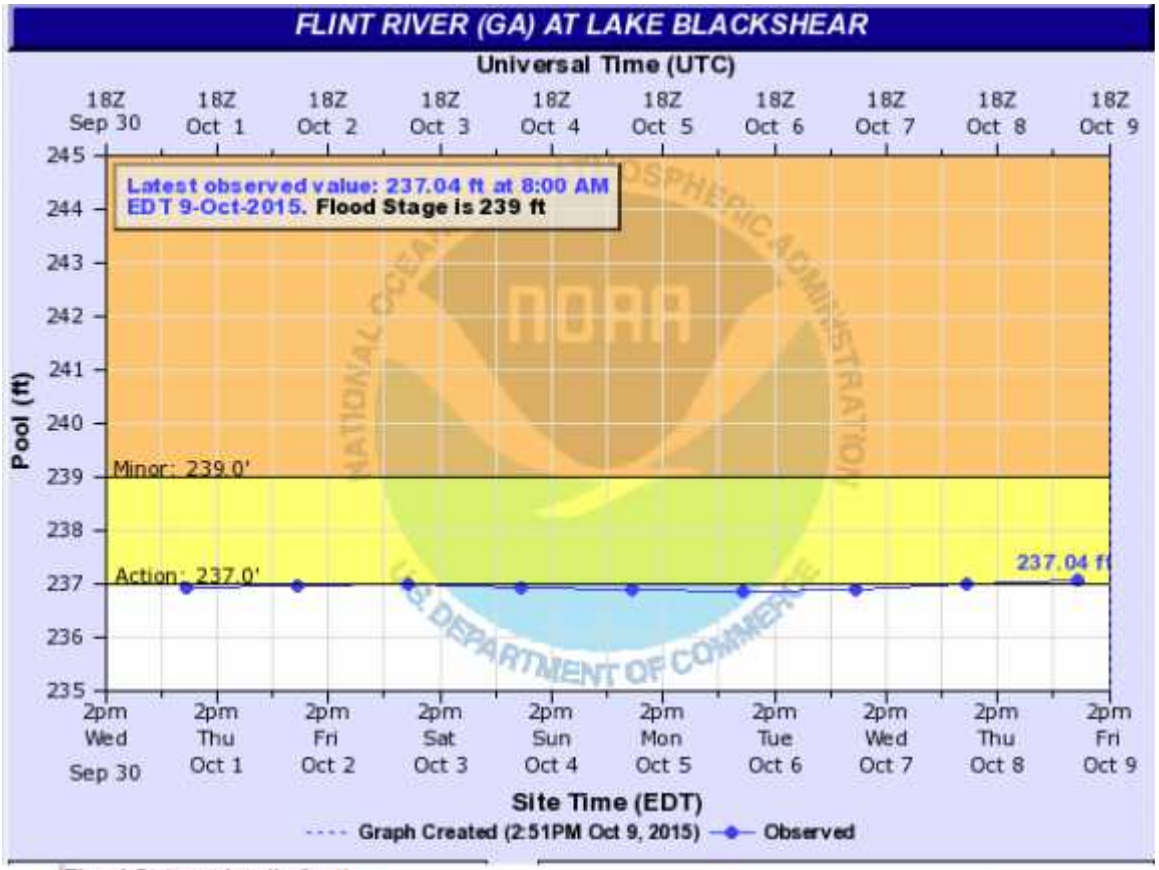
Using detailed analysis and modeling, FEMA determines the base flood elevation (BFE), which is the predicted flood water elevation above mean sea level. Habitable areas of any new construction must begin above this level. For instance, a property in a B zone with a BFE of 2 feet would need the first habitable floor to be raised 2 feet or more and the floor under can only be used for things such as parking and/or storage/access. The last flood map update for the county was August 2009 and for the city it was also August 2009. Each Municipality and Worth County participate in the National Flood Insurance Program and will continue to comply by enforcing the floodplain ordinance and beginning the process of establishing a Base Flood Elevation.

Jurisdiction	Date Currency	Participating in FIRM
City of Warwick	9/25/09	YES
City of Sylvester	9/25/09	YES

City of Poulan	9/25/09	YES
City of Sumner	9/25/09	YES
Worth County	8/18/09	YES

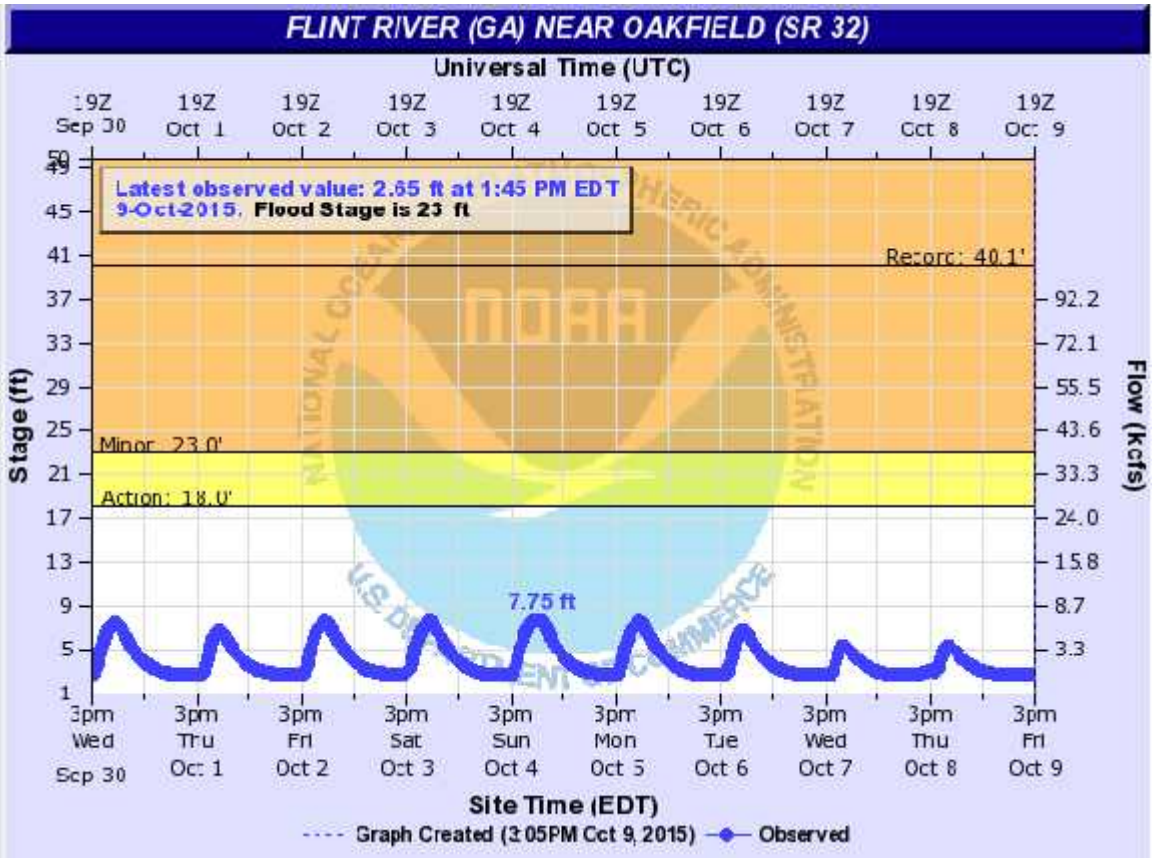
BFE's have been established by the Flood Insurance Study for Town Creek and its Tributaries. The average flood stage for Town Creek is 7.63 feet and 6.33 feet for its tributaries. A flood extent table for these locations is located in Appendix C. There are two monitoring stations located throughout Worth County that have provided valuable data for many years in some cases. The following information shows data highlights from various monitoring stations in Worth County.





Flood Categories (in feet)	
Flood Stage:	239
Action Stage:	237

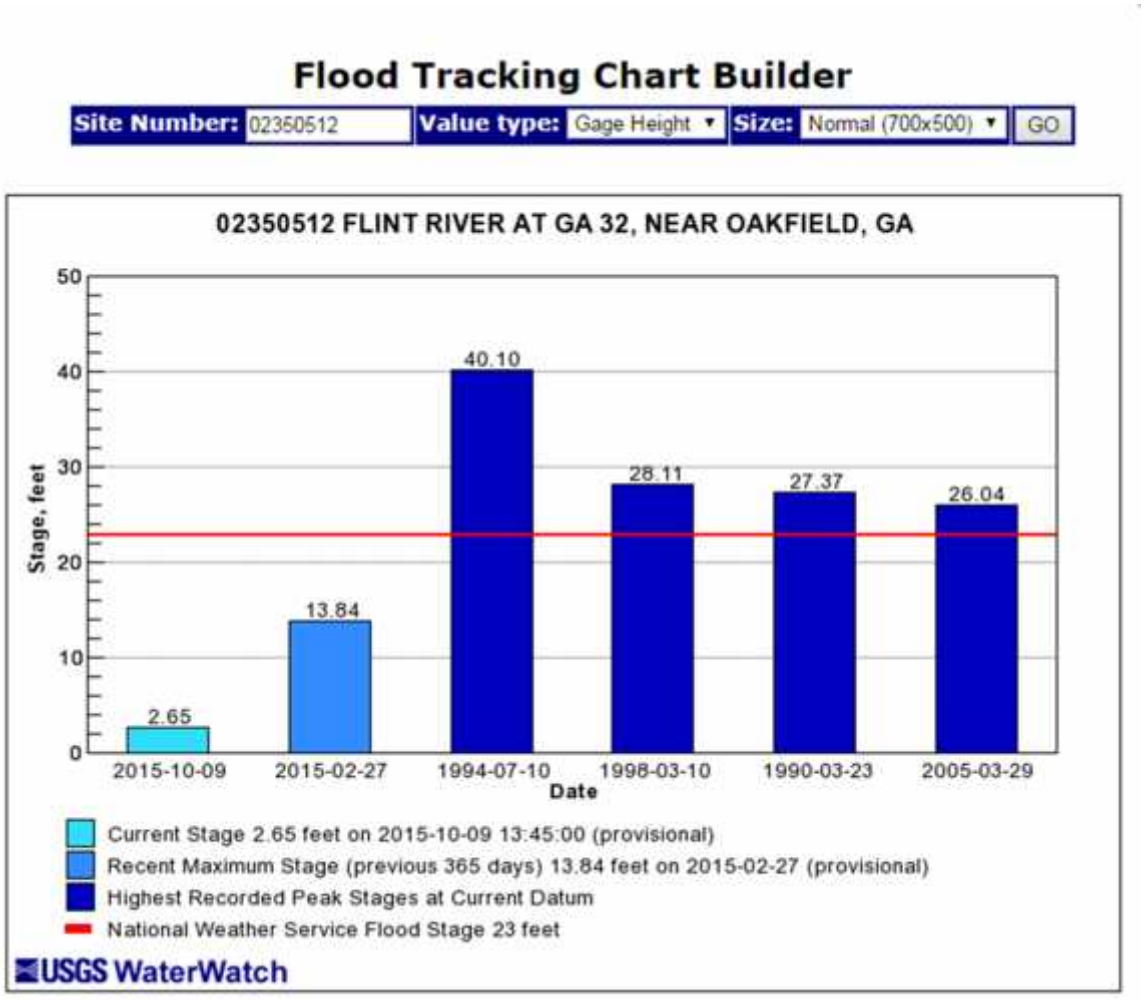
Historic Crests
Currently none available.



Flood Categories (in feet)	
Flood Stage:	23
Action Stage:	18

Historic Crests

(1) 40.10 ft on 07/10/1994
(2) 28.11 ft on 03/10/1998
(3) 27.37 ft on 03/23/1990
(4) 26.04 ft on 03/29/2005
(5) 25.32 ft on 04/03/2009
(6) 21.28 ft on 03/13/1996



Input of available data suggests a 18.5% probability of a flood event in any given year (Appendix A – Hazard Frequencies Table, Page 32). This data cannot be broken down by jurisdiction because all flooding occurred in the County and not in the jurisdiction themselves and therefore was reported as such. According to Flood history located on page A-9 in Appendix A there was a flood located at "Habersham" which coincidently is located in Northeast Georgia and covered by the Greenville, South Carolina National Weather Service Forecast Office and considered an error in the data source, therefore this event was ignored when creating the Hazard Frequency Table and probabilities.

C. Community Exposure

The Worth County Pre-Disaster Mitigation Plan identifies critical facilities located in the County that are susceptible to individual

hazards. A critical facility 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, or disaster recovery functions.

The critical facilities identified in Worth County are schools, governmental facilities, fire and emergency medical facilities, water and wastewater treatment facilities and solid waste sites. According to the critical facilities inventory report (flood) and Worksheet #3A, the most damage from flood would not be extensive as in surrounding counties due to minimal development in floodplain areas. The total value of non-critical structures in flood hazard areas is $24.5 million. The waste water treatment plants/pond for both Sylvester and Worth County lie in the floodplain or at least partially in the floodplain. The Sylvester Senior Citizen's Center is also located in the floodplain . The data for worksheet 3A was from the tax digest and is broken down by jurisdiction in Appendix D. For more specifics on this data please see in Appendix D - for Worksheet #3A Inventory of Assets – Flood. The Critical Facilities data is in Appendix A (Critical Facilities Inventory– Flood, Page 30)

Accurate data does not exist to allow probability of flooding to be determined with regards to any particular jurisdiction.

The Worth County Pre-Disaster Mitigation Plan used GIS, FIRM maps, related websites, and other modeling tools to map the county's critical facilities and determine which are most likely to be affected by flood. The average flood stage for Town Creek is 7.63 feet and 6.33 feet for its tributaries. The Flood stage for the Flint River is 23 feet.

- The analysis revealed that the portion of the County that is most likely to experience damage from flooding are the areas that are located in the 100-year Floodplain according to the FIRM map. A one hundred year flood plain delineation has

been identified in Worth County and it's municipalities by the National Flood Insurance Program. The Federal Emergency Management Agency (FEMA) has mapped the following Flood Prone Areas in Worth County and its Municipalities: Most notably is that of Town Creek and its tributaries in the City of Sylvester.

Worth County has two repetitive loss properties and the City of Sylvester has one. All three properties are residential.

D. Estimate of Potential Loss

Specific areas in Worth County continue to be at risk. The risk in the county is mostly damage to agriculture assets but the risk in the cities is the damage to residential and commercial assets. Also there are several residential areas in the cities (particularly Sylvester) and county that are at risk by being located in or near a floodplain. Because of floodplain ordinance enforcement fewer properties will be adversely affected by any future flood event. The City of Sylvester and, to a lesser extent Worth County, Warwick, Poulan and Sumner are usually affected by flash flooding due to stormwater overload. The detailed estimate of potential losses is outlined in APPENDIX D – Worksheet #3A Inventory of Assets - Flood.

E. Land Use and Development Trends

Land Use is an important tool that provides local government the opportunity to inventory existing land use patterns and trends; to determine future patterns of growth, based on community needs and desires; and to develop goals, policies and strategies for land use that strike a balance between effective and efficient delivery of public services, protection/preservation of vulnerable natural and historic resources, and respect for individual property rights. The planning process in any community involves making decisions between alternatives in various phases of the community's development. As an essential component of the Land Use Plan, it is necessary to formulate general objectives and recommendations that embody the community's goals, as well as sound planning principles and concepts.

Residential and commercial areas still exist in the floodplains in the City of Sylvester but these areas are not experiencing any marked increase in development. The floodplain areas along Town Creek and its various tributaries contain residential structures but only minor development has occurred. Most current development, especially residential, is located outside floodplain areas. This is due in part to the floodplain ordinances that are being enforced by Worth County and the Cities of Sylvester, Warwick, Poulan and Sumner.

Development in Worth County is generally concentrated in and around the Cities of Sylvester, Poulan and Sumner. There are a number of developed properties throughout the county but the density is very sparse. Mitigative actions for existing properties are generally the responsibility of the homeowner and, depending on the work, may require a building permit.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for Worth County or the cities of Sylvester, Poulan, Sumner or Warwick that would be subject to other requirements above and beyond that of the adopted building codes.

F. Multi-Jurisdictional Differences

The Worth County plan includes the Cities of Warwick, Sylvester, Poulan and Sumner. This multi-jurisdictional plan required review of the county and each city individually for each hazard to determine if there were special concerns or mitigation measures required. Maps of each jurisdiction as related to floods are in Appendix A Flood/Worth County Critical Facilities Map Images – Flood (Page 19-23).

Al of the municipalities and unincorporated Worth County all contain floodplain areas. This means that all jurisdictions have to respond to this hazard and are treated the same in this plan. All jurisdictions are

part of the National Flood Insurance Program. Maps of each jurisdiction as related to flood are in Appendix A Flood/Worth County Critical Facilities Map Images – Flood (Page 19-23).

G. Hazard, Risk and Vulnerability Summary

Floods have the most impact on the City of Sylvester, both in terms of monetary damage and interruption of services. Requiring development to occur in a more educated manner in flood prone areas is one of the first and easiest steps to take to prevent loss of property and life from this hazard. Education and public awareness is one other key step to make homeowners aware of risks and safeguards available to protect them. Nothing has changed with regards to the overall vulnerability of the community's to this hazard since the previous plan was completed.

IV. NATURAL HAZARD – DROUGHT

A. Hazard Identification

A drought is a prolonged period without rain which progresses in stages. The first stage, meteorological drought, occurs when precipitation falls below normal levels and is usually expressed as a rainfall deficit, e.g., inches below normal. Stage two, agricultural drought, occurs when the amount of moisture in the soil no longer meets the needs of a particular crop. When meteorological drought occurs at a critical time of year it can result in water deficient topsoil, which may hinder germination and reduce crop yield. This type drought is usually measured in soil moisture levels and can be devastating to agricultural communities. (The accompanying table indicates the frequency of stage two conditions in the community over the past two and one-half decades.)

Hydrological drought is the third stage. This occurs when surface and subsurface (ground) water supplies fall below normal levels due to

prolonged meteorological drought. Indicators include decreased stream flow rates, lake elevations and groundwater levels. Hydrological drought can be detrimental to the environment, upsetting the hydrologic cycle and impacting fish, wildlife and plant species. If this persists long enough, demand for water may exceed supply, leading to the fourth stage – socio-economic drought. This stage (considered extreme for Worth County) can take many months, or even years to develop, often with devastating social and economic consequences. Future severity can also be determined by the Palmer Drought Severity Index (PDSI). The Palmer Index is most effective in determining long term drought—a matter of several months—and is not as good with short-term forecasts (a matter of weeks). It uses a 0 as normal, and drought is shown in terms of minus numbers; for example, minus 2 is moderate drought, minus 3 is severe drought, and minus 4 is extreme drought. According to the Palmer index for Worth County, times of severe drought reach -3 to -5.5 on the chart and these numbers can be used to estimate the extent or potential strength for droughts in store for Worth County in the future. The Palmer Index is a measurement of dryness based on recent precipitation and temperature and is the unofficial measure of drought conditions. The Palmer Drought Index is based on a supply-and-demand model of soil moisture. Supply is comparatively straightforward to calculate, but demand is more complicated as it depends on many factors - not just temperature and the amount of moisture in the soil but hard-to-calibrate factors including evapotranspiration and recharge rates.

B. Hazard Profile

Drought is a widespread weather pattern affecting a much larger area than any single community. Hence, drought affects the entire community, primarily economically because critical facilities are not directly susceptible to adverse impacts of such an event. Generally, the population is not at risk from physical harm, except in the latter stages of a severe drought. In the drought of 2010-2013, private wells began to run dry in the county. In addition during drought, Worth County is susceptible to local wildfires which tax the local fire departments. Over the past half century the historical record

documented 25 drought events. No deaths or injuries were recorded. A number of these events from 2010 to 2013 were likely one extended drought period and because of this it is not possible to make any accurate statistical predictions regarding drought frequency or extent. Other such events are known to have occurred earlier, but supporting documentation could not be located. Based on straight-line extrapolation from the documented record of Local Agricultural

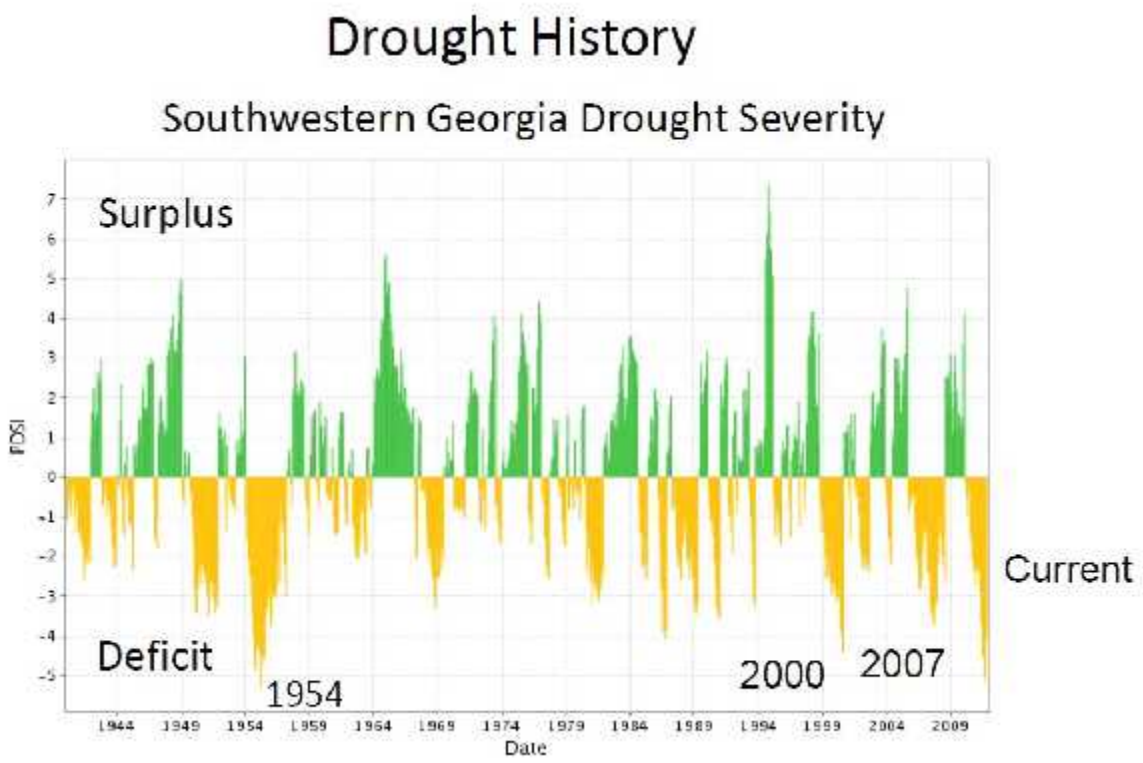
Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	09/01/1997	00:00	EST	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	11/01/2010	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	12/01/2010	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	01/01/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	02/01/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	05/10/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	06/01/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	07/01/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	08/01/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	09/01/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	10/01/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	11/01/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	12/01/2011	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	01/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	02/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	03/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	04/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	05/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	06/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	07/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	08/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	11/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	12/01/2012	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	01/01/2013	00:00	EST-6	Drought		0	0	0.00K	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	02/01/2013	00:00	EST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Drought Declarations (see Section A), the community has a 38.46% chance of experiencing a drought in any given year (Appendix A – Hazard Frequencies Table, Page 24).

Source: National Climatic Data Center

** Made by the Governor on recommendation of agriculture service agencies*

Many other counties were included; No damage estimates available



Data from: NCDC, Georgia region 7

C. Community Exposure

The nature of drought is such that the entire community is affected, primarily economically. Generally, neither the population nor critical facilities are at risk of physical harm, except in the latter stages of a severe drought. South Georgia has been under drought conditions since October, 2010. It is widely understood that droughts are cyclical and the drought conditions will undoubtedly return and Worth County and it municipalities are taking the threat seriously and being proactive in preparing for the next drought cycle. According to the critical facilities inventory report (drought) and Worksheet #3A, the most damage in terms of dollars would be in the agricultural sector. There is a potential of $549.6 million in damage to structures including $66 million in critical facilities. The data for worksheet 3A was from the tax digest and is broken down by jurisdiction in Appendix D. For more specifics on this data please see in Appendix D - for Worksheet #3A Inventory of Assets – Drought. The Critical

Facilities data is in Appendix A (Critical Facilities Inventory –Drought, Page 31)

D. Estimate of Potential Loss

Two formats prescribed by the Georgia Emergency Management Agency were used in estimating potential losses: the Georgia Mitigation Information System (GMIS) and the Assets Worksheet. Generally, neither the population nor critical facilities are at risk of physical harm, except in the latter stages of a severe drought, which the community was exposed to in 2011-2012. These deep wells are generally not affected until the late or "critical" stages of drought. Agriculture crops are most directly affected by drought, and their loss can impose a severe economic burden on the local economy. Crop loss data was sought but found not to be reliable. Within the community it is common knowledge that the past two decades of drought conditions have contributed to a significant reduction in the number of local farmers. This information can be reviewed in detail in Worksheet #3A – Drought Heat, Appendix D.

E. Land Use and Development Trends

In Worth County, the agriculture sector is most at risk to drought, and the community relies heavily on the agricultural economy. Over three fourths of the land area is classified as prime farmland; compared to 21% of the state land area.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for Worth County or the cities of Sylvester, Poulan, Sumner or Warwick that would be subject to other requirements above and beyond that of the adopted building codes.

F. Multi-Jurisdictional Differences

While the physical impact of drought related losses occurs in the unincorporated area of the community, the resulting economic impact is felt community-wide. Because of the relative size of agriculture in

the local economy, whatever affects production has a direct and immediate effect on the community. A map of each jurisdiction as it related to drought is located in Appendix A (Worth County Critical Facilities Map Images – Drought, Page 24-28).

G. Hazard, Risk and Vulnerability Summary

Drought does not have the sudden, violent impact on a community characteristic of a storm. A significant reduction from normal rainfall levels will first be felt by the agricultural community, and because agriculture comprises such a large share of the local economy, whatever affects production has a direct and immediate effect on the well-being of the community. Because conventional agriculture is so dependent on water, the community's front-line of defense against drought rests on the farmer. Yet, the producer's percentage return on economic investment is among the lowest of any economic sector, increasing the difficulty of maintaining a strong front-line defense. The community should identify additional ways to reduce economic dependence on agriculture.

No changes have occurred in Worth County with regards to development, population, infrastructure, etc. that would increase or decrease the community's vulnerability to drought since the previous plan was approved.

V. NATURAL HAZARD – EXTREME HEAT

A. Hazard Identification

High temperatures sustained over an extended period of time may cause heat-related injuries or deaths, especially to infants and young children, the elderly, persons with disabilities, and migrant and/or seasonal farm workers and other outdoor laborers. The body of an adult is over half water, and for babies the percentage is over 75%. Normal daily water loss must be replaced by what we eat (food contains a lot of water) and drink, but the average adult does not consume enough water. In cold weather an adult should consume two

pints of water daily, and in warm weather that increases to one gallon; eight times the cold weather consumption requirement. Hot weather tends to diminish appetite, reducing one source of water intake, and insufficient water consumption over a period of time leads to gradual dehydration. Vital organs like the kidneys, brain and heart can't function without a certain minimum of water, and unless the deficit is corrected death can occur.

B. Hazard Profile

There is very little historical information that could be located concerning the hazard. The National Climate Data Center lists no events of extreme heat for Worth County. However, the recent world wide trend in extreme weather patterns and global warming, in conjunction with local demographics and general climate patterns which increase community exposure are in the aggregate interpreted as increasing the probability that the community will experience an extreme heat event. Also the climate becomes subtropical during the summer months with high temperatures and high humidity. The average high temperature of the month of July and August for Worth County is 101 degrees. The situation is considered extreme when temperatures reach 100+ for an extended period of time. There are no recorded events of extreme heat therefore probability of an event occurring could not be calculated.

C. Community Exposure

A larger proportion of the local population is more susceptible to heat stress than is true across the state. While the proportional size of the local infant and young children (<5 years of age) population is very similar to the state, the local elderly, disabled, and migrant and/or seasonal farm workers and other outdoor laborer proportions all exceed state levels. In addition, the community has lower educational attainment and income levels than the state average. These latter factors increase community exposure to injury and death from extreme heat as these segments of the population are more difficult to inform and get to follow heat-stress avoidance measures, and/or are less likely to get relief (via air conditioning) from extended periods of

extreme heat. The community's critical infrastructure is not particularly susceptible to damage from extreme heat. For more specifics on this data please see in Appendix D - for Worksheet #3A Inventory of Assets – Extreme Heat. The Critical Facilities data is in Appendix A (Critical Facilities Inventory – Drought and Extreme Heat Page 31)

D. Estimate of Potential Loss

Extreme heat is primarily a threat to residents, as critical facilities are not particularly susceptible. A reliable estimation of injuries and deaths is impossible to develop in absence of specifying event conditions, e.g., suddenness of onset, extreme in temperature, humidity and duration of the event. Consequently, for present purposes no such estimate is developed.

E. Land Use and Development Trends

Land Use is an important tool that provides local government the opportunity to inventory existing land use patterns and trends; to determine future patterns of growth, based on community needs and desires; and to develop goals, policies and strategies for land use that strike a balance between effective and efficient delivery of public services, protection/preservation of vulnerable natural and historic resources, and respect for individual property rights. The planning process in any community involves making decisions between alternatives in various phases of the community's development. As an essential component of the Land Use Plan, it is necessary to formulate general objectives and recommendations that embody the community's goals, as well as sound planning principles and concepts.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for Worth County or the cities of Sylvester, Poulan, Sumner or Warwick that would be subject to other requirements above and beyond that of the adopted building codes.

F. Multi-Jurisdictional Differences

The Worth County Pre Disaster Mitigation Plan assessed each community to determine if there was a variation in risk from extreme heat. From the assessment it was determined there is no variation in risk of an extreme heat event in any jurisdiction, or at any location that differs from the risk facing the entire community. The risk that is variable in extreme heat is how it affects vulnerable populations such as the elderly, disabled, and low income residents who may not have indoor cooling systems. Pre-disaster mitigation measures relevant to extreme heat are applicable throughout Worth County. A map of each jurisdiction as it related to extreme heat is located in Appendix A (Worth County Critical Facilities Map Images – Drought and Extreme Heat, Page A-24-28).

G. Hazard, Risk and Vulnerability Summary

The degree of community exposure by virtue of demographics and socio-economic factors to an extreme heat event is sufficient to result in significant resident injury and even death.

No changes have occurred Worth County with regards to development, population, infrastructure, etc. that would increase or decrease the community's vulnerability to extreme heat since the previous plan was approved.

VI. NATURAL HAZARD – HURRICANES

A. Hazard Identification

A hurricane is a tropical storm with winds that have reached a constant speed of 74 miles per hour or more. Hurricane winds blow in a large spiral around a relative calm center known as the "eye." The "eye" is generally 20 to 30 miles wide, and the storm may extend outward 400 miles. As a hurricane approaches, the skies will begin to darken and winds will grow in strength. As a hurricane nears

land, it can bring torrential rains, high winds, and storm surges. A single hurricane can last for more than 2 weeks over open waters and can run a path across the entire length of the eastern seaboard. August and September are peak months during the hurricane season that lasts from June 1 through November 30.

Saffir-Simpson Hurricane Scale			
Category	*Winds (MPH)*	*Damage*	*Storm Surge*
1	74 - 95	**Minimal:** Damage to unanchored mobile homes, vegetation & signs. Coastal road flooding. Some shallow flooding of susceptible homes.	4 - 5 feet
2	96 - 110	**Moderate:** Significant damage to mobile homes & trees. Significant flooding of roads near the coast & bay.	6 - 8 feet
3	111 - 130	**Extensive**: Structural damage to small buildings. Large trees down. Mobile homes largely destroyed. Widespread flooding near the coast & bay.	9 - 12 feet
4	131 - 155	**Extreme**: Most trees blown down. Structural damage to many buildings. Roof failure on small structures. Flooding extends far inland. Major damage to structures near shore.	13 - 18 feet
5	More than 155	**Catastrophic:** All trees blown down. Some complete building failures. Widespread roof failures. Flood damage to lower floors less than 15 feet above sea level.	Greater than 18 feet

** Wind speeds are estimates; have never been scientifically verified.*

B. Hazard Profile

Worth County is not significantly threatened by Category 2 or above winds. The hurricanes that do affect the area have usually been downgraded to Category 1 or tropical storm. Worth County is approximately 85-100 miles from the Gulf of Mexico. Any hurricane Category 3 or above is considered extreme for Worth County. The hazard frequency table (Appendix A) projects a 7.69% probability of a repeat event any given year. Given the broad geographic nature of

hurricanes that affect Worth County, no jurisdiction is any more likely to be any more adversely affected by them than any other jurisdiction in Worth County.

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	1.750M	0.00K
WORTH (ZONE)	WORTH (ZONE)	GA	07/09/2005	18:00	EST	Hurricane (typhoon)		0	0	1.750M	0.00K
Totals:								0	0	1.750M	0.00K

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	225.00K	0.00K
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tropical Storm		0	0	10.00K	0.00K
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tropical Storm		0	0	50.00K	0.00K
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tropical Storm		0	0	150.00K	0.00K
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tropical Storm		0	0	15.00K	0.00K
Totals:								0	0	225.00K	0.00K

Source: National Climatic Data Center and local data

Worth County and its cities experienced 5 tropical systems in the past 20 years. No deaths or injuries were reported. Based solely on the historic trend analysis (Appendix A – Hazard Frequencies Table, Page 32) of available data, the community has a 10.94% chance of experiencing a hurricane or tropical storm any given year. There have been no tropical storms or hurricanes that have affected Worth County since the previous plan was adopted.

C. Community Exposure

Because of proximity to the Atlantic and Gulf Coasts, the community will always be susceptible to the kind of tropical storms that caused the catastrophic flooding in floodplain areas. The flood protection ordinance continues to be enforced in Worth County and its municipalities, which, participates in the National Flood Insurance Program (NFIP). Also the community is susceptible to the damage by Category 1 hurricane winds or the resulting tornadoes. According to the critical facilities inventory report (wind) and Worksheet #3A, the most damage in terms of dollars would be in the residential sector. There is a potential of $549.6 million in damage to structures and $66 million in damage to critical facilities. The data for worksheet 3A was from the tax digest and is broken down by jurisdiction in Appendix D. For more specifics on this data please see in Appendix D - for Worksheet #3A Inventory of Assets – Hurricane. The Critical Facilities Inventory is in Appendix A (Page 29).

D. Estimate of Potential Losses

Two formats prescribed by the Georgia Emergency Management Agency were used in estimating potential losses: the Georgia Mitigation Information System (GMIS) and the Assets Worksheet. Data input for the Critical Facilities Inventory included the replacement value of each critical facility identified. This information can be viewed in Appendix A (Critical Facilities – Hurricane Page 29). According to the critical facilities inventory the replacement value totals $66 million, and there was no total for functional use or contents value. This information can be reviewed in detail in Worksheet #3A - Hurricane, Appendix D.

E. Land Use and Development Trends

Because of the random nature of hurricane winds the entire community is at risk. Consequently, there are not any local land use or development trends applicable to the hurricane wind hazard. Building codes are enforced in Worth County and its municipalities. Wind speed threshold for new construction in Worth County is 99 mph.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for Worth County or the cities of Sylvester, Poulan, Sumner or Warwick that would be subject to other requirements above and beyond that of the adopted building codes.

F. Multi-Jurisdictional Differences

The Worth County Pre Disaster Mitigation Plan assessed each community to determine if there was a variation in risk from hurricanes. From the assessment it was determined there is no variation in risk of a hurricane event in any jurisdiction, or at any location that differs from the risk facing the entire community. Pre-disaster mitigation measures relevant to hurricanes are applicable throughout the county. The entire county is subject to building codes that requires structures to withstand the 99 mph wind speed

threshold which indicated on the critical facilities map. The critical facilities map of each jurisdiction as it related to hurricanes is located in Appendix A (Worth County Critical Facilities Map Images – Hurricane, Page 14-18).

G. Hazard, Risk and Vulnerability Summary

Hurricanes usually occur from June to November each year. Weather forecasting gives communities susceptible to hurricanes ample time to prepare for the storm. Despite the amount of warning time, the current state of technology cannot prevent such hazards from occurring. The community must prepare in advance, and be able to respond quickly and appropriately to such an event.

No changes have occurred Worth County with regards to development, population, infrastructure, etc. that would increase or decrease the community's vulnerability to hurricanes since the previous plan was approved.

VII. NATURAL HAZARD – DAM FAILURE

A. Hazard Identification

Dam failure is typically the result of a physical weakness in the dam structure, or inundation of the facility by flood waters which wash away earthen material flanking the dam which houses flood gates used to regulate the upstream lake or pool area. The most common failure results from inundation by flood waters. Flooding which precipitates dam failure can cause damage and destruction to properties fronting the lake, and breach of the dam can destroy downstream development and create economic hardship.

B. Hazard Profile

There exists one major dam in the county which is the Crisp Electric Power Dam on Lake Blackshear on the Flint River. The flood of 1994 was precipitated by tropical storm Alberto which, within a twenty-four hour period, doused semi-saturated soils with approximately half the community's annual average rainfall, overwhelming the dam's flood gates. Infrastructure damage to the dam totaled $8M, including the $700,000 purchase of electricity from an alternative power supply during generator down time. Over the seventy-year history of the lake, 1994 is the only event of which dam failed to contain overflow of flooding water. There is no data currently available to determine the extent of damage a dam failure could have on Worth County. A study commissioned by Worth County would need to be done. Unfortunately, a study such as that is cost prohibitive. Also several agricultural earthen dams exist in the county which poses a potential hazard mostly to road infrastructure. The hazard frequency table (Appendix A – Hazard Frequencies Table, Page A-50) projects a 1.5% probability of a repeat event any given year. Below is a list of dams or earthen dam ponds in Worth County.

Dams/Ponds in Worth County
Lake Blackshear
Fiveash Mill Pond
Mercer Mill Planatation Pond
Earleen Sizemore Road Pond
Silver Lake Subdivision Pond
Lakeview Lane Pond

C. Community Exposure

Lake Blackshear and the developed residential lots and docks and piers along Worth County's lakefront ($50M) contribute significantly to the economic well-being of the community. The dam and Lake Blackshear is operated by the Crisp County Power Commission even though the dam is located within Worth County. According to the critical facilities inventory report (flood) and Worksheet #3A, the most damage in terms of dollars would be in the agricultural and residential sectors that are downstream from the dams. There is a potential of $24.5 million in damage to structures in a flood hazard zone. There are no critical facilities in Worth County threatened by dam failure other than bridge and road infrastructure. For more specifics on this data please see in Appendix D - for Worksheet #3A Inventory of Assets – Flood. The Critical Facilities data is in Appendix A (Critical Facilities Inventory – Flood, Page A 19-23)

D. Estimate of Potential Loss

Two formats prescribed by the Georgia Emergency Management Agency were used in estimating potential losses: the Georgia Mitigation Information System (GMIS) and the Assets Worksheet. Data input for the Critical Facilities Inventory included the replacement value, structure content value and structure functional

use value of each critical facility identified. This information can be reviewed in detail in Worksheet #3A - Flood, Appendix D.

E. Land Use and Development Trends

The lakefront is very popular for residential development, but because of the risk of flood the county is strictly enforcing building codes and the flood protection ordinance. Consequently, the potential for conflict between a potential hazard and development is being closely managed.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for Worth County or the cities of Sylvester, Poulan, Sumner or Warwick that would be subject to other requirements above and beyond that of the adopted building codes.

F. Multi-Jurisdictional Differences

The dam itself is located on the county line with Lee County, Georgia so several counties including Worth and Lee County would be affected both upstream and downstream the Flint River. No evidence exists to suggest any area in Worth County is more prone to experiencing a dam failure than anywhere else in the county. Obviously proximity to a dam may increase the probability of experiencing an event, but theoretically dams can fail at anytime so there is no good way of determining probability. The lakeshore area is in unincorporated Worth County and falls under the governing jurisdiction of the board of commissioners. The physical affect of flooding leading to dam failure would affect the county economically with damage to agricultural and residential areas along Lake Blackshear and the Flint River. The economic impact of dam failure would be felt countywide. A map of each jurisdiction as it related to floods is located in Appendix A (Worth County Critical Facilities Map Images – Flood and Dam Failure, Page A-19-23).

G. Hazard, Risk and Vulnerability Summary

The failure of the dam at Lake Blackshear would have a devastating effect on Worth County and surrounding counties. The dam is important to flood control and to the utility infrastructure of the region. The power plant at the dam is a major source of hydroelectric generation.

There have been no changes since the previous plan in terms of new development or changes to ordinances/policies that would significantly affect the overall vulnerability of the community to dam failure.

CHAPTER 3 – NATURAL HAZARD MITIGATION GOALS AND OBJECTIVES

Summary of changes:

- The status of Goals/Objectives/Action Steps from the previous plan is located in Appendix D.
- New objectives include: Next generation E911 integration, improving the communication avenues with the school, enforcing a higher building wind load requirement and caching extra communications equipment

There were no changes in the community's overall priorities related to mitigation since the previous plan was completed.

A countywide capabilities assessment for Worth County is included in Appendix C that details staffing and to a lesser degree funding allocation for implementing hazard mitigation projects.

OVERALL COMMUNITY MITIGATION GOALS, POLICIES AND VALUES NARRATIVE

Four, general, pre-disaster mitigation goals have been established. Implementation of these non-structural measures will have positive impacts on mitigation irrespective of the type hazard which may befall the community in the future. Non-structural measures have the benefits of being less expensive to implement, do not require expensive maintenance and upkeep, and are more adaptable to specific need than structural measures. These general goals and their related objectives, tasks and action steps are as follows:

GOAL #1 Ensure the public health and safety of the citizens of Worth County

GOAL #2 Reduce, and to the extent possible eliminate, community exposure to natural hazard events

GOAL #3 Reduce loss and damage to private property and public infrastructure resulting from natural hazard

GOAL #4 Respond promptly, appropriately and efficiently in the event of a natural hazard

GENERAL OBJECTIVES

OBJECTIVE #1 Increase coordination between local public and private sectors in pre-disaster planning

Task #1 Incorporate computer hardware/software and communication compatibility between local emergency response agencies, emergency service providers and other appropriate public agencies

Action Step #1

Continue to develop and maintain compatibility of electronic systems with mutual aid agencies.

Category:	Emergency Services
Responsible Org:	Board of Commissioners
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Medium
Cost:	Staff time
Funding Source:	Departmental Operating Budget
Benefit:	Improve communications during emergency during emergency response

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Action Step #2

Assemble/create appropriate data layers for GIS mapping

Category:	Emergency Services
Responsible Org:	Board of Commissioners
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Medium
Cost:	Staff time
Funding Source:	Departmental Operating Budget
Benefit:	Improve emergency response

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Action Step #3

Identify appropriate reserve personnel who can be called upon to assist/backup in time of emergency, determine capabilities and compile essential contact information

Category:	Emergency Services
Responsible Org:	Law, Fire, Public Works, Public Utilities
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Low
Cost:	Staff time
Funding Source:	Local
Benefit**:**	Improved emergency response

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Action Step#4

Convene annual meeting of all emergency services directors, local government chief appointed officials, elected officials and public utilities to share critical service delivery information

Category:	Emergency Services

Responsible Org:	Emergency Responding/Service Providing Agencies (local and state), public utilities, local government
Coordinating Org:	Worth County EMA
Timeline:	2016-2021 quarterly
Priority:	Medium
Cost:	Staff time
Funding Source:	Departmental Operating Budget
Benefit:	Improve communications during emergency during emergency response

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Task #2 Incorporate pre-disaster mitigation of natural hazards into safety training programs of public and private entities

Action Step#1

Develop or otherwise secure appropriate training programs, mock disasters and examples of successful mitigation efforts on an annually scheduled basis for presentation to business, industry, government and institutions

Category:	Public Education and Awareness
Responsible Org:	Worth County EMA
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Medium
Cost:	$8000
Funding Source:	GEMA/FEMA
Benefit:	Improved emergency response and public awareness

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

OBJECTIVE #2 Institutionalize mitigation

Task #1 Incorporate pre-disaster mitigation assessment into site inspections of critical facilities (and other facilities upon request)

Action Step #1

Supplement Life Safety Code inspections with pre-disaster mitigation review

Category:	Prevention
Responsible Org:	Worth County Fire Department
and	
	Sylvester Fire Department
Coordinating Org:	Fire Department
Timeline:	2016-2021
Priority:	Medium
Cost:	Staff time
Funding Source:	Departmental Operating Budget
Benefit:	Improved critical facilities

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Task #4 Duplicate and safely store vital public sector records off-site

Action Step #1

Continue (1) duplicating existing, essential records, (2) duplicating essential records annually thereafter, and (3) designating a secure, off-site depository for essential public records

Category:	Emergency Services
Responsible Org:	Worth County and Cities
Coordinating Org:	Chief Appointed Officials
Timeline:	2016-2021
Priority:	Low
Cost:	$10,000
Funding Source:	Local Governments
Benefit:	Mitigate against damage to public records

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

OBJECTIVE #3 Improve the comprehensive mitigation strategy

Task #1 Post-disaster assessment of preparation for, and response to, hazard event

Action Step #1

As soon as reasonably practicable after a disaster event, request GEMA to provide an experienced emergency response professional or team to perform a detailed, post-disaster assessment of preparations and response

Category:	Emergency Services
Responsible Org:	Worth County EMA
Coordinating Org:	All emergency response agencies
Timeline:	2016-2021
Priority:	High
Cost:	$10,000
Funding Source:	GEMA
Benefit:	Improved emergency response time and planning

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

I. NATURAL HAZARD – TORNADOES AND THUNDERSTORM WINDS

A. Mitigation Goals - A tornado has inflicted greater loss on the community than any other natural hazard. This is also the only hazard for which a loss of life was documented. The general public fails to appreciate how little time there is to respond to a sudden tornado strike, and how important it is that all parties be prepared at all times to respond correctly. Although thunderstorm winds do not reach the speed of tornadoes, there are many similarities in the damage caused by the two type hazards. Consequently, virtually all goals, objectives, tasks and action steps of the two hazards are interchangeable.

B. Range of Mitigation Options

1. Structural v Non-structural – Identified goals address both options. Residents and developers undertaking new construction or renovation will be encouraged to consider making safe room additions to the structure, at owner expense. Because it is critical that emergency responders be able to respond to emergencies, the City of Sylvester is pursing facilities to protect personnel, vehicles and equipment. Other, non-structural options promote an expansion of code enforcement activities and public education.

2. Existing Policies, Regulations, Ordinances and Land Use – The county and cities of Sylvester, Poulan, and Warwick currently enforce building codes.

3. Community Values, Historic and Special Considerations – Project implementation will serve to protect historic districts in Sylvester, a potential district in Poulan, and historic resources dispersed throughout the unincorporated county. No other special considerations were identified. Data on new and existing critical facilities have been covered in the goals and objectives. Also data on the facilities is shown in each hazard's critical facility inventory in Appendix A.

4. Data on new buildings and infrastructure have been covered in the goals and objectives. Any new buildings and infrastructure will be built with tornado mitigation incorporated in the design. The mitigative actions for tornadoes include improved building codes, public awareness, warning systems, and strengthening critical facilities.

5. Data on existing buildings and infrastructure is shown in each hazard's critical facility inventory in Appendix A. Any existing buildings and infrastructure will be improved with tornado mitigation incorporated into any renovations. The mitigative actions for tornadoes include improved building codes, public awareness, warning systems, and strengthening critical facilities.

C. Mitigation Strategy and Recommendations

Goal #1 Reduce the potential for loss of life and damage to property which commonly results from tornados and thunderstorm winds

Objective #1 Reduce the risk of personal injury during a tornado/thunderstorm wind event

Task 1 Expand current level of construction permitting activity

Action Step 1

Promote safe room construction in new development and renovations

Category:	Property Protection
Responsible Org:	Worth County, Sylvester, Poulan, Sumner, and Warwick
Coordinating Org:	Worth County, Sylvester, Poulan, Sumner, and Warwick
Timeline:	2016-2021
Priority:	Medium
Cost:	Staff time
Funding Source:	Departmental Operating Budget
Benefit:	Improved housing stock to mitigate against wind damage

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Action Step 2

Enforce housing/environmental code to reduce size of the debris field (airborne missiles) during tornado event

Category:	Property Protection
Responsible Org:	Worth County, Sylvester, Poulan, Sumner, and Warwick
Coordinating Org:	Worth County, Sylvester, Poulan, Sumner, and Warwick
Timeline:	2016-2021
Priority:	High
Cost:	Staff time
Funding Source:	Departmental Operating Budget
Benefit:	Improved housing stock to mitigate against wind damage

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Objective #2 Develop a citizenry well-educated on tornado safety issues

Task 1 Compile a comprehensive information data base on tornado/thunderstorm safety

Action Step 1

Promote regular tornado drills at high occupancy locations; schools, daycare facilities, hospital, industries

Category:	Public Education/Awareness
Responsible Org:	Worth County EMA
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	High
Approximate Cost:	Staff time
Funding Source:	Departmental Operating Budget
Benefit:	Improved public awareness

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Task 2 Provide accurate, complete and timely weather warning coverage to 100% of the community

Action Step 1

Continue efforts to provide accurate, complete and timely weather warning coverage to 100% of the community by getting a mass alert information system and by implementing sirens in areas with higher population concentrations

Category:	Emergency Services
Responsible Org:	Worth County EMA
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	High
Approximate Cost:	$300K
Funding Source:	GEMA/FEMA/NOAA/Local
Benefit:	Improved public awareness

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Action Step 2

Encourage the general public to purchase weather radios

Category:	Public Education/Awareness
Responsible Org:	Worth County EMA
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	High
Approximate Cost:	Staff time

Funding Source: Citizens
Benefit: Improved public awareness

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Action Step 3

Educate citizens about the importance of (1) monitoring weather information, (2) heeding public weather warnings, and (3) using weather radios in the home and workplace

Category: Public Education/Awareness
Responsible Org: Worth County EMA
Coordinating Org: Worth County EMA
Timeline: 2016-2021
Priority: Medium
Approximate Cost: Staff time
Funding Source: Departmental Operating Budget
Benefit: Improved public awareness

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Action Step 3 ***NEW***

Promote the use of weather warning apps for smartphones for severe weather updates.

Category: Public Education/Awareness
Responsible Org: Worth County EMA
Coordinating Org: Worth County EMA
Timeline: 2016-2021
Priority: High
Approximate Cost: Staff time
Funding Source: Departmental Operating Budget
Benefit: Improved public awareness

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Goal #2 Enhance local government's ability to respond efficiently to emergency needs both during and after tornado event

Objective 1 Provide secure facilities for emergency personnel and equipment

Task 1 Improve command center in Worth County

Action Step 1

Continue to plan for improvements, determine equipment and communication needs and pursue funding for a new EOC.

Category:	Emergency Services
Responsible Org:	Worth County
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	High
Approximate Cost:	$500K
Funding Source:	GEMA/FEMA
Benefit:	Improved critical facilities

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Action Step 2

Obtain extra emergency generators for critical facilities in the event of power failure after a hazard event

Category:	Emergency Services
Responsible Org:	Worth County EMA
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	High

Approximate Cost: $750K
Funding Source: GEMA/FEMA
Benefit: Maintain electrical power during natural hazards

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

D. **Special Multi-Jurisdictional Strategy** – Code enforcement, public education and weather warnings are applicable countywide. Worth County will develop an emergency operations center to ensure the fluid response effort to disasters. Also Worth County EMA will seek to improve emergency response and awareness through improve warning systems and communications.

E. **Public Information and Awareness** – Will be accomplished through broadcast of public service announcements, promotion of tornado drills and use of weather radios and weather apps.

II. NATURAL HAZARD - FLOOD

A. Mitigation Goals – In the aftermath of past hazards local restoration has benefited from two presidential disaster declarations and four state-of-emergency declarations; all elicited by damages resulting from flood events. These declarations belie significant strides in reducing exposure to this recurring natural hazard. Achievement of the following goal will remove a significant local risk.

B. Range of Mitigation Options

1. Structural v Non-structural – Over the years the community has made significant financial investment in physical infrastructure; storm drainage facilities, stormwater retention ponds, public water system. The current goal calls for the community to supplement, and even complete, some past successful efforts with non-structural measures.

2. Existing Policies, Regulations, Ordinances and Land Use – The county and all cities participating in the NFIP enforce flood protection ordinances and land use restrictions through their respective zoning ordinances, Sylvester also enforces stormwater management regulations.

3. Community Values, Historic and Special Considerations – Much of the existing development in and around Sylvester's floodplain is residential. The proposal to maintain the property acquired through a flood buy-out program as greenspace will act to preserve the "neighborhood". Some of the affected residential structures are over fifty years old, but the area is not part of a historic district and is not otherwise historically significant. Data on new and existing critical facilities have been covered in the goals and objectives. Also data on the facilities is shown in each hazard's critical facility inventory in Appendix A.

4. Data on new buildings and infrastructure have been covered in the goals and objectives. Any new buildings and infrastructure will be built with flood mitigation incorporated in the design.

The mitigative actions are for the removal of development in floodplain areas. Also the FEMA flood maps will be produced or updated and floodplain ordinances enforced in the county and cities.

5. Data on existing buildings and infrastructure is shown in each hazard's critical facility inventory in Appendix A. Any existing buildings and infrastructure will be improved with flood mitigation incorporated into any renovations. The mitigative actions are for the removal of development in floodplain areas. Also the FEMA flood maps will be produced or updated and floodplain ordinances enforced in the county and cities.

C. Mitigation Strategy and Recommendations

Goal #1 Remove conflicts between development (existing and future) and flood prone areas

Objective #1 Manage (recurrent) flooding in Worth County and its cities

Task 1 Remove all development from the 100 year floodplain

Action Step 1

Continue to identify source(s) and apply for funds to "buy out" properties located in the FEMA-designated 100 year floodplain, and clear the floodplain of all development

Category:	Prevention
Responsible Org:	Worth County and city of Sylvester and Poulan
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Low
Cost:	$10,000,000
Funding Source:	FEMA

Benefit: Preventing flood damage to structures

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Objective #2 Ensure that all future development is compliant with flood protection ordinances

Task 1 Review all development plans for compliance with local floodplain ordinance

Action Step 1

Utilize floodplain review checklist during plan review and continue compliance with NFIP

Category:	Prevention
Responsible Org:	Worth County Building and City of Sylvester
Coordinating Org:	Worth County Code Enforcement
Timeline:	2016-2021
Priority:	Medium
Cost:	Nominal
Funding Source:	Departmental Operating Budget
Benefit:	Preventing flood damage to structures

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

D. Special Multi-Jurisdictional Strategy – The county and Cities of Sylvester, Poulan, Sumner and Warwick will continue enforcing flood protection ordinances; Sylvester will continue a floodplain property buy-out program.

The City's of Sumner and Warwick will likely contract with Worth County to provide enforcement for the floodplain ordinance.

E. **Public Information and Awareness Strategy** – Builders are aware of flood protection ordinance requirements in the county and Cities of Sylvester and Poulan. With adoption of an ordinance in Warwick and Poulan the public will be exposed to the requirements and benefits of the regulation. The code enforcement officer will also be responsible for disseminating information to builders and residents. Public notification will also be part of Sylvester's continued flood buy-out program.

III. NATURAL HAZARD - DROUGHT

A. Mitigation Goals - The vitality of the local economy fluctuates with conditions in agriculture, and conditions in agriculture are driven by the timely and adequate availability of water. A shortage of this essential commodity at a critical time has a severely negative impact on the economy. Previous activities have been essentially concerned with water conservation. The current effort is primarily concerned with supplementing the availability of water, and identifying what can be done to reduce the adverse impact on the economy in the event a drought does occur.

B. Range of Mitigation Options -

1. Structural v Non-structural – Previous efforts were primarily non-structural in nature, as they dealt with behavior. The current effort strives to supplement the supply, and almost by definition entails structural options.

2. Existing Policies, Regulations, Ordinances and Land Use – The community enforces water restriction ordinances as needed, and the state issues permits for daily withdrawals of at least 100K gallons of water.

3. Community Values, Historic and Special Considerations - There were not any specific community values or other considerations identified. Data on new and existing critical facilities have been covered in the goals and objectives. Also data on the facilities is shown in each hazard's critical facility inventory in Appendix A.

4. Data on new buildings and infrastructure have been covered in the goals and objectives. Any new buildings and infrastructure will be built with drought mitigation incorporated in the design. The mitigative actions for drought include water conservation, improved fire fighting capabilities, and public awareness.

5. Data on existing buildings and infrastructure is shown in each hazard's critical facility inventory in Appendix A. Any existing buildings and infrastructure will be improved with drought mitigation incorporated into any renovations. The mitigative actions for drought include water conservation, improved fire fighting capabilities, and public awareness.

C. Mitigation Strategy and Recommendations

Goal #1 Maintain economic stability and growth during periods of drought

Objective #1 Maintain the essential services agriculture industry needs so as to minimize drought-related losses

Task 1 Identify and develop alternative water supplies

Action Step 1

Pursue grants for municipal residential well deepening and promote residential and well deepening of dry wells in time of drought.

Category:	Structural
Responsible Org:	Cooperative Extension Service
Coordinating Org:	Cooperative Extension Service
Timeline:	2016-2021
Priority:	Low
Approximate Cost:	Staff time
Funding Source:	Staff time
Benefit:	Maintaining adequate water supply

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Objective #2 Maintain fire fighting capabilities in time of drought

Task 1 Develop and maintain resources needed for rural fire fighting

Action Step 1

Maintain fire breaks

Category:	Prevention
Responsible Org:	Property Owner
Coordinating Org:	Georgia Forestry Commission
Timeline:	2016-2021
Priority:	Medium
Approximate Cost:	$50,000
Funding Source:	Property Owner
Benefit:	Prevent spread of wildfires

This action step benefit will be in the unincorporated areas with an estimated population of 21,679. The value of structures benefiting is $349.8 million.

Objective #3 Conserve water by educating the public

Task 1 Educate the public on the need to conserve water

Action Step 1

Public education of water conservation

Category:	Prevention
Responsible Org:	Worth County and all municipalities
Coordinating Org:	Worth County
Timeline:	2016-2021
Priority:	Medium
Approximate Cost:	Staff time
Funding Source:	State and Federal
Benefit:	Maintaining adequate water supply

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

D. **Special Multi-Jurisdictional Strategy** – Although all five jurisdictions are affected, primary emphasis of this goal is placed on the unincorporated area where agricultural production occurs.

E. **Public Information and Awareness** – Information concerning these activities will be included in the information programs presented at numerous venues. Public participation will be solicited.

IV. NATURAL HAZARD - EXTREME HEAT

A. Mitigation Goals – The community has already addressed, to some level, the needs identified for this particular hazard. However, a greater depth of planning is needed to facilitate prompt action in the event an extreme heat hazard occurs.

B. Range of Mitigation Options

1. Structural v Non-structural – No structural needs were identified. There are appropriate facilities in the community which can be used to provide relief to victims of this hazard without having to undertake the expense associated with construction or building modification. The needs can be addressed by education, advanced community preparation and taking efforts to ensure essential services are not terminated unmercifully.

2. Existing Policies, Regulations, Ordinances and Land Use – There are state regulations governing the operating standards for emergency shelters. This plan proposes to increase the level of preparation and coordination between responsible entities and formalize local policy. It also calls for review of utility companies' policy concerning power service cut-off during a hazard event.

3. Community Values, Historic and Special Considerations – No relevant values or considerations were identified.

4. Data on new buildings and infrastructure have been covered in the goals and objectives. Any new buildings and infrastructure will be built with extreme heat mitigation incorporated in the design. The mitigative actions for extreme heat include assisting with utility costs for low income population, provide air conditioned shelter, and public awareness.

5. Data on new buildings and infrastructure have been covered in the goals and objectives. Any new buildings and infrastructure will be built with extreme heat mitigation incorporated in the design. The mitigative actions for extreme heat include assisting with utility costs for low income population, provide air conditioned shelter, and public awareness.

C. Mitigation Strategy and Recommendations

Goal #1 Minimize, and to the extent possible prevent, heat-related injuries and deaths

Objective #1 Educate the general public and targeted groups how to avoid heat-related stress

Task 1 Compile a library of heat-stress information and list of qualified speakers

Action Step 1

Provide print media with "print ready" articles on heat-stress avoidance, present heat-stress awareness programming on local television station and to Senior Citizens Center, and provide public service announcements to all media

Category:	Education and Awareness
Responsible Org:	Worth County EMA
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	High
Approximate Cost:	Staff time
Funding Source:	EMA Operating Budget
Benefit:	Improved public awareness

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Objective #2 Have emergency shelter(s) ready and available to meet the needs of potential heat-stress victims who are inadequately housed

Task 1 Designate an emergency shelter, as needed, in each jurisdiction

Action Step 1

Convene representatives from appropriate organizations (local governments, Red Cross, health department, DFCS, senior citizens center, hospital, et al) to recommend emergency center site(s), identify managing entity, establish operating policies and procedures, and identify equipment and facility needs (fans, bedding, water, etc.)

Category:	Emergency Services
Responsible Org:	Worth County
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Medium
Approximate Cost:	$5,000
Funding Source:	Red Cross, Health Department
Benefit:	Improved communications between emergency responders

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

D. Special Multi-Jurisdictional Strategy – Project implementation will apply throughout the community. Identified shelter facilities will likely be limited to the cities and four community areas in the county. (4 areas throughout the county - City of Sylvester, Anderson City, City of Warwick, Town of Sumner)

E. Public Information and Awareness – Information about this activity will be disseminated as part of the plan's mitigation education efforts.

V. NATURAL HAZARD - HURRICANE

A. Mitigation Goals – Hurricanes are large storm events occurring usually from June to November in a given year. The main effects from a hurricane that happen in Worth County are heavy flooding rains, high winds, and small tornadoes.

B. Range of Mitigation Option

1. Structural v Non-structural – Structural improvements needed for hurricane winds are the responsibility of the owner. The community will utilize non-structural options; enforcing and expanding building code compliance, expanding public broadcast of weather warnings, and public education to supplement property owner's structural options.

2. Existing Policies, Regulations, Ordinances and Land Use – The county and cities of Sylvester, Poulan, and Warwick currently enforce building codes.

3. Community Values, Historic and Special Considerations - Project implementation will serve to protect historic districts in Sylvester, Poulan, and historic resources dispersed throughout the unincorporated county. No other special considerations were identified. Data on new and existing critical facilities have been covered in the goals and objectives. Also data on the facilities is shown in each hazard's critical facility inventory in Appendix A.

4. Data on new buildings and infrastructure have been covered in the goals and objectives. Any new buildings and infrastructure will be built with hurricane mitigation incorporated in the design. The mitigative actions for hurricanes include improved building codes, public awareness, strengthening critical facilities, and preparing for hurricane evacuees.

5. Data on existing buildings and infrastructure is shown in each hazard's critical facility inventory in Appendix A. Any existing buildings and infrastructure will be improved with hurricane mitigation incorporated into any renovations. The mitigative actions for hurricanes include improved building codes, public awareness, strengthening critical facilities, and preparing for hurricane evacuees.

C. Mitigation Strategy and Recommendations

Goal #1: Reduce the potential for loss of life and damage to property which commonly results from hurricane/tropical storm winds

Objective #1 Develop a plan for managing hurricane evacuees to Worth County

Task 1 Prepare shelters and maintain supplies for hurricane evacuation event

Action Step 1

Bi-Annual review of condition of evacuation shelters and supplies

Category:	Preparation
Responsible Org:	Worth County EMA
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Medium
Approximate Cost:	Staff time/$5000
Funding Source:	Government Operating Budget/FEMA
Benefit:	Being adequately for hurricane evacuation event

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Objective #2 Enhance public awareness on storm safety issues

Task 1 Maintain code enforcement departments adequately staffed with properly trained personnel to provide enforcement throughout the county

Action Step 1

Educate citizens about the importance of (1) monitoring weather information, (2) heeding public weather warnings, and (3) using weather radios in the home and workplace

Category:	Public Education/Awareness
Responsible Org:	EMA
Coordinating Org:	EMA
Timeline:	2016-2021
Priority:	Medium
Approximate Cost:	Nominal
Funding Source:	Departmental Operating Budget
Benefit:	Improved public awareness

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $549.6 million.

Objective #3 Provide secure facilities for emergency personnel and equipment

Task 1 Secure critical facilities in Worth County

Action Step 1

Identify critical facilities to be hardened and retrofitted to prevent wind damage

Category:	Emergency Services
Responsible Org:	Worth County
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Low

Approximate Cost: $500K
Funding Source: GEMA/FEMA
Benefit: Improved critical facilities against high winds

This action step benefit will be countywide with an estimated population of 29,568. The value of structures benefiting is $66 million.

D. Special Multi-Jurisdictional Strategy - Code enforcement, education and weather warnings are applicable countywide. Worth County will pursue hardening of critical facilities to prevent wind damage during a hazard event.

E. Public Information and Awareness - Will be accomplished through broadcast of public service announcements, promotion of tornado drills and use of weather radios.

VI. NATURAL HAZARD - DAM FAILURE

A. Mitigation Goals – Physical integrity of the Lake Blackshear dam is important to the economic well-being of Worth County. This goal consists of an attempt to supplement current efforts to ensure the condition of the local economy is not compromised by dam failure.

B. Range of Mitigation Options

1. Structural v Non-structural – The nature of this hazard is such that only structural options are available. As would be expected, the Crisp County Power Commission has addressed virtually all aspects of dam protection and this is noted in the Crisp County Pre Hazard Mitigation Plan. This effort is a supplement to those previous actions.

2. Existing Policies, Regulations**,** Ordinances and Land Use – Activity in and adjacent to the lake is regulated by the U. S. Army Corps of Engineers, and the dam is licensed by the Federal Energy Regulatory Commission. Applicable regulations are too numerous and voluminous to include in this document. The county enforces building codes and a zoning ordinance around the lake.

3. Community Values, Historic and Special Considerations – The lakefront is a significant contributor to the tax base of the county, and the recreational activity generated by the lake is a significant contributors to the economic well-being of the community. Data on new and existing critical facilities have been covered in the goals and objectives. Also data on the facilities is shown in each hazard's critical facility inventory in Appendix A.

4. Data on new buildings and infrastructure have been covered in the goals and objectives. Any new buildings and infrastructure will be built with dam failure mitigation incorporated in the design. The mitigative actions are ensuring integrity of Lake Blackshear Dam and private earthen dams in Worth County.

5. Data on new buildings and infrastructure have been covered in the goals and objectives. Any new buildings and infrastructure will be built with dam failure mitigation incorporated in the design. The

mitigative actions are ensuring integrity of Lake Blackshear Dam and private earthen dams in Worth County.

C. Mitigation Strategy and Recommendations

Goal #1 Prevent interruption of electric, economic and recreational benefits the community derives from the Lake Blackshear Dam

Objective #1 Cooperate with Crisp County Power Commission on communication on integrity of the Lake Blackshear Dam

Task 1 Plan for dam failure event on Lake Blackshear

Action Step 1

Investigate and plan for any necessary changes to the in case of dam failure to ensure adequate warning time for residences, businesses, and critical facilities affected

Category:	Prevention
Responsible Org:	Worth County EMA
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Medium
Approximate Cost:	$10K
Funding Source:	GEMA/FEMA
Benefit:	Provide emergency response and improve public awareness

This action step benefit will affect the unincorporated areas downstream from the dams with an estimated population of 2,500. The value of structures benefiting is $8 million.

Goal #2 Ensure integrity of private earthen dams in Worth County

Objective #1 Cooperate with private dam owners on integrity of the dams

Task 1 Plan for failure event of private earthen dams

Action Step 1

Investigate and plan for any necessary changes to the in case of dam failure to ensure adequate warning time for residences, businesses, and critical facilities affected

Category:	Prevention
Responsible Org:	Worth County EMA
Coordinating Org:	Worth County EMA
Timeline:	2016-2021
Priority:	Medium
Approximate Cost:	$10K
Funding Source:	GEMA/FEMA
Benefit:	Provide emergency response and improve public awareness

This action step benefit will affect the unincorporated areas downstream from the dams with an estimated population of 2,500. The value of structures benefiting is $8 million.

D. Special Multi-Jurisdictional Strategy – Worth County is the responsible entity for implementation. To the extent any governmental support is needed the county will assist.

E. Public Information and Awareness – News of this activity will be included in public service announcements and mitigation programs presented to local civic clubs as an example of mitigation activities and their importance to the well-being of the community.

CHAPTER 4 – MITIGATION PLAN EXECUTION

Summary of Changes:

- The EMA director will be responsible for implementing and recommending updates to the plan on an annual basis.

I. IMPLEMENTATION

A. Administrative Actions

The chief elected official (mayor) and county commission chairman chief appointed officials (county administrator, city manager) of the five local jurisdictions are responsible for day-to-day administrative personnel and operations of their respective local governments, mitigation activities proposed herein, and their respective jurisdiction's responsibilities for plan implementation. It is these individuals who will present and recommend to the governing body policy changes, ordinance adoption, or initiate revisions in administrative procedures necessary to accomplish goals of this mitigation plan. These five individuals are responsible for ensuring that action steps specific to their jurisdiction are implemented, and reporting progress to the executive committee. The EMA Director is responsible for coordinating and supporting these activities, and generally overseeing plan implementation

B. Authority and Responsibility

The authority and responsibility for implementation of this plan is vested in the office of Emergency Management Director.

C. Prioritization

1. Emergency response personnel and local governmental staff updated an assessment of the community's ability to respond to any hazards that could seriously affect any of the three participating jurisdictions.

These personnel have firsthand knowledge of local capabilities and see the interaction between responsible parties. Among the strongest findings gleaned from the capabilities assessment is the lack of information and coordination between elected and appointed officials, and between emergency responders and private sector individuals/organizations with assigned emergency responsibilities. Because information is not only fundamental but essential to success in virtually every endeavor, priority in development of this plan has been placed on compiling and disseminating pertinent information, and coordinating the activities of partners in mitigation. Worth County Emergency Management Agency will develop a library of mitigation materials and serve as a clearinghouse of information to be presented to the general public in numerous settings and forums, applied to local government activities and shared between local emergency response agencies. This activity is a non-structural mitigation measure; consisting of action steps less expensive to implement, with broader application irrespective of the type hazard, less expensive to maintain, and more adaptable for application to specific needs than structural measures. Since this is a non-structural measure with a wealth of information available on the subject matter, the greatest expense associated with this activity is expected to be staff time. As mentioned on page 1, the county has been aggressive in recent years in preparedness activities. The balance of plan action steps either supplement or complete active mitigation measures, or are best management practices.

More specifically, priorities were established as functions of time and cost. Actions which were deemed less costly and less time consuming to implement were given higher priority, while those of greater expense and requiring more time for implementation were rated lower.

2. Use of cost benefit – Of the action steps included in this plan, 75% involve compilation and/or dissemination of disaster-related information. A major benefit of such non-structural measures is their cost effectiveness; they are inexpensive to implement and maintain and have broad applicability. The balance of activity either

supplements or completes preparedness measures initiated previously by the community, or are best management practices. The "high ticket" actions have a lower public benefit level and will take significantly longer periods of time to implement. These appear late in the list of priorities.

3. Use of other calculations – No other calculations were utilized.

4. Use of other review structure – No other review structure was utilized.

D. Incorporation of Pre-Disaster Mitigation into other plans/planning measures

Pursuant to Georgia law, local governments must prepare and adopt a comprehensive plan to maintain eligibility for state grants, loans and/or permits. All local jurisdictions are diligent in maintaining their "Qualified Local Government" status. Although the chief elected official of the jurisdiction is legally accountable for ensuring these plans are prepared in accordance with stringent state planning and procedural standards, and formally adopted, responsibility for ensuring this is accomplished is deferred to the chief administrative official. The previous hazard mitigation plan was reviewed during the update process of the comprehensive plan. At that time there was very little connection between the two documents, however the push is on to further incorporate hazard mitigation into comprehensive planning and during the next comprehensive plan update this will be done Annual review and evaluation of this mitigation plan will serve to facilitate incorporation of mitigation measures into daily management functions of the local governments as well as the comprehensive plans of each jurisdiction, all scheduled to be updated no later than October 31, 2018. The Southwest Georgia Regional Commission has helped not only with preparation of this plan but has also been helping the communities comply with comprehensive and other planning requirements. In addition, digital maps prepared for this plan exceed the pre-disaster mitigation planning requirements. Much of the mapped information included here does not appear on any local data base, but is useful for revealing the relationships between planning, management

and mitigation. This resource is intended to provide a valuable link between mitigation, planning and management functions of the local governments.

II. MONITORING AND EVALUATION

A. Method

Local monitoring and evaluation will occur annually. The EMA Director will review the plan at a local level to update administrative actions that have been taken, and revise the plan as needed. The EMA Director will maintain a current, written record of progress made with plan implementation. With the record of project information recorded during the course of the year(s) it will be useful for the end-of-year evaluation (and five-year update). Once the five year update comes it will be very useful to have the written record of accomplishments and notes ready to be discussed and inserted into the updated plan. Assuming there is no change in the planning requirements; Worth County will follow the same method as was done for this plan update, beginning around 2020. One of the first tasks of the EMA Director will be to determine the criteria to be used for evaluation of the plan. Included among these criteria should be:

- Do the goals and objectives continue to address expected conditions in Worth County?
- Is the risk assessment still appropriate, or has the nature or magnitude of the hazard and/or vulnerability changed over time?
- Are current resources appropriate for implementing this plan?
- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have member of the public been adequately involved in the process? Are their comments being heard?

B. Responsibility

The responsibility of monitoring, reviewing and updating the plan will be the Worth County Emergency Agency in cooperation with all county agency and all departments in the Cities of Warwick, Sylvester, Poulan and Sumner. The

agency may involve other regional, state, and private entities to assist in updating the plan.

C. Timeframe

Upon formal plan adoption the EMA Director will organize and assign specific responsibilities for plan implementation. The EMA Director shall assess progress quarterly thereafter, and where necessary develop plan revisions or adjustments. The EMA Director shall perform a progress evaluation of annual progress in December. Based on the results of this evaluation appropriate steps will be taken to facilitate implementation during the subsequent year.

D. Reporting

Quarterly meetings between the EMA Director and the jurisdictions will be used as the reporting mechanism. Presentations by the EMA Director will keep the local governments abreast of plan progress and any shortcomings in plan implementation. This time will be used to adjust or supplement the plan in the event of significant problems or difficulties, and will help maintain responsibility and accountability among the participants. The EMA Director will make periodic reports to the board of commissioners concerning implementation progress.

The previous plan was intended to be monitored and evaluated the same way but the EMA Director left unexpectedly and monitoring and implementation of the Pre-Hazard Mitigation Plan was subsequently done haphazardly for some time as the new EMA director acclimated to the new position.

III. MULTI-JURISDICTIONAL STRATEGY AND CONSIDERATIONS

The Worth County Emergency Management Agency (EMA) is the authorized agent of all of the municipalities for Pre-Disaster Mitigation planning. These officials are responsible for the administrative personnel and day-to-day

operations of their respective local governments, mitigation activities proposed in the plan, and their respective jurisdiction's responsibilities for plan implementation. It is these individuals who will present and recommend to the governing body policy changes, ordinance adoption, or initiate revisions in administrative procedures necessary to accomplish goals of the mitigation plan. These individuals have responsibility for ensuring that action steps specific to their respective jurisdictions are implemented, and reporting progress to the executive committee.

IV. PLAN UPDATE AND MAINTENANCE

A. Public involvement

Many of the action steps identified in this plan require direct interaction with the general public. These occasions will be used not only to share critical information needed by the public, but to inform residents of local mitigation activities and to solicit public participation throughout the year. As an official creation of the county, meetings of the executive committee are "public". Consequently, all such meetings will be posted in advance of the meeting date, and the local print media will receive notification directly. The 2019 update of the plan is expected to bear little resemblance to the current document. For that reason, and because it is an official plan of each local jurisdictions, a publicly advertised hearing will be held at the beginning of the update process to inform the public and to solicit public participation. A second hearing will be held near the end of the update process for public comment.

Responsible officials of involved organizations and agencies should recommend revisions at any time and provide information periodically as to change of personnel and available resources which would bear on the provisions of this plan and its implementation.

To facilitate the goal of continued public involvement in the planning process, the EMA will assure that the following steps are taken:

- The public will be directly involved in the update and review of the plan as members of the Pre-Disaster Mitigation Planning Committee.
- Copies of the plan will be kept on hand at appropriate agencies throughout Worth County. Contained in the plan is the address and phone number of the EMA employee responsible for keeping track of public comments on the plan.
- The plan will be available on the City/County's website, and will contain an e-mail address and phone number the public can use for submitting comments and concerns about the plan.
- A public meeting will be held annually to provide the public with a forum for expressing concerns, opinions, and ideas. The EMA will set meeting schedules and dates and use County resources to publicize and host this meeting.

B. Timeframe

It is not presently known what planning standards will apply to the 2019 plan update. Consequently, it is difficult to accurately predict the specific timetable which will be needed. The comprehensive plans of jurisdiction must be prepared, go through regional and state reviews and adopted by October 31, 2017. Based on current assumptions of future mitigation planning standards, a committee structure and plan preparation process similar to that described in the introduction is proposed. The first of two publicly advertised hearings will be held in summer of 2020 at the beginning of the update process to inform the general public and solicit public participation. A second hearing will be held in late fall near the end of the update process for public comment prior to adoption by local governing bodies.

C. Reporting

The quarterly meetings of the executive committee will be used as the reporting mechanism. Presentations by the various responsible parties to this committee will not only update the EMA Director, but keep the full executive committee abreast of plan progress and any shortcomings in plan implementation. This time will be used to adjust, maintain or supplement the plan in the event of significant problems, difficulties or unanticipated success. This reporting method will help maintain responsibility and

accountability among the participants. The EMA Director will make periodic reports to the board of commissioners concerning implementation progress. The chief elected or chief administrative officer of all local governments serves on the executive committee. These individuals will also report to their elected governing bodies progress made in plan implementation.

CHAPTER 5 – CONCLUSION

Summary of Changes:

- No Changes

I. SUMMARY

Local government adoption of this mitigation plan completes the third of four important steps. Resources have been organized to address the issues associated with hazard mitigation. Residents have identified the natural hazards most likely to affect the community and assessed the level of risk associated with each hazard. Included in this document are the numerous steps which must yet be taken to reduce community exposure to the natural hazards most likely to occur. The fourth step remains to be completed. It is believed that implementation of the action steps identified herein will make the community much safer in the event another natural disaster should occur. The community can capitalize on past successes in emergency preparedness to continue its efforts to provide for the health, safety and general well-being of the resident population.

II. REFERENCES

Publications

Numerous publications were utilized in compiling information for this plan. Each sub-committee's resources are indicated on the individual worksheets located in the appendices. Some publications used include:

1. The Albany Herald
2. The Sylvester Local
3. Flood Insurance Rate Map (FIRM)
4. U.S. Geological Survey Water-Supply Paper

Numerous publications were utilized in compiling information for this plan. Each sub-committee's resources are indicated on the individual worksheets located in the appendices. Some websites used include:

1. GEMA

2. FEMA
3. NCDC

Web Sites -

http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~storms

morgan@westegg.com

www.tornadoproject.com

http://www.dnr.state.ga.us/dnr/environ/

et.al.

Additional sources of information

The additional sources of information used in compiling this research were county records identifying past hazard events.

Georgia Department of Natural Resources

Georgia Forestry Commission

Georgia Tornado Database

National Climatic Data Center

National Weather Service

University of Georgia

Center for Agribusiness and Economic Development

USDA Farm Services Agency

Newspaper articles

Interviews with local sources

Worth County Joint Comprehensive Plan

Worth County Emergency Operations Plan 2011

et al.