Taylor County

Local Mitigation Strategy - 2020

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Taylor County
Board of County Commissioners
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Acknowledgements

The 2020 update of the Taylor County Local Mitigation Strategy (LMS) was developed under the authority and support of the Taylor County Board of County Commissioners, and the City Council of Perry.

The Taylor County LMS update was developed in conjunction with the Taylor County Local Mitigation Strategy Working Group and other interested parties. The 2020 LMS was prepared by the Taylor County Department of Emergency Management and Enlighten Global, LLC.

The Taylor County LMS is available for public review at the Office of the Taylor County Department of Emergency Management, located at 591 East U.S. Highway 27, Perry, Florida, 32347, and once approved by FEMA, online at http://taylorcountyem.com/.

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Executive Summary

Taylor County is certainly accustomed to experiencing numerous natural and man-made disasters. Given its location and the fact it shares its entire southern border with the Gulf of Mexico, the County has experienced many tropical storms and other related weather events. This "Big Bend" area of Florida, of which Taylor County is a part of, is predicted to experience some of the highest storm surges found anywhere in the nation, and to some degree, the entire world, next only to the surges experienced by Bangladesh in the Indian Ocean. With its shallow offshore bathometry, and the County's low-lying coastal topography, it is extremely vulnerable to all types of tropical events, and even non-tropical events, such as the Winter Storm of 1993, which caused the deaths of several coastal inhabitants based on the rapid rise of the Gulf of Mexico.

Taylor County also is heavily forested. Its motto of being "The Forest Capitol of Florida" means it is also susceptible to forest fires, especially in the wildland/urban interface areas. The timber industry is one of the industrial lifelines in Taylor County, and employs many of its residents. Living with the threat of forest fire and its associated impacts requires constant surveillance.

In addition, Taylor County has several areas where its underlying Karsts topography makes sinkholes a reality, and a threat. Several have opened up in the past, causing damage and displacing residents, transportation routes, and businesses.

Much of Taylor County is categorized as wetlands (24%). The western boundary of Taylor County is the Aucilla River, which frequently floods, sometimes because of localized rainfall, and many times because of excessive rainfall anywhere along its path in other neighboring counties. Equally, the Steinhatchee, Econfina, and Fenholloway Rivers will on occasion flood, causing damage to homes and infrastructure.

Based on the constant threat of these hazards, and many more, their risk, and the extensive vulnerability of the county's infrastructure, businesses, and homes, the Taylor County Board of County Commissioners and the City Commission of Perry sanctioned the development of the Taylor County (The) Local Mitigation Strategy (LMS), and its various updates. The purpose of the LMS is to identify the hazards Taylor County is susceptible to, and develop strategies to reduce the risk to people and property from these risks. This is also important as more parts of Taylor County are being developed, with a goal of making them hazard resilient.

The 2020 Update of the Taylor County LMS is designed to provide an update of the progress made in implementing the goals, objectives, and projects developed by the LMS Working Group. The identification, reduction and management of risks from disasters are becoming increasingly important. If effective action is not taken, human and economic costs of disasters to communities in Taylor County could increase. Local governments, its citizens, businesses, industry, educational institutions, and community organizations must strive together to meet

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mitigation objectives. This LMS is a compilation of the efforts of these stakeholders to identify their mitigation goals and objectives, and develop mitigation initiatives based on their vulnerability to the hazards of Taylor County. Implementation of the hazard mitigation objectives will be accomplished through personal awareness and responsibility, coupled with governmental regulation and enforcement, as well as public awareness and support. Taken as a whole, these efforts will help make Taylor County a safer, more disaster resilient community.

I. Introduction

A. Purpose

The Taylor County LMS Working Group has been active in helping make the population, neighborhoods, businesses and institutions of the community more resistant to the impacts of future disasters. The LMS Working Group is undertaking a comprehensive, detailed evaluation of the vulnerabilities of the community to all types of future natural, technological and societal hazards in order to identify ways to make the county more resistant to their impacts.

The Taylor County LMS is intended by the Working Group to serve many purposes. These include the following:

1. **Promote Compliance with State and Federal Program Requirements**

   Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, enacted under Section 104 of the Disaster Mitigation Act of 2000, requires new and revitalized planning requirements for local mitigation plans. In addition, there are a number of state and federal grant programs, policies, and regulations that encourage or even mandate local governments to develop and maintain a comprehensive hazard mitigation plan. This plan is specifically intended to assist the participating local governments comply with these requirements, and to enable them to more fully and quickly respond to state and federal funding opportunities for mitigation-related projects. Because the plan will define, justify and prioritize mitigation initiatives that have been formulated through a technically valid hazard analysis and vulnerability assessment process, the participating organizations will be better prepared to more quickly and easily develop the necessary grant application materials for seeking state and federal funding.

2. **Enhance Public Awareness and Understanding**

   The LMS Working Group is interested in finding ways to make the community as a whole more aware of the natural and technological hazards that threaten the public health and safety, the economic vitality of businesses, and the operational capability of important institutions. The Taylor County LMS will identify the hazards threatening Taylor County and provide an assessment of the relative level of risk they pose. It will also detail the

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specific vulnerabilities of the City of Perry and many of the facilities that are important to the community's daily life. The LMS will also include a number of proposals of ways to avoid or minimize those vulnerabilities. This information will be very helpful to individuals that wish to understand how the community could become safer from the impacts of future disasters.

3. **Provide a Methodical, Substantive Approach to Mitigation Planning**

   The approach utilized by the Taylor County LMS Working Group relies on a step-wise application of soundly based planning concepts in a methodical process to identify vulnerabilities to future disasters and to propose the mitigation initiatives necessary to avoid or minimize those vulnerabilities. Each step in the planning process builds upon the previous step, so that there is a high level of assurance that the mitigation initiatives proposed by the participants have a valid basis for both their justification and priority for implementation.

4. **Provide a Flexible Approach to the Planning Process**

   The planning process is very flexible in meeting the analysis and documentation needs. The planning effort used provides for the creation of this document, as well as the preparation of numerous other reports regarding the technical analyses undertaken. In this way, the plan assists the Working Group with utilizing a full range of information in the technical analysis and the formulation of proposed mitigation initiatives for incorporation into this plan.

5. **Create a Decision Tool for Management**

   The Taylor County LMS will provide information needed by the managers and leaders of government, business and industry, community associations and other key institutions and organizations to take actions to address vulnerabilities to future disasters. It will also provide proposals for specific projects and programs that are needed to eliminate or minimize those vulnerabilities. This approach is intended to provide a decision tool for the management of participating organizations and agencies regarding why the proposed mitigation initiatives should be implemented, which should be implemented first, and the economic and public welfare benefits of doing so.

6. **Enhance Policies for Hazard Mitigation Capability**

   A component of the hazard mitigation planning process is the analysis of the existing policy, program and regulatory basis for control of growth and development. This process involves cataloging the current mitigation-related policies of Taylor County so that they can be compared with and against the hazards that threaten the unincorporated areas or the City of Perry and the relative risks they pose to these communities. When the risks posed to the community by a specific hazard are not adequately addressed in the community's policy or regulatory framework, the impacts of future disasters can be even more severe. The planning process utilized by the Working Group supports detailed comparison of the community's policy controls to the level of risk posed by specific hazards.

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7. **Assure Inter-Jurisdictional Coordination of Mitigation-Related Programming**

   A key purpose of the planning process is to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County. In this way, there is a high level of confidence that mitigation initiatives proposed by one jurisdiction or participating organization, when implemented, will be compatible with the interests of adjacent jurisdictions and unlikely to duplicate or interfere with mitigation initiatives proposed by others. The operating procedures of the Working Group mandate that all proposed mitigation initiatives, regardless of their origin, will be coordinated among all of the participants in the planning prior to their approval for incorporation into the plan.

B. Scope

The Taylor County LMS is designed to identify current projects that, if implemented and funded, could reduce the County's and City of Perry's vulnerability and risk to known natural and man-made disasters. It incorporates pertinent portions of the Taylor County/City of Perry Comprehensive Plan (growth management plan). The Taylor County Comprehensive Land Development Plan (COMP) identifies the current and future land use plans for the County, and is a powerful mitigation tool. The LMS provides guidance to the continual update of the COMP Plan, thus providing a mechanism to mitigate inappropriate development in vulnerable areas. In addition, the LMS is an integral part of the Taylor County Comprehensive Emergency Management Plan (CEMP). Mitigation is one of the key phases of emergency management, and the CEMP relies heavily on the contents of the LMS to help identify what the operational needs of the County may be based on through the identification of areas susceptible to hazards. These areas include places where residents live, critical Infrastructure/key assets (CIKR) are located, and where the basic public infrastructure is located that may be vulnerable to any known hazard.

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II. Mitigation Planning Process

A. Coordinated Planning Process

At the core of the mitigation planning process is coordination and partnership among the governmental units involved in the planning effort. In addition, the planning process relies on the close involvement of public and private sector organizations, such as environmental organizations, homeowner's associations, the insurance industry and relief organizations. The creation of the organizational structure was the first step in the development of the Taylor County LMS. The second step was to ensure the citizens of Taylor County were informed and educated about the LMS. The results were the establishment of an effective and productive LMS.

The original Taylor County Local Mitigation Strategy was developed and adopted by the Taylor County Board of County Commissioners and the City of Perry in October, 1999. Subsequent to that, it was revised and re-adopted again in February, 2005 to meet the requirement of the Disaster Mitigation Act of 2000 (DMA2000). The LMS is posted on the Taylor County website for public review at http://www.taylorcountygov.com/pdf/em/Local Mitigation Strategy.pdf

In 2015, the Taylor County LMS was updated with a completion date of September 15, 2015 and an official acceptance later dated October 30, 2015 received from FEMA.
In 2019, the Taylor County Department of Emergency Management in conjunction with the LMS Working Group began the process of updating the current Local Mitigation Strategy. Since the last approval the LMS Working Group met quarterly for a total of eleven times between 2015 and December 9, 2019 to refine the projects and overall mitigation strategy for Taylor County and the City of Perry. Public participation was encouraged by way of Taylor County Emergency Management website. The Emergency Management Director held the Chairman position, with the Taylor County Fire Chief filling the co-Chair post. The City of Perry was a full participant in the LMS Update process.

This plan has been completed and was formally adopted by the governing bodies of Taylor County, Taylor County Board of County Commissioners on _____. A copy of the executed resolution is included in the submission to FEMA for review and approval.

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B. Public Involvement

Taylor County understands the importance of including the public in this hazard mitigation planning process. Multiple opportunities have been and will be given to allow the public to comment on the drafts of the written plan.

From April 2015 through December, 2019, the LMS Working Group met eleven times to discuss the progress of the identified mitigation projects, and the development of the plan update. This series of meetings included members of the Taylor County LMS Working Group and representatives from the City of Perry, Taylor County Chamber of Commerce, the American Red Cross, United Way, the Florida Division of Forestry, Florida Division of Emergency Management, and neighboring county emergency management officials, and others. The meetings were noticed by way of a press release or blast email to encourage general public participation. On some occasion's members of the general public attended meetings.

The Director of Taylor County Emergency Management (LMS Working Group Chair), the LMS Working Group, and the City of Perry worked together to update and refine the list of projects in the 2019 LMS. The standard county procedure for public comment on the procurement of services was followed. Several meetings had members of the business industry attend for the first time. In addition, several private citizens (retired County/City

employees, others) also attended these meetings. The public was made aware of the draft LMS and given the opportunity to provide comments prior to finalization. This was done via the public announcement made for the September 23, 2020 LMS Meeting. In that announcement, the public was made aware that the draft Taylor LMS was posted on the Taylor County government website, and that the purpose of LMS meeting was to solicit public comments for the draft LMS (Appendix 3). No comments were received from the general public on the draft version of the 2019 LMS Update. The final plan will be placed on the website for the public to review at any time.

C. Other Interested Parties Participation

All LMS meetings were noticed to the general public, special districts and authorities (e.g. Big Bend Water Authority), other utilities, Non-Government Organizations (e.g. American Red Cross), constitutional officers (e.g. Sheriff, School Board, others), and appropriate state agencies (e.g. Florida Forest Service, Division of Emergency Management). Between January 2011 and April 2015, these agencies were invited to send representatives to the fourteen LMS Working Group meetings held during this timeframe. A list of attendees and agendas of each meeting held between 2015 and 2019 is provided in Appendix 3.

Some of the key participants in the LMS development and implementation include:

1. **City of Perry**
   The City of Perry has been identified as the only incorporated city in the county and has been a consistent member of the LMS Working Group. The City Manager was instrumental in the execution of the Inter-Local Agreement between Taylor County and the City of Perry pertaining to participating in the Taylor County LMS. This agreement outlined the partnership between the two entities with respect to mitigation planning including the various terms, conditions, and responsibilities.

2. **Taylor County School Board**
   The TC School Board is a member of the LMS Working Group, and has participated in the LMS planning process. Mitigation funds have been identified and secured for shuttering of school facilities. The School Board is also active in the supplying shelter spaces and transportation during emergencies in Taylor County. The School Board has formally adopted the LMS, and will continue to participate on the LMS Working Group.

3. **Big Bend Water Authority (BBWA)**
   The Big Bend Water Authority is a public body authorized by Section 373.1962, Florida Statutes. It was created by InterLocal Agreement pursuant to Section 163.01, Florida Statutes. The counties of Dixie and Taylor are the parties to that agreement. The Authority has participated in the LMS planning process, and has attended LMS Working Group meetings to discuss issues pertinent to the area of coverage provided by the BBWA (Steinhatchee).

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4. **Florida Forest Service**
   During the initial planning efforts in 1998, the Florida Forest Service (FFS) served on the LMS Working Group. Since that time, an FFS representative continues to act in this liaison position between the State and this local organization. FFS is very involved statewide in mitigation efforts to prevent forest fires and to protect the state forests and timber areas, and their experience and expertise have assisted in the profiling of fire hazards and the effective mitigation measures. The current FFS Area Supervisor responsible for Taylor County serves on the LMS Working Group. Between 2015-2019, the FFS sponsored several Firewise Community outreach events, including one in Steinhatchee, and one at the Forest Festival in the City of Perry. They continue to supply information pertinent to Taylor County fire mitigation efforts including:
   - Southern Wildfire Risk Assessment Portal (South WRAP) at http://www.southernwildfire.net/SouthWRAP
   - Historical Fire Data
   - GIS data files for fire mapping and analysis
   - Personal knowledge and fire profiling and fire mitigation

5. **Florida Division of Emergency Management**
   The FDEM has provided continual support to Taylor County LMS Working Group efforts. Annually, the Working Group submits a report to FDEM highlighting the progress made to date on the LMS Plan projects. FDEM has attended and participated in the LMS planning process. Recently, FDEM provided critical information pertinent to the update of the 2010 LMS Plan, as it pertained to significant changes made in the Robert T. Stafford Act. FDEM is willing to offer assistance to Taylor County upon request.

6. **Neighboring County Emergency Management**
   Four counties have contiguous borders with Taylor County. All were invited to the LMS Working Group meetings. These included invitation to the directors of:
   - Dixie County Emergency Management
   - Jefferson County Emergency Management
   - Madison County Emergency Management
   - Lafayette County Emergency Management

   Historically, these counties share similar hazard vulnerabilities, and have similar risks to Taylor County. The County has provided assistance to these neighbors in prior events, and maintains a working relationship with each.

D. 2020 LMS Working Group Membership

Since its original meetings, the LMS Working group agencies have changed very little, but some of the active representatives have. The 2020 LMS Working Group is currently comprised of:

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Taylor County LMS Working Group

Kristy Anderson, Chair	Taylor County Emergency Management Director
Dan Cassel, Co-Chair	Taylor County Fire Chief
Lawanda Pemberton	Taylor County Administrator
Marsha Durden	Assistant County Administrator
Heather Jensen	Taylor County Animal Control Coordinator
Danny Griner	Taylor County Building Director
Eddie Cullaro	Taylor County CRS Coordinator
Kenneth Dudley	Taylor County Engineer
Hank Evans	Taylor County Public Works Director
Katie Morrison	Taylor County Sheriff's Office 911 Coordinator
Dan Anderson	Taylor County School Board Safety Director
Chester McAfee	City of Perry, Public Works Director
Taylor Brown	City of Perry, City Manager
Jack Smith	Florida Forest Service, Forest Area Supervisor
Travis Pike	Florida Forest Service, Wildfire Mitigation Specialist
Jamie Evans	Taylor County Grants Coordinator
Warren Zwanka	Suwanee River Water Management District
Gary Wambolt	Taylor County, Environmental Services Director
Ed Ward	Florida Department of Transportation
Brian Bradshaw	FDEM Region 2 Coordinator

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E. LMS Working Group Meetings

The Taylor County LMS Working Group has consistently met since its inception in 2011. Between April 2015 and December 9, 2019, the LMS Working Group met eleven times to keep the LMS Plan up to date and keep track of the projects identified in the April 2015 LMS Plan. The purpose and general agency representation of all the LMS meetings is provided below. The minutes and list of attendees of these meetings is maintained by the Taylor County Emergency Management Department. The meeting announcements, agendas, and a list of attendees are provided in Appendix 3, beginning with April 23, 2015 – December 9, 2019.

- **<u>April 23, 2015 LMS Working Group Meeting</u>**
  Steve Spradley advised the group that Taylor County was not a declared county from the 2014 floods. He also advised that hazard mitigation monies are available from FEMA. Taylor County can submit projects in the tier program as well as other counties. The group discussed the possibility of a hospital generator, but noted that it would be a cost of $1.3 million. Bobby Pickels of Duke Energy noted that he may have a solution of the purchase of a back-up generator to the hospital. The LMS list was discussed and items removed as deemed necessary.

- **November 10, 2015 – LMS Working Group Meeting**
  The meeting was attended by members from TCEM, Florida Forest Service, Taylor Airport, and Taylor County Fire Rescue. Steve Spradley advised the group that the CRS update is due next year. He also noted that the 2015 LMS update has been approved by the state and will now go before the BOCC for approval. River Avenue was discussed as the AT&T box near that location were 6 inches from entering the box which will knock out 911 for the area. The group decided to add this to the list to review further. Various other areas from the Steinhatchee flooding were discussed for mitigation review.

- **August 17, 2016 – LMS Working Group Meeting**
  The group discussed the flooding issues in Steinhatchee and agreed that they will search for a grant in the future to alleviate the issues. The plan was added to the LMS plan to be reviewed at each meeting and hope to qualify for mitigation monies. The group updated the LMS list for projections for the future. Steve Spradley discussed the results of the submitted CRS report. He stated that Taylor County received a 3535 score out of a possible 395. We will continue to strive to reach a higher rating.

- **December 2, 2016 – LMS Working Group Meeting**
  The group was advised that the LMS meetings will now move to twice a year. The chair advised that Taylor County should be receiving mitigations monies from Hurricane Hermine. Melissa Schloss from FDEM along with David Ugrekhelidze advised the group of guidelines for the HMGP grant. David noted that workshops are available to assist with the application process. Steve Spradley advised that EM staff were interested in the workshops.

- **April 11, 2017 – LMS Working Group Meeting**
  Steve Spradley advised the group that Taylor County did receive IA and PA declarations from Hurricane Hermine. The allocation for Taylor County is $388,000 with a 25% match. The group discussed priority of the LMS project list to submit for the funding. Steve Spradley noted that several citizens are interested in having their homes elevated. J. Boothby noted that none of the listed homes are repetitive loss locations. Steve Spradley advised that raising the homes will help with community, the flood insurance program, and the CRS program. The group decided to list the priorities as #Elevations followed by the generators.

- **November 8, 2017 – LMS Working Group Meeting**
  Steve Spradley noted that the HMGP elevation and Forest Capital Hall generator applications were complete with the help of the Taylor County grants department. The group also updated the LMS project list. Steve Spradley advised the group that the EM department has updated and completed the debris contracts for the county. Jack Smith asked what our location for debris is in the Steinhatchee area. Steve Spradley noted that we have a contract with Four River for property near Sugar Hill. Steve Spradley noted that for Flood #10, we will add locating better sites for debris sites.

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- **August 7, 2018 - LMS Working Group Meeting**
  Jack Smith discussed the Bell Tower community and its needs as it relates to needed roads for better access, signage, etc. Kristy Anderson noted that the generator grant was approved at the last commission meeting. Kristy Anderson also noted that the elevation grant was discussed last evening at the board meeting. When the bids came back only two were bid on. We will now move to approving the consultant fees to manage and move forward.

- **December 4, 2018 – LMS Working Group Meeting**
  Melissa Schloss of FDEM gave a brief power point presentation of the mitigation process to all present. Kristy Anderson advised that there has been extensive flooding on Dulin Lane. Steve Spradley noted that the county pumped this area in the past under a LSE and continues to have issues. Brian Bradshaw noted that the best option would be a buyout. Dulin Lane will be added to the LMS project list under Flood 11.1. Kristy Anderson advised the group that the purchase order was completed and submitted for the Forest Capital Hall generator.

- **May 21, 2019 – LMS Working Group Meeting**
  Kristy Anderson advised the group on the elevation grant elevation. She noted one of the homes is complete and the second is near completion. She also advised that the generator at Forest Capital Hall will be complete in the near future. Eddie Cullaro noted that he has submitted the CRS report and will advise the group when the rating is received. The group once again reviewed the LMS project list for Taylor County which will be sent to FDEM in January. Taylor Brown, City Manager stated that the he will review the projects and have ready for the next LMS meeting.

- **September 19, 2019 – LMS Working Group Meeting**
  Lawanda Pemberton, Taylor County Administrator advised the group that Taylor County worked diligently during the recent flood event. She noted that the same areas that have flooded in years before, flooded again. The county has purchased pumps and hose to have on hand for the next flood event. Several citizens have voiced the concerns over continual flooding. Kristy Anderson advised the group that Taylor County received $2,787.95 in mitigation funds to use for LMS projects. She also noted that a 25% match would be necessary if we proceed with the grant process. The committee reviewed the project list and decided that the drainage issues should be our top priority. K. Dudley, engineer will continue to assess the flooding situation and advise administration of the best plan of action. Hank Evans also noted that the road department could use a generator for their building as it is essential during storms. K. Anderson advised that the generator project at Forest Capital Hall is complete and awaiting reimbursement from FEMA. She also advised the group that the elevation grant project is nearing completion.

- **December 9, 2019 - LMS Working Group Meeting**

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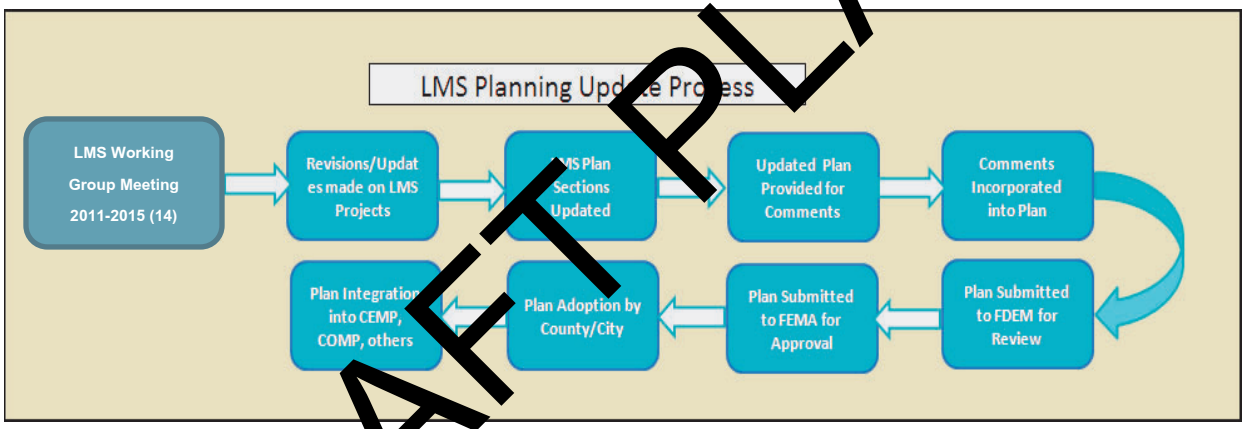
Kristy Anderson advised the group that the elevation grant project is complete and awaiting reimbursement from FEMA. The group reviewed the LMS project list and gave updates on each. Dan Cassel noted that the Keaton Beach Fire Station as well as the Steinhatchee Fire Station. Kristy Anderson also advised the group that the Taylor County Sheriff's Office has inquired about a new generator for the county jail. Kenneth Dudley advised the group that we might look at acquisition of properties that have been flooded. Lawanda Pemberton advised that the county will be meeting with the Army Corp of Engineers in the near future to discuss the drainage issues.

F. LMS Planning Process and Schedule

The Taylor County LMS Working Group continues to use a straight forward planning process that involves all interested stakeholders. The following process was used to update the LMS. The flowchart below and on the next page describes the process visually.

Chart II.F.1: LMS Planning Update Process



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1. **LMS Working Group Meetings - From** April 2015 until December 19, the LMS Working Group met eleven times. At each meeting, the progress of the prioritized projects was discussed, and any new information deemed important to include in the LMS.

2. **Updated Data Solicitation –** Beginning in April, 2019, the LMS Working group gathered all relevant, existing data from various sources including the 2015 LMS, the internet, State and Federal resources and interview with team members and Taylor County citizens. The Team solicited any updated information from all stakeholders pertinent to the Plan update. This includes updated information on demographics, new codes or ordinances, hazard analyses, risk assessments, recent event impacts, or areas of general interest. The City of Perry, Taylor County agencies, Taylor County School Board, and the Big Bend Water Authority participated in this process. The general public was offered the opportunity to participate in the plan update process, and to make any comments during the planning update cycle, to include review of the draft of the 2020 LMS Update.

3. **Data collation and Plan Updating –** Beginning in July, 2019 – January 2020, these documents and notes were fully analyzed and related information was collated. Using all of this information the initial draft of the Plan update was prepared and submitted to the LMS Working group, the State of Florida and FEMA for review and comments.

4. **Review and Comments –** From January to September 2020, all of the sections in the LMS were updated. As drafts were completed, they were reviewed by the LMS Working Group. The LMS Updated draft was posted on the website for public comments.

5. **Finalization of the Plan –** Between March – September 2020, the Updated Plan was finalized. Copies were supplied to the FDEM and FEMA for formal review and approval.

6. **Adoption and Delivery –**Once FEMA approves the plan, it will be adopted by the Taylor County Board of County Commissioners, and the City of Perry. A copy of the adoption resolutions from the County and the City of Perry will be provided to the State and FEMA to ensure compliance with Section 322 of the Stafford Act.

7. **LMS Plan Integration -** Upon Plan approval and adoption, opportunities to integrate appropriate information from the 2020 LMS into the Taylor County Comprehensive Plan (land management plan), the Comprehensive Emergency Management Plan, and any other pertinent county or City (Perry) plan will commence.

8. **Plan Availability -** The Plan is available for downloading or viewing on the Taylor County website: http://www.taylorcountygov.com/pdf/em/Local Mitigation Strategy.pdf, or a hard copy can be viewed at the Taylor County Emergency Management offices, or the Taylor County Public Library.

9. **Plan Integration –** Once the 2020 LMS Update is approved, it will be used extensively and referenced in the Taylor County CEMP, the COMP Land Use Plan, the Floodplain Management Plan, and will be referred to when any new Code or Ordinance is proposed. The data presented in this plan is especially beneficial to the future growth patterns of Taylor County and the City of Perry. Wise growth patterns reflective of the vulnerability posed by the hazards listed in this plan will be recognized in the County and City planning efforts.

   Prior to revisions to the COMP Plan, Floodplain Management Plan, or any new Code or Ordinance, the 2020 LMS will be referenced to ensure the proposed action is compliant with City and County mitigation strategies, to the extent applicable. This will be managed by the Taylor County Emergency Management, and Taylor County Building Departments.

The following flow chart depicts the overall planning process used to update the LMS, and the various data sources.

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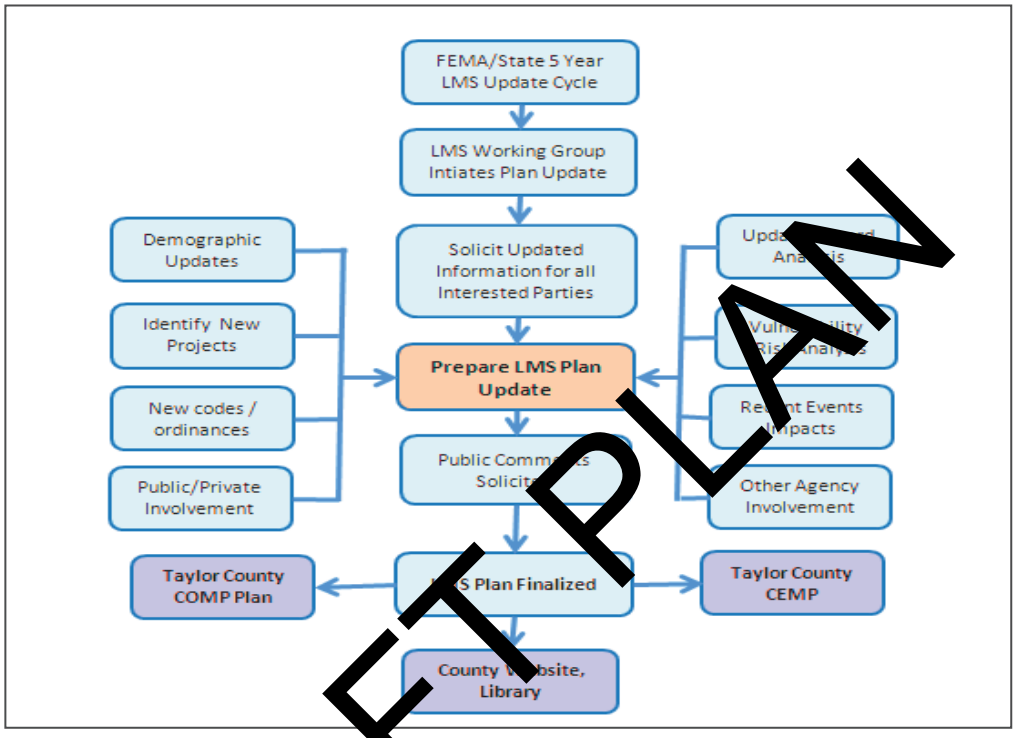
Chart II.F.2: Taylor County LMS Planning Process



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G. Review of Existing Plans

This 2020 Taylor County LMS is considered an extension and an update to the existing LMS plan from 2005, 2010, and 2015, and incorporates the numerous required enhancements identified in the *Local Multi-Hazard Mitigation Planning Guidance, June 12, 2019.* Therefore, this 2019 LMS plan and all its adoptions and resolutions are completely incorporated within the scope of this planning effort.

A review of the following plans was conducted in the preparation of the 2015 LMS Update. They include:

1. **Taylor County Comprehensive Emergency Management Plan (CEMP)**
   The Taylor County CEMP was updated in 2016. The CEMP is an integral part of the LMS update process, as it identifies known hazards and vulnerability. The LMS is referenced in the CEMP in several places, and is intended to be used interchangeably.

2. **Taylor County Terrorism Annex Draft**
   Provides guidance for a terrorism event and includes the following sections:

- Assumptions, purpose and scope
- Concept of Operations
- Organizational Responsibilities
- Training and Exercises

This document is not available to the public, but inquiries about this annex can be made to the Taylor County Emergency Management Department.

3. **Taylor County Floodplain Management Plan**
   As a minimum requirement of participating in the Community Rating System, Taylor County has developed and maintains the County Floodplain Management Plan. This plan identifies policies and strategies to reduce the overall impact of flooding in Taylor County, and lower the impact of repetitive loss properties. It is kept current to reflect any changes in County policies affecting floodplain management.

4. **Taylor County Comprehensive Plan /Land Development Plan (COMP)**
   The Taylor County COMP was reviewed for codes and ordinances that impact the placement of current and future growth in the County. Key elements of the COMP are summarized in this LMS. The COMP is updated on a regular schedule established by Florida Administrative Codes.

5. **Critical Infrastructure/Key Assets**
   This Excel spreadsheet has been developed by Taylor County Emergency Management as a comprehensive list of all facilities in the County deemed "critical" for the continuing operations of the County. This list was updated for the 2015 update of the LMS and is incorporated into the plan in the Vulnerability Analysis Sections. These critical facilities all have latitude/longitude coordinates that will allow for geo-referencing. These critical facility locations are overlapped with the high-risk hazard areas to determine vulnerability to unique hazard events.

6. **Engineering Department GIS data**
   The Director of the Taylor County Engineering Department is a current member of the LMS Working Group. The Engineering Department contributed a copy of all the existing Geographic Information System (GIS) data for the county and the surrounding areas. For the 2020 LMS update, the Engineering Department provided updated maps of the NFIP flood zones, population density, CIKR assets, and repetitive loss structures. This GIS information is used to meet the requirements of the Disaster Mitigation Act, focusing on areas of high risk and critical facility locations. The Vulnerability Assessment maps produced by the Engineering Department are included in this plan to meet the requirements for Hazard Mapping.

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Map II.G.1: Taylor County Voting Districts

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7. **Taylor County Codes and Ordinances**
   A thorough review of the Codes and Ordinances was performed for this LMS Update. Pertinent issues were extracted and placed in Section VII. These entries provide substantial mitigation measures for use in Taylor County.

8. **City of Perry Codes and Ordinances**
   In September 1990 the City of Perry adopted a Land Development Regulations by Ordinance No. 601, with multiple amendments as needed. The most recent revision was March 10, 2015. Resolution No. 2011-07 of the City of Perry adopted and supported the

Unified Taylor County LMS Plan. Upon completion of this 2020 plan the updated LMS plan will be presented for City of Perry ratification as before.

H. NFIP Repetitive Loss Structures

A major planning factor incorporated into the Taylor County LMS is the identification of the repetitive loss (RL) claim properties from the National Flood Insurance Program. Taylor County has aggressively addressed these RL properties through awareness campaigns, and other mitigation actions. Taylor County currently has 23 RL properties along the Gulf Coast that have been damaged by flooding. Since 2005, seven properties were deleted from the RL list, while an additional 10 new properties were added. These 23 locations have been paid over $885,000 over the past 15 years from one to four separate events. This data is incorporated to analyze these properties for appropriate flood mitigation projects.

The following map displays the general areas of repetitive loss damage and the tables provide repetitive loss data in a general format. Specific repetitive loss information can be obtained from the Taylor County Building Department.

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Map II.H.1: Repetitive Loss Structures in Taylor County

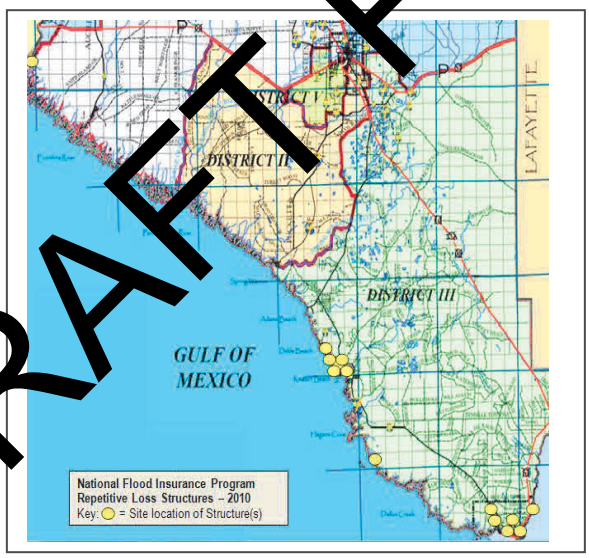

Table II.H.2: Repetitive Loss Claim Statistics for Taylor County 1995 - 2014

	Amount	Claim Value ($)
Total Repetitive Loss (RL) Claims (20 years)	24	$885,136.00
Properties Deleted From RL List since 2005	0	$ .00
Existing RL Properties With No Claims since 2005	0	$.00
Existing RL Properties With New Claims (Total claims)	5	$381,740.00
New Properties added to RL List + claims since 2005	10	$343,363.00
Total Claims Paid 2005-2014	15	$449,485.00

Source: *NFIP Repetitive Loss Data, 2009 - FEMA*		

Table II.H.3: 2010 Repetitive Loss Properties In Taylor County

Jurisdiction	TYPE OF STRUCTURE	GENERAL LOCATION	LOSS-BUILDING	CONTENTS	LOSSES	PAID	AVERGAGE
Unincorpor	RESIDENTIAL	STEINHATCHEE	$29,778.59	$0.00	2	$29,778.59	$14,889.30
Unincorpor	RESIDENTIAL	STEINHATCHEE	$45,919.83	$7,912.52	2	$53,832.35	$26,916.18
Unincorpor	RESIDENTIAL	KEATON BEACH	$56,238.88	$0.00	3	$56,238.88	$18,746.29
Unincorpor	RESIDENTIAL	KEATON BEACH	$83,934.48	$0.00	3	$83,934.48	$27,978.16
Unincorpor	RESIDENTIAL	KEATON BEACH	$82,073.69	$38,436.18	4	$120,509.87	$30,127.47
Unincorpor	RESIDENTIAL	DEKLE BEACH	$60,710.37	$16,736.79	3	$77,447.16	$25,815.72
Unincorpor	COMMERCIAL	DEKLE BEACH	$20,716.21	$0.00	2	$20,716.21	$10,358.11
Unincorpor	COMMERCIAL	KEATON BEACH	$25,203.07	$0.00	2	$25,203.07	$12,601.54
Unincorpor	COMMERCIAL	KEATON BEACH	$80,037.84	$0.00	2	$80,037.84	$40,018.92
Unincorpor	COMMERCIAL	KEATON BEACH	$25,531.62	$0.00	2	$25,531.62	$12,765.81
Unincorpor	RESIDENTIAL	STEINHATCHEE	$30,360.14	$13,251.43	2	$43,611.57	$8,722.31
Unincorpor	RESIDENTIAL	KEATON BEACH	$8,953.94	$763.93	2	$9,717.87	$4,858.94
Unincorpor	RESIDENTIAL	KEATON BEACH	$16,523.66	$0.00	2	$16,523.66	$8,261.83
Unincorpor	RESIDENTIAL	STEINHATCHEE	$6,821.36	$809.75	2	$7,631.11	$3,815.56
Unincorpor	RESIDENTIAL	KEATON BEACH	$10,131.97	$110.00	2	$10,241.97	$5,120.99
Unincorpor	RESIDENTIAL	STEINHATCHEE	$8,002.07	$948.35	2	$8,950.42	$4,475.21
Unincorpor	RESIDENTIAL	STEINHATCHEE	$6,413.23	$481.01	2	$6,894.24	$3,447.12
Unincorpor	COMMERCIAL	KEATON BEACH	$39,087.58	$8,887.69	2	$47,975.27	$23,987.64
Unincorpor	RESIDENTIAL	KEATON BEACH	$19,532.60	$3,804.40	2	$23,337.00	$11,668.50
Unincorpor	RESIDENTIAL	KEATON BEACH	$7,342.27	$87.50	2	$7,429.77	$3,714.89
Unincorpor	RESIDENTIAL	KEATON BEACH	$13,838.90	$0.00	2	$13,818.90	$6,909.45
Unincorpor	RESIDENTIAL	KEATON BEACH	$37,995.12	$3,500.00	2	$41,495.12	$20,747.56
Unincorpor	RESIDENTIAL	KEATON BEACH	$51,714.30	$22,565.14	2	$74,279.44	$37,1396.72
Unincorpor	COMMERCIAL	SPRING WARRIOR	$32,386.86	$7,989.36	3	$40,376.22	$13,458.74

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Community Rating System

The Community Rating System is an initiative of the Federal Insurance Administration to encourage increased efforts in the reduction of flood losses, facilitate accurate insurance ratings, and promote the awareness of flood insurance. The CRS recognizes community efforts beyond those minimum standards by reducing flood insurance premiums for the community's property owners. The CRS is similar to — but separate from — the private insurance industry's programs that grade communities on the effectiveness of their fire suppression and building code enforcement. CRS discounts on flood insurance premiums range from 5% up to 45%. Those discounts provide an incentive for new flood protection activities that can help save lives and property in the event of a flood. Taylor County is a participant in the CRS, is currently at a **Level** 7 rating. The County has developed and maintains a comprehensive flood hazard mitigation plan that incorporates strategies to reduce the impact of the 23 repetitive loss properties in Taylor County. The City of Perry is currently not a participant in the CRS.

J. Flood Mitigation Assistance (FMA)

The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program. FEMA provides FMA funds to assist States and communities implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program. Taylor County has been active in the FMA program, and sought funds for projects, but has not been awarded any grants since 2005.

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III. Land Uses and Future Development Trends

Taylor County is in a rural area with a stable population of approximately 21,569. The county is growing but the growth rates are low. New business is encouraged by the Chamber of Commerce and some new industry is moving into the area. However, the area has traditionally had a low level of unemployment so there is not a large pool of human resources to support significant development.

Most growth in the County centers around the City of Perry with the nearby unincorporated areas becoming more urban. This interface area outside of the city limits constitutes the area with the most expected development over the next ten years.

A. Future Growth Patterns

The following map from the Vision 2060 Plan identifies in 20-year increments where growth is expected to occur in Taylor County. This map also provides the land uses proposed for these areas. The Taylor County 2060 Vision Plan identifies many strategies and goals based on the lessons learned from the growth rates of neighboring counties, a 2060 target for achieving wise, sustainable growth to maximize the county's natural resources, and preserve its natural beauty. Much of this proposed growth would occur along the Taylor County coastline, which is susceptible to hurricane wind and surge action. Also, much of this area lies within the 100 year flood zone. Implementing this aggressive growth plan will provide many opportunities for the LMS Working Group to ensure growth is occurring in a manner that reduces resident's vulnerability to known hazards to the greatest degree possible. The following map demonstrates the proposed population centers in 20-year increments. It is estimated that the County's population could grow between four to seven times the current population by 2060. It is estimated that the permanent population could grow to about 95,000 people by 2060. Nearly 60,000 new housing units will be needed to serve that population in 2060.

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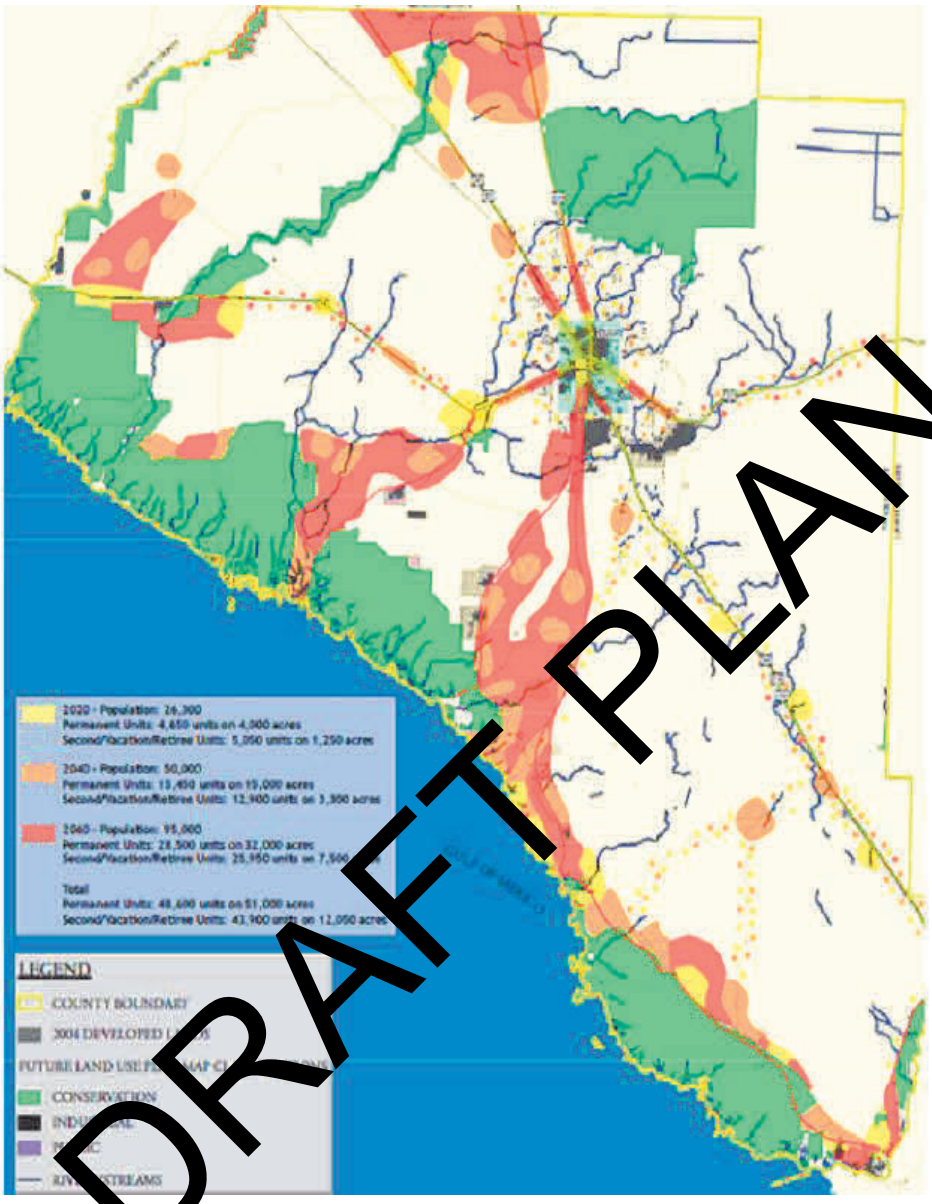
Map VI.A.1: Taylor County 2060 Vision Plan – Population Centers



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2020 - Population: 26,300
Permanent Units: 4,650 units on 4,000 acres
Second/Vacation/Retiree Units: 5,050 units on 1,250 acres

2040 - Population: 50,000
Permanent Units: 15,450 units on 15,000 acres
Second/Vacation/Retiree Units: 12,900 units on 3,300 acres

2060 - Population: 95,000
Permanent Units: 28,500 units on 32,000 acres
Second/Vacation/Retiree Units: 25,950 units on 7,500 acres

Total
Permanent Units: 48,600 units on 51,000 acres
Second/Vacation/Retiree Units: 43,900 units on 12,050 acres

Map VI.A.2: Future Growth Patterns – 2020 - 2060

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The *Vision 2060 Plan* includes a graphic portrayal of areas designated for development and areas designated for conservation. Keeping large tracts of land in conservation classification will prevent inappropriate development in an extremely high hazard area.

There are two Urban Service Areas (USAs), where urban development and infill is encouraged to occur. The Urban Services Area represents the limit of municipal services, such as centralized public water and wastewater. Urban Service Areas are divided into different districts, in which certain sustainable community types, such as Compact Mixed Use Villages, Coastal Village Centers, and Regional Employment Centers, are permitted.

The northern Urban Service Area is located around the existing City of Perry and represents the most intensely developed area in Taylor County. The Regional Employment Center District provides a district edge between the Urban Services Area and the Rural Services Area to the north and south of the Perry center. The southern Urban Service Area is located along the coastline. The two Urban Service Areas are separated by the Rural Services Area, providing distinct boundaries for municipal services. A new County Route 361 bypass route is proposed to preserve the existing rural character of CR-361 as a two-lane scenic highway.

All other land is located within the Rural Services Area (RSA), where preservation of land is encouraged through incentives. The Rural Service Area represents an area of limited public services, with development typically served by wells, septic tanks and individual package wastewater treatment plants, rather than centralized public water and wastewater. Community types within the Rural Services Area include Rural Settlements, Rural Villages, Ecological Villages, and Conservation Communities. These sustainable communities are characterized by clustered development to protect agricultural land and environmentally sensitive areas.

Approximately 16% of the land area in the *Vision 2060 Plan* is located within the Urban Service Area (USA), with 84% remaining in the Rural Service Area (RSA). The *Vision 2060 Plan* can accommodate between 50,000 and 188,000 new housing units.

Such future development and population growth will obviously expose more residents to many natural and technological hazards. The LMS Working Group will continue to participate and remain active in providing mitigation alternatives to any placement of infrastructure in a hazardous area.

B. Future Planning Area Boundaries

The following map shows the planning areas currently in use in Taylor County. Using existing publicly available data, the following environmental features were considered during the creation of the proposed Taylor County 2035 Future Land Use Map Planning Areas ("Planning Areas") to evaluate suitability for future development activities.

- Wetlands;
- Protected Species;
- Soils;
- Regionally Significant Resources; and
- Floodplains

There are 21 proposed planning areas, encompassing approximately 54,530 total acres. The Taylor County Comprehensive Plan designates these areas in relationship to the 100-year floodplain, wetlands, and the coastal high hazard area. This provides invaluable information to determine if any mitigation actions are necessary to ensure future growth is not vulnerable to known hazards.

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Map VI.A.3: Taylor County Regionally Significant Resources – 2009 COMP Plan

Much of the fresh water wetlands designated on this map are held as primary conservation areas along the coast. The County is actively assessing the extent of these conservation areas to ensure their safety. Human encroachment on these conservation areas is one of the primary trends in Taylor County and the county is actively managing these trends to ensure the development is beneficial to the citizens of Taylor County. The Keaton Beach and Bird Island Conservation Area serve as natural buffer zones from the impacts of hurricane induced storm surge.

C. Transportation Improvements

Roads and transportation are the main factors leading to growth and development. As roads develop and are maintained, human population follows with residential property development, agriculture, industry and further infrastructure. The following chart details the Florida Department of Transportation's five year work plan for Taylor County. Potential future development trends will follow closely behind these road improvements.

Table VI.A.4: FDOT 5 Year Plan – Taylor County

FLORIDA DEPARTMENT OF TRANSPORTATION
5 - YEAR TRANSPORTATION PLAN ($ IN THOUSANDS)
TENTATIVE FY 2021 - 2025 (10/28/2019 17.28.28)

TAYLOR COUNTY

Item No	Project Description	Work Description	Length	2021	2022	2023	2024	2025

Highways: State Highways

Item No	Project Description	Work Description	Length	2021	2022	2023	2024	2025
4135281	D2-TAYLOR COUNTY TRAFFIC SIGNAL MAINTENANCE AGREEMENT	TRAFFIC CONTROL DEVICES/SYSTEM	.000	35 OPS	35 OPS	37 OPS		
4433111	SR30(US98) FROM CABBAGE GROVE ROAD TO US19	RESURFACING	12.837		2,162 CST			
4410591	SR55(US19/US27A/US98) TO FENHOLLOWAY RIVER	RESURFACING	17.013	17,079 CST				
4410581	SR55(US221) FROM: CEDAR ST. TO: MADISON CL	RESURFACING	11.406	7,884 CST				
4451471	US221(SR55) WOODS CREEK BRIDGE NUMBER 380009	BRIDGE REPLACEMENT	.102	509 PDE				
					808 PE			
						42 ROW	82 ROW	
								5,755 CST
4426101	US221/SR55 AT TWO PINES CREEK BRIDGE NO.380011	BRIDGE REPLACEME	.014	ROW				
							6,024 CST	
4412671	US27(HAMPTON SPRINGS AVE) NEAR FAULKNER ST IN PERRY RR XING 713453M	RAILROAD CROSSING	.200			350 RRU		

Highway: Local Roads

Item No	Project Description	Work Description	Length	2021	2022	2023	2024	2025
4434061	ASH STREET FROM US19 TO HELEN STREET	RESURFACE EXIST LANES	1.831		1,750 CST			
4374061	CR361(KEATON BEACH RD) OVER CLEARWATER CREEK BRIDGE NO380040	BRID PLACEMENT	.020	3,464 CST				
4399381	CR361(KEATON BEACH RD) OVER SPRING WARRIOR CREEK BRIDGE NO380035	BRIDGE CEMENT	.200	53 ROW	25 ROW			
						2,961 CST		
4399371	CR361(KEATON BEACH RD) OVER SPRING WARRIOR CREEK BRIDGE NO380	BRIDGE REPLA NT	.200	36 ROW	16 ROW			
						3,405 CST		
4399351	CR361B OVER ROCKY CREEK BRIDGE NO380070	BRIDGE REPLACEMENT	.100	29 ROW	51 ROW	24 ROW		
						4,202 CST		
4356832	OLD DIXIE HWY FROM: SOUTHSIDE PRK TO: SR55(JEFFERSON ST)	SIDEWALK	1.450	550 CST				

Highway: Off State Hwy Sys/Off Fed Sys

Item No	Project Description	Work Description	Length	2021	2022	2023	2024	2025
4434971	CONTRACTOR'S ROAD FM GA PACIFIC SCALES TO CR30(FOL RD)	RESURFACING	.446	1,034 CST				
4458161	CR359A(MCDANIEL RD) FROM: WRIGHT RD T RGAH RD(CR	WIDEN/RESURFACE EXIST LANES	1.303			1,370 CST		
4455631	CR361(BEACH ROAD) FROM SR51(1ST A OU D US 98	SIGNING/PAVEMENT MARKINGS	.000	167 PE				
						921 CST		
4374231	DENNIS HOWELL ROAD OVER W OR CREEK B GE NO384029	BRIDGE REPLACEMENT	.030	515 PE				
					56 ROW	39 ROW		
							2,929 CST	
4456981	ELLIS STREET FROM: JEFFERSON STR , CENTER STREET	RESURFACING	.168	208 CST				
4467101	S CENTER STREET G NO 7 RRMP:77.40	RAIL SAFETY PROJECT	.200	251 RRU				

Maintenance: State Highways

Item No	Project Description	Work Description	Length	2021	2022	2023	2024	2025
4144141	LIGHTING AGREE S TAYLOR CO	LIGHTING	.000	54 MNT	56 MNT	57 MNT		
4464841	PERRY MAINTENANC MARY	ROUTINE MAINTENANCE	.000	150 MNT				
2147231	TAYLOR	ROUTINE MAINTENANCE	.000	3,000 MNT	3,000 MNT	3,000 MNT		

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Source: http://www2.dot.state.fl.us/fmsupportapps/WorkProgram/Support/Download.aspx

IV. Taylor County Mitigation Strategy

Through the combined efforts of the Taylor County Local Mitigation Strategy Working Group, Taylor County has developed and updated the County mitigation strategy in order to reduce potential future losses due to natural hazards. Existing plans and policies have already been developed by the County that are crucial components to the overall hazard mitigation strategy. During the 2010 LMS update process, all relevant ordinances and policies that work as the blueprint for the Taylor County mitigation strategy were reevaluated. All of these existing authorities, policies, programs and codes are adopted official mechanisms for county government and can all be expanded and improved as required. The LMS Working Group is the lead agency for proposing new ideas to the county commissioners for improving these overall mitigation efforts

The primary source for Taylor County policies pertaining to mitigation is the Taylor County Comprehensive Plan, which was updated and evaluated in 2009, and the Taylor County Codes and Ordinances, which are continually updated. The following elements of the COMP Plan have mitigation provisions.

- Land Use Element
- Housing Element
- Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element
- Coastal Management Element
- Conservation Element
- Recreation and Open Space

Along with the County Comprehensive Plan, and the Taylor County Codes and Ordinances, three other county plans were reviewed for mitigation activities and strategies. They include:

- Taylor County Economic Development Plan - 2009
- County Emergency Management Plan – 2015
- Taylor County Debris Management Plan - 2017

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A. Ongoing Mitigation Provisions in Current Plans, Ordinances, Codes

The following table lists excerpts from existing plans, codes, and ordinances relating to on-going mitigation strategies in the county.

Table VII.A.1: Current Taylor County Ongoing Mitigation Provisions

TAYLOR COUNTY COMP PLAN	
Future Land Use Element	
The County shall limit the location of higher density residential and high intensity commercial and industrial uses to arterial or collector roads identified on the County Future Traffic Circulation Map where public or private facilities are available or are an integral part of a development proposal to support such higher density or intensity.	County Comprehensive Plan, Future Land Use Element, Policy 1.1.1
The County shall prior to action on a site and development plan, provide specific standards which may include, but may not be limited to, screens and buffers to preserve internal and external harmony and compatibility with uses inside and outside the proposed development to minimize the impact of proposed development adjacent to agricultural or forested areas, or environmentally sensitive areas (including but not limited to **wetlands and floodplain areas**).	County Comprehensive Plan, Future Land Use Element, Policy 1.1.4
Protect **environmentally sensitive lands** identified within the Conservation Element;	County Comprehensive Plan, Future Land Use Element, Policy 1.3.1(c)
Conservation: Area with extremely limited development potential due to **environmental sensitivity**, publicly owned natural reservations, or other lands identified for such protective treatment. Limited use for passive recreation is appropriate only as may be consistent with protection of the area;	County Comprehensive Plan, Future Land Use Element, Policy 1.3.2 - Conservation
The County shall restrict development within unsuitable areas **due to flooding**, improper drainage, steep slopes, rock formations and adverse earth formations, unless acceptable methods are formulated by the developer and approved by the County to solve the problems created by the unsuitable land conditions.	County Comprehensive Plan, Future Land Use Element, Policy 1.4.1
The County shall include provisions for adequate drainage, **storm water management**, open space and convenient on site traffic flow for all development.	County Comprehensive Plan, Future Land Use Element, Policy 1.6.2
The County shall participate in the **National Flood Insurance Program** and regulate development and the installation of utilities in flood hazard areas in conformance with the requirements of the program.	County Comprehensive Plan, Future Land Use Element, Policy 1.6.4
Other nonconforming uses which are in existence at the time of adoption of this Comprehensive Plan shall be allowed to continue until their natural demise. Nonconforming uses which are terminated shall not be allowed to resume as a nonconformity.	County Comprehensive Plan, Future Land Use Element, Policy 1.8.3
Nonconforming structures or structures on nonconforming parcels may be rebuilt or repaired if destroyed or damaged by fire, **windstorm, or other cause**, subject to compliance with the building code regulations and permitting requirements then in effect, to the extent possible such rebuilding or repair shall not increase the extent of the nonconformity. However, provided that, any such redevelopment shall allow the replacement of the same number of dwelling units that lawfully existed prior to destruction or damage.	County Comprehensive Plan, Future Land Use Element, Policy 1.8.4
Normal maintenance or repair of **nonconforming structures** shall be allowed, subject to current permitting regulations and building codes. Expansions of the size of nonconforming structures which increase the degree of nonconformity shall not be allowed.	County Comprehensive Plan, Future Land Use Element, Policy 1.8.5
The County shall allow the use of a parcel of property solely as a homestead by an individual who is the grandparent, parent, stepparent, adopted parent, sibling, child, stepchild, adopted child, or grandchild of the person who conveyed the parcel to said individual, notwithstanding the density or intensity of use assigned to the parcel in the Plan. Such a provision shall apply only once to any individual. The minimum size parcel to which this policy shall apply shall be one acre.	County Comprehensive Plan, Future Land Use Element, Policy 1.8.6

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The County shall continue to protect natural resources and environmentally sensitive lands (including **wetlands and floodplains.** For the purposes of this Comprehensive Plan "wetlands" means those areas that are inundated or saturated by surface water or groundwater at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils.	County Comprehensive Plan, Future Land Use Element Objective 1.10
The County shall continue to protect community potable water supply wells by restricting uses within the 300 foot area designed by this Comprehensive Plan to those that do not handle **hazardous materials** of any type or have the potential to harm the water supply.	County Comprehensive Plan, Future Land Use Element, Policy 1.10.1
The County shall continue to allow mitigation of the adverse effects of land uses on environmentally sensitive areas. The County shall require all new development to maintain the natural functions of environmentally sensitive areas, including but not limited to wetlands and **100-year floodplains** so that the long term environmental integrity, and economic and recreational value of these areas is maintained.	County Comprehensive Plan, Future Land Use Element, Policy 1.10.2
As part of the County's development review process, environmentally sensitive land shall be identified for protection. These environmentally sensitive lands shall include, but not be limited to, wetlands, **flood prone areas**, areas designated as high groundwater aquifer recharge areas. Where the alternative of clustering all structures on the non-wetland portion of the site exists, the County shall provide for the conservation of wetlands by **prohibiting development** which alters the natural function of wetlands. Mitigation efforts shall be required for activities which alter the natural function of wetlands in accordance with Chapter 40B-400, Florida Administrative Code in effect January 1, 2005. Such mitigation efforts shall result in no net loss of wetland functions and all restored or created wetlands shall be of the same ecological type, nature and function.	County Comprehensive Plan, Future Land Use Element, Policy 1.10.3
Where the alternative of clustering all structures on the non-wetland portion of a site does not exist, the County shall allow only minimal residential development activity in those areas defined as wetlands within this Comprehensive Plan and such development activity shall conform to the density requirement for the land use classification applicable to the location of the wetland.	County Comprehensive Plan, Future Land Use Element, Policy 1.10.4
COMP Plan – Housing Element	
The County shall continue to enforce a **hazardous building code**, consistent with Chapter 553 (Building Construction Standards), Florida Statutes, which shall require the rehabilitation or demolition and clearance of housing and other structures which pose a threat to public safety.	County Comprehensive Plan, Housing Element, Policy III.5.1
The hazardous building code, consistent with Chapter 553 (Building Construction Standards), Florida Statutes, shall be remedial and shall be constructed to secure the beneficial interest and purposes which are **public** safety, health and general welfare through provisions dealing with structural strength, stability, sanitation, adequate light and ventilation, and safety to life and property from fire and other hazardous incident to the construction alteration, repair, removal, demolition, use and occupancy of building, structure or premises;	County Comprehensive Plan, Housing Element, Policy III.5.1 (a)
COMP Plan - Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element	
Level of Service Standard: For all projects not exempted from Chapter 40B-4 and 62-25, Florida Administrative Code in effect on January 1, 2003 within the County, storm water management systems must be installed such that the peak rate of post-development runoff will not exceed the peak-rate of predevelopment runoff for storm events up through and including either one of the following design storms. (2). A design **storm with 100-year** critical duration rainfall depth for projects serving any land use other than agricultural, silvicultural, conservation, or recreational issues.	County Comprehensive Plan, Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element, Policy IV.4.1
The County shall include provisions which control development which would significantly impact or interrupt natural drainage flows, including sheet flow and flow to isolated **wetland** systems, without **mitigation**.	County Comprehensive Plan, Sanitary …. Recharge Element, Policy IV.4.2

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In order to maintain the water quality of the natural surface water bodies and natural floodways of rivers, streams and creeks, native vegetation within such natural surface water bodies and floodways shall be retained in a natural state.	County Comprehensive Plan, Sanitary …. Recharge Element, Policy IV.4.4
COMP Plan, Conservation Element	
The County shall require that, unless impacts are **mitigated** pursuant to the Florida Department of Environmental Protection or other appropriate state agency requirements, a 35-foot natural buffer shall be maintained around all wetlands and prohibit the location of agricultural, residential, commercial and industrial land uses within the buffer areas. Mitigation measures must be acceptable to the Department of Environmental Regulation or other governmental agency having mitigation permit jurisdiction.	County Comprehensive Plan, Conservation Element, Policy V.2.4
The County shall require all new development to maintain the natural functions of environmentally sensitive areas, including but not limited to **wetlands and 100-year floodplains** so that the long term environmental integrity and economic and recreational value of these areas is maintained. This will be accomplished through compliance with applicable statutes, rules and regulations of State and Federal Agencies having jurisdiction.	County Comprehensive Plan, Conservation Element, Policy V.2.6
The County shall require that, unless **impacts are mitigated,** the conservation of wetlands shall be provided for through prohibiting any development or dredging and filling which would significantly alter their natural functions. Mitigation measures must be acceptable to the Department of Environmental Regulation Protection or other governmental agency having mitigation permit jurisdiction.	County Comprehensive Plan, Conservation Element, Policy V.2.7
The County shall provide for the conservation of wetlands through prohibiting any development or dredging and filling, which would significantly alter their natural functions without **mitigation**.	County Comprehensive Plan, Conservation Element, Policy V.2.8
The County shall require that all **hazardous waste generators** properly manage their own wastes in compliance with current statutes or other governmental regulations, and shall, as part of the development review process, require that any **hazardous waste generators** comply with all applicable federal and state permitting requirements before approving any development plans.	County Comprehensive Plan, Conservation Element, Policy V.2.13
The County shall use other innovative approaches to protect sensitive resources, such as the transfer of development rights, performance zoning, open space zoning, on site density transfer and other techniques to maximize the establishment of open space areas.	County Comprehensive Plan, Conservation Element, Policy V.6.2
COMP Plan, Coastal Element	
The County shall establish land development regulations which shall assist in the protection, conservation or enhancement of the County's **coastal wetlands**, living marine resources and wildlife habitats.	County Comprehensive Plan, Coastal Element, Objective IX.1
The County shall limit dwelling unit density to one unit per five acres in rural areas within the **Coastal High Hazard Area.**	County Comprehensive Plan, Coastal Element, Policy IX.1.4
The County's **coastal high hazard area** shall be that area which is designated by and is coincident with the evacuation zone for Category 1 and Category 2 hurricanes as established in the regional hurricane evacuation study applicable to the County.	County Comprehensive Plan, Coastal Element, Policy IX.5.1
The County shall limit development which is **vulnerable to natural hazards** such as **storm surge and high winds within coastal high hazard areas**, subject to the provisions of Objective I.8 the nonconforming uses and structures objective and related policies of the Future Land Use element of this Comprehensive Plan.	County Comprehensive Plan, Coastal Element, Policy IX.5.2
The County, as part of the development review process, shall require the location of public facilities, except roads parks and required for public access, away from **coastal high-hazard areas** where such public facilities have the potential for being damaged during a storm. Public facilities, which are owned and operated by local government or a governmental authority and such facility serves areas where private sanitary facilities are not adequate to protect surface and ground water quality, shall be permitted to be located within coastal high-hazard areas.	County Comprehensive Plan, Coastal Element, Policy IX.5.3

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The County shall maintain the residential land use densities provided within this element of the Comprehensive Plan to assist in the limitation of **undue population concentration in coastal high-hazard areas** as defined in Policy IX.5.1, the Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge element of this Comprehensive Plan.	County Comprehensive Plan, Coastal Element, Objective IX.6
The County shall participate in the National Flood Insurance Program and regulate development and installation of utilities in **flood hazard areas** in conformance with the program's requirements for minimizing damage caused by flooding and storm surge.	County Comprehensive Plan, Coastal Element, Policy IX.6.2
The County shall comply with appropriate provisions of the **hazard mitigation** annex of the County's peacetime emergency plan and applicable existing interagency hazard mitigation reports.	County Comprehensive Plan, Coastal Element, Policy IX.6.3
The County shall limit residential development and resident populations within coastal high hazard areas to locations and numbers which can be **safely evacuated** during hurricane hazard periods.	County Comprehensive Plan, Coastal Element, Policy IX.6.4
The County shall limit dwelling unit density to four units per acre in designated urban development areas which are served by community or public water systems and to 20 units per acre when served by community or public water and sanitary sewer systems within the **Coastal High Hazard Areas**.	County Comprehensive Plan, Coastal Element, Policy IX.6.5
The County shall maintain **hurricane evacuation** times of **9** hours for a category 1 storm and 22 hours for a category 5 storm for the residents of the Coastal Management Area**.**	County Comprehensive Plan, Coastal Element, Objective IX.7
The County shall coordinate the procedures for notifying the public within the Coastal Management Area of potential dangers and appropriate preparatory measures for **hurricanes or other potential natural disasters,** including the location of evacuation routes. The applicable regional and local evacuation plans shall be coordinated.	County Comprehensive Plan, Coastal Element, Policy IX.7.1
The County shall continue plan for **post-disaster redevelopment** which reduces or eliminates the exposure of human life and public and private property to natural hazards subject to the provisions of the nonconforming uses and structures objective and its related policies of the Future Land Use element of the Comprehensive Plan..	County Comprehensive Plan, Coastal Element, Objective 8
The County**'s Peacetime Emergency Plan** shall address immediate repair and cleanup actions needed to protect the public health and safety, including repairs to potable water, wastewater and electrical power facilities, removal of debris, stabilization or removal of structures about to collapse; and expediting the approval of issuing of permits for minimal repairs to make dwellings habitable before commencing with or permitting long-term repair and redevelopment activities.	County Comprehensive Plan, Coastal Element, Policy IX.8.1
The County shall remove, relocate or structurally **modify damaged public facilities,** as appropriate, in light of factors such as cost to construct, cost to construct or maintain, recurring damage, impacts on land use, impacts on the environment and public safety need.	County Comprehensive Plan, Coastal Element, Policy IX.8.2
The County shall require the removal, relocation or structural modification of unsafe structures, as appropriate, or rebuilt, require structures which have **suffered damage** to an extent of more than 50 percent of their replacement value at the time of such damage to be rebuilt in conformance with current building requirements.	County Comprehensive Plan, Coastal Element, Policy IX.8.3
The County shall **limit redevelopment in areas of repeated damage** by requiring structures which suffer repeated damage to rebuild landward of their current location or to modify the structure to delete the areas most prone to damage.	County Comprehensive Plan, Coastal Element, Policy IX.8.4
The County, as part of the monitoring and evaluation process of the Comprehensive Plan, shall identify areas needing redevelopment, including **elimination of unsafe conditions** and inappropriate uses as opportunities arise.	County Comprehensive Plan, Coastal Element, Policy IX.8.5
The County shall require all land uses which generate or handle **hazardous wastes** to provide for proper disposal and storage, and provide a spill cleanup plan, in accordance with DER Florida Department of Environmental Protection hazardous waste management regulations.	County Comprehensive Plan, Coastal Element, Policy IX.12.2

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TAYLOR COUNTY CODES AND ORDINANCES	
ARTICLE V. LAND USE	
Land use districts for the county are established in the future land use element of the comprehensive plan. The land use districts and classifications defined in the future land use element and delineated on the future land use map shall be the determinants of permissible activities on any parcel in the unincorporated area of the county. Notwithstanding any other provisions of this chapter to the contrary, **dwelling unit density within the coastal high hazard area** (seaward of the most landward Federal Emergency Management Agency velocity zone line) shall be limited to one unit per five acres in rural areas	Ch 42, Article V, Div 2, Sec 42-381
ARTICLE VII. RESOURCE PROTECTION	
(1) ***Generally.*** The purpose of this division is to provide minimum standards for the design and construction of buildings and structures, and to reduce the harmful effects of hurricanes and other severe storms occurring along the Gulf of Mexico coastal areas of the county. These standards are intended to specifically address design features which affect the structural stability of the beach, dunes and topography of adjacent properties. This division is site-specific to the coastal high hazard area and coastal barrier islands and is not applicable to other locations. In the event of a conflict between the provisions of this section the requirements resulting in the more restrictive design shall apply. No provision in this division shall be construed to permit any construction in any area prohibited by city, county, state or federal regulation. This article applies to coastal areas.	Ch 42, Article VII, Div 2, Sec 42-576 (1)
(2) ***Structural requirements for major structures.*** a. *Design and construction.* Major structures, except for mobile homes, shall be designed and constructed in accordance with the Florida Building Code. b. *Mobile homes.* Mobile homes shall conform to the Federal Mobile Home Construction and Safety Standards or the Uniform Standards Code, ANSI A119.1, pursuant to F.S. § 320.823, as well as the requirements of subsection (b)(2) of this section. c. *Elevation, flood proofing and siting.* All major structures shall be designed, constructed and located in compliance with the National Flood Insurance Regulations as found in 44 CFR 59 and 60.	Ch 42, Article VII, Div 2, Sec 42-577 (2)
(3) ***Design conditions; velocity pressure.*** Major structures, except mobile homes, shall be designed in accordance with the requirements of section 1606, Standard Building Code, 1997 edition, or the Standard for Hurricane Resistant Residential Construction, 1997 edition, as may be further revised, using a minimum fastest-mile wind velocity of 110.	Ch 42, Article VII, Div 2, Sec 42-577 (3)
(4) ***Foundations****. Foundations.* The elevation of the soil surface to be used in the design of foundations, calculation of pile reactions and bearing capacities shall not be greater than that which would result from the erosion reasonably anticipated as a result of design storm conditions. Foundation design and construction of a major structure shall consider all anticipated loads acting simultaneously with live and dead loads. Erosion computations for foundation design shall account for all vertical and lateral erosion and scour production forces, including localized scour due to the presence of structural components. Foundation design and construction shall provide for adequate bearing capacity taking into consideration the type of soil present and the anticipated loss of soil above the design grade as a result of localized scour. Erosion computations are not required landward of coastal construction control lines established or updated since June 30, 1980.	Ch 42, Article VII, Div 2, Sec 42-577 (4)
(5) Wave forces. Calculations for wave forces resulting from design storm conditions on building foundations and superstructures may be based upon the minimum criteria and methods prescribed in the Naval Facilities Engineering Command Design Manual, NAVFAC DM-26, U.S. Department of Navy; Shore Protection Manual, U.S. Department of the Army Corps of Engineers; U.S. Department of the Army Coastal Engineering Research Center Technical Papers and Reports; the Technical and Design Memoranda of the Division of Beaches and Shores, state department of environmental protection; or other professionally recognized methodologies which produce equivalent design criteria. Breaking, broken and nonbreaking waves shall be considered as applicable. Design wave loading and analysis shall consider vertical uplift pressures and all lateral pressures to include impact as well as dynamic loading and the harmonic intensification resulting from repetitive waves.	Ch 42, Article VII, Div 2, Sec 42-577 (5)

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(6) Hydrostatic loads. Calculations for hydrostatic loads shall consider the maximum water pressure resulting from a fully peaked, breaking wave superimposed upon the design storm surge with dynamic wave setup. Both free and hydrostatic loads shall be considered. Hydrostatic loads which are confined shall be determined by using the maximum elevation to which the confined water would freely rise if unconfined. Vertical hydrostatic loads shall be considered both upward and downward on horizontal or inclined surfaces of major structures (i.e., floors, slabs, roofs, walls). Lateral hydrostatic loads shall be considered as forces acting horizontally above and below grade on vertical or inclined surfaces. Hydrostatic loads on irregular or curved geometric surfaces shall be determined by considering the separate vertical and horizontal components acting simultaneously under the distribution of the hydrostatic pressures.	Ch 42, Article VII, Div 2, Sec 42-577 (6)
(10) ***Location of construction.*** Construction, except for elevated walkways, lifeguard support standards, piers, beach access ramps, gazebos and coastal or shore protection structures, shall be located a sufficient distance landward of the beach to permit natural shoreline fluctuations and to preserve dune stability. Construction, including excavation, may occur to the extent that the natural storm buffering and protection capability of the dune is not diminished.	Ch 42, Article VII, Div 2, Sec 42-577 (10)
(12) ***Public facilities.*** Public facilities shall not be located or improved in the coastal high hazard area unless the following requirements are met: a. The use is necessary to protect public safety; b. The use is necessary to restore and/or enhance natural resources; or c. The use is otherwise compatible with the provisions of the coastal element of the county comprehensive plan.	Ch 42, Article VII, Div 2, Sec 42-577 (12)
(13) ***Other new construction.*** The issuance of development permits in the coastal high hazard area shall be conditioned on the receipt of all commonly required state department of environmental protection permits including those required by F.S. ch. 161 and the following siting requirements: a. Placement of required open space shall be in the most vulnerable area of the site; b. Access to structures shall be from the landward side; c. Structures are located landward of the front dune structure or landward of the coastal setback line, as established by F.S. ch. 161, to the extent reasonably possible, giving consideration to the size of the parcel, topography and the existence of sufficient land on the landward side of the coastal setback line.	Ch 42, Article VII, Div 2, Sec 42-577 (13)
(14) ***Redevelopment in the coastal high hazard area.*** The repair or rebuilding of buildings or structures located within the coastal high hazard area that are damaged by a storm, fire or other event shall be subject to the following requirements: a. *Repair.* A building or structure located in the coastal high hazard area may be repaired as long as the building or structure is not enlarged and is restored to its original design configuration or an equivalent structural standard. Repair of a structure means that a significant portion of the structure or building, including its foundation, remain intact. Applicable Federal Emergency Management Agency regulations shall apply. b. *Rebuilding.* Rebuilding means any construction activity that includes alteration of an existing foundation. A building or structure located in the coastal high hazard area may be rebuilt provided that: 1. The development complies with the requirements of division 3 of this article. 2. The development is rebuilt at the most suitable location on the lot under current regulations. 3. The applicant provides evidence that the development cannot be moved to a more suitable location on the lot. 4. In areas of repeated damage, structures which suffer repeated damage rebuild landward of their current location or modify the structure to delete the area's most prone to damage. 5. Applicable Federal Emergency Management Agency regulations shall apply.	Ch 42, Article VII, Div 2, Sec 42-577 (14)
(c) *Restriction of hazardous materials.* Nonwater-dependent land uses in the coastal high hazard area that use, store or treat hazardous materials injurious to fish and wildlife shall be prohibited except that all permitted uses within the coastal high hazard area shall be allowed to store and use nominal quantities of hazardous materials commonly associated with that use in order to maintain clean, safe and healthy premises and otherwise fully enjoy the	Ch 42, Article VII, Div 2, Sec 42-577 c

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permitted use. Examples shall include household cleaning materials, insect sprays and gasoline for lawn mowers and boats. Bulk storage of hazardous materials beyond normal inventory quantities for permitted uses shall not be allowed in the coastal high hazard area.	
(c) *Criteria for siting marinas.* All new, expanded or redeveloped marinas shall (5) Provide a hurricane mitigation and evacuation plan	Ch 42, Article VII, Div 2, Sec 42-580 c
Sec 42-606 Floodplains: (a) *Purpose.* It is the purpose of this division to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: (1) Restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities; (2) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; (3) Control the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of floodwaters; (4) Control filling, grading, dredging and other development which may increase erosion or flood damage; and (5) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands. (b) *Objectives.* The objectives of this division are to: (1) Protect human life and health; (2) Minimize expenditure of public money for costly flood control projects; (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; (4) Minimize prolonged business interruptions; (5) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines and streets and bridges located in floodprone areas; (6) Help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize future flood blight areas; and (7) Ensure that potential home buyers are notified that property is in a flood area.	Ch 42, Article VII, Div 3, Sec 42-606 –Purpose (Floodplains)
The areas of special flood hazard identified by the Federal Emergency Management Agency and its flood insurance rate map (FIRM) No. 120302-0025-0580, effective November 16, 1983, and any revisions thereto, are adopted by reference and declared to be a part of this section. Flood elevations shown on the flood insurance rate maps may be established by field survey where a greater degree of precision is required, in accordance with applicable Federal Emergency Management Agency procedures.	Ch 42, Article VII, Div 3, Sec 42-608
Sec. 42-632. Permit procedure. Application for a building permit shall be made to the building official pursuant to county code on forms furnished by him prior to any development activities, and may include, but shall not be limited to the following plans, in duplicate, drawn to scale, showing the nature, location, dimensions and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities and the location of the foregoing.	Ch 42, Article VII, Div 3, Sec 42-632
General standards. In all areas of special flood hazard the provisions of the most recent edition of The National Flood Insurance Program and Related Regulations published by the Federal Emergency Management Agency are adopted by reference. (LDC § 4.07.03) In all areas of special flood hazard and where base flood elevation data has been provided as set forth in section 42-608 or section 42-609(2), the following provisions are required: (1) *Residential construction.* New construction or substantial improvement of any restructure shall have the lowest floor, including basement, elevated to or above base flood elevation. Should solid foundation perimeter walls be used to elevate a structure, an opening sufficient to facilitate the unimpeded movements of floodwater shall be provided in accordance with standards set forth in subsection (3) of this section. (2) *Nonresidential construction.* New construction or substantial improvement of any commercial, industrial or other nonresidential structure shall have the lowest floor, including basement, elevated no lower than the base flood elevation. Buildings located in all A zones	Ch 42, Article VII, Div 3, Sec 42-652

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may be flood proofed in lieu of being elevated, provided that all areas of the building below the required elevation are watertight with walls substantially impermeable to the passage of water and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A professional engineer or architect registered in the state shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the building official as set forth in section 42-631.

(3) *Elevated buildings.* New construction or substantial improvements of elevated buildings that include fully enclosed areas formed by foundations and other exterior walls below the base flood elevation shall be designed to preclude finished living space and designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls.

a. Designs for complying with the requirement of this subsection must meet the following minimum criteria:

1. Provide a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;

2. The bottom of all openings shall be no higher than one foot above grade; and

3. Openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwaters in both directions.

b. Access to the enclosed area shall, at a minimum, allow for entry through a standard three-foot by six-foot-eight-inch exterior door, but may be larger to allow for the parking of vehicles or limited storage of maintenance equipment used in connection with the premises.

c. The interior portion of such enclosed area shall not be partitioned or finished into separate rooms, but a stairway or elevator may be installed within the enclosed area to provide access to the living area.

(4) *Manufactured homes and recreational vehicles.*

a. All manufactured homes placed or substantially improved on individual lots or parcels in expansions to existing manufactured home parks or subdivisions or on substantially improved manufactured home parks or subdivisions, must meet all the requirements for new construction, including elevation and anchoring.

b. All manufactured homes placed or substantially improved in an existing manufactured home park or subdivision must be elevated so that:

1. The lowest floor of the manufactured home is elevated to above base flood elevation; or

2. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least an equivalent strength, and shall be no less than 36 inches in height above grade;

3. The manufactured home must be securely anchored to the adequately anchored foundation system to resist flotation, collapse and lateral movement;

4. In an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as the result of a flood, any manufactured home placed or substantially improved must be elevated to the base flood elevation.

c. All recreational vehicles placed on sites must have on-site a public or private sewer permitted pursuant to section 42-860 or present proof of a waste disposal contract. In addition, they must meet the following specific standard.

1. Be fully licensed and ready for highway use at all times.

A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached structures and has a current tag.

d. In all land use categories, recreational vehicles not sited within an approved recreational vehicle park shall not exceed a maximum of four units per lot or parcel. The siting of recreational vehicles shall be prohibited on non-conforming lots or parcels as to size for residential use created after June 29, 1990. More than four recreational vehicles sited on a lot or parcel constitutes as recreational vehicle park as defined in F.S. § 513.01(10) and requires conformance with section 42-799 of the land development code and approval by the county planning board.

Exception. Lots or parcels which are non-conforming as to size for residential use, and which can be individually identified and described from documents recorded in the public records of the county on June 29, 1990, the date of adoption of the comprehensive plan, shall

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continue to be eligible for a maximum density of less than or equal to four recreational vehicles per one-half acre.
e. In the Water Oriented Commercial (CWO) land use classification and all land use categories allowing residential densities greater than one unit per two acres, recreational vehicles conforming to subsection (c) and not sited within an approved recreational vehicle park shall not exceed one unit per 5,000 square feet.
Exceptions:
1. A recreational vehicle may be stored adjacent to a single-family dwelling inhabited by the owners of the recreational vehicle.
2. One additional recreational vehicle may be sited on any lot or parcel for the duration of scallop season each year.
3. As of January 18, 2011, any lot or parcel which presently contains a number of recreational vehicles which exceed the maximum density allowed by this section will be allowed to retain its present recreational vehicle density. Any lot of parcel currently permitted for an RV power pole will be allowed two RV's per lot or parcel.
f. In the Industrial (I), Aviation-Related Commercial (CAR) and Public (P) land use categories, recreational vehicles shall be permitted only as an accessory use by the owner, lessee, custodian or watchman.
(5) *Floodways.* Located within areas of special flood hazard established in section 42-608 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles and erosion potential, the following provisions shall apply:
a. Prohibit encroachments, including fill, new construction, substantial improvements and other developments unless certification by a professional engineer or architect registered in the state is provided demonstrating that encroachments shall not result in any increase in flood levels during occurrence of the base flood discharge.
b. If the requirements of this section are satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of sections 42-651—42-654.
(6) *Coastal high hazard areas (V zones).* In coastal high hazard areas (V zones) the following shall apply:
a. All buildings or structures shall be located in compliance with F.S. Ch. 161 and current applicable Federal Emergency Management Agency regulations.
b. All buildings or structures shall be elevated such that the lowest supporting member is located no lower than the base flood elevation level, with all space below the lowest supporting member open so as not to impede the flow of water. Open latticework or decorative screening may be permitted for aesthetic purposes only and must be designed to wash away in the event of abnormal wave action and in accordance with subsection (6) h of this section.
c. All buildings or structures shall be adequately anchored on pilings or columns.
d. All pilings and columns in the attached structures shall be anchored to resist floatation, collapse and lateral movement due to the effect of wind and water loads acting simultaneously on all building components. The anchoring and support system shall be designed with wind and water loading values which equal or exceed the 100-year mean recurrence interval (one percent annual chance flood).
e. Compliance with provisions contained in subsection (6) b—d of this section shall be certified to by a professional engineer or architect registered in the state.
f. There shall be no fill used as structural support.
g. There shall be no alteration of sand dunes which would increase potential flood damage.
h. Latticework or decorative screening shall be allowed below the base flood elevation provided they are not part of the structural support of the building and are designed so as to breakaway under abnormally high tides or wave action without damage to the structural integrity of the building on which they are to be used and provided the following design specifications are met:
1. No solid walls shall be allowed; and
2. Material shall consist of lattice or mesh screening only.
i. If aesthetic latticework or screening is utilized, such enclosed space shall not be designed to be used for human habitation, but shall be designed to be used only for parking of

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vehicles, building access or limited storage of maintenance equipment used in connection with the premises. j. Prior to construction, plans for any structures that will have latticework or decorative screening must be submitted to the building official for approval. k. Any alteration, repair, reconstruction or improvement to a structure shall not enclose the space below the lowest floor except with latticework or decorative screening as provided for in subsections (6)h—i of this section.	
Sec. 42-653. Areas of shallow flooding (AO zones). Located within the areas of special flood hazard established in section 42-608 are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of one to three feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate; therefore, the following provisions apply: (1) All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to the depth number specified on the flood insurance rate map, in feet, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement, shall be elevated at least two feet above the highest adjacent grade. (2) All new construction and substantial improvements of nonresidential structures shall: a. Have the lowest floor, including basement, elevated to the depth number specified on the flood insurance rate map, in feet, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement, shall be elevated at least two feet above the highest adjacent grade; or b. Together with attendant utility and sanitary facilities, be completely floodproofed to rise above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.	Ch 42, Article VII, Div 3, Sec 42-653
Sec. 42-654. Subdivision proposals. In addition to the requirements in section 42-126, the following regulations shall be met by applicants for subdivision approval: (1) All subdivision proposals shall be consistent with the need to minimize flood damage. (2) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage. (3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards. (4) Base flood elevation data shall be provided for all subdivision proposals and other proposed development including manufactured home parks and subdivisions.	Ch 42, Article VII, Div 3, Sec 42-654
ARTICLE XI. FLOOD DAMAGE PREVENTION.	
Sec. 42-1002. - Subdivisions. (1) *Minimum requirements.* Subdivision proposals, including proposals for manufactured home parks and subdivisions, shall be reviewed to determine that: (a) Such proposals are consistent with the need to minimize flood damage and will be reasonably safe from flooding; (b) All public utilities and facilities such as sewer, gas, electric, communications, and water systems are located and constructed to minimize or eliminate flood damage; and (c) Adequate drainage is provided to reduce exposure to flood hazards; in Zones AH and AO, adequate drainage paths shall be provided to guide floodwaters around and away from proposed structures. (2) Subdivision *plats.* Where any portion of proposed subdivisions, including manufactured home parks and subdivisions, lies within a flood hazard area, the following shall be required: (a) Delineation of flood hazard areas, floodway boundaries and flood zones, and design flood elevations, as appropriate, shall be shown on preliminary plats; (b) Where the subdivision has more than 50 lots or is larger than five acres and base flood elevations are not included on the FIRM, the base flood elevations determined in accordance with subsection 42-985(2)(a) of this article; and (c) Compliance with the site improvement and utilities requirements of section 42-1003 of this article.	Ch 42, Article XI, Div 1, Sec 42-1002

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ARTICLE XI, DIVISION 3. FLOOD HAZARD REDUCTION	
Sec. 42-1007. Generally. *General requirements for other development.* All development, including manmade changes to improved or unimproved real estate for which specific provisions are not specified in this article or the Florida Building Code, shall: (a) Be located and constructed to minimize flood damage; (b) Meet the limitations of subsection 42-1003(4) of this article if located in a regulated floodway; (c) Be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the design flood; (d) Be constructed of flood damage-resistant materials; and (e) Have mechanical, plumbing, and electrical systems above the design flood elevation or meet the requirements of ASCE 24, except that minimum electric service required to address life safety and electric code requirements is permitted below the design flood elevation provided it conforms to the provisions of the electrical part of building code for wet locations. (2) *Fences in regulated floodways.* Fences in regulated floodways that have the potential to block the passage of floodwaters, such as stockade fences and wire mesh fences, shall meet the limitations of subsection 42-1003(4) of this article. (3) *Retaining walls, sidewalks and driveways in regulated floodways.* Retaining walls and sidewalks and driveways that involve the placement of fill in regulated floodways shall meet the limitations of subsection 42-1003(4) of this article. (4) *Roads and watercourse crossings in regulated floodways.* Roads and watercourse crossings, including roads, bridges, culverts, low-water crossings and similar means for vehicles or pedestrians to travel from one side of a watercourse to the other side, that encroach into regulated floodways shall meet the limitations of subsection 42-1003(4) of this article. Alteration of a watercourse that is part of a road or watercourse crossing shall meet the requirements of subsection 42-985(3)(c) of this article. (5) *Concrete slabs used as parking pads, enclosure floors, landings, decks, walkways, patios and similar nonstructural uses in coastal high hazard areas (Zone V).* In coastal high hazard areas, concrete slabs used as parking pads, enclosure floors, landings, decks, walkways, patios and similar nonstructural uses are permitted beneath or adjacent to buildings and structures provided the concrete slabs are designed and constructed to be: (a) Structurally independent of the foundation system of the building or structure; (b) Frangible and not reinforced, so as to minimize debris during flooding that is capable of causing significant damage to any structure; and (c) Have a maximum slab thickness of not more than four inches. (6) *Decks and patios in coastal high hazard areas (Zone V).* In addition to the requirements of the Florida Building Code, in coastal high hazard areas decks and patios shall be located, designed, and constructed in compliance with the following: (a) A deck that is structurally attached to a building or structure shall have the bottom of the lowest horizontal structural member at or above the design flood elevation and any supporting members that extend below the design flood elevation shall comply with the foundation requirements that apply to the building or structure, which shall be designed to accommodate any increased loads resulting from the attached deck. (b) A deck or patio that is located below the design flood elevation shall be structurally independent from buildings or structures and their foundation systems, and shall be designed and constructed either to remain intact and in place during design flood conditions or to break apart into small pieces to minimize debris during flooding that is capable of causing structural damage to the building or structure or to adjacent buildings and structures. (c) A deck or patio that has a vertical thickness of more than 12 inches or that is constructed with more than the minimum amount of fill necessary for site drainage shall not be approved unless an analysis prepared by a qualified registered design professional demonstrates no harmful diversion of floodwaters or wave runup and wave reflection that would increase damage to the building or structure or to adjacent buildings and structures.	Ch 42, Article XI, Div 3, Sec 42-1026

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(d) A deck or patio that has a vertical thickness of 12 inches or less and that is at natural grade or on nonstructural fill material that is similar to and compatible with local soils and is the minimum amount necessary for site drainage may be approved without requiring analysis of the impact on diversion of floodwaters or wave run up and wave reflection. (7) *Other development in coastal high hazard areas (Zone V).* In coastal high hazard areas, development activities other than buildings and structures shall be permitted only if also authorized by the appropriate federal, state or local authority; if located outside the footprint of, and not structurally attached to, buildings and structures; and if analyses prepared by qualified registered design professionals demonstrate no harmful diversion of floodwaters or wave run up and wave reflection that would increase damage to adjacent buildings and structures. Such other development activities include but are not limited to: (a) Bulkheads, seawalls, retaining walls, revetments, and similar erosion control structures; (b) Solid fences and privacy walls, and fences prone to trapping debris, unless designed and constructed to fail under flood conditions less than the design flood or otherwise function to avoid obstruction of floodwaters; and (c) On-site sewage treatment and disposal systems defined in 64E-6.002, F.A.C., as filled systems or mound systems. (8) *Nonstructural fill in coastal high hazard areas (Zone V).* In coastal high hazard areas: (a) Minor grading and the placement of minor quantities of nonstructural fill shall be permitted for landscaping and for drainage purposes under and around buildings. (b) Nonstructural fill with finished slopes that are steeper than one-unit vertical to five-unit horizontal shall be permitted only if an analysis prepared by a qualified registered design professional demonstrates no harmful diversion of floodwaters or wave run up and wave reflection that would increase damage to adjacent buildings and structures. (c) Where authorized by the Florida Department of Environmental Protection or applicable local approval, sand dune construction and restoration of sand dunes under or around elevated buildings are permitted without additional engineering analysis or certification of the diversion of floodwater or wave run up and wave reflection if the scale and location of the dune work is consistent with local beach-dune morphology and the vertical clearance is maintained between the top of the sand dune and the lowest horizontal structural member of the building.	
Sections 42-654: Standards for streams without established base flood elevations and/or floodways; 655 .	Ch. 42, Article XI, 42-654-655
Pre-Disaster Initiatives	
EVACUATION PROCEDURES	County Emergency Management Plan
Post-Disaster Development	
POST-DISASTER CLEAN UP	Taylor County Debris Management Plan
POST-DISASTER REDEVELOPMENT	County Emergency Management Plan

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B. Taylor County Mitigation Goals and Objectives

The Taylor County LMS Working Group met several times in 2015, 2016, and 2018 and again in December 2019 to review and edit the 2010 mitigation goals and strategies. Very few changes were made to the 2010 goals and strategies. Significant progress has been made to the objectives.

Goal 1: Enhance and maintain county capability to implement a comprehensive countywide hazard loss reduction strategy.

Objective 1.1: Review existing county agency programs, plans and policies to determine their effectiveness and efficiency in reducing risks and vulnerabilities to all identified natural and manmade hazards, on an annual basis.

Objective 1.2: As a means of enhancing intra- and inter-governmental coordination, establish and support an on-going liaison between Federal, State, Regional and Local Governments as well as the private sector and general public, through the LMS Working Group.

Objective 1.3: Integrate the pre- and post-disaster mitigation functions with the response and recovery functions detailed in the County's Comprehensive Emergency Management Plan (CEMP).

Objective 1.4: Design a process for prioritizing the local projects for mitigation related funding programs.

Objective 1.5: Establish a mediation process to resolve conflicts between county agencies' existing plans, programs and mitigation related policies and integrate them into the Taylor County Local Mitigation Strategy.

Objective 1.6: Review and recommend at least annual updates of the county's risk and vulnerability assessments. Including updates to the inventory of critical facilities and infrastructure.

Objective 1.7: Coordinate funding resources and opportunities among county agencies.

Objective 1.8: Support the development and use of disaster loss reduction related building codes and standards designed to reduce vulnerability and risk to all hazards.

Goal 2: Increase public and private sectors awareness and support for disaster loss education practices as a means of developing a culture of hazard mitigation in Florida.

Objective 2.1: Create an Education and Outreach Committee of the LMS Working Group to organize and develop a comprehensive countywide mitigation education and outreach strategy.

Objective 2.2: Conduct a summit for education stakeholders to present and promote mitigation education programs.

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Objective 2.3: Develop a business continuity awareness program designed to educate the business community on the benefits of mitigation in reducing their vulnerabilities and risk to natural and man-made hazards.

Objective 2.4: Develop, and promote outreach strategies designed to educate residents and visitors of Taylor County's endemic hazards, their associated risk and vulnerabilities, and the applicable mitigation actions.

Objective 2.5: Identify and incorporate available hazard mitigation education and outreach programs/products into local public school education programs.

Objective 2.6: Establish an ongoing education and outreach effort to educate elected officials on the importance of hazard mitigation to include an annual report to the county commissioners and other appropriate officials.

Objective 2.7: Develop a public awareness campaign on the benefits of pre- and post-disaster mitigation through the dissemination of mitigation success stories.

Objective 2.8: Develop a strategy for working with the print, electronic and broadcast media on the dissemination of mitigation education and outreach material.

Goal 3: Reduce Taylor County's hazard vulnerability through the application of scientific research and development.

Objective 3.1: Establish partnerships with public and private research universities and Taylor County educational facilities. This scientific partnership will assist in assessing Taylor County's vulnerability to natural and anthropogenic hazards in order to develop the means to reduce the potential for damage from their impacts on society.

Goal 4: Protect the County's cultural, economic and natural resources.

Objective 4.1: Support mitigation initiatives that are compatible with the protection of the county's cultural, economic and natural resources.

Objective 4.2: Promote land acquisition programs that support mitigation opportunities compatible with the protection of natural and cultural resources

Objective 4.3: Encourage the development of drainage improvement systems based on their compatibility with the natural environmental system functions

Goal 5: Reduce the vulnerabilities of county and city owned facilities and infrastructure to natural and man-made hazards

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Objective 5.1: Establish hazard mitigation priorities for the retrofitting of existing County and city critical facilities and infrastructure based upon a risk and vulnerability assessment.

Objective 5.2: Ensure that county and city facilities and infrastructure are located, designed and constructed to complement/support local priorities as defined in the LMS.

Objective 5.3: Promote the National Flood Insurance Program and ensure the County and city of Perry remain in satisfactory standing within the Program. Also promote the Community Rating System, and strive to increase the CRS rating for the County.

Goal 6: Reduce the County's vulnerability to future fire hazards

Objective 6.1: Work with the Florida Division of Forestry fire mitigation planner assigned to Taylor County to promote and participate in the Firewise Community program, and exhibit and distribute fire protection materials to Taylor County residents.

Objective 6.2: Update the County's public water distribution system to current Florida Fire Prevention Code to handle expanded water flow requirements.

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C. Taylor County Mitigation Projects and Action Plan

Each year Taylor County completes an Annual Progress Report to be completed by September 30 and turned in for CRS compliance. Additionally, pursuant to Florida Administrative Code 27P-22 our LMS plan is presented for review to the Board of County Commissioners, approved and a report to Florida Department of Emergency Management Mitigation Section must be submitted by the Board Chair by January 31, each year. For the 2015 LMS Update, the LMS Working Group reviewed the 21 mitigation actions and projects that will assist in the reduction of effects from natural hazards. Within these 21 projects, three of them are specific to the City of Perry while the remaining 18 are countywide initiatives. Most of these actions are related to flooding, whether this flooding is caused by hurricanes or by strong storm systems. The remaining projects are primarily related to fire prevention. Each of these projects is reviewed yearly by the LMS Committee and they are evaluated and analyzed and compared to other potential actions. This evaluation and analysis focused on the protection of lives and property, the ability to reduce economic losses and on the cost effectiveness of the specific actions. During the past review period on City of Perry project has been completed and one county project was added and later removed when private individuals completed the project. Ongoing review identified to clarify a need for permanent standby generators and awaiting funding for critical facilities, to include the Taylor County Airport, Keaton Beach Fire, and Steinhatchee Fire Department additional action was added in 2019.

The LMS Working Group has established this action plan that addresses the various mitigation actions. Specific focus was places on prioritization and identifying the lead

agencies responsible for the implementation and administration of these projects. See the following table that details the mitigation projects in priority groupings, implementation timelines, the lead agencies, and the estimated cost for each project. The projects have been prioritized by hazard category by the LMS Working Group, however this ranking is subject to modifications, as required to meet the growing needs of the community. The prioritization and ranking of each project used the "STAPLEE" method, which is provided in Appendix 2.

The LMS Working Group will continually review this list of actions. As necessary, new actions will be added to this list and re-prioritized to meet the on-going and growing needs of the community. This update and modification process will be part of the on-going maintenance procedures for the County and the City of Perry.

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TAYLOR COUNTY
LMS PROJECT LIST 2019-2020

2019-2020 Update of Mitigation Projects/Action Plan for Taylor County and the City of Perry

ID	Mitigation Project	Hazard	Description	Status	Lead Agency	Est. Cost	Timeline
Flood1	Countywide storm water management study and construction	hurricanes, storms, and flooding	The need to further define the basins and analyze impact to the county transportation and road system with improvements	Proposed	Taylor County Public Works/ Engineering	$1,638,000	24 months
2016 Update: Additional funding through other grant needs will be sought. 2017 Update: Additional funding through other grant needs will be sought. 2018 Update: Additional funding through other grant needs will be sought. 2019 Update: Additional funding through other grant needs will be sought.							
Flood2	Analysis and improvements to the existing storm drain system	hurricanes, storms,	City of Perry Project. This is to analyze, improve and develop their existing storm drainage system throughout the city to improve drainage to lessen and eliminate certain flooding issues	Proposed	City of Perry Public Works	$100,000	24 months
2016 Update: The City is still seeking funding for this project. 2017 Update: The City is still seeking funding for this project. 2018 Update: The City is still seeking funding for this project. 2019 Update: The City is still seeking funding for this project.							
Flood3	New bridge and culvert at Julia Street	hurricanes, storms and flooding	This project proposes the construction of a new bridge and culvert across Pimple Creek at Julia Street to improve drainage and prevent flooding during heavy rain.	Ongoing	City of Perry Public Works	$250,000	36 months
2016 Update: No solution identified at this time. 2017 Update: No solution identified at this time. 2018 Update: No solution identified at this time. 2019 Update: No solution identified at this time.							

ID	Mitigation Project	Hazard	Description	Status	Lead Agency	Est. Cost	Timeline
Flood4	New bridge and culvert at Main Street	hurricanes, storms and flooding	This project proposes the construction of a new bridge and culvert across Pimple Creek at Main Street. This will improve access to the new hospital and lessen the effects of flooding.	Ongoing	City of Perry Public Works	$250,000	36 months
2016 Update: No solutions on new bridge. **2017 Update: No solutions on new bridge.** **2018 Update: No solution on new bridge.** **2019 Update: No solution on new bridge.**							
Flood5	Analysis and evaluation of the repetitive loss locations	storms and flooding	This project will research the 18 repetitive loss locations throughout the county and study the various options to mitigate this flooding damage. This project will consider property buyouts, building elevation and other means to avoid this repetitive loss.	Completed/ongoing	Taylor County Emergency Management Engineering Department	$15,000	12 months
2016 Update: The engineering department continues to update the database as information is received. **2017 Update: The county received no additional repetitive loss properties.** **2018 Update: The county added one property to the repetitive loss list.** **2019 Update: The county received no additional repetitive loss properties.**							
Flood6	Study and development of a sewer system in the growing coastal areas	hurricanes, storms, and flooding	Taylor County proposes to study and eventually develop a county maintained sewer system in the growing communities along the coast. Currently 100's of septic tanks are used and these often flood and contaminate drinking water, canals and dirt during hurricanes and storms.	Completed /ongoing	Taylor County Emergency Management, Engineering Department	$5,000	12 months
2016 Update: Phase 3 is complete and beginning phase 4. **2017 Update: Big Bend Water Authority is seeking funding source to continue expansion and upgrades to septic system.** **2018 Update: Continue to seek funding.** **2019 Update: Continue to seek funding.**							
Flood7	Additional sirens	hurricanes, storms	Taylor County currently has five warning sirens along the coast. This Project proposes to add additional sirens to improve the warning capabilities	Ongoing	Taylor County Public Works	$1,000,000	36 months
2016 Update: Taylor County has instituted a new notification system called Alert Taylor. **2017 Update: Taylor County continues to utilize coastal siren system and new notification system called Alert Taylor.** **2018 Update: Taylor County continues to utilize coastal siren system and Alert Taylor.** **2019 Update: Taylor County continues to utilize coastal siren system and Alert Taylor.**							
Flood8	Maintenance of debris removal contract	hurricane, storms, flooding, winter storms	Taylor County plans to maintain the existing debris removal contract with DRC Inc. This contract has no cost until actual work needs to be done.	Ongoing	Taylor County Emergency Management	$50,000	24 months
2016 Update: Contractors remain on contact with no activations at this time. **2017 Update: Updated debris removal and debris monitoring contracts. Suggest finding a better location for debris burning.** **2018 Update: Debris contractors are up to date.** **2019 Update: Debris contractors are up to date.**							
Flood9	Repetitive loss and storm buffer	Floods, Hurricanes, Severe	This project proposes that the County acquire property	Ongoing	Taylor County Emergency Management	$500,000	12 months

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ID	Mitigation Project	Hazard	Description	Status	Lead Agency	Est. Cost	Timeline
	property acquisition	Storms, Sinkholes	that is repetitively vulnerable to flooding events.				
2016 Update: No funding opportunities. 2017 Update: HMGP elevation projects submitted to FEMA. 2018 Update: Taylor County awarded HMGP grant to elevate homes. This project to be completed by 12/19. Dulin Lane was discussed as a potential buyout location. 2019: Elevation of two homes completed in 2019 through HMGP grant funding.							
Fire1	Additional Fire Department Resources	forest fires, all hazards	County Fire resources are minimal and stretched. This project proposes the addition of fire and emergency personnel and equipment especially along the coast.	Ongoing	Florida Forest Service	$26,500	24 months
2016 Update: County fire is working to obtain more grants for more fire fighters at this time. Coun[illegible]eive grants this year from GP and Firehouse Subs. 2017 Update: Board approved lease of a hybrid fire engine. 2018 Update: Leased engine should arrive soon. 2019 Update: Leased engine obtained in 2019.							
Fire2	Fire awareness educational Program	forest fires	This project proposed the development of an educational outreach program to instruct citi[illegible] about ways to mini[illegible]e fires and protect their p[illegible]erty from damage. This w[illegible] involve ins[illegible]ctions abou[illegible] clearing[illegible]ush and pine stra[illegible]around houses and ensure [illegible]ar access to [illegible]cations for fi[illegible]quipment.	Ongoing	Florida Forest Service	$60,000	6 months
2016 Update: Outreach continues to schools an[illegible]ther o[illegible]anizations. 2017 Update: Outreach continues to schools a[illegible]oth[illegible]organizations with instruction and events throughout the year. 2018 Update: Outreach continues in the communit[illegible] 2019 Update: Outreach continues in th[illegible]mmunity.							
Fire3	Reduce fire hazard	Urban[illegible]nd wildlan[illegible]fi[illegible]	This project proposed to increase the water conveyance capacity of the county's water supply in order to bring the system up to the current Florida Fire Prevention Code to minimize the threat of an inadequate water supply capacity.	Ongoing	Florida Forest Service/ Taylor County Emergency Management	$25,000	12 months
2016 Update: Local fi[illegible] continue to work with administration staff on this project. 2017 Update: FFS will continue to request mitigation team as needed. 2018 Update: FFS will work towards fire mitigation in the Bell Town community and possibly create and improve existing fire lines and road signage. 2019: FFS will continue to request mitigation team as needed.							
All1	All-hazard public awareness and educational programs	Hurricanes, tornadoes, severe storms, forest fires, drought, heat wave, winter storms, sinkholes, landslides,	This project proposes the development of public awareness programs to address flood prevention, forest fire prevention, evacuation routes, shelters, safe-room program, current and future construction. These program with the associated information would be continually offered	Ongoing	Taylor County Emergency Management	$0	Current

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ID	Mitigation Project	Hazard	Description	Status	Lead Agency	Est. Cost	Timeline
		erosion, earthquakes	to the public through a variety of methods including classes, internet data dissemination, and printed materials.				
2016 Update: EM has pushed educating school aged children, also EM pushes the CERT program. EM has also begun educating Shelter in Place with the fire departments. **2017 Update: EM continues to push education of school aged children and pushes the CERT program.** **2018 Update: EM continues to push education of school aged children and pushes the CERT program.** **2019 Update: EM continues to push education of school aged children and pushes the CERT program.**							
All2	Acquire permanent and mobile standby generators		This project proposes to acquire permanent and mobile generators for the purpose of mitigating the effects of long-term power outages	Proposed	Taylor County Grants Department	$191,203.80	24 months
2016 Update: Needs have been identified for generators. **2017 Update: Submitted HMGP request for generator at Forest Capital Hall.** **2018 Update: Taylor County awarded HMGP grant to purchase generator. Project to be completed by 6/20** **2019 Update: Taylor County awarded HMGP grant through Hurricane Michael. Additional generator applications will be submitted.**							
All3	All hazards critical facility hardening	Hurricanes, tornadoes, severe storms, forest fires, drought, heat wave, winter storms, sinkholes, landslides, erosion, earthquakes	This project proposes to fund hardening efforts at critical facilities through the acquisition and installation of materials to mitigate the impacts of hazards and ensure the viability and safety of facilities designated as critical to maintaining the health and safety of the community	Proposed	Taylor County Emergency Management Building and Planning, Engineering, Grants Departments	$1,000,000	36 months
2016 Update: TCEM continues to work to identify hardening needs. **2017 Update: FD station 1 will install a generator.** **2018 Update: Generator installed at FD station 1** **2019 Update: Taylor County awarded HMGP grant through Hurricane Michael. Additional generator applications will be submitted.**							

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STATE OF FLORIDA

DIVISION OF EMERGENCY MANAGEMENT

Ron DeSantis
Governor

Jared Moskowitz
Director

January 31, 2020

Kristy Anderson, Director
Taylor County Emergency Management
591 Highway 27 E
Perry, Florida 32348

Re: Florida Administrative Code 27P-22 Compliance

Dear Director Anderson,

The Florida Division of Emergency Management's Mitigation Planning Unit received your updated 27P-22.004 information for the 2019 calendar year. After reviewing the information received, it has been determined that your update is complete, and your Local Mitigation Strategy complies with F.A.C. 27P-22.004.

If you have any questions regarding this matter or if our office can be of any further assistance, please contact your LMS Liaison Laura Waterman at 850-815-4512 or laura.waterman@em.myflorida.com.

Respectfully,

Miles E. Anderson,
Bureau Chief, Mitigation
State Hazard Mitigation Officer

MEA/lw

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DIVISION HEADQUARTERS
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100

Tel: 850-413-9969 | Fax: 850-488-1016
www.FloridaDisaster.org

STATE LOGISTICS RESPONSE CENTER
2702 Directors Row
Orlando, FL 32809-5631

D. Funding Sources

As part of the 2020 LMS Plan Update, research was done to validate potential sources of funding for various types of mitigation. The following is a list of the primary funding sources discovered during this extensive research effort.

- FEMA
- Hazard Mitigation Grant Program
- Pre-disaster Mitigation Grant Program
- Flood Mitigation Assistance Program
- Repetitive Flood Claims Program
- Severe Repetitive Loss Program
- Florida Communities Trust
- Florida Small Cities Community Development Block Grant Program
- Emergency Management Preparedness and Assistance Trust Fund
- Suwannee River Economic Council Programs
- State Housing Initiative Partnership Program
- Low-Income Home Energy Assistance
- Weatherization Assistance Program
- Low-Income Emergency Home Repair Program
- Energy Neighbor Fund

The following is a brief explanation of the most logical FEMA-based programs to seek funding from. They include:

Hazard Mitigation Grant Program - is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (the Stafford Act), Title 42, United States Code (U.S.C.) 5170c. The key purpose of HMGP is to ensure that the opportunity to take critical mitigation measures to reduce the risk of loss of life and property from future disasters is not lost during the reconstruction process following a disaster. HMGP is available, when authorized under a Presidential major disaster declaration, in the areas of the State requested by the Governor. The amount of HMGP funding available to the Applicant is based upon the estimated total Federal assistance to be provided by FEMA for disaster recovery under the Presidential major disaster declaration.

Pre-Disaster Mitigation Program - is authorized by Section 203 of the Stafford Act, 42 U.S.C. 5133. The PDM program is designed to assist States, Territories, Indian Tribal governments, and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding from future disasters.

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Flood Mitigation Assistance Program - is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended (NFIA), 42 U.S.C. 4104c, with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP).

Repetitive Flood Claims Program - is authorized by Section 1323 of the NFIA, 42 U.S.C. 4030 with the goal of reducing flood damages to individual properties for which one or more claim payments for losses have been made under flood insurance coverage and that will result in the greatest savings to the National Flood Insurance Fund (NFIF) in the shortest period of time.

Severe Repetitive Loss Program - is authorized by Section 1361A of the NFIA, 42 U.S.C. 4102a, with the goal of reducing flood damages to residential properties that have experienced severe repetitive losses under flood insurance coverage and that will result in the greatest savings to the NFIF in the shortest period of time.

More information about each program can be found on the FEMA Hazard Mitigation Assistance Web site at www.fema.gov/government/grant/hma/index.shtm.

E. City of Perry Projects

The City of Perry has identified three projects that are all related to flooding that are included in this LMS Update that were determined to be cost effective, environmentally sound and technically feasible. These three projects are listed above in the overall mitigation actions table and they are also listed again below to meet this requirement for individual action items for each jurisdiction. An update for each project is provided earlier in this section.

Table VII.E.1: City of Perry Mitigation Projects

Mitigation Project	Description	Lead Agency	Est. Cost
Analysis and improvements to the existing storm drain system	City of Perry Project. This is to analyze, improve and develop their existing storm drainage system throughout the city to improve drainage to lessen and eliminate certain flooding issues	City of Perry - Public Works	$100,000
New bridge and culvert at Julia Street	This project proposes the construction of a new bridge and culvert across Pimple Creek at Julia Street to improve drainage and prevent flooding during heavy rain.	City of Perry - Public Works	$250,000
New bridge and culvert at Main Street	This project proposes the construction of a new bridge and culvert across Pimple Creek at Main Street. This will improve access to the new hospital and lessen the effects of flooding.	City of Perry - Public Works	$250,000

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F. Monitoring, Evaluating and Updating the Taylor County LMS Plan

The Taylor County LMS Working Group is committed to maintaining and updating this plan. This finalized adopted plan represents a snapshot in time for Taylor County while the overall mitigation strategy is a process that is ongoing in nature. As disasters occur throughout the county, appropriate mitigation actions will be taken to reduce the impact to citizens and the county's economic base. Taylor County Emergency Management will spearhead these efforts, however the LMS Working Group will continue to be the primary agent for further development of the plan and the on-going mitigation process.

This adopted plan can be revised and updated by the LMS Working Group as needed to address new and on-going vulnerabilities. When significant revisions are made to this plan in the future, it is the county's decision if additional resolutions are required.

The LMS will formally meet at least annually during this five year cycle, but based on the past 5 year cycle, it will be more often, as the need arises. At the LMS Working Group's discretion, more meetings and initiatives will be advanced to continue monitoring, evaluating and updating this plan.

It is mandatory that the LMS plan be updated in five years. This update process will be managed by Taylor County Emergency Management with significant effort and participation by the LMS Working Group and the City of Perry. All of the information from the meetings is incorporated into this update. As required, the County will modify the current LMS plan to address any changes in the community and to meet any new federal requirements. The process will consist of a review of the existing LMS, LMS Working Group meetings, public participation and the actual plan writing. This five-year update will be similar to the annual LMS process but will be more extensive and will result in an updated printed document that will be considered and adopted by the County and City Councils.

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G. Plan Adoption Process

This adopted plan is now one of the primary county instruments along with the County Comprehensive Plan, the Comprehensive Emergency Management Plan, and the County Land Development Regulations. As enhancements and modifications are made to these various planning mechanisms in the future, the Local Mitigation Strategy will be consulted to be sure that these changes consider the impacts of natural disasters and potential mitigation strategies.

The LMS Working Group will continue as the lead agency for promotion of mitigation against natural disasters. This group will continually monitor the situation in the county and propose new initiatives as required. These new initiatives will be considered in conjunction with the other planning mechanisms and their subsequent goals. Capital improvement plans will need

to incorporate a study of potential impacts from natural hazards and prioritize any projects that will reduce the vulnerability to these hazards.

H. Future Public Participation

The community is encouraged to participate in the on-going mitigation planning process in Taylor County. There will be three primary ways for the public to continue to participate in this LMS process.

- LMS Working Group Meetings – All of the LMS Working Group meetings will be open to the public. Each meeting will be publicly advertised and held in a public and easily accessible location. Public citizens and private organizations will be encouraged to attend these meetings and provide their comments and feedback.

- Internet Correspondence. – The adopted plan will be continually posted on the Taylor County Emergency Management website for review and download. Comments and feedback will be emailed to the Taylor County Emergency Management Department who will convey the information to the LMS Working Group.

- LMS Mailing List – The LMS Working Group will maintain an on-going list of any interested citizens or organizations. Notifications will be sent to this list of people when any actions are taken regarding mitigation in Taylor County.

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V. References and Appendices

Below are the primary sources of information used in the development of this plan. See a complete listing of all reference and appendix files on the accompanying CD-ROM.

1. Bureau of Economic and Business Research, University of Florida Population Statistics
2. Dam Data from http://crunch.tec.army.mil/nid/webpages/nid.cfm
3. FDER Sinkhole information - http://www.dep.state.fl.us/geology/geologictopics/sinkhole.htm
4. FDOT 5 Year Transportation Plan, 2021-2026
5. Southern Wildfire Risk Assessment Portal (South WRAP) at http://www.southernwildfire.net/SouthWRAP
6. Florida Department of Revenue
7. GIS shape file data and pdf maps from Taylor County Engineering Department http://www.ncdc.noaa.gov/cgi-bin/paleo/pd08plot.pl
8. Hurricane Probability Statistics: Tropical Meteorology Research Project at Colorado State: http://landfalldisplay.geolabvirtualmaps.com/
9. Local Multi-Hazard Mitigation Planning Guidance
10. National Flood Insurance Rate Maps for Taylor County: http://www.srwmdfloodreport.com/Welcome.htm.
11. National Flood Insurance Repetitive Loss Structures Database, FEMA
12. North American Drought Atlas, PDSI Reconstruction, Version 2a (2008)
13. State of Florida Enhanced Hazard Mitigation Plan, 2008
14. Taylor County Chamber of Commerce: http://www.taylorcountychamber.com/
15. Taylor County Codes and Ordinances
16. Taylor County COMP Plan – 2010
17. Taylor County Comprehensive Emergency Management Plan – 2016
18. Taylor County Critical Infrastructure/Key Resources (CIKR)
19. Taylor County Flood Plain Management Plan
20. Taylor County Housing Data: http://www.city-data.com/county/Taylor_County-FL.html
21. Taylor County Disaster Housing Strategy, 2008
22. Taylor County Logistics Plan – 2012
23. Taylor County Debris Management Plan - 2017
24. Taylor County Local Mitigation Strategy – 2015
25. Taylor County Terrorism Annex
26. Taylor County Tornado Data: http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms
27. Taylor County Vision 2060 Plan, (2008)
28. U.S. Census - 2019 Quickfacts for Taylor County

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Appendix 1: Record of Changes

There have been significant changes made to the 2015 Taylor County LMS from the 2010 version. Virtually every page was updated with more current information, updated charts, and the LMS project list was updated. A section by section basic description of these changes is provided below.

Section	Page	Description
Acknowledgement	iv	Added 2020 Update:
Executive Summary	v	Added 2020 Update:
II.A	9	Replace old language in the 2015 version
II.B	9	2020 LMS Update. Needed because 2015 process was outdated.
II.C	10	Updated 2020
II.D	10-11	LMS Working Group has been updated to reflect the current membership.
II.E	12-16	This Section has been updated to reflect the activities of the LMS working Group since the last adoption of the 2015 LMS.
II.F	16-17	This Section was updated to reflect a more accurate and current information relative to 2020.
II.G	18-20	No significant changes were made to this section other than updating 2020 informational data, etc. This still remains current and valid.
VII.C	42-47	Updates to most current projects that were identified by the LMS committee in 2019. Flood #3 was removed due to completion. Flood #5 was removed due to the City of Perry's request. Flood #6 was removed due to the GIS department completion. Flood #8 was removed due to completion of sewer system in the coastal communities. Fire #1, Fire #3, and Fire #5 was moved due to completion per the Florida Forest Service. Wind #1 was removed due to completion of retrofitting the evacuation shelter.
	57	Agendas and notes from LMS meetings held between 2015 and 2019. This is new information for the 2010 Updated LMS.
Appendix 4, Annex 1	Full Document	Updated entire annex with current information available for 2020. Revised and updated all descriptions, locations, extents, probabilities, impacts, and vulnerabilities to hazards.
Appendix 5, Annex 2	Full Document	Updated entire county flood plan.

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Appendix 2: Project Prioritization Methodology

The Taylor County LMS Working Group uses the ***STAPLEE*** methodology to score each project. There are seven categories in the STAPLEE criteria, and 23 criterion. Each of the 23 criterion is given a weighted score between 0-4, with 0 meaning not beneficial or unproductive, to 4 meaning very beneficial or excellent. The projects are spread across four major categories, that being

- Flood
- Fire
- General (ALL)
- and Sink (for sinkholes)

A very basic description of the **STAPLEE** methodology is provided below. The scoring sheet of the Taylor County mitigation projects follows on the next sheet**.**

S*ocial* – Is the mitigation strategy socially acceptable?

T*echnical* – Is the proposed action technically feasible, cost effective, and does it provide the appropriate level of protection?

A*dministrative* – Does the community have the capability to implement the action and is the lead agency capable of carrying out oversight of the project?

P*olitical* – Is the mitigation action politically acceptable?

L*egal* – Does the community have the authority to implement the proposed action?

E*conomic* – Do the economic base, projected growth, and opportunity costs justify the mitigation project?

- Benefit cost-analysis is a mathematical method for comparing costs to the benefits to the community of a mitigation action
- If the benefits are greater than the costs, the project is cost-effective
- Comparing the ratios of benefits to costs for several mitigation projects helps to identify those that offer the greatest bang for the community's buck
- Benefit-cost analysis gives decision-makers an understandable way to explain and defend their decisions
- For many grant programs, FEMA and the State will use benefit-cost analysis to determine whether a project is eligible
- The community can save time and energy by limiting planning activities to projects that will be more likely to receive funding.

E*nvironmental* – Does the proposed action meet statutory considerations and public desire for sustainable and environmentally healthy communities?

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The following is a listing of each project, and its corresponding acronym.

Taylor County LMS Projects - 2019

Flood 1	Countywide storm water management study
Flood 2	Analysis and improvements to the existing storm drain system
Flood 3	New bridge and culvert at Julia Street
Flood 4	New bridge and culvert at Main Street
Flood 5	Analysis and evaluation of the repetitive loss locations
Flood 6	Study and development of a sewer in the growing coastal areas
Flood 7	Additional warning sirens
Flood 8	Maintenance of debris removal contract
Flood 9	Repetitive loss and storm buffer property acquisition
Fire 1	Additional fire department resources
Fire 2	Fire awareness educational program
Fire 3	Reduce fire hazards by increase water flow capacity
All 1	All-hazard public awareness and education program
All 2	Acquire permanent and mobile standby generators
All 3	All hazards critical facility hardening

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Ranking and Prioritization Table – Taylor County LMS Projects 2019

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)					TOTAL SCORE
Considerations → / Projects ↓	Community Acceptance	Effects on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HazMat/ Waste Sites	Consistent with Community Envir. goals	Consistent with Federal Laws	
Flood 1	4	4	4	4	3	3	1	4	4	4	2	4	4	4	4	3	4	2	4	3	3	4	4	80
Flood 2	4	3	4	4	3	3	1	4	4	4	2	4	4	3	3	3	4	1	4	3	3	4	4	76
Flood 3	4	4	4	4	3	2	1	3	4	3	3	4	4	3	3	3	3	2	4	2	3	4	4	73
Flood 4	4	4	3	4	4	4	1	2	4	3	4	4	4	3	3	2	3	1	2	2	3	4	4	72
Flood 5	4	3	3	3	3	4	1	3	4	4	4	4	4	3	3	3	3	1	3	2	2	3	4	71
Flood 6	3	3	4	4	3	3	0	3	4	3	3	4	4	3	3	2	3	0	4	2	2	4	4	68
Flood 7	2	2	4	3	3	3	1	3	3	3	2	4	4	3	4	3	2	2	3	2	2	4	4	66
Flood 8	2	2	4	3	3	3	1	3	3	3	2	4	4	3	4	3	2	2	3	2	2	4	4	66
Flood 9	2	2	3	4	3	2	1	3	3	3	2	4	4	2	2	2	3	2	4	3	4	4	4	65
All 1	4	4	4	3	3	3	2	3	3	3	3	4	4	4	4	3	2	2	2	2	2	2	4	70
All 2	3	3	4	3	3	3	3	3	4	3	3	4	4	4	3	3	2	2	2	2	2	2	4	69
All 3	4	4	4	3	3	3	2	3	4	4	4	4	4	4	4	3	2	2	2	2	2	2	4	73
Fire 1	3	4	4	3	3	3	3	3	3	3	3	4	4	4	4	2	3	4	4	3	3	4	4	78
Fire 2	4	4	4	3	3	3	1	3	3	3	3	4	4	4	3	3	3	2	4	2	4	3	4	75
Fire 3	4	4	4	3	3	3	2	3	3	3	3	4	4	4	3	3	3	2	4	2	4	3	4	74

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Appendix 3: Agendas and Notes from LMS Meetings

The LMS Working Group met fourteen times between April 23, 2015 and December 9, 2019. The meeting agendas and list of attendees are provided in this Appendix. This information has been scanned from the originals, which are maintained by Taylor County Emergency Management.

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LMS Working Group
Taylor County Emergency Operations Center

April 23, 2015

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Steve Spradley	Taylor County EM	850-838-3575	Steve.spradley@taylorc[illegible]ntygov.com
Ed Ward	FDOT	386-961-7581	Ed.ward@dot.state.fl.us
Bobby Pickels	Duke Energy	850-694-3758	Robert.pickels@d[illegible]
Jami Boothby	BOCC	850-838-3500	Building.te[illegible]@taylorc[illegible]ntygov.com
Dave Dickens	SRWMD	386-209-4241	Rdd@SRW[illegible]MD.o[illegible]
Kristy Anderson	Taylor County EM	850-838-3575	Kristy.anders[illegible]@taylorcountygov.com
Dan Cassel	TCFR Chief	850-838-3522	[illegible]s.director@[illegible]ylorcountygov.com

Meeting Agenda

AGENDA

- Opening Remarks
- Update LMS Committee Memb[illegible]Attachment 1]
- Review 2014 Hazard Analysis Plan t[illegible]eplace 2010 LMS Hazards Plan [at meeting]
- Review LMS Project List [illegible]ttachment 2
- Schedule Next Meetin[illegible]
- Adjourn

Minutes

Steve Spradley [illegible]ed the [illegible]eeting to order. He asked that everyone introduce themselves around the t[illegible]e an[illegible]thank[illegible]d everyone for attending.

The minutes [illegible]the December 19th meeting were discussed and approved. A motion was mad[illegible]d W[illegible]d and a second motion was made by D. Cassel to approve them.

S[illegible]Spradley s[illegible]ted that emergency management is on a five year cycle with the LMS plan and that[illegible]is due [illegible]FDEM this summer. J. Boothby asked about the status of the flood plan. S. Spradl[illegible]y s[illegible]ted that he will finalize it soon because National Weather Service will be here this summer also. J. Boothby stated that the CRS visit has been delayed until 2016 because of back-up. S. Spradley stated that we will include with the LMS plan. In 2014 the hazard analysis update was completed for our CEMP and we have received permission from the state to incorporate that plan into our LMS. Emergency Management drafted a letter and the county commission sent the letter to the state.

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All 3. Taylor County was not declared as a disaster area from the Federal government during the 2014 floods. Hazard mitigation grants came down and a there was a possibility for us to put in for tier monies, other areas of the state were able to put in for that money also. We discussed maybe purchasing a generator for our hospital here. After the hospital did the engineering studies which it would have cost 1.3 million for generator power. The hazard mitigation grant was only 13 million dollars for all flooding in Florida, so we cancelled that plan. After much negotiation, OCCA stated that the hospital does not have to have the generator. Bobby Pickels offered an option from Duke Energy in which they could sell a back-up generation service to the hospital. Companies that have used this service must pay a flat rate per month. He stated that some businesses find that to be a good thing since they wish to avoid the capital cost and the maintenance cost. S. Spradley stated that was definitely a possibility and we would appreciate more information on this service. D. Cassel stated he would be interested in that service for Steinhatchee Fire, especially in time of a storm.

S. Spradley discussed the Taylor County LMS Working Group and asked if we need to include/exclude anyone on the below list. Bobby Pickels, Dan Cassel, Hank Evans, Brooks Butler, and Melody Cox were added to the list. This list will be added to our plan for the next five years. Dan Cassel motioned to approve the below mentioned list and Jami Boothby made a second motion.

2015 Taylor County LMS Working Group

Steve Spradley, Chair	Taylor County Emergency Management Director
Kristy Anderson, Vice-Chair	Taylor County Emergency Management
Dustin Hinkel	Taylor County Administrator
Margaret Dunn	Assistant County Administrator
Carrie Williams	Taylor County Animal Control
Danny Griner	Taylor County Building and Planning Department
Jami Boothby	Taylor County Building and Planning Department
Kenneth Dudley	Taylor County Engineer
Andy McLeod	Taylor County Public Works
Lt. Buddy Lee	Taylor County Sheriff's Office
Dan Anderson	Taylor County School Board
Barney Johnson	City of Perry
Bob Brown	City Manager, Perry
Jack Smith	Florida Division of Forestry
Leroy Marshall	Suwanee River Water Management District
Glenda Hamby	United Way
Gary Wambolt	Taylor County Waste Management
Stephen Watson	City of Perry Wastewater Superintendent
Ed Ward	Florida Department of Transportation
Brian Bradshaw	Florida Department of Emergency Management
Bobby Pickels	Duke Energy
Dan Cassel	Taylor County Fire Rescue
Hank Evans	Taylor County Public Works

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Brooks Butler	Georgia Pacific
Melody Cox	Taylor County Grants Department

S. Spradley asked all to look at the letter to Miles E. Anderson removing some of the projects from the LMS list.

Sink 1 on the list has been completed on San Pedro Road. Bobby Pickels stated that his company definitely resolved this issue he believes. He will ask his engineering group to be sure that this has been resolved and report back to the group.

Flood 13 Charles Sadler Lane bridge has been resolved by citizens.

Fire 1 and Fire 2 also has been completed since the Division of Forestry [illegible] mitigation monies from 2011/2012. There is an ongoing need for mitigation monies [illegible] and this will stay on the list.

S. Spradley spoke to Melody Cox about the LMS group working to identify potential CBDG funding. She was not aware that we were looking for that kind of funding. This is an ongoing and necessary need stated D. Cassel. He stated that we need hydrants around the county and discussed the pros and cons. S. Spradley asked what kind of grants D. Cassel was working on at this time. D. Cassel has a grant in the process for a fire truck in the amount of $340,000. Another grant is out for $400,000 for a volunteer coordinator position for four years. S. Spradley stated that we are always on the lookout for mitigation grants to help with this.

The Taylor County School Board has awarded the contract for the shutters project for the shelters that was to be completed by 2015.

The LMS group voted and approved to have the LMS meetings twice a year instead of quarterly. The next meeting will be in October of 2015. The LMS update will be sent to the board for approval in September 2015.

The meeting was adjourned by S. Spradley.

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LMS/LTR April 23, 2015

NAME	ADDRESS	PHONE	EMAIL
Stan Smalley	TCEM		
ED WARD	FDOT	386 961-7581	ED.WARD@DOT.STATE.FL.US
Bobby Pickels	Duke Energy	694-3758	robert.pickels@duke-energy.com
Jami Boothby	BOCC	850 838-3500	building.tech@taylorcountygov.com
Kristy Anderson	TCEM	838-3575	Kristy.anderson@taylorcountygov.com
Dave Dickens	SRWMD	3862094241	rdd@SRWMD.org
DAN CASSEL	TCFR	850 795-1141	DCASSEL@TAYLORCOUNTYGOV.COM

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Taylor County Emergency Management
850.838.3575

LMS Working Group
Taylor County Emergency Operations Center

November 10, 2015

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Steve Spradley	Taylor County EM	850-838-3575	steve.spradley@taylorcountygov.com
Jack Smith	Florida Forest Service	850-223-0751	jack.smith@freshfromflorida.com
Bill Roberts	Taylor Airport	850-838-3519	airport@taylorcountygov.com
Kristy Anderson	Taylor County EM	850-838-3575	kristy.anderson@taylorcountygov.com
Dan Cassel	TCFR Chief	850-838-3522	d.cassel@taylorcountygov.com

Meeting Agenda

AGENDA

- Opening Remarks
- Review 2015 LMS Plan
- Review LMS Project List [Attachment 2]
- Schedule Next Meeting
- Adjourn

Minutes

Steve Spradley called the meeting to order. He thanked everyone for attending.

The minutes from the April 23, 2015 meeting were discussed. Steve explained the CRS review that is due next year. Taylor County is level with the CRS which decreases our flood insurance by 15%. Each level you decrease a level the rate is reduced by 5% off of flood insurance. Staff will take a cross walk and compare plans to make sure all are in compliance. The LMS working group is listed with minutes and noted. With the LMS plan we have two reports due each year. In September we have to have BOCC ratify the LMS and send a letter to the CRS board. Also in January we have to send a similar review to FDEM. We will update this list as needed. Noted in the minutes, we discussed dropping some mitigation projects from the list. Charles Sadler was dropped because the citizens fixed this themselves. Fire 1 and 2, as well as Sinkhole was dropped from the list. This updated list was sent to the state. A motion was made by Dan Cassel and second motion was made by B. Roberts to approve the minutes.

LMS was last updated in 2010 and uploaded to the Taylor County website. The 2010 LMS expires January 6, 2015. Taylor County EM has been updating this plan. The Hazard Analysis and Flood Plan will be annexes to the LMS plan. During the next time we are required to update our CEMP we will use this Hazard plan as an annex. The LMS plan has been completed and approved by the state. After today we are submitting it to the County

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Commissioners for approval. This LMS plan will be in effect for the next five years. Changes to the plan have been made, such as impact examples of forest fires for the last five years. All hazards that we are potentially exposed to had to include impacts to the community. The sinkholes in Steinhatchee and road washouts were added as impacts. The new 2015 LMS plan will be placed on the Taylor County website. I was so large we placed it on a disc for each county commissioner to review for their November 17, 2015 meeting. Coastal Surge and areal flooding were also noted on the plan. In the LMS plan the coordinated and planning process was updated and the individuals involved. EM advertises our LMS meetings and we must document that we do. The flood insurance losses were also updated as well as future growth patterns and critical facilities. Steve discussed ongoing mitigation projects as well as the City of Perry mitigation projects. The committee was asked to review the LMS plan as it pass[illegible] around at the meeting. EM is always looking for new mitigation projects and they can be [illegible]dded to the list at any time during the year. They have to be reviewed by the comm[illegible] be added.

D. Cassel noted he would like to search for funds for sending staff to sw[illegible] wa[illegible] classe[illegible] S. Spradley noted that he was not sure the training would meet mitigation re[illegible] S. Spradley noted that swift water rescue in Taylor County is mostly in Steinh[illegible]hee and that EM will search for training. During the floods the ambulance co[illegible] not get to a v[illegible]tim and a boat was used to get the person out. D. Cassel noted that it would h[illegible]lp his perso[illegible]el to have this training.

Steve noted that EM identified potential mitigation p[illegible]jects i[illegible] Steinhatchee. River Avenue is the first as we received word from AT&T that the flooding [illegible]s were about 6 inches from the phone boxes which would knock out all 911 s[illegible]rvice for S[illegible]hatchee. Pumps were borrowed from Madison and Lake City to alleviate th[illegible]looding water. [illegible]he largest problem was not enough discharge pipe. We borrowed [illegible] from the water company and ran it to the river. We did not know that forestry had 3000 feet we c[illegible]ld have used. D. Cassel asked if AT&T had any plan to raise the phone boxes. Th[illegible] pumping all[illegible]ated this flooding, but kept coming across road from the aquifer. S. Spradley noted that a ro[illegible] was built up and blocked the natural flow of the water. We will add River A[illegible] floo[illegible]g to the review. B. Roberts noted that we were on the north end and received 20 inches [illegible]n the storm. S. Spradley noted that the storm sat over the Jena area and that's wh[illegible]e receive[illegible]ll the flooding.

S. Spradley noted that the [illegible]ooding f[illegible]m Second Ave. NE to Central Ave. was a problem area from three pond[illegible]ch flo[illegible]d. He stated that the county rented pumps and pipe at $10,000 per week for [illegible]ee w[illegible]ks. O[illegible]e possible mitigation solution by the county is to try and obtain obsolete pl[illegible]tic pip[illegible] from the Big Bend Water Company in Steinhatchee, put an intake at Central and N[illegible]inth Street NE and bury the pipe to First Ave SE, then along First Ave west to the m[illegible] for dis[illegible]harge. We would then have the discharge method and that work will need to be [illegible]ntracte[illegible]ut.

Ano[illegible]r mitiga[illegible]n issue is on Second Ave NE. We pumped this area out twice and the water kept co[illegible]ing [illegible]ack. This home was destroyed and we believe this property could be purchased with mitig[illegible]on funds and make a holding pond for this location.

Another issue is Second Ave. NE where the road did not continue through to Ninth Street NE because of a pond in the way. The county believes that we could build out Second Ave. NE and put a ditch system in. When looking at LIDAR this location is lower and the water would tend to flow and not back-up. When this pond system gets full, the ditches need to be cleaned out and new culverts added. This can most likely be done over the next couple of years with county

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funds. S. Spradley noted that engineering studies need to be done for all of these areas. These solutions were discussed with SRWM has river exposure grant funds that this might qualify for. These items will be added to the LMS list.

B. Roberts noted that he believes that an engineering study should be done in Steinhatchee. He motioned that the mitigation projects that were discussed be added and D. Cassel seconded it. S. Spradley noted that Dustin Hinkel added $10,000 to capital improvements to buy discharge pipe and such which is a start.

J. Smith stated that forestry has the equipment if requested. S. Spradley noted that these were requested through the state and we were told to go find it on our own. Our problem was that we could not get enough discharge pipe. We could have used forestry's pipe and we would have had to have built a ramp.

S. Spradley asked if everyone had a chance to look at the LMS plan. D. Cassel motioned that the LMS plan be accepted. B. Roberts seconded the motion. The LMS plan was accepted.

Jack Smith noted that on Fire #3 should be removed from the mitigation list because there is nothing locally that can be done to change regulations. He suggested that there should be more education in the city for burning. He stated that forestry makes 35,000 to 40,000 fire prevention contacts in Taylor County per year. D. Cassel would like to have some fire prevention pamphlets to hand out to the citizens. D. Cassel motioned that Fire #1 be removed from the list and B. Roberts seconded.

The meeting was adjourned by S. Spradley.

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LMS Working Group/Long-Term Recovery Planning Meeting
November 10, 2015
Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Steve Smedley	TCEM		
Jack Smith	Florida Forest Service	850-[illegible]	Jack.Smith@FreshFromFlorida.com
Bill Roberts	Airport	850-838-[illegible] 478-542-[illegible]	airport@taylorcountygov.com
DAN CASSEL	TCFR	[illegible]	DCASSEL@TAYLORCOUNTYGOV.COM
Kristy Anderson	TCEM	850-[illegible]-4834	Kristy.anderson@taylorcountygov.com

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LMS Working Group
Taylor County Emergency Operations Center

August 17, 2016

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Steve Spradley	Taylor County EM	850-838-3575	steve.spradley@taylorcounty...gov.com
Eric Black	Florida Forest Service	850-223-0751	eric.black@freshf...rida.com
Ray Boothe	FFS	850-223-0751	ray.booth@freshfro...orida.com
Kristy Anderson	Taylor County EM	850-838-3575	kristy.ande...aylorcou...gov.com
Dan Cassel	TCFR Chief	850-838-3522	ps.director@...aylorcountygov.com
Sara Weirick	Building and Planning	850-838-3500	building.tech@...aylorcountygov.com
Ed Ward	FDOT	386-961-1581	ed...ward@dot.state.fl.us
Brian Bradshaw	FDEM	850-519-...9	rian...adshaw@em.myflorida.com

Meeting Agenda

AGENDA

- Review of minutes from Nove...ber ... 2015 meeting
- Discussion about 2015 LMS UPDATE p...cess with FDEM and submittal of Agenda request for BCC approvi... LMS plan
- Discussion post Steinha...ee f...od and inclusion of identified projects resulting from flood event
- Emergency Man...ent to di...uss finalization of Flood Response Plan to enhance CRS
- Discuss any upda...s on ... with Engineering to add storm water and drainage projects to LMS project list
- Discus... subm...ssion ... application for SRWMD to address Steinhatchee flood issues.
- Qu...ons a... comme...ts

Mi...tes

Ste... Spradle... called the meeting to order. He thanked everyone for attending.

The minu...s from the November 10, 2015 meeting were discussed. Dan Cassel motioned to accept the minutes from the last meeting with a second from Sara Weirick. It was discussed that we will have two LMS meetings instead of four as we have had in the past years. Our intent was to have one in the spring, but we had the CRS review that held us up, but we will have another around November. Noted from Page 2 of the minutes with three ponds flooding, a possible mitigation solution was from the county is to obtain obsolete pipe and drain from the area. After the last LMS meeting, Steve Spradley wrote a report outlining the different areas

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where flooding was present. The engineer came up with a better solution of an aggressive storm water project, so that the water will move out in the area of 1st avenue to 51 (state road). Since that time, we have met with the DOT engineers, and they area now in the process of doing some storm water work on 51 near River Avenue as water ran across 51 and flooding the homes and this is now in development. Part of the discussion was that we need to divert the water on River Avenue. The plan is for a storm water system on the county road to run water on River Avenue back towards the east, which will help with the DOT project on 51. Steve S also stated that there was discussion about 9th and 2nd flooding which will entail reinstalling larger culverts and digging and cleaning out ditches downstream. SWRMD stated that our storm water situation and the flooding in Steinhatchee should qualify for some of the grant money. The county engineer will come up with some costs for this project. The projects will then be added to our LMS projects list which the committee voted to put then on last year. One property on 2nd that flooded, a secondary house, would be best suited for a retention pond. Mitigation money to buy that home for a retention pond. The home is currently flooded again with this recent flood. However the home has no flood insurance and will not qualify as a repetitive loss. The project list was discussed and will need to be adjusted for 2016 as discussed below:

- Flood #1 In 2015 we added drainage system needs on Central, 2nd Ave, 13th Street NE. Dan Cassel stated that the only flood problem is behind Maddie's store during the current storm. The problem with the culvert is the 90 degree curve and a poor design. Additional funding through other grant needs will be sought since the cost is closer to 1.25 million.

- Flood #3 We have updated our LMS and our Hazard Analysis Plan, and Flood and Evacuation plan.

- Flood #5 No solutions on new bridges.

- Flood #6 Ongoing, as there is flooding all over the county. Updating that information is ongoing for 2016.

- Flood #8 Study the development of sewer system. We will need to check with Big Bend Water Company in Steinhatchee. Phase 3 is complete and we are not sure if they will go on to Phase 4.

- Flood #9 Additional sirens: Taylor County still has four sirens. Testing continues on the second Thursday of each month. We are also implementing a new notification system, thanks to the State of Florida, called Alert Taylor. The state has purchased this system for all counties. Taylor signed an MOU with the state/company. Webinars are complete and the company has uploaded 7000 landlines. We have also added in our email list. Citizens are asked to sign up for text, phone, and email for emergencies. This will allow you to draw a polygon such as with a train derailment and warn residents when needed. These can also be targeted by zip code. E. Black asked if internet based phone systems would be included in this. This system can also be used from your cell phone. Dan Cassel will also have access to this system to send out to his fire volunteers. E. Black of Forestry asked if he would be able to utilize this system if there was smoke on the road and he was answered of course. We will adjust this for the 2016 list.

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- All #1 Education: All hazard. K. Anderson has done a great job with 700 children have been educated on all hazards awareness and preparedness. We also push this with our CERT program and Hurricane Awareness as well as Shelter in Place with the fire departments.

- All #2 County disaster business alliance. The train derailment and shelter in place was a reach out to the business alliance.

- Fire #1 S. Spradley stated that we took out a long list of mitigation that fire took care of. He asked if there is anything that can be updated. E. Black stated that he thinks that the money is the same. Forestry has a couple of projects around the elementary school for burning. Please change name to Florida Forest Service in Fire 1 and Fire 2.

- Fire #2 Dan Cassel has received some grants this past year. He stated that he received one from Firehouse Subs for $17,000. He also receive[d] business property such as shipping containers. Also received GP monies this year for gear. Fire requesting a grant for more firefighters.

- Fire #3 Eric Black stated that this should be stated implementation instead of development for the Firewise and Ready Set Go. He stated the Forestry Service continues to educate the public on Fire Safety.

- Wind #1 The school is complete with the storm shelters shutters. Our grants department has received monies for storm windows for residents. They are going to renew this grant for the upcoming year.

S. Spradley stated that we have to update this every year and advertise in the newspaper. In January it will be submitted to the state DEM to verify that it has been done. We will walk through this with Sara and Jan[ice] to assure completion for the September review with ISO.

The CRS was complete[d] which is the storms warning system and education between us and the building and planning department. The maximum score was 395 and we got 335. One reason we did not get the max was that we did not have Alert Taylor yet. Ed Ward stated that Dan Hinson call[ed] him from DEM with an idea that he may can work statewide to get points lowered because of what DOT does statewide on the roads. S. Spradley stated that we missed out on some points because Taylor County does not have a flood plain management plan. The county will need to continue to work on this plan.

The meeting was adjourned by S. Spradley.

DRAFT PLAN

LMS Working Group
Taylor County Emergency Operations Center
December 2, 2016

Meeting Minutes

Attendance

Meeting Agenda

NAME	ORGANIZATION	PHONE	EMAIL
Steve Spradley	Taylor County EM	850-838-3575	steve.spradley@taylorcount[illegible]v.com
Jami Boothby	Taylor County Grants	850-838-3553	Grants.assist@tay[illegible]
Melissa Schloss	FDEM	850-694-6619	melissa.schloss@em[illegible]myflorida.com
Kristy Anderson	Taylor County EM	850-838-3575	kristy.ande[illegible]aylorcou[illegible]gov.com
Dan Cassel	TCFR Chief	850-838-3522	ps.director@[illegible]aylorcountygov.com
David Ugrekhelidze	FDEM	407-856-5030	David.ugrekhe[illegible]dze@em.myflorida.com
Victor Blanco	TCEO	786-449-9677	vi[illegible]an@gmail.com
Ben Mangum	TCPA	850-838-6[illegible]7	CPA[illegible]ANGUM@live.com
Meg Infiorati	Community Citizen	850-371-[illegible]702	megifl@yahoo.com

AGENDA

- Review of minutes from Augus[illegible]17, 20[illegible]6
- Discuss post Steinhatchee f[illegible]od and inclu[illegible]n of identified projects resulting from flood events.
- Emergency Management [illegible]discuss finalization of Flood Response Plan to enhance CRS.
- Discuss any updates on wor[illegible]with engineering to add storm water and drainage projects to LMS projects [illegible]MS projec[illegible]ist.
- Discuss submissio[illegible]of a[illegible]ion for SRWMD grant to address Steinhatchee flood issues.
- Questi[illegible]ns an[illegible]comm[illegible]nts.

Minutes

Ste[illegible]e Sprad[illegible]y call[illegible]d the meeting to order. He thanked everyone for attending. He also asked e[illegible]yone in at[illegible]ndance to introduce themselves.

The mi[illegible]tes[illegible]om the August 17, 2016 meeting were discussed. Dan Cassel, Taylor County Fire Chief[illegible]otioned to accept the minutes from the last meeting with a second from Jami Boothby, Taylor County Grants Coordinator. It was discussed that we will have two LMS meetings per year instead of four as we have had in the past years. S. Spradley, Taylor County EM Director stated that the LMS list will be sent to the state in January to be approved. We will update our LMS list and need to identify the priority. We should get mitigation monies due to the declaration of Hurricane Hermine.

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M. Schloss, FDEM stated that the LMS plan was last updated in 2015 for Taylor County. She asked if everyone has adopted Taylor County's LMS plan. K. Anderson stated that the LMS has been adopted by the Taylor County Commission and the City of Perry. S. Spradley asked if this was the appropriate venue to prioritize the list in which M. Schloss stated that it was. S. Spradley stated that we have since received a list of names of homes that need to be elevated and we will need to add them to the list. D. Ugrekhelidze, FDEM stated that he could work with engineering directly to get these projects moving forward. He also stated that any questions that we have can be answered by his Orlando office. S. Spradley stated that we are now in long term recovery and mitigation funds will be awarded to the counties that received declaration from Hurricane Hermine. Since we are declared now, we will be listed in Tier 1 for the funds which means that we will receive the first allowance of the funds. Taylor County has not applied for these funds mainly because there are so many engineering studies that must be done before the monies are awarded and our county does not have the man power. M. Infiorati, concerned citizen stated that she has been told by FDEM in Tallahassee that $60,000 is the maximum of funds allowed. D. Ugrekhelidze stated he is not sure about the $60,000 amount for raising homes and he will check on that. S. Spradley stated that if the Tier 1 counties do not use all of the money, then it will go to the Tier 2 and Tier 3. D. Ugrekhelidze stated to please consider submit for projects. S. Spradley asked if we could consolidate some of the projects in Tier 1 such as property elevation as 1. D. Ugrekhelidze advised that Taylor County should apply for an advance of the funds for engineering studies. Taylor County has five residents that are interested in raising their homes. S. Spradley asked if we have any of the repetitive loss list that have flooded twice. J. Boothby stated that we do and that we do have the addresses. It was discussed that we need to reach out to those that funding is becoming available in mitigation. Taylor County does not have a flood management plan. S. Spradley stated that with our CRS, we did not get more points because we do not have a flood plan. D. Ugrekhelidze let the committee know that his group is available to give presentations to communities that need more directions. He also stated that there are many people that can help with this process if you only ask. S. Spradley asked what the turnaround was for the HGMP process is. D. Ugrekhelidze said that it should be approximately 90 days with two to three years to complete the project. S. Spradley asked for a motion to build out the HMGP list separate. D. Cassel motioned and Victor Blanco seconded. M. Infiorati explained that many low income residents in Taylor County would not be able to meet the 75/25 portion.

With our January submittal to FDEM for the approved list will also have the LMS committee's recommendation for approval by the board since it all goes through the county. The funds will then be administered through our grants office. S. Spradley stated that the HMGP funding can be used for flood mitigation as well and asked if there are restrictions for funding? D. Ugrekhelidze stated that it can be used for any projects needed for the county. S. Spradley asked that the agenda and the minutes be sent to all the committee members. S. Spradley stated that FDEM did an engineering study for us in the area of River Avenue which is Flood 1 on the LMS projects list. A lot of the development in that area got in the natural flow. A plan from the engineering study will alleviate the flooding by putting in a storm drain and bury a 36 inch pipe and run discharge in the river over the hill. This is a simple project with our intent to fund this project through a SRWD grant. If it does not go through, we will have everything ready to send to HMGP. All property was developed without any storm water planning where 100 years ago there was a pond. D. Cassel stated that the area across from the fire station ideally should be a retention pond. S. Spradley stated that on 2nd Avenue there is a home that floods every time that it rains and we need to approach the owner to acquire the property for a retention pond. D. Ugrekhelidze stated that this property could be purchased through the HGMP grant with help to move her.

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J. Boothby stated that the RCMP grant covers roofs, doors, and shutters related to wind and . that it has to be a home and not a mobile home. It must be a site built home on a foundation. J. Boothby stated that we have completed the CRS and we are maintaining our rating of 7. That essentially gives us a 15% discount on flood insurance. S. Spradley stated that this is automated on your insurance declaration letter. He stated that the City of Perry did not opt into the CRS program which would have helped us with the rating.

We have learned that the set of ponds on River Avenue is owned by a doctor in Lake City which had intended to make it cat fish ponds and never did. Taylor County has to get an easement to put the drainage on their property in which we are meeting with them soon to discuss this.

S. Spradley stated that we are interested in the workshop offered by D. Ugrekhelidze to inform and instruct on the HGMP funding. M. Schloss stated that the team will be doing homes reviews of projects which can advise of improvements to applications. S. Spradley asked her if she can please check with the state and advise if secondary homes would qualify for these grants.

The meeting was adjourned by S. Spradley.

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Local Mitigation Strategy/LTR
December 2, 2016

NAME	ADDRESS	PHONE	EMAIL
Steve Spradley	EOC	838-357[illegible]	Steve.Spradley
Melissa Schloss	FDEM	850 6[illegible]6619	melissa.schloss@em.myflorida.com
David Ugrekhelidze	FDEM	[illegible]	david.ugrekhelidze@em.myflorida.com
Jami Boothby	BOCC	838-3553	grants.assist@taylorcountygov.com
Dan Casser	TCFR	838-3527	
Victor Blanco	TCEO	786-4499677	vicblan@gmail.com
Ben Mangum	TCPA	838-6857	TCPABENMANGUM@live.com
Meg Inforati	Community Emergency Response Team / CERT	371-1702	MEGIFL@YAHOO.com
Kristy Anderson	Taylor Co. EM	838.3575	Kristy.anderson@taylorcountygov.com

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Taylor County Emergency Management
850.838.3575

LMS Working Group
Taylor County Emergency Operations Center

April 11, 2017
10:00 – 11:00 AM

Meeting Agenda

- Review of Minutes from December 2, 2016 meeting
- Discuss HMGP Mitigation grant projects list
- Discuss any updates on work with Engineering to add storm water and drainage projects to LMS project list
- Questions and comments

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LMS Working Group
Taylor County Emergency Operations Center
April 11, 2017

Meeting Minutes

Attendance

Meeting Agenda

NAME	ORGANIZATION	PHONE	EMAIL
Steve Spradley	Taylor County EM	850-838-3575	steve.spradley@taylorcountygov.com
Jami Boothby	Taylor County Grants	850-838-3553	Grants.assist@taylorcountygov.com
Michael Fuller	Suwannee River Water Management	386-362-1001	mjf@srwmd.org
Kristy Anderson	Taylor County EM	850-838-3575	kristy.anderson@taylorcountygov.com
Dan Cassel	TCFR Chief	850-838-3522	ps.director@taylorcountygov.com
Eric Black	FFS	850-838-6013	Eric.black@freshfromflorida.com
Ed Ward	FDOT	386-961-7581	Edward@dot.state.fl.us
Abigail Bratcher	Taylor Building	850-838-3500	Building.Admin@taylorcountygov.com
Melody Cox	TCBOCC	850-838-3553	Grants.assist@taylorcountygov.com
Brian Bradshaw	FDEM	850-519-8653	Brian.bradshaw@em.myflorida.com
Jack Smith	FFS	850-838-5037	Jack.smith@freshfromflorida.com

AGENDA

- Review of minutes from the December 2, 2016
- Discuss HMGP Mitigation grant project list
- Discuss any updates to work with engineering to add storm water and drainage projects to LMS project list
- Questions and comments.

Minutes

Steve Spradley called the meeting to order.

The minutes from the December 2, 2016 meeting were discussed. He noted that this was our spring LMS meeting and also a necessary meeting to identify and prioritize projects for the Hazard Mitigation grant. Dan Cassel motioned to accept the minutes and Jami Boothby seconded the motion. S. Spradley noted that we have been noted as a certified LMS group through FEMA which was completed last year. With that being said the purpose of this projects list is to have items identified in case we do have the opportunity to get grant money for mitigation projects. This list is updated before every meeting. It is essentially the same list that was started several years ago with the initial LMS group. We will discuss this list and please let us know about updates. Our main issue today is the Hazard Mitigation grant program. He explained that after a disaster, FEMA allocates monies for those counties that were declared.

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We did receive IA and PA from Hurricane Hermine. The grant program will fix issues that are needed by the county. It is also a Tier process with Tier 1 being the counties that were impacted and officially eligible for the funds that were allocated from the state. Our allocation is 388,000 which is a 75/25 match. If any counties choose not to go for the money, we have the opportunity to compete for those monies. For today we are in Tier 1 which we have identified in our list. We have to prioritize our projects and identify which of these projects we would like to try to make application for. Since the money is limited and we do have private citizens who have approached us to elevate their homes, my suggestion is that we go forward with those. We can establish a Hurricane Hermine HMGP priority list after this meeting today. We will have a process to go through with the county commissioners to get approval for application in May. We had around 20 persons contact us for difference scopes from wanting us to rebuild seawalls to raising homes. Property acquisition is also an option that we could take with these funds but that option was turned down by those individuals in our county. Generators can be obtained for critical facilities. Fire Station 1 is in need of a permanent generator which will cost close to 40,000. Eric Black noted that Forestry can screen for a generator for fire stations and EOC's. Another place that comes to mind for a generator is Forest Capital Hall. There are many agencies in Taylor County that use Forest Capital Hall for their office space in time of disaster. S. Spradley noted that there is not a generator switch in the location either. Duke Energy will not place a generator in Forest Capital until major upgrades are made. Another location is the Steinhatchee Fire Station which is problematic in that of being in a flood zone. Eric Black noted that Forestry could get a mobile generator for that location. S. Spradley noted that we could rent a large semi type generator from the state if we had a transfer switch at Forest Capital Hall. It would take a generator like the one at the hospital. He asked that if we could apply for the generators at the two locations for transfer switches to keep cost down and locate generators from Forestry. We will not spend any money, but put in the application and identify what the money is for. It will then have to have an environmental study, engineering study with phase 1 screening. In phase 2 it will go to the spending monies. Taylor County will be the grant recipient and will front all of the monies and receive the monies back. M. Cox noted that she usually does a budget request for the upcoming spending of funds. She noted that we need to make sure that these home owners are truly committed on this so that we will not pass up on these monies. S. Spradley noted that some home owners will back out of the project he is sure. He noted that we will not be able to change midstream, so we will need to have the contracts signed. J. Boothby noted that none of these listed are repetitive loss locations. S. Spradley noted that the generator for Forest Capital Hall would cost more than $100,000. Eric Black noted that the generators will take a lot of cost for generator maintenance yearly. B. Bradshaw noted that we would most likely not need a generator of that size and there are many that can be obtained from the state in time of need. J. Smith noted that lightening loves all of generators and that should be taken into consideration. D. Cassel noted that it should go before raising homes since it is a critical need. E. Black noted that it would require a letterhead from the county and that he could find us excess equipment from forestry.

S. Spradley noted that opinion of raising homes is that the residents purchased the homes and should know. He noted that raising homes will help the community and the flood insurance program. It will also help the community rating system. 245,000 is the total for all homes that need to be lifted. S. Spradley noted that there is an inspection process involved with the home raising. He noted that EM will do all the leg work of the project and that the grants department can help with the paperwork portion. S. Spradley asked that we approve all home elevations contingent on matching funding verified.

A motion was made by J. Smith to put the generators at Forest Capital Hall is number 1 on the priority list. This was seconded by E. Black. E. Black motioned upgrades for the fire stations

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will be second on the priority list. J. Smith seconded the motion. After home elevations there is 142,000 left for generators. S. Spradley noted that we have storm water issues with engineering studies needed which we do not have enough staff to proceed. A motion was made for the home raising projects by D. Cassel to be the #1 priority and seconded by A. Bratcher. M. Cox stated we might rank the homes according to homestead exemption. M. Fuller stated that SRWM has a robust projects team and that we can send him a thorough list of what we would like to accomplish as far as drainage projects.

The meeting was adjourned by S. Spradley and he thanked all for attending. The next meeting will be announced by email distribution.

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LMS Working Group
April 11, 2017
Attendance

DRAFT PLAN

NAME	ORGANIZATION	PHONE	MAIL
ERIC BLACK	FLORIDA FOREST SERVICE	850-838-[illegible]	
Jack Smith	Florida Forest Service	[illegible]-838-5017	
ED WARD	FDOT	386-961-7581	ED.WARD@DOT.STATE.FL.US
[illegible]	EM	838.3575	
Brian Brackshaw	FDEM	850-519-8459	
Abigail Bratcher	Building Dept	8383508	building.tech@taylorcountygov
Michael Miller	Suwannee River Water Management	386.362.1001	MJF@srwmd.org
DAN CASSEL	TCBOCC	838-3522	
[illegible]	TCBOCC	838-3553	
Jami Boothby	TCBOCC	838-3553	grants.assist@taylorcountygov.c
Kristy Anderson	Taylor EM	838-3575	Kristy.anderson@taylorcountygov.com

Taylor County Emergency Management
850.838.3575

LMS Working Group
Taylor County Emergency Operations Center
November 8, 2017

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Steve Spradley	Taylor County EM	850-838-3575	steve.spradley@taylorcountyfl.com
Jami Boothby	Taylor County Grants	850-838-3553	Grants.assist@tay[illegible]
Kristy Anderson	Taylor County EM	850-838-3575	kristy.anderson@taylorcountygov.com
Dan Cassel	TCFR Chief	850-838-3522	ps.director@taylorcountygov.com
Brian Bradshaw	FDEM	850-519-8659	Brian.bradshaw@em.myflorida.com
Jack Smith	FFS	850-838-5037	jack.smith@freshfromflorida.com

AGENDA

- Review of minutes from the April 11, 2017.
- Discuss HMGP Mitigation grant project list
- Discuss any updates on work with engineering to add storm water and drainage projects to LMS project list
- Questions and comments

Minutes

Steve Spradley called the meeting to order.

The minutes from the April 11, 2017 meeting were discussed. Dan Cassel made a motion to approve the meeting minutes with a second by Jami Boothby. S. Spradley stated at this meeting we are going to update the LMS project list. Steve Spradley noted that the HMGP elevations were completed with the help of the grants department and we are awaiting final approval. The generator at Forest Capital Hall as well as the elevation of homes was approved in September and we are awaiting finalization from FEMA. Brian Bradshaw noted for HMGP for Hurricane Irma the focus will be buy out. Steve Spradley noted that we do not have the debris clean-up monies back from FEMA yet and our pier monies have not been received either. The debris monies however are in the final stages and we should receive it at any time. He stated that we have several projects on our list that need to be done, but will need the engineering study first.

Reviewing the LMS projects list, on Flood 3, it should be noted that in 2017 our CRS was approved as a 7 for the county. Flood 6 is up to date along with the CRS. Flood 7, in 2017 we received no additional repetitive loss properties. We will check for the LMS board with Big Bend Water about completing Phase 4 for Flood 9. On Flood 10, we have updated our debris contracts which will be Crowder Gulf with backup of Ceres and our debris monitor is Landfall

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Strategies. The company will come and pick up our debris after disasters and then the monitor will verify Crowder Gulf's work and submit our paperwork to FEMA. With Irma, we did not initiate our debris contracts. We did not feel like we had the debris necessary and that public works could pick up the debris.

Jack Smith asked if the county has any other property in Steinhatchee that can be used for a debris site. S. Spradley noted that on Sugar Mountain Road we have a contract with Four Rivers with acreage there. It is FEMA permissible to clear that land and use it, but that it must be put back the way that it was prior to use. D. Cassel asked if the county could purchase more land at the roll-off site at Steinhatchee. S. Spradley stated that on Flood 10, we will [illegible] suggest finding better locations for debris disposal.

Noted on All 2, we continue to promote business reentry and that we gave out [illegible] businesses tags during Hurricane Irma. S. Spradley noted that the residential reentry passes will expire in 2018 and we will address that at the time with renewals. [illegible] we will update that we had various drills this year. S. Spradley announced that we will have a full-scale exercise in February dealing with a hazardous spill. All 3, we have submitted a HMGP request for Forest Capital Hall. D. Cassel noted that he has requested two generators from forestry. Station 1 reclaiming a generator from our old hospital to be used. LMS board approved for the year 2017. D. Cassel motioned to adjourn the meeting with a second by J. Smith.

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LMS Working Group
November 8, 2017
10:00 AM Attendance

NAME	ORGANIZATION	PHONE	EMA
Kristy Anderson	EM - Taylor	838-3575	kristy.anderson@taylorcountygov.com
Steve Smathy	EM - Taylor		
Jack Smith	Florida Forest Service	[illegible]-5037	Jack.Smith@FreshfromFlorida.com
Dan Cassel	TCFR	838-3522	
Jami Boothby	Taylor Co. Grants	838-3553	grants.assist@taylorcountygov.com
Brian Bradshaw	FF	850 519-8635	Brian.Bradshaw@em.myFlorida.com

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LMS Working Group
Taylor County Emergency Operations Center

August 7, 2018
10:00 – 11:00 AM

Meeting Agenda

- Review of Minutes from November 8, 2017 meeting
- Discuss LMS project list – additions/deletions
- Update on home elevations project
- Update on Forest Capital Hall Generator project
- Questions and comments

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LMS Working Group
Taylor County Emergency Operations Center
August 7, 2018

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Chuck Mincy	Taylor County Sheriff	850-838-3575	Chuck.mincy@taylorsheriff.org
Deidra Dunnell	FFS	850-223-0784	Deidra.dunnell@freshfromflorida.com
Kristy Anderson	Taylor County EM	850-838-3575	kristy.anderson@taylorcountygov.com
Dan Cassel	TCFR Chief	850-838-3522	ps.director@taylorcountygov.com
Brian Bradshaw	FDEM	850-519-8659	Brian.bradshaw@em.myflorida.com
Jack Smith	FFS	850-838-5037	Jack.smith@freshfromflorida.com
Chris Dougherty	FFS	850-223-0751	Christopher.dougherty@freshfromflorida.com
Clay Register	FFS	850-509-1129	Clayton.register@freshfromflorida.com

AGENDA

- Review of minutes from the November 8, 201
- Discuss HMGP Mitigation grant project lis
- Discussion of addition of FFS project.
- Questions and comments.

Minutes

Chuck Mincy, LMS Chair deferr this fi t mee g to Kristy Anderson, Assit. Chair.

The minutes from the November 17 meeting were discussed. Jack Smith made a motion to approve the minutes wit a se nd m Dan Cassel. Jack Smith noted that he wished to discuss the Bell Tow Woods Co mun y for mitigation projects. He noted that the community is in danger of fires a could use re lines to help mitigate this situation. He also stated that road widening could als help an signage. He noted that Fire 4, education is something that forestry carries throughout ear and can continue on the list. He stated that he wanted to add the Bell Town to access grant funding. Chuck Mincy asked how many residents are in this community. Jack Smith noted there is 1 at this time and others area there mostly during hunting season and that no utility services are going into this community. Chuck Mincy asked if this project would improve the communities' access. Jack Smith noted that he is mostly concerned to improve for fire breaks. He stated that a fire truck cannot access this property. Dan Cassel noted that he had no additions/deletions to the list.

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K,. Anderson noted that the HMGP generator was approved last evening at the Taylor County Commission board meeting. Forest Capital Hall is used for sheltering and she noted the importance of having this generator installed. After approval last evening this project should move very swiftly.

Chuck Mincy asked if we can add a floating dock to the area of Robert Sodousky's for emergency access to the LMS list. Brian Bradshaw stated that we should focus on larger projects which would benefit mitigation. D. Cassel noted that it most likely could be added as a county capital project. B. Bradshaw asked how many times the pier has been washed out and we should look at this as a repetitive loss issue and you would need to look at where you are building it.

D. Dunnell asked if the Bell Tower community access could be added to the LMS[illegible] Jack Smith noted that we would be looking at law suits because it is private property. H[illegible] stated th[illegible] the community would need to ask permission from Four Rivers. K. Anderson asked if [illegible]restry met with Madison EM and D. Dunnell stated she did and they would be wi[illegible] come t[illegible]he table and assist.

K. Anderson also stated that the HMGP elevation project was discussed at th[illegible] Taylor County Commission meeting last evening. Four bids were sent out and [illegible]o projects w[illegible]re bid on. The total grant project is $173,0516. We are going to try to el[illegible] the [illegible]o hom[illegible] and approval of a consultant to manage the bids. Updates will be given [illegible]uture [illegible]eeti[illegible]

Jack Smith noted that Flood 6 and Flood 7 should be loc[illegible]at with priority.

The meeting was adjourned with a motion b[illegible]. Cassel and a[illegible]econd from D. Dunnell.

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LMS Working Group
August 7, 2018
Attendance

NAME	Organization	Phone	Email
Brian Bradshaw	FDEM	850-519-8639	Brian.Bradshaw@em.myfloridacfo.com
Kristy Anderson	EM	850-843-4034	Kristy.anderson@taylorsheriff.org
Deidra Dunnell	FFS	850-223-0784	deidra.dunnell@freshfromflorida.com
Chris Dougherty	FFS	850-[illegible]-8151	Christopher.Dougherty@freshfromflorida.com
Jack Smith	FFS	850-838-[illegible]037	Jack.Smith@Freshfrom Florida.com
Clay Register	FFS	850-509-1129	Clayton.register@Freshfrom Florida.com
DAN CASSEL	TCFR	850-838-3522	DCASSEL@TAYLORCOUNTYGOV.COM

DRAFT PLAN

LMS Working Group
Taylor County Emergency Operations Center

December 4, 2018
10:00 – 11:00 AM

Meeting Agenda

- Review minutes from the August 8, 2018 LMS meeting.
- Provide update on current HMGP elevation and generator grants.
- Discuss recurrent flooding properties for possible addition to the LMS project list.
- Discuss possible addition of Bell Town area/Forestry as this was not voted on at the last meeting, only discussed.
- Update LMS project list for the January submission to the state.
- Questions and comments.

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LMS Working Group
Taylor County Emergency Operations Center
December 4, 2018

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Deidra Dunnell	FFS	850-223-0784	Deidra.dunnell@[illegible]com
Kristy Anderson	Taylor County EM	850-838-3575	kristy.anderson@taylor[illegible]ntygov.com
Dan Cassel	TCFR Chief	850-838-3522	ps.director@tay[illegible]v.com
Brian Bradshaw	FDEM	850-519-8659	Brian.bradsh[illegible]em.myflorida.com
Jack Smith	FFS	850-838-5037	[illegible]ack.smith@fr[illegible]hfromflorida.com
Eddie Cullaro	Building/Planning	850-838-3500	Bu[illegible]ing.tech@taylorcountygov.com
Taylor Brown	City of Perry	850-584-[illegible]67	[illegible]rown@cityofperry.net
Gary Wambolt	TCBCC	850-672-[illegible]13	Solid.waste@taylorcountygov.com
Melissa Schloss	FDEM	850-694-6619	Melissa.schloss@em.myflorida.com
Steve Spradley	Citizen	850-672-1004	Steve.spradley@gmail.com
Ed Ward	DOT	[illegible]-961-7581	Ed.ward@dot.state.fl.us
James Cruse	City of Perry [illegible]ice	850-[illegible]-1606	Jamie.cruse@perrypolice.net

AGENDA

- Review minutes fro[illegible] the Au[illegible]st 8, 2018 LMS meeting.
- Provide [illegible]pda[illegible]on cu[illegible]ent HMGP elevation and generator grant.
- Discu[illegible]s recu[illegible]nt floo[illegible]ng properties for possible addition to the LMS project list.
- Discu[illegible]possible a[illegible]tion of Bell Town area/Florida Forest Service as this was not voted [illegible]t the [illegible]st meeting, only discussed.
- Upda[illegible] LM[illegible]roject list for the January submission to the state.
- Questio[illegible]s and comments.

Minutes

K. Anderson, assistant chair called the meeting to order. All present were introduced and K. Anderson thanked all for attending. Melissa Schloss gave a brief Power Point presentation of the mitigation process to all present.

The minutes from the August 7, 2018 were reviewed. Dan Cassel motioned to approve the minutes with a second by Jack Smith.

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K. Anderson noted that the county is experiencing flooding due to extensive rain totals recently. She noted that Dulin Lane is one of these such properties. She asked Steve Spradley to expound on this property as he has had many dealings with it in the past. One of the homeowners has contacted emergency management to see if any assistance is available. S. Spradley stated that there is no property damage and do the homeowner does not have flood insurance disqualifying them from the repetitive loss process. We would hope they would qualify for relocation or demolition. He stated that the county pumped the area under a local state of emergency and the water is back again. Brian Bradshaw asked if buyout would be an option. S. Spradley stated that we could build up the road, but there is no area to send the water. D. Cassel stated that the best option would be buyout. S. Spradley stated that the county most likely would not have the funds for this option at this time. S. Spradley stated that the county engineer has been to the property multiple times and sees the only option is buyout. S. Spradley noted that the permit procedure should be looked at for not permitting to areas such as these. Eddie Cullaro noted that they have to build above flood level for a permit to be processed. Dulin Lane is not in a flood zone. Dulin Lane will be added to flood #11.

K. Anderson advised the group of the need to vote on the Bell Town area and asked Jack Smith/Deidra Dunnell to explain to the group. Jack Smith noted that the Bell Town woods location is one of these areas with no electricity and homes are powered by generator or solar. It takes an hour to get to the area by Highway 53 in the back. He is asking that we add the area for possible mitigation for access for fire suppression. He stated that this is about county fire, EMS, and forestry having an access to the area in case of emergency. With improving the roads, the fire breaks will be better. D. Dunnell noted that they have taken their mitigation team out to the location to assess. S. Spradley noted that there are multiple other properties in Taylor County that could also use help, finding this out during the most recent local state of emergency. D. Cassell asked if Suwannee River has been contacted and J. Smith reported no. This area will be added to our project list for possible mitigation measures.

K. Anderson will email Chester McAfee from the City of Perry to update their submissions on the projects list.

K. Anderson reported that the HMGP generator purchase order was completed and submitted to Ring Power and the project should begin soon to meet the 6/19 deadline. K. Anderson also stated that the HMGP elevation project is on target to be completed by December of 2019.

K. Anderson noted that she would update the projects list and submit to the state by the January 31, 2019 deadline.

The meeting was adjourned with a motion by D. Cassel and a second from D. Dunnell.

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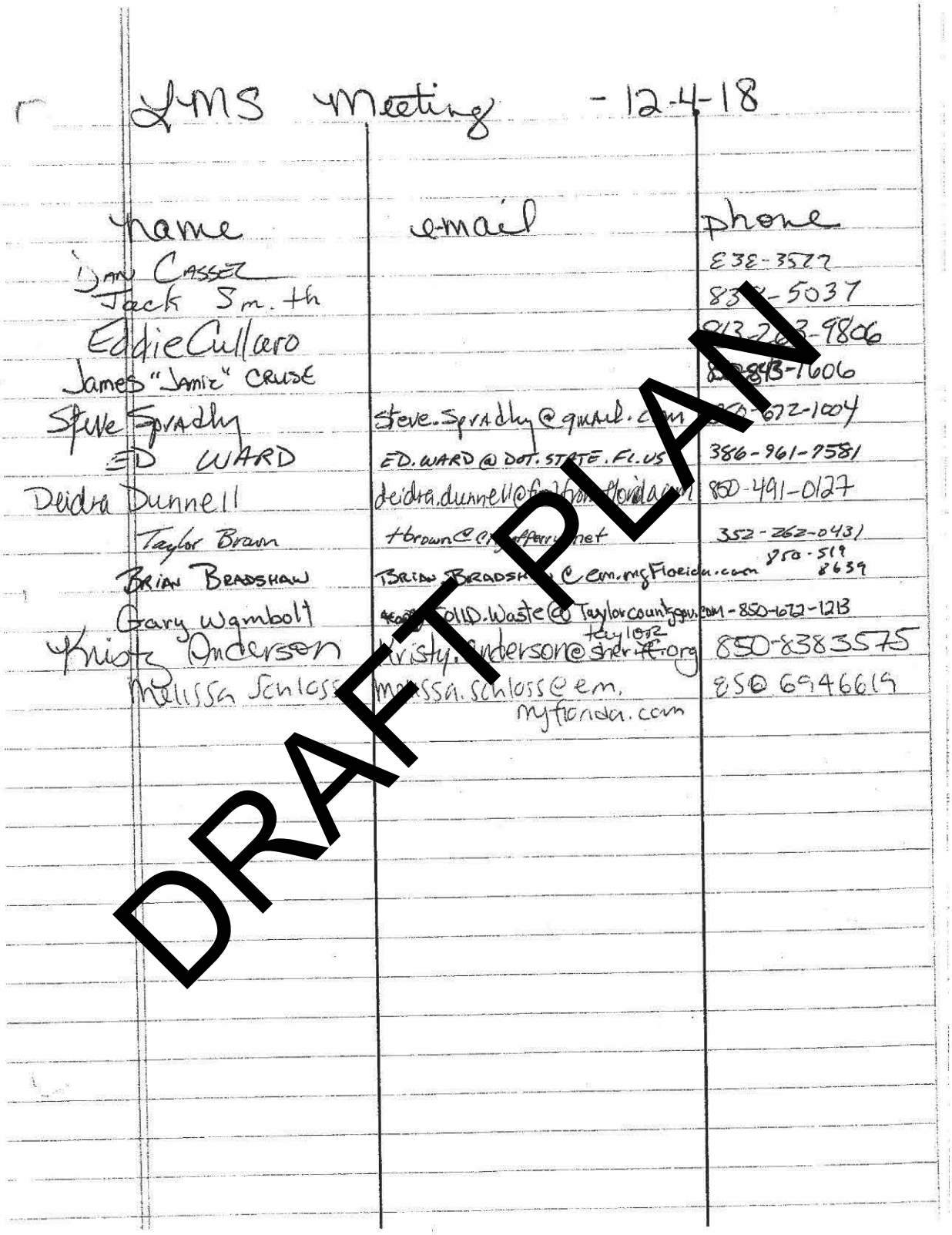

LMS Meeting - 12-4-18

name	e-mail	phone
Jim Casser		838-3577
Jack Smith		838-5037
Eddie Cullaro		913-2[illegible]-9806
James "Jamie" Cruse		8[illegible]843-1606
Steve Spradly	steve.spradly@quark.com	[illegible]672-1004
ED WARD	ED.WARD@DOT.STATE.FL.US	386-961-7581
Deidra Dunnell	deidra.dunnell@[illegible]floridaem	850-491-0127
Taylor Brown	tbrown@[illegible]net	352-262-0431
BRIAN BRADSHAW	BRIAN.BRADSH[illegible]@em.myFlorida.com	850-519-8639
Gary Wamboldt	SOLID.Waste@Taylorcountygov.com	850-672-1213
Kristy Anderson	kristy.anderson@taylorschools.org	850-8383575
Melissa Schloss	melissa.schloss@em.myflorida.com	850 6946619

DRAFT PLAN

LMS Working Group
Taylor County Emergency Operations Center

May 21, 2019 10:00 – 11:00 AM

Meeting Agenda

- Review minutes from the December 4, 2018 LMS meeting.
- Provide update on current HMGP elevation and generator grants.
- CRS Submission
- Hurricane Season
- Questions and comments.

DRAFT PLAN

LMS Working Group
Taylor County Emergency Operations Center
December 4, 2018

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Deidra Dunnell	FFS	850-223-0784	Deidra.dunnell@f[illegible]com
Kristy Anderson	Taylor County EM	850-838-3575	kristy.anderson@taylo[illegible]ntygov.com
Dan Cassel	TCFR Chief	850-838-3522	ps.director@[illegible]y.com
Brian Bradshaw	FDEM	850-519-8659	Brian.bradsha[illegible]orida.com
Jack Smith	FFS	850-838-5037	Jack.smith@fr[illegible]hfromflorida.com
Eddie Cullaro	Building/Planning	850-838-3500	Bu[illegible]ng.tech@t[illegible]ylorcountygov.com
Taylor Brown	City of Perry	850-584-71[illegible]	[illegible]perry.net
Gary Wambolt	TCBCC	850-672-[illegible]13	Solid.waste@taylorcountygov.com
Melissa Schloss	FDEM	850-694-661[illegible]	Melissa.schloss@em.myflorida.com
Steve Spradley	Citizen	850-672-1004	steve.spradley@gmail.com
Ed Ward	DOT	[illegible]-961-7581	Ed.ward@dot.state.fl.us
James Cruse	City of Perry P[illegible]ce	850-[illegible]-1606	Jamie.cruse@perrypolice.net

AGENDA

- Review minutes fro[illegible] th[illegible]t 8, 2018 LMS meeting.
- Provide [illegible]on cu[illegible]ent HMGP elevation and generator grant.
- Discu[illegible] recur[illegible]nt floo[illegible]ng properties for possible addition to the LMS project list.
- Discu[illegible] pos[illegible]ion of Bell Town area/Florida Forest Service as this was not voted [illegible] the [illegible]t meeting, only discussed.
- Upda[illegible] LM[illegible]roject list for the January submission to the state.
- Questio[illegible]s and comments.

Minutes

K. Anderson, assistant chair called the meeting to order. All present were introduced and K. Anderson thanked all for attending. Melissa Schloss gave a brief Power Point presentation of the mitigation process to all present.

The minutes from the August 7, 2018 were reviewed. Dan Cassel motioned to approve the minutes with a second by Jack Smith.

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K. Anderson noted that the county is experiencing flooding due to extensive rain totals recently. She noted that Dulin Lane is one of these such properties. She asked Steve Spradley to expound on this property as he has had many dealings with it in the past. One of the homeowners has contacted emergency management to see if any assistance is available. S. Spradley stated that there is no property damage and do the homeowner does not have flood insurance disqualifying them from the repetitive loss process. We would hope they would qualify for relocation or demolition. He stated that the county pumped the area under a local state of emergency and the water is back again. Brian Bradshaw asked if buyout would be an option. S. Spradley stated that we could build up the road, but there is no area to send the water. D. Cassel stated that the best option would be buyout. S. Spradley stated that the county most likely would not have the funds for this option at this time. S. Spradley stated that the county engineer has been to the property multiple times and sees the only option is buyout. B. Bradshaw noted that the permit procedure should be looked at for not permitting to areas such as these. Eddie Cullaro noted that they have to build above flood level for a permit to be processed. Dulin Lane is not in a flood zone. Dulin Lane will be added to flood #11.

K. Anderson advised the group of the need to vote on the Bell Town area and asked Jack Smith/Deidra Dunnell to explain to the group. Jack Smith noted that the Bell Town woods location is one of these areas with no electricity and homes are powered by generator or solar. It takes an hour to get to the area by Highway 53 in the dirt track. He is asking that we add the area for possible mitigation for access for fire suppression. He stated that this is about county fire, EMS, and forestry having an access to the area in case of emergency. With improving the roads, the fire breaks will be better. D. Dunnell noted that they have taken their mitigation team out to the location to assess. S. Spradley noted that there are multiple other properties in Taylor County that could also use help, finding that out during the most recent local state of emergency. D. Cassell asked if Suwannee River has been contacted and J. Smith reported no. This area will be added to our project list for possible mitigation measures.

K. Anderson will email Chester McAfee from the City of Perry to update their submissions on the projects list.

K. Anderson reported that the HMGP generator purchase order was completed and submitted to Ring Power and the project should begin soon to meet the 6/19 deadline. K. Anderson also stated that the HMGP elevation project is on target to be completed by December of 2019.

K. Anderson noted that she would update the projects list and submit to the state by the January 31, 2019 deadline.

The meeting was adjourned with a motion by D. Cassel and a second from D. Dunnell.

DRAFT PLAN

LMS Working Group
May 21, 2019
10:00 AM Attendance

NAME	ORGANIZATION	PHONE	EMA
Eddie Cullaro	CRS Coordinator	850-838-3	...ding.Tech@Taylorcounty.gov.com
Jamie Cruse	Perry PD	[illegible]-1606	Jamie.Cruse@PerryPolice.net
Taylor Brown	City of Perry	[illegible]-7161	tbrown@CityofPerry.net
Gene Franklin	Perry PD	843-2345	Gene.franklin@PerryPolice.net
Heather Jensen	TCBOC (Env. Serv.)	843-7985	heather.jensen@taylorcounty.gov.com
Hope Taylor	Taylor County Sheriffs Office	843-2239	hope.taylor@taylorsheriff.org
Deidra Dunnell	FFS	8504910127	deidra.dunnell@freshfromflorida.com
Tracy Walker	DOH-Taylor	850-672-0122	tracy.walker@flhealth.gov
Kristy Anderson	TCSO-EM	843-4834	Kristy.anderson@taylorsheriff.org

DRAFT PLAN

LMS Working Group
Taylor County Emergency Operations Center

September 19, 2019
10:00 – 11:00 AM

Meeting Agenda

- Review of Minutes from May 21, 2019 meeting
- Discuss post Steinhatchee flood and identified projects resulting from flood event. (State mitigation will join via conference line)
- Discuss any updates on work with Engineering for storm water and drainage projects on LMS project list
- Hurricane Season 2019
- Provide Update on current HMGP generator and elevation grant
- Questions and comments

DRAFT PLAN

LMS Working Group
Taylor County Emergency Operations Center
May 21, 2019

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Deidra Dunnell	FFS	850-223-0784	Deidra.dunnell@freshfrom[illegible]ida.com
Kristy Anderson	TCSO EM	850-838-3575	kristy.anderson@ta[illegible]
Gene Franklin	City of Perry Police	843-2345	Gene.franklin@perrypo[illegible].net
Heather Jensen	TCBOCC	843-7985	Heather.jens[illegible]@[illegible]gov.com
Tracy Walker	DOH	672-0122	Tracy.walker[illegible]ealth.gov
Eddie Cullaro	Building/Planning	850-838-3500	[illegible]uilding.tech@[illegible]aylorcountygov.com
Taylor Brown	City of Perry	850-584-7167	tbr[illegible]n@city[illegible]erry.net
Hope Taylor	TCSO – Dispatch	843-223[illegible]	[illegible]ope.t[illegible]@taylorsheriff.org
James Cruse	City of Perry Police	850-843-[illegible]6	Jamie.cruse@perrypolice.net

AGENDA

- Review minutes from the [illegible]ecember 4, 20[illegible] LMS meeting.
- Provide update on curre[illegible] HMG[illegible] elevation and generator grant.
- CRS Submission
- Hurricane Seaso[illegible]
- Questions and co[illegible]men[illegible]

Minutes

K. Anderso[illegible] Chai[illegible]d the meeting to order. All present were introduced and K. Anderson thanked all for [illegible]nding.

Th[illegible] minutes [illegible]om t[illegible] December 4, 2018 were reviewed. Taylor Brown motioned to approve the mi[illegible]tes with a [illegible]econd by Deidra Dunnell.

K. And[illegible]on [illegible]advised all that the generator project should be completed soon at Capital Hall. The gene[illegible]ator was purchased through the HMGP grant funds which Taylor County received after Hurricane Hermine. This project was voted on by the LMS group in the past to receive funds. Forest Capital Hall has been used for sheltering in the past. Forest Capital Hall is also the COOP location for the court house and many other county buildings if needed. The FCG generator grant completion date is June 11, 2019.

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K. Anderson gave updates on the HMGP elevation project. She noted that one house of the two has been completed and the remaining will be completed soon. The contractor for the project, Rudy Blanco has submitted all documents required in a timely manner. The completion for the elevation project is December 19, 2019. All documents on both grants will be sent to the state for reimbursement after completion emergency management. Taylor County will be receiving additional HGMP funding for Hurricane Michael in the near future and we will discuss at our next LMS meeting.

Eddie Cullaro advised the group that he has submitted his yearly CRS study for Taylor County. He noted that this report, which works on a points system, will hopefully decrease property owners flood insurance rates. He noted that he works with emergency management and other departments to collect information for this report.

K. Anderson noted that hurricane season is just around the corner. She advised that EM will be training pertinent staff that house the EOC during storms on the ins and outs required. The advisory meeting will take place on June 24, 2019. She also advised that she had just returned from the Governor's Hurricane Conference in West Palm which was a very organized and informational event. She also thanked all that have helped with coordination and response during past storms.

The group once again reviewed the LMS project list for Taylor County which was sent to the State of Florida in January. Taylor Brown noted that the city will review their projects on the list and advise at the next meeting if they wish to try to proceed with their stated projects when grant monies become available.

The meeting was adjourned with a motion by Heather Jensen and a second from Tracy Walker.

DRAFT PLAN

LMS WORKING GROUP
September 19, 2019
Attendance

NAME	PHONE	DEPARTMENT
Kristy Anderson	843-4834	TCSO-EM
Hank Ewon	838-3528	Public Works
Gary Wamboldt	672-1213	Solid Waste
KENNETH DUDLEY	850 838 3500	ENGINEERING
Tracy Walker	672-	DOH-Taylor
Deidra Dunnell	491-	FFS
JON MCCLELLAN	843 18[illegible]4	FFS
Heather Jensen	8[illegible]3-7985	TC BOCC
Taylor Brown	584-7161	Perry
Chester mcafee	584-7161	PUBLIC WORKS
Sami Bookhout	838-3553	TC BOCC Grants

DRAFT PLAN

LMS WORKING GROUP
September 19, 2019
Attendance

NAME	PHONE	DEPARTMENT
DAN CLASSEC		T OF F
LAWANDA PEMBERTON		T.C. ADMIN

DRAFT PLAN

Taylor County Sheriff's Office – Division of Emergency Management
850.838.3575

LMS Working Group
Taylor County Emergency Operations Center

December 9, 2019
10:00 – 11:00 AM

Meeting Agenda

- Review of Minutes from September 19, 2019 meeting
- Provide Update on current HMGP generator and elevation grants
- Discuss annual LMS update due to the state January 31, 2020
- Discuss Taylor County LMS Update
- Discuss Hurricane Michael HMGP funding available for Taylor County. Deadline March 10, 2020.
- Questions and comments

DRAFT PLAN

LMS Working Group
Taylor County Emergency Operations Center
September 19, 2019

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Deidra Dunnell	FFS	850-223-0784	Deidra.dunnell@freshfrom[illegible]ida.com
Kristy Anderson	TCSO EM	850-838-3575	kristy.anderson@ta[illegible]m
Hank Evans	TCBCC	838-3528	Publicworks.director@ta[illegible]orcountygov.com
Heather Jensen	TCBCC	843-7985	Heather.jens[illegible]@[illegible]orcoun[illegible]gov.com
Tracy Walker	DOH	672-0122	Tracy.walker[illegible]f[illegible]ealth.gov
Kenneth Dudley	TCBCC	838-3500	[illegible]ounty.engine[illegible]@taylorcountygov.com
Taylor Brown	City of Perry	850-584-7167	tbr[illegible]n@cityof[illegible]erry.net
Jon McClellan	FFS	843-1874	
Chester McAfee	City of Perry	584-7161	cmcafee@cityofperry.net
Lawanda Pemberton	TCBCC	[illegible]8-3500	lpemberton@taylorcountygov.com
Jami Boothby	TCBCC Grants	838-3553	grants.coordinator@taylorcountygov.com
Dan Cassel	TCBCC Fire	[illegible]3522	Ps.director@taylorcountygov.com
Gary Wambolt	TCBCC Soli[illegible]Waste	672-[illegible]3	Gary.wambolt@taylorcountygov.com

AGENDA

- Review minutes fr[illegible] May 21, 2019 LMS meeting.
- Discuss[illegible]ost [illegible]einha[illegible]hee flood and identified projects resulting from the flood event. (Stat[illegible]mitiga[illegible]n will [illegible]in via conference line)
- Discu[illegible]a[illegible] [illegible]updat[illegible]on work with Taylor County Engineering for storm water and [illegible]age [illegible]ojects on LMS project list.

  Hurri[illegible]ne se[illegible]son 2019

  Provide[illegible]pdate on current HMGP generator and elevation grants
- Questi[illegible]s and comments

Minutes

K. Anderson, LMS Chair called the meeting to order. All present introduced themselves and were thanked for attending.

The minutes from the May 21, meeting were reviewed. Dan Cassel motioned to approve the minutes with a second by Chester McAfee.

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L. Pemberton explained to the committee that Taylor County worked diligently during the recent flood event to alleviate flood waters. She noted it was the same area that has flooded in past years. She thanked county staff for their assistance during that time. She advised the all present that the county now has pumps on hand to use for future flooding. She noted that several citizens have voiced concerns over drainage.

K. Anderson informed all present that Hurricane Michael HMGP Notice of Funding has been received and that Taylor County has been allotted $2,787,971.95 to use for LMS mitigation projects. K. Anderson advised the group that DEM Mitigation will be joining the meeting via conference all now. Laura Waterman, Mitigation Planning Manager explained the mitigation program to all in attendance. She noted that the deadline for submission will be March 10, 2020 for county applications for the program. She noted that a 25% match would be required for each project. The committee reviewed all projects on the list and chose the flooding issues in the county to be a top priority. K. Dudley, engineer will continue to assess the flooding situation and advise administration of the best plan of action. K. Anderson advised that there will be workshops in the near future to give further instruction for the application process. Hank Evans also noted that the public works department could use a generator as an "essential" building during storms while his department in on call.

K. Dudley advised the committee that another option would be property acquisition resulting in a possible settlement pond area in the neighborhoods affected by flooding in Steinhatchee. Further investigation and studies will need to be completed on the flooding issue.

K. Anderson noted that we have been very lucky this hurricane season, but advised that it is not over yet. She thanked all staff for working together during every activation of the EOC.

K. Anderson advised that the Forest Capital Hall generator project is complete and has been sent to the state for reimbursement. The reimbursement amount is $72,544.43 which is 75% of the total project. She also stated that the elevation projects are nearing completion and then will be submitted to the state for reimbursement.

K. Anderson noted that the LMS project list will need to be updated again for state submission in early January 2020 along with the yearly LMS county report. On a side note she advised that the Taylor County Local Mitigation Strategy will also be updated and due to the state in 2020.

The meeting was adjourned with a motion by Gary Wambolt and second from Hank Evans.

DRAFT PLAN

LMS Working Group
Taylor County Emergency Operations Center
December 9, 2019

Meeting Minutes

Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Travis Pike	FFS	223-0784	Travis.pike@FDACS.gov
Kristy Anderson	TCSO EM	850-838-3575	kristy.anderson@t[illegible]om
Jack Smith	FFS	223-0784	Jack.smith@FDACS.[illegible]
Bruce Wimberley	TCSO	838-3575	Bruce.wimb[illegible]aylorsh[illegible]f.org
Ed Ward	FDOT	386-961-7581	Edward@do[illegible].fl.us
Kenneth Dudley	TCBCC	838-3500	[illegible]ounty.engine[illegible]r@taylorcountygov.com
Taylor Brown	City of Perry	850-584-7167	tb[illegible]wn@cityofperry.net
Rachel Higgs	Jason Shoaff's Office	843-0416	[illegible]ache[illegible]s@myfloridahouse.gov
Shawna Beach	Taylor Property App.	843-5284	
Lawanda Pemberton	TCBCC	[illegible]38-3500	lpemberton@taylorcountygov.com
Brian Bradshaw	FDEM	850-5198639	Brian.bradshaw@em.myflorida.com
Dan Cassel	TCBCC Fire	[illegible]3-3522	Ps.director@taylorcountygov.com
Gary Wambolt	TCBCC Soli[illegible]Waste	672-[illegible]13	Gary.wambolt@taylorcountygov.com

DRAFT PLAN

AGENDA

- Review of the min[illegible]es from the September 19, 2019 meeting
- Provide [illegible]pda[illegible] on c[illegible]rent HMGP generator and elevation grants
- Dis[illegible]s annu[illegible] LMS [illegible]pdate due to the state January 31, 2020
- Discu[illegible] T[illegible]lor C[illegible]y LMS Update
- [illegible]uss [illegible]urricane Michael HMGP funding available for Taylor County. Deadline is Marc[illegible]10, [illegible]20
- Questi[illegible]s and comments

Minutes

K. Anderson, LMS Chair called the meeting to order. All present introduced themselves and were thanked for attending.

The minutes from the September 19, 2019 meeting were reviewed. Dan Cassel motioned to approve the minutes with a second by Gary Wambolt.

K. Anderson informed those present that the generator grant has been closed out with the county receiving their reimbursement with no issues. She also stated that the two homes that were elevated have been completed. Reimbursement paperwork has been completed and sent to the state. She also noted this was a very smooth process to work on along with the state mitigation team.

K. Anderson noted that the yearly LMS Update will be submitted to the state by the due date of January 31, 2020. This is first presented to the Taylor County Board of County Commissioners for their approval. She asked the group to also see the attached Annual Progress Report that must be completed. Some of the items that must be submitted with this report are notification to the public of LMS meetings, invitations to partnering agencies, minutes, and agendas from throughout the previous year.

K. Anderson asked that all please review the attached LMS 2019 list and advise of any issues that they see. Kenneth Dudley, County Engineer noted that item Flood #4 could be removed because floodplain data and maps have been incorporated into GIS. He also noted that he believes that Flood #6 could be grouped together with Flood #11 since it is dealing with repetitive loss locations. Jack Smith with FFS suggested removing Fire #1 due to this was going to be an ongoing issue that will never be resolved. His team will work as they always do on mitigation, especially educating the public on fire awareness. K. Anderson noted that she thought we also remove Wind #1 since all shelters are storm ready and do not require strengthening. All in attendance were in favor of the changes. K. Anderson noted that she will make the changes and present to the members in the near future.

K. Anderson informed all present that Hurricane Michael HMGP Notice of Funding has been received and that Taylor County has been awarded $2,787,971.95 to use for LMS mitigation projects. K. Anderson introduced Brian Bradshaw, DEM Regional Coordinator who has a great wealth of knowledge concerning the HMGP procedure. K. Anderson asked the group what projects from the LMS list should be approached with this funding. K. Anderson noted that a 25% match would be necessary for each project. The committee reviewed all projects on the list and chose the flooding issues in the county to be a top priority. K. Dudley, engineer will continue to assess the flooding situations and advise administration of the best plan of action. K. Anderson advised that there will be workshops in the near future to give further instruction for the application process. Dan Cassel noted that Taylor County Fire could use two generators, one at the Keaton Beach station and another at the Steinhatchee station. Hank Evans once again noted that a generator would be beneficial at the road department in times that his staff is on call during a disaster. K. Anderson advised that the Taylor County Sheriff's Office inquired about a new generator at the Taylor County Jail capable of running the entire jail in case of power outage.

K. Dudley advised the committee that another option would be property acquisition resulting in a possible settlement pond area in the neighborhoods affected by flooding in Steinhatchee. B. Bradshaw noted that with acquisitions, first you need home owner buy-in. He also noted that appraisals and fair market value would also be considered. L. Pemberton advised the group that the Army Corp of Engineers will be meeting with Taylor County staff in the near future to try to help figure out a solution. She also noted that staff will be speaking with Suwannee River about the recurrent flooding. K. Anderson noted that these monies can be used for countywide flooding as stated on the LMS list.

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K. Anderson stated that there will be an HMGP grant workshop taking place in Taylor County at the first of year and she will send out a meeting notice to those interested parties. She also noted that workshops will also be taking place in neighboring counties if anyone wishes to attend those.

The meeting was adjourned with a motion by Jack Smith and second from Ed Ward.

DRAFT PLAN

LMS Working Group
December 9, 2019
10:00 AM
Attendance

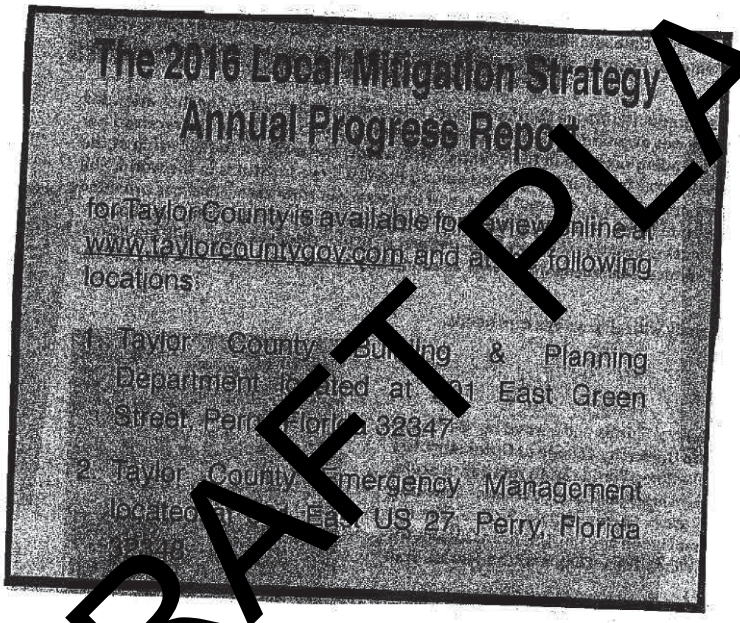
NAME	ORGANIZATION	PHONE	EMAIL
Krista Anderson	TCSO - EM	843-4834	krista.anderson@taylorsheriff.org
Bruce Wimberley	TCSO - EM	688-4197	Bruce.Wimberley@TaylorSheriff.org
Dan Casseo	TCFR	[illegible]	
Jack Smith	FFS	838-5037	Jack.Smith@FDACS.gov
Travis Pike	FFS	223-0784	Travis.Pike@FDACS.gov
ED WARD	FDOT	386-961-7581	ED.WARD@DOT.STATE.FL.US
KENNETH DOOLEY	Taylor County	850 838 3500 x4	COUNTY.ENGINEER@TaylorCountygov.com
Gary Wamble	Taylor County	850-72-1213	
Rachel Higgs	House Rep. Jason Shoaf	850 843 0416	rachel.higgs@myflovidahouse.gov

DRAFT PLAN

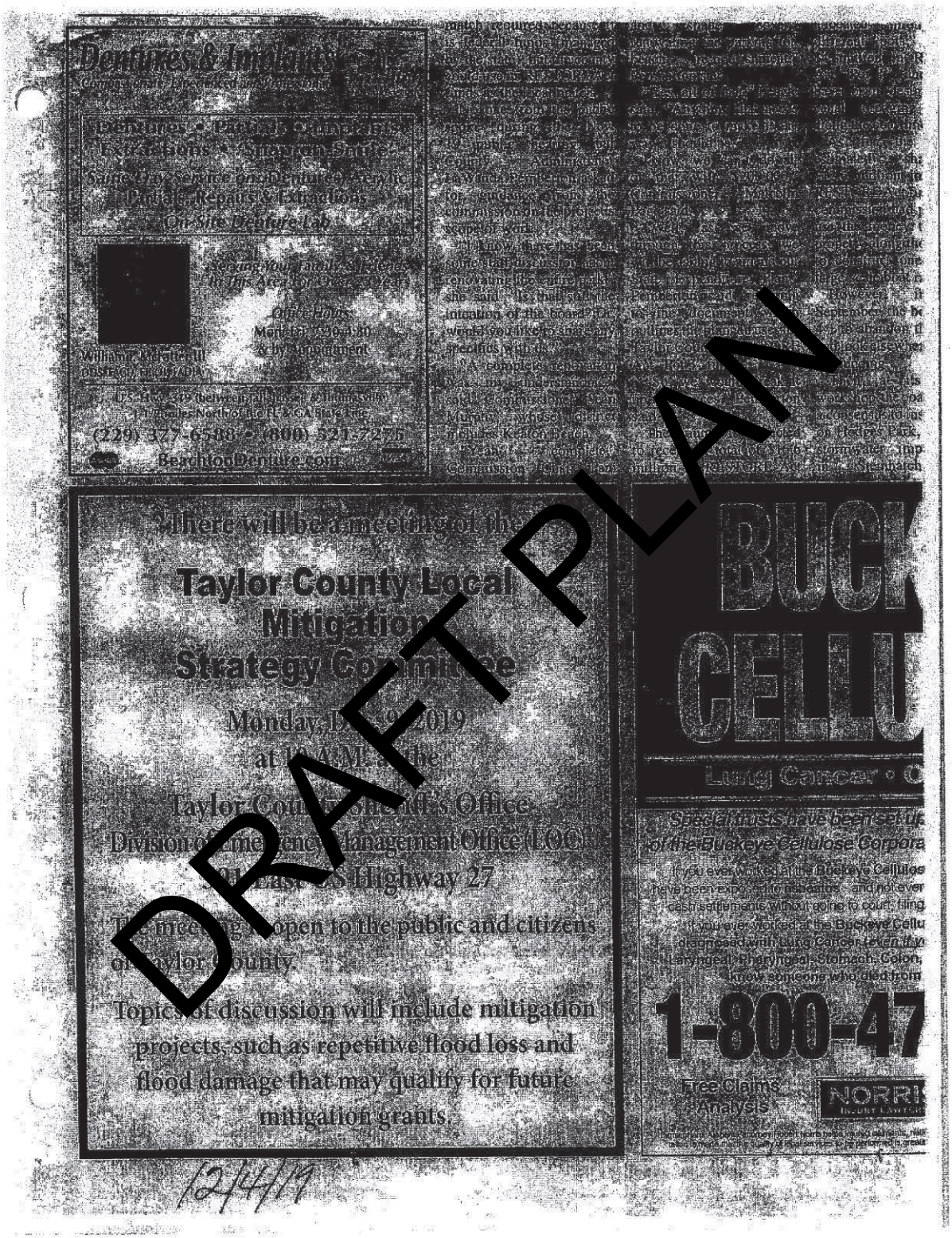
LMS Working Group
December 9, 2019
10:00 AM
Attendance

NAME	ORGANIZATION	PHONE	EMAIL
Shauna Beach	Property Appraiser	(850) 843-5284	[illegible]@taylorpa.org Shaunabeach@gmail.com
LaWanda Pemberton	TC BOCC	850 838-3[illegible]6	lpemberton@taylorcountygov.com
Taylor Brown	Perry	(85[illegible] 24[illegible]052	tbrown@cityofperry.net
Brian Bradshaw	FDEM	850-519-8634	Brian.Bradshaw@em.myflorida.com

DRAFT PLAN


The 2016 Local Mitigation Strategy
Annual Progress Repo
for Taylor County is available for
www.taylorcountygov.com and a
locations:
1. Taylor County Building & Planning Department located at 201 East Green Street, Perry, Florida 32347
2. Taylor County Emergency Management located at 1 E US 27, Perry, Florida

DRAFT PLAN


Dentures & Implants
(229) 377-6580 • (800) 521-7276
BeechtoolDenture.com
Where will be a meeting of the
Taylor County Local
Mitigation
Strategy Committee
Monday, D 9, 2019
at 1 A.M. at the
Taylor County Sheriff's Office
Division of Emergency Management Office (EOC)
Highway 27
The meeting is open to the public and citizens
of Taylor County.
Topics of discussion will include mitigation
projects, such as repetitive flood loss and
flood damage that may qualify for future
mitigation grants.
12/4/19
BUCK
CELLU
Lung Cancer
Special trusts have been set up
of the Buckeye Cellulose Corpora
1-800-47
Free Claims
Analysis
NORRI
DRAFT PLAN

Kristy Anderson LMS Invites

From: Kristy Anderson
Sent: Friday, November 30, 2018 9:51 AM
To: 'Andy McLeod'; 'Barney Johnson (bjohnson@cityofperry.net)'; 'Bill Roberts'; 'Bill Roberts (ki4rjl@yahoo.com)'; 'Bob Cates'; 'Bowden, Donald (Perry, FL)'; 'Brannon, Chris'; 'Brian Bradshaw (brian.bradshaw@em.myflorida.com)'; 'Bruce Ratliff'; 'Christie_Mathison@doh.state.fl.us'; 'Chuck Mincy'; 'Clay Olson'; 'Dan Anderson (dan.anderson@taylor.k12.fl.us)'; 'Dan Cassel'; 'Danny Collins'; 'Danny Griner'; 'Dave Dickens'; 'Deidra Dunnell'; 'Drucilla Sands (drucilla.sands@gapac.com)'; 'Dwayne Mundy'; 'Ed Ward'; 'Elise Fisher'; 'eric.black@freshfromflorida.com'; 'Gary Wamboldt'; 'Glenda Hamby'; 'Heather Jensen (heather.jensen@taylorcountygov.com)'; 'Jack Smith (Jack.Smith@freshfromflorida.com)'; 'Jami Boothby'; 'jamie.cruse@perrypolice.net'; 'Kenneth Dudley'; 'Kristy Anderson'; 'lawanda'; 'Marc Land'; 'Marcella Bridier'; 'Margaret Dunn'; 'Mark Reblin'; 'Melody Cox'; 'Mike Aultman'; 'Mike Fuller'; 'Perry Newspapers'; 'perrywwsuper@fairpoint.net'; 'Ray Boothe'; 'Reblin'; 'Robyn Gedeon (robyn.gedeon@gapac.com)'; 'Scott Garner (Scott.Garner@dixieemergency.com)'; 'stephen.spradley@taylorcountygov.com'; 'Taylor Brown'; 'taylorchamber@g[illegible]net'; 'Ted Lake '; 'William McKinstry'
Cc: 'Schloss, Melissa'
Subject: LMS Meeting Reminder - Tuesday, December 4, 2018
Attachments: LMS-AGENDA 12-4-2018.docx; LMS Minutes 08-07-18.docx

Good morning:

This email will serve as a reminder for the next scheduled Taylor County LMS meeting. The meeting will be held at 10:00 AM at the Taylor County Sheriff's Office – Division of Emergency Management Office. I have attached the agenda and meeting minutes from the August 8, 2018 meeting. We will need to update the LMS project list at this meeting to be submitted to the state at the beginning of January.

Thank you,

Kristy Anderson
Taylor County Sheriff's Office
Division of Emergency Management
850-838-3575

DRAFT PLAN

1

Kristy Anderson

From: Kristy Anderson
Sent: Thursday, August 09, 2018 10:36 AM
To: 'Alan Whigman'; 'Andy McLeod'; 'Barney Johnson (bjohnson@cityofperry.net)'; 'Bill Roberts'; 'Bill Roberts (ki4rjl@yahoo.com)'; 'bob brown'; 'Bob Cates'; 'Bowden, Donald (Perry, FL)'; 'Brannon, Chris'; 'Brian Bradshaw (brian.bradshaw@em.myflorida.com)'; 'Bruce Ratliff'; 'Christie_Mathison@doh.state.fl.us'; 'Chuck Mincy'; 'Clay Olson'; 'Dan Anderson (dan.anderson@taylor.k12.fl.us)'; 'Dan Cassel'; 'Danny Collins'; 'Danny Griner'; 'Dave Dickens'; 'Deidra Dunnell'; 'Drucilla Sands (drucilla.sands@gapac.com)'; 'Dwayne Mundy'; 'Ed Ward'; 'Elise Fisher'; 'eric.black@freshfromflorida.com'; 'Gary Wambolt'; 'Glenda Hamby'; 'Heather Jensen (heather.jensen@taylorcountygov.com)'; 'Jack Smith (Jack.Smith@freshfromflorida.com)'; 'Jami Boothby'; 'jamie.cruse@perrypolice.net'; 'Kenneth Dudley'; 'Kristy Anderson'; 'Marc Land'; 'Marcella Bridier'; 'Margaret Dunn'; 'Mark Reblin'; 'Melody Cox'; 'Mike Aultman'; 'Mike Fuller'; 'Perry Newspapers'; 'perrywwsuper@fairpoint.net'; 'Reblin'; 'Robyn Gedeon (robyn.gedeon@gapac.com)'; 'Scott Garner (Scott.Garner@dixieemergency.com)'; 'stephen.spradley@taylorcountygov.com'; 'taylorchamber@gtcom.net'; 'Ted [illegible]'; 'William McKinstry'
Subject: ***Updated 2018 Updated LMS Project List***
Attachments: 2018 LMS Project List.doc

Good morning:

The LMS group met on Tuesday, August 7, 2018 and updated the LMS project list. Some [illegible] were not at the meeting and I am requesting that you please look over the document before it is submitted to the st[illegible]. Please send any changes to me before next Thursday, August 16th. If I have not heard from [illegible] after that time, [illegible] will be our new working 2018 working document.

Thank you all for what you do for our community.

Kristy Anderson
Taylor County Sheriff's Office
Division of Emergency Management
850-838-3575

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Kristy Anderson

Subject:	LMS MEETING
Location:	EOC
Start:	Mon 12/9/2019 10:00 AM
End:	Mon 12/9/2019 11:00 AM
Recurrence:	(none)
Meeting Status:	Meeting organizer
Organizer:	Kristy Anderson
Required Attendees:	Kristy Anderson; Andy McLeod; Barney Johnson (bjohnson@cityofperry.net); Brian Bradshaw (brian.bradshaw@em.myflorida.com); Bruce Ratliff; [illegible] Dan Anderson (dan.anderson@taylor.k12.fl.us); Dan Cassel; Danny Collins; Danny Griner; Dave Dickens; Deidra Dunnell; Dwayne Mundy; Ed Wa[illegible] eric.black@freshfromflorida.com; Gary Wambolt; Jack [illegible] (Jack.Smith@freshfromflorida.com); Jami Boothby; jamie[illegible]@perrypolice.net; Kenneth Dudley; Kristy Anderson; lawanda; Marc Land; Marcella B[illegible]er; Mark Reblin; Melody Cox; Mike Aultman; Mike Fuller; Reblin; T[illegible]r Brown; taylo[illegible]hamber@gtcom.net; Tracy Walker ; William McKinstry; Marty Tompkins; [illegible]ic Black - FFS (Eric.Black@fdacs.gov); Stacey Steele; Jimmy Cash
Optional Attendees:	Bruce Ratliff; travis.pike@fdacs.[illegible]; Edwa[illegible] Cullaro

Good afternoon:

Our next LMS (Local Mitigation Strategy) meeting will take place Monday/December 9, 2019, 10:00 AM at the EOC. We will take this time to once again discuss the HM[illegible] grant which is approaching a deadline of March of 2020.

I will send a reminder with agenda attached in the near future.

Thank you,

Kristy Anderson

Director
Taylor County Sheriff's [illegible]
Division of Emergency Management
850-838-35[illegible] (Work)
850-843-48[illegible] (Cell)

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APPENDIX 4: ANNEX 1: CONSOLIDATED HAZARDS ANALYSIS

Consolidated Hazards Analysis

Revised March 12, 2020

Taylor County Board of County Commissioners

Department of Emergency Management

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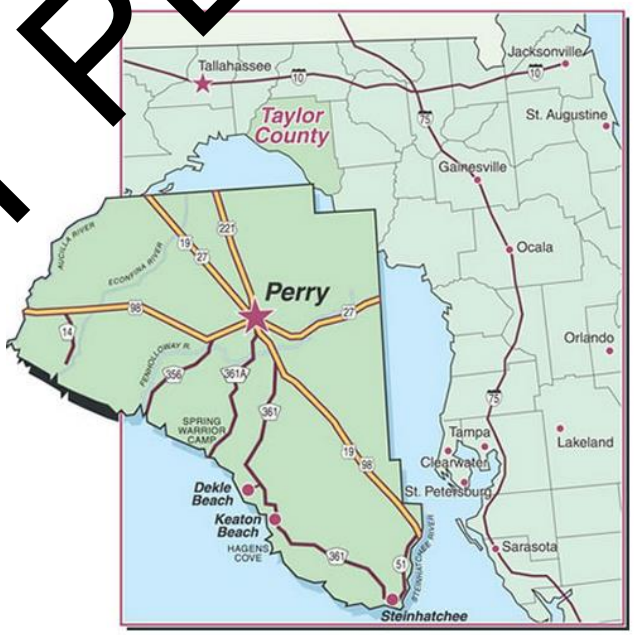
Contents

A. Methodology & Scope

The Taylor County Consolidated Hazards Analysis provides an analysis of the major hazards to which Taylor County is vulnerable and any assumptions made during the planning process. Hazards were identified by analyzing the historical occurrences in Taylor County and the City of Perry and by reviewing the geography, climatology and other natural features that increase human and economic risks. Before a community can plan how to deal with potential disasters, the hazards that can lead to these disasters must be identified. A hazards analysis is an essential element in disaster preparedness planning to minimize loss of live, human suffering, and damage to public and private property. Conducting a hazards analysis is a useful early step in planning for hazard mitigation, response, and recovery. This method provides Taylor County and the City of Perry with a sense of hazard priorities, or relative risk. It does not predict the occurrence of a particular hazard, but it does "quantify" the risk of one hazard compared with another. By doing this analysis, planning can first be focused where the risk is greatest.

Information found in this consolidated hazards analysis came from the following Taylor County Emergency Management plans: Comprehensive Emergency Management Plan (2020), Local Mitigation Strategy (2020), Debris Management Plan (2020), Catastrophic Logistics Plan (2020), and Long-term Recovery Plan (2020). This includes updated information on demographics, new codes or ordinances, hazard analyses, risk assessments, recent event impacts, or areas of general interest.



This hazards analysis is thorough and meets all the standards and requirements for hazard identification and analysis of the Comprehensive Emergency Management Plan. This hazards analysis also serves as the document of record for Taylor County hazard history. As with any written plan this is a living document that should be updated annually or following any disaster impact in Taylor County.

This hazards analysis serves unincorporated Taylor County and the City of Perry.

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B. Community Profile

1. Geographic Information

Taylor County is located in the Big Bend of Florida, centrally on the west coast, between the northern panhandle and the southern peninsula. Taylor County is bordered on the north by Madison County, on the south by the Gulf of Mexico, on the east by Dixie County and Taylor County and on the west by Jefferson County.

Taylor County encompasses 1,043.31 square miles. The county has approximately 50 miles of coastline on the Gulf of Mexico, which is mostly comprised of marshland. Approximately 70% of Taylor County is comprised of timberland. Elevation in Taylor County ranges from zero to 90 feet with an average of 26 feet.

The primary highways in the county include United States Highways 19, 27, 98 and 221. U.S. 98 and 27 accommodate east/west travel and U.S. 19/27Alt. and 221 accommodate the north/south travel. The city of Perry is approximately 25 miles south of Interstate 10. There are also two railroads operating in Taylor County, the CSX Transportation Railroad and the Southern Railway.

Taylor County's geology is characterized by limestone formations overlain in areas by clays and sands. The upper limestone formations constitute the Floridian aquifer system. The Floridian aquifer is characterized by solution cavities along fractures and bedding planes in the limestone. Sinkholes are often formed in limestone by collapse of solution cavities and propagation of the collapse to the surface. Several sinks and springs occur along the banks of the Suwannee River. The Floridian aquifer is comprised of three formations in Taylor County. These formations are the Crystal River, Suwannee and Alachua formations.

The eastern boundary of the county is formed by San Pedro Bay (low-lying area) and the Steinhatchee River. The western boundary of the county is the Aucilla River. The Steinhatchee River and its tributaries drain large swampy areas in the south and central parts of the county, including San Pedro Bay and Mallory Swamp. The Steinhatchee also runs southwest to the Gulf of Mexico. In addition, the Econfina and Fenholloway Rivers also flow southwest into the Gulf of Mexico.

The water tends to flow from the northeast to the southwest, with a considerable amount being received from San Pedro Bay. San Pedro Bay is a large cypress and timber swamp encompassing the northeastern part of the county. The water flows through flood control canals and through and around the City of Perry into the Gulf of Mexico.

The Steinhatchee River is approximately 30 miles in length and flows southwest forming the southeast boundary of the county. The Fenholloway River is also approximately 30 miles in length and flows southwest extending from the central portion of the county near the City of Perry into the Gulf of Mexico. The Aucilla River, which forms in the counties north of Taylor County, flows southwest and forms the western boundary of the county. Total water area in Taylor County, including rivers, lakes, ponds, streams and wetlands is estimated at approximately 17,617 acres.

The coastal areas, approximately 50 miles of tidal marsh, are most vulnerable to flooding from hurricanes. All of the coastal area lies within the tropical storm flood zone. The category five (5) hurricane flood zone extends as much as eight (8) miles inland.

Inland flooding usually occurs around the Steinhatchee, Econfina, Aucilla and Fenholloway Rivers. This land is mostly low-lying with elevation ranging from sea level at the coast to as much as 15 feet inland along the rivers. Flooding along the rivers is usually a result of heavy rainfall resulting in riverbank overflow and ponding or from coastal storm surge.

2. Demographics

According to 2020 US Census estimates, Taylor County has a total estimated population of 22,098, down 2.1% from 22,570 from the 2010 US Census count. This includes the estimated City of Perry population of 6,928. Taylor County's strong economy, coupled with its appeal to

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retirees and tourists, suggests the area's population will grow in the future. These demographic trends – when combined with the county's exposure to hurricanes and other hazards – illustrate the potential vulnerability of citizens and tourists to major disasters. The following data highlight the vulnerability of the county's population:

Table 1: Taylor County Demographic Information

Population Density	21.2 persons per square mile
Population Distributions (Physical)	
Municipality (Perry)	31.3% (6,928 persons)
Unincorporated	68.7% (15,170 persons)
Age Distribution	
0-5 years old	4.7% (1,[illegible] persons)
18 years and younger	19.2% (4,24[illegible] persons)
65 years and older	19.1% (4,22[illegible] persons)
Poverty Rate (i.e. those living below poverty level)	19.8% (4,375 persons)
Language at home spoken other than English	6.6% (1,458 persons)
Disability (overall) Hearing Vision Cognitive Ambulatory Difficulty Self-Care Difficulty Independent Living Difficulty	22.7% (5,016 persons) 6.7% (1,480 persons) 5.9% (1,304 persons) 8.7% (1,922 persons) 14.6% (3,226 persons) 6.0% (1,326 persons) 9.0% (1,989 persons)

2019 United States Census American Community Survey Data

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- Taylor County has a moderate seasonal tourist population primarily in the coastal communities based on fishing and scallop seasons.
- An estimated 33.3% of the county's total housing units are manufactured homes, which have historically been vulnerable to high winds, flooding and storm surge.
- Marshall Health and Rehabilitation Center is the only nursing home in Taylor County. The facility is licensed for 120 beds.
- In March 2020, 67 residents were registered and qualified with the Taylor County Department of Emergency Management as a special needs client. This list is maintained by the Florida Department of Health of Taylor County.
- There are very few individuals who can be classified as migrant, transient or seasonal workers in Taylor County.

3. Economic Profile

The average household size in Taylor County is 3.00 persons. In 2018 manufacturing continues to be the largest industry followed by education & healthcare, public administration, retail trade, professional services and finance & insurance related. Taylor County leads the State of Florida in forest products production.

Table 2. Taylor County Business Profile

Businesses	
Total employer establishments, 2018[1]	395
Total employment, 2018[1]	4,562
Total annual payroll, 2018 ($1,000) [1]	181,004
Total employment, percent change, 2017-2018[1]	4%
Total non-employer establishments, 2018[1]	1,00
All firms, 2012[2]	1,13
Men-owned firms, 2012[2]	554
Women-owned firms, 2012[2]	483
Minority-owned firms, 2012[2]	299
Nonminority-owned firms, 2012[2]	774

[1]*Source: 2014-2018 US Census American Community Survey*

[2]*Source: 2008-2012 US Census American Community Survey*

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There are 11,074 housing units in the county, which contribute to the 8,293 residents in the labor force. The unemployment rate in 2018 was 6.2%. The per capita personal income was $17,728, and the median household income in was $36,934.

Table 3. Taylor County Housing Profile

Housing	
Total Housing units, July 1, 2019, (V2019)	11,174
Manufactured Housing Units (mobile homes)(Source: Taylor Property App)	3,726 (33.3%)
Owner-occupied housing unit rate, 2014-2018	81.5%
Median value of owner-occupied housing units, 2014-2018	$82,900
Median selected monthly owner costs -with a mortgage, 2014-2018	$1,057
Median selected monthly owner costs -without a mortgage, 2014-2018	$330
Median gross rent, 2014-2018	$686
Building permits, 2019	43

Source: 2014-2018 US Census American Community Survey

The above data clearly shows how Taylor County's population, when compared to the Untied State population data, suffers from higher rates of disability, higher unemployment, and higher poverty rates. This, when including geographic variables, makes the population of Taylor County particularly vulnerable to natural hazards.

C. Hazards Analysis

Taylor County and the City of Perry are vulnerable to numerous natural and man-made hazards.

Hazards were identified by analyzing the historical occurrences in Taylor County and the City of Perry and by reviewing the geography, climatology and other natural features that increase human and economic risks.

While many of the hazards discussed in this section are relevant to Taylor County and the participating jurisdictions, selected natural hazards (earthquake, landslides, and tsunami) were removed and will not be profiled due to the extreme low probability, geographic location and the topographic characteristics of the planning area. In addition, the human-caused hazards and technological hazards are profiled in the Taylor County Comprehensive Emergency Management Plan (CEMP); therefore, cyber-attacks, terrorism, and nuclear/biological hazards and hazardous materials spill/release are also not profiled in the LMS Plan.

The hazard and vulnerability analysis determined and discusses:

- Hazard Overview
- Historical Occurrences
- Geographic Area / Location
- Probability, Risk, Vulnerability and Extent

Probability was defined as follows:

High – Occurs at least once every two years

Medium – Occurs at least once every five years

Low – Occurrences less frequently than five years

Magnitude/Extent was defined as follows:

Catastrophic – the entire county is potentially affected by an event

Major – Most of the county is potentially affected by the event

Minor – Only a specific area of the county is potentially affected

Negligible – Damages and impacts are very localized and minor

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Table 4. Probability and Extent Measurements for Each Hazard

Hazard	Priority Ranking	Probability	Extent	Magnitude
Hurricanes and Tropical Storms	Very High	High	Cat 2 every 5 years	Catastrophic
Tornadoes	High	High	EF2 Every 3 years	Major
Severe Storms / Hail	High	High	58 mph winds	Major
Forest Fires	High	High	>10 Acres Average	Major
Floods Areal	High	Medium	2 Feet Average	Major
Floods Riverine	High	High	2 Feet Average	Minor
Floods Coastal	High	Low	3 Feet Average	Minor
Drought	Medium	Medium	KBDI >400 Average	Major
Heat Wave	Medium	Medium	2 days above 100° per yr	Major
Freezes / Winter Storms	Medium	Low	23 days below 32° per yr	Major
Sinkholes	Low	Medium	2'*2'*2' per occurrence	Negligible
Coastal and Riverine Erosion	Low	Medium	20 Feet per Year	Negligible

Table 5. Disaster Declarations From 1990 to Present

Declaration Number	Year	Title	Individual Assistance	Public Assistance
DR-982	1993	Severe Weather, Storm Of The Century	Yes	Yes
DR-1069	1996	Hurricane Opal	Yes	Yes
DR-1141	1997	Tropical Storm Josephine	Yes	No
DR-1195	1998	Severe Weather	Yes	Yes
DR-1223	1998	Extreme Fire Hazard	Yes	Yes
DR-1241	1998	Hurricane Earl	Yes	No
DR-1481	2003	Severe Storms And Flooding	No	Yes
DR-1539	2004	Tropical Storm Bonnie And Hurricane Charley	No	Yes
DR-1545	2004	Hurricane Frances	No	Yes
DR-1551	2004	Hurricane Ivan	Yes	Yes
DR-1561	2004	Hurricane Jeanne	Yes	Yes
DR-1593	2005	Hurricane Dennis	Yes	Yes
DR-1785	2008	Tropical Storm Fay	Yes	Yes
FM-2307	2000	Wildfire, Perry Fire Complex	No	Yes
EM-3220	2005	Hurricane Katrina Evacuation	No	Yes
EM-3288	2008	Tropical Storm Fay	No	Yes
EM-3385	2017	Hurricane Irma	No	Yes
EM-3405	2019	Hurricane Michael	No	Yes
DR-4068	2012	Tropical Storm Debby	No	Yes
DR-4280	2016	Hurricane Hermine	No	Yes
DR-4337	2017	Hurricane Irma	No	Yes
DR-4399	2019	Hurricane Michael	No	Yes
EM-3419	2019	Hurricane Dorian	No	Yes
EM-3432	2020	COVID-19	No	Yes
DR-4486	2020	COVID-19 Pandemic	No	Yes

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D. Hazard Vulnerability Analysis

1. Tropical Cyclones

General Description

A tropical cyclone is a generic term used by meteorologists to describe a rotating, organized system of clouds and thunderstorms that originates over tropical or subtropical waters and has closed, low-level circulation. A tropical cyclone is characterized by a low-pressure center and numerous thunderstorms that produce strong winds and heavy rain. Tropical depressions, tropical storms, and hurricanes are all considered tropical cyclones. Tropical cyclones strengthen when water evaporated from the ocean is released as the saturated air rises, resulting in condensation of water vapor contained in the moist air. These storms rotate counterclockwise in the northern hemisphere around the center and are accompanied by heavy rain and strong winds. Almost all tropical storms and hurricanes in the Atlantic basin (which includes the Gulf of Mexico and Caribbean Sea) form between June 1 and November 30 (hurricane season). August and September are peak months for hurricane development.

Tropical cyclones are fueled by a different heat mechanism than other cyclonic windstorms such as Nor'Easters and polar lows. The characteristic that separates tropical cyclones from other cyclonic systems is that at any height in the atmosphere, the center of a tropical cyclone will be warmer than its surroundings; a phenomenon called "warm core" storm systems.

Hurricane Characteristics

A hurricane is a tropical cyclone with winds that have reached a constant speed of 74 miles per hour or more. Hurricane winds flow in a large counterclockwise spiral around a relatively calm center known as the "eye". The "eye" is generally 20 to 30 miles wide, and the storm may extend outward as much as 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 two weeks over open waters and can run a path across the entire length of the eastern seaboard. August and September are the peak months during the Atlantic hurricane season that lasts from June 1 through November 30. Taylor County has not experienced a hurricane during the past 5 years.

Tropical Storm Characteristics

A tropical storm, also known as a tropical cyclone, begins as a tropical depression and is a rotating, organized system of clouds and thunderstorms that originates over tropical or subtropical waters and has a closed low-level circulation. A Tropical Storm is a cyclone with maximum sustained winds of 39 to 73 mph (34 to 63 knots). While hurricanes pose the greatest threat to life and property, tropical storms can also be devastating. Floods from heavy rains and severe weather, such as tornadoes, can cause extensive damage and loss of life. In September 2016, slow moving Hurricane Hermine created significant impacts to Taylor County for several days, including freshwater flooding, storm surge flooding, and trees and power lines blown down due to gusty winds. Rainfall caused numerous small creeks, streams, and rivers to rapidly exceed their banks and flood adjacent communities. River flooding along the Steinhatchee River impacted at least 50 homes.

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Location

Tropical cyclones, in the past and potentially in the future, have the propensity to affect the entire county. Historical occurrences, described below, depict the affects to the county over the last decade. In some occurrences, like Hurricane Irma, the more than one million people evacuating southern counties rushed to Taylor County where they overloaded lodging, restaurants, gas stations, and supermarkets, all nearly a week before the hurricane came near Taylor County. Although not all of the county is affected equally (i.e. more flooding on the coastal and riverine areas), the entire county has the potential to be affected in some way.

Extent

TABLE 6. Saffir-Simpson Scale and Damage Classifications

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	**Very dangerous winds will produce some damage**: Well-constructed frame homes could have damage to roof shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	**Extremely dangerous winds will cause extensive damage**: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	**Devastating damage will occur**: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	**Catastrophic damage will occur:** Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	**Catastrophic damage will occur:** A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Source: National Hurricane Center; https://www.nhc.noaa.gov/aboutsshws.php

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TABLE 7: Potential Storm Tide Limits for North Central Florida

Storm Strength*	Storm Tide**
Category 1	Up to 11.1’
Category 2	Up to 19.5’
Category 3	Up to 27.7’
Category 4	Up to 33.5’
Category 5	Up to 38.5’

*Based on Saffir-Simpson Hurricane Wind Scale

**Surge heights represent the maximum values from SLOSH MOM’s (In feet above NAVD88)

Most of the 45 mile coastline for Taylor County is tidal marsh, all of which lies within the hurricane flood zone. The flood zone extends 2 to 8 miles inland from the coast. The three main hazards caused by a hurricane are: (1) storm surge: (2) high winds; and (3) rain induced freshwater flooding. The height of the storm surge above mean sea level varies with hurricane strength, direction of travel and location of landfall. During a Category 5 hurricane, surge induced flooding can occur over 10 miles inland.

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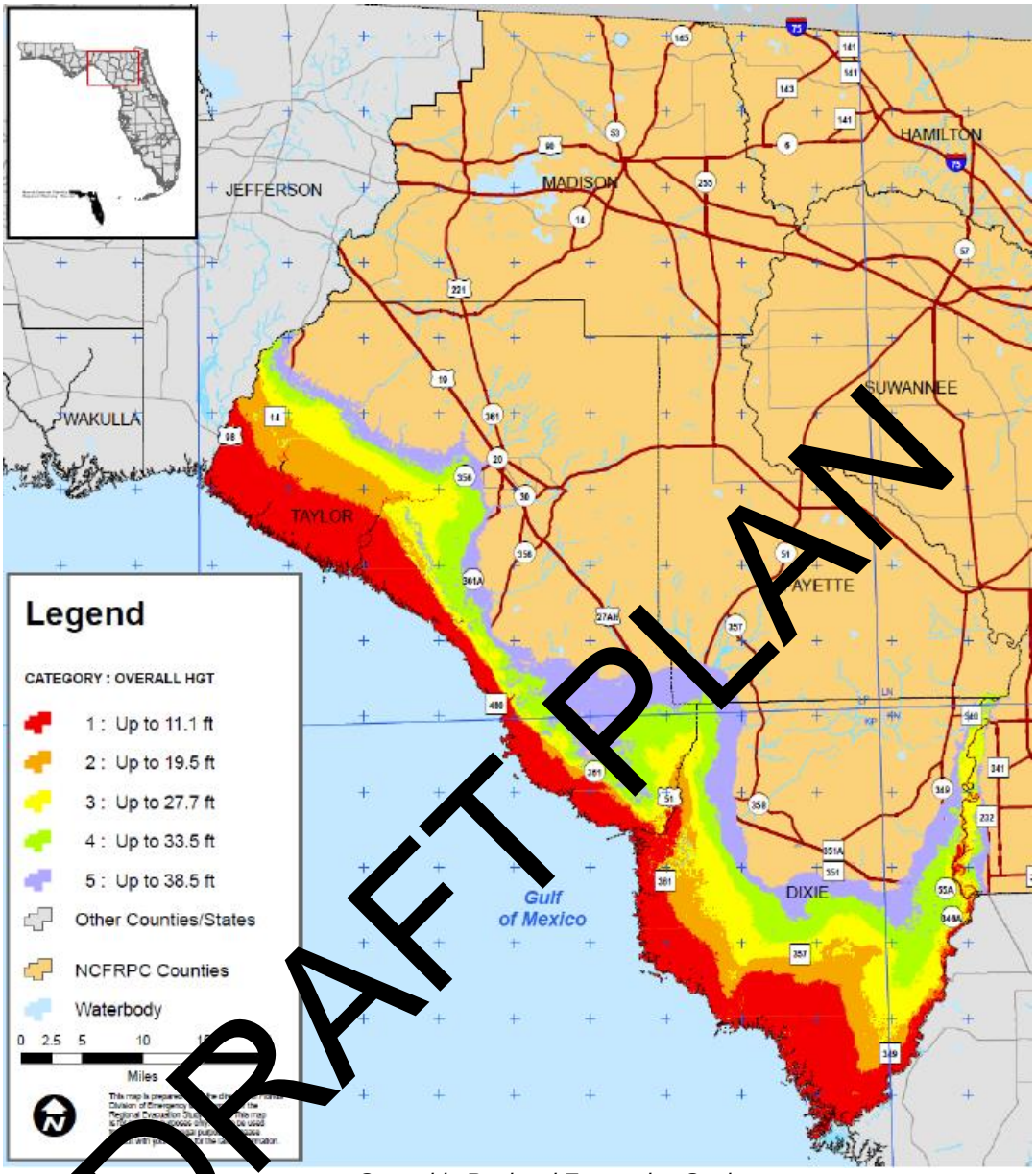

Statewide Regional Evacuation Study

FIGURE 1. Storm Tide Limits for Taylor County, Florida

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Historical Occurences

Taylor County has been affected by 22 tropical cyclones in the past 25 years. Of those 22 tropical cyclones, 11 have been tropical storms and 11 have been hurricanes. These storms have caused a total of $7.8 million of property damage. Since 1852 Taylor County has been affected by 94 different tropical storms and hurricanes, see Table 8.

TABLE 8. Tropical Cyclone Events in Taylor County Over the Last 25 Years

Storm Name	Storm Date	Property Damage
TS Josephine	10/7/1996	$0
Hurricane Earl	9/2/1998	$350,000
Hurricane Georges	9/28/1998	$75,000
Hurricane Gordon	9/17/2000	$0
TS Helene	9/21/2000	$0
TS Hanna	9/14/2002	$100,000
TS Isidore	9/25/2002	$10,000
TS Bonnie	8/12/2004	$0
Hurricane Francis	9/5/2004	$250,000
Hurricane Ivan	9/15/2004	$50,000
Hurricane Jeanne	9/26/2004	$100,000
TS Arlene	6/10/2005	
Hurricane Dennis	7/9/2005	$4,000,000
Hurricane Katrina	8/28/2005	$0
TS Alberto	6/12/2006	$[illegible]00,000
TS Barry	6/1[illegible]2007	$0
TS Fay	8/22/20[illegible]	$750,000
TS Debby	6/24/2012	$4,000
Hurricane Hermine	9/1/2016	$453,000
Hurricane Irma	9/[illegible]0/2017	$1,500,000
Hurricane Michael	10/10/2018	$50,000
TS Nestor	10/19/2019	$0
	TOTAL	$7,792,000

Source: NOAA National Centers for Environmental Information, Storm Events Database

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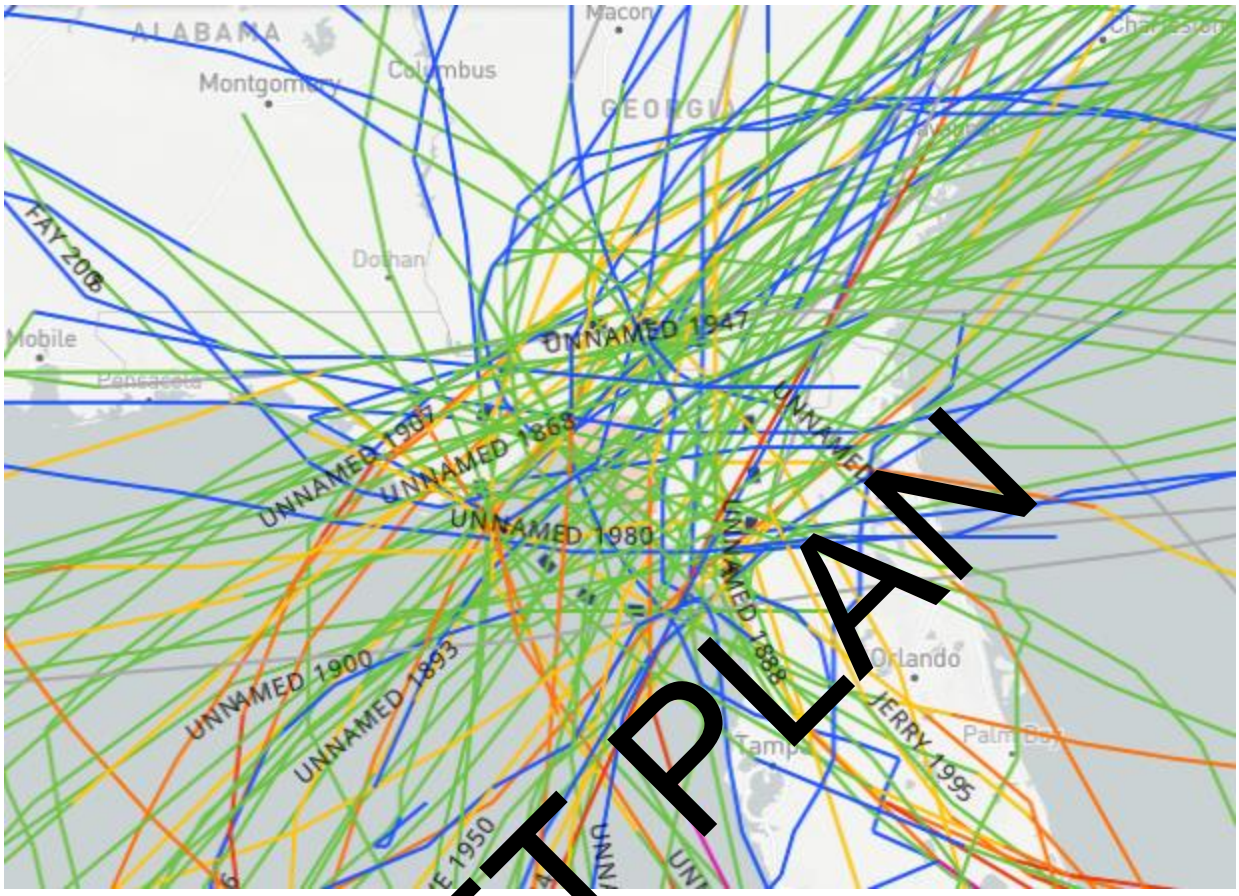

Source: NOAA NHC Historical Hurricane Tracker https://coast.noaa.gov/hurricanes/

Figure 2. Hurricanes and Tropical Storms Impacting Taylor County: 1852-2020

On March 12-13, 1993, the Taylor County coast was hit by a winter storm that was eventually named the Storm of the Century. The entire coastline was devastated by a 12-foot storm surge with four to six feet of wave action that lasted three hours, equal to a low category 1 hurricane. Eleven people lost their lives in Dekle and Keaton Beaches. Multiple homes and structures were damaged including four homes in Dekle Beach, a motel and all the docks and marinas. Total winter storm damage estimates were placed at fifty million dollars in personal property damages. As a result, a Presidential declaration was issued for the cost of restoration and response. In Taylor County alone, this amount was placed at above $2.0 Million and the county received approximately $1.5 Million from FEMA in Public Assistance in response to this rare winter coastal storm.

Hurricane Hermine impacted the Florida big bend in early September with significant storm surge along the coast and strong winds inland which downed numerous trees and power lines, resulting in extended power outages in Taylor County some lasting over a week. The following inundation values (height above mean higher high water) were estimated along the coast. Nutall Rise (Aucilla River): 6.07 ft, Econfina River: 7.17 ft, Spring Warrior Creek: 8.57 ft, Jabo Road (Taylor county): 7.94 ft, Keaton Beach: 7.57 ft, Steinhatchee Entrance: 7.30 ft. In addition, storm surge was noted up the Suwannee River past the US-19 gauge at Wilcox, which is more than 20 river miles from the mouth of the river. There were three tornadoes confirmed, all brief EF0's

in Taylor county with no damage reported from them. Rainfall generally ranged from 3-8 with minimal impacts from inland flooding. Inland wind impacts were significant.

In Taylor county, 6 people were rescued from high water related to surge in Steinhatchee. There were also 5 other rescues in the county. Approximately 75 homes or businesses sutained major damage, 60 had minor damage, and 140 were affected. Public assistance damage values were listed $907,000 for the county. Additional individual assistance damage values were estimated at around $4,490,000 with $200,000 assigned to a destroyed structure, $50,000 assigned to a structure with major damage, $10,000 assigned to a structure with minor damage, and $1,000 assigned to a structure that was affected.

Hurricane Irma brought numerous impacts to the Florida Big Bend, southwest Georgia and southeast Alabama including widespread downed trees and power lines, roads blocked by trees, power outages, and trees on homes. Two people died during the event - one due to a car crash (Liberty County, FL) and another that had a heart attack (Worth County, GA). Two indirect deaths also occurred due to carbon monoxide from a generator (Taylor County, FL). While many counties across the Florida Big Bend and southwest Georgia were impacted, the greatest impacts were across the eastern portion of the area near the I-75 corridor. There were over 6.5 million customers without power in Florida, over 930,000 customers without power in Georgia, and over 45,000 customers without power in Alabama.

In Taylor county, damage was primarily to trees and power lines with a few trees on houses causing damage. Three homes sustained major damage and two homes sustained minor damage. There were 10,941 power outages with some not restored for 6 days. There were blow out tides but no surge flooding.

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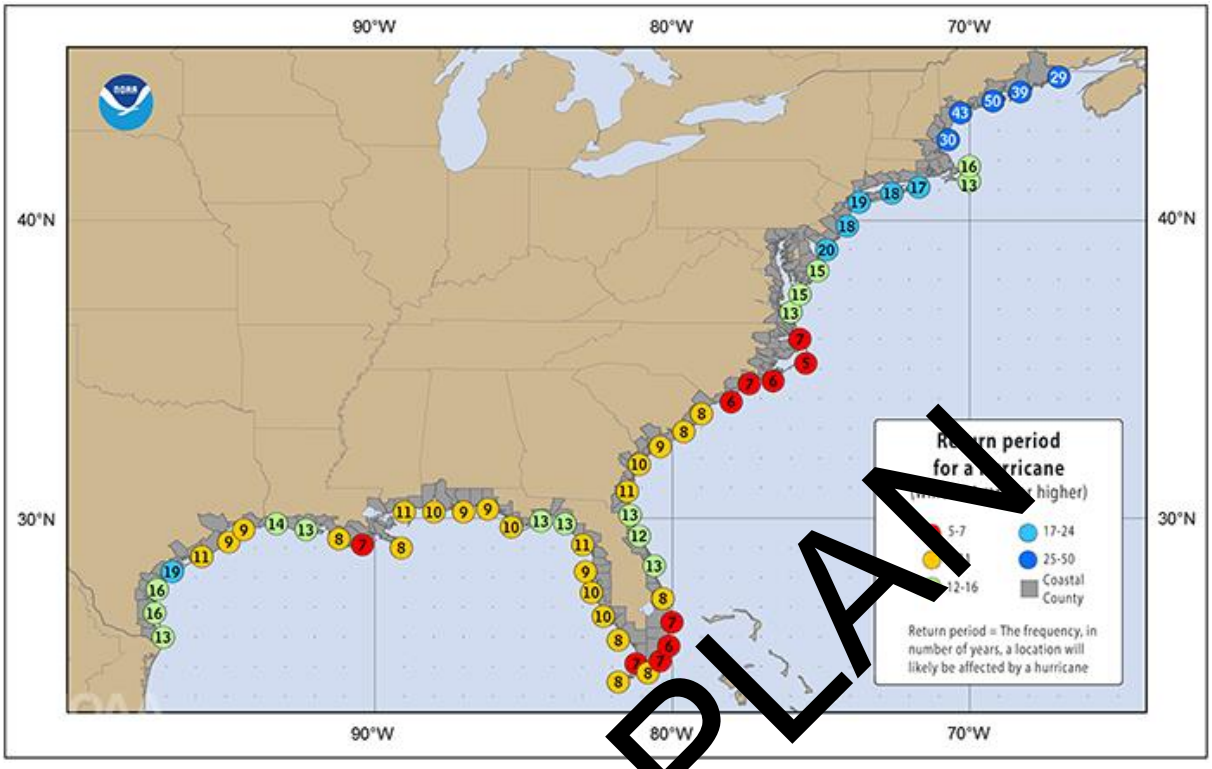
Probability: High

It is estimated that Taylor County will continue to experience direct and indirect impacts of severe weather annually that may induce secondary hazards such as flooding, extreme wind, coastal erosion, storm surge in coastal areas, infrastructure deterioration or failure, utility failures, power outages, water quality and supply concerns, and transportation delays, accidents, and inconveniences.

Hurricane season is an annual event that produces a series of storms that randomly impact locations throughout the Caribbean, the Gulf of Mexico and the entire eastern seaboard of the United States. The probability of a hurricane occurring and causing damage is very high. Eventually a storm will strike Taylor County either directly or indirectly. It is difficult to predict when a storm will hit, where exactly it will strike, the intensity, or the duration, however it is very important for Taylor County to prepare for hurricanes and adopt responsible mitigation measures to lessen the potential damages.

In Figure 3, Taylor County is listed as having a return period of 13 years. According to NOAA's National Hurricane Center, this means that on an average of every 13 years a category one or greater hurricane will pass within 50 nautical miles of Taylor County, which includes passing over the county also. This results in a return period of 1.8 years when we include the tropical storm data over the past 168 years from the same source.



Source: http://www.nhc.noaa.gov/climo/images/return_mjrhurr.jpg

Figure 3 Hurricane Return Period

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Impacts

During a hurricane and its aftermath the primary issues will be isolation due to debris in roads, power outages, lack of telephone service, and difficulty with notification and contact with special needs citizens in the county. In addition, Taylor County's vulnerability is exacerbated by the following facts:

- 100% of Taylor County residents are vulnerable to hurricane winds as are all structures in the county.
- Over 35% of the county is in the 100-year flood plain, and susceptible to localized flooding from hurricanes, and 40% in the 500-year flood plain.
- As a result of storm surge along the county shoreline, a damming effect will occur to the Steinhatchee, Fenholloway, and Ecofina Rivers creating higher flood levels.
- The entire county is forested which could result in massive debris clearance issues after a hurricane as seen during Hurricane Hermine in 2016 (see above in Historical Occurrences section).

The worse-case scenario for the county would be a Category 5 hurricane with winds of over 157 mph or higher, a large percentage of framed homes would be destroyed, fallen trees and power poles would isolate residential areas, and power outages would last for weeks to possibly months. Most of the county would be uninhabitable for weeks or months.

List of Impacts to the Community

- Injury/death
- Car accidents because of flood waters, high winds, panic, traffic jams because of evacuations, no power after storm
- Not receiving emergency response during storm, like ambulance
- Delayed emergency response because of blocked roads, etc.
- Drowning in flood waters
- Hit or crushed by debris
- Stranded on roof because of flooding
- Exposure to hazardous materials
- Illness from contaminated water
- Pet and other animal deaths from all of the above
- Damage to home or property
- Power loss or damage to power connections on home
- Mold damage causing the need for expensive mold remediation actions
- Cost to replace damaged and destroyed items, such as furniture, flooring, etc.
- Cost and labor to repair damaged homes and other structures to make the house inhabitable
- If the property was uninsured, the cost falls upon the property owner
- Hotel room fees or having to live in a shelter until damage is repaired or home is replaced
- Damaged or washed-away vehicles
- Lost wages because no way to get to work if roads are blocked or if car was damaged in storm or if employer experienced damage
- Possibly forced to evacuate
- Cost to travel
- Cost to stay at hotel
- Loss of wages if out of town
- Loss of food if you cannot go back to get it
- Power outage
    - Cost of generators and gas to run the generators
        - Risk of accidental fire or carbon monoxide poisoning is high
    - Loss of food in refrigerator and freezer
    - Difficulties traveling anywhere because of outages at traffic lights
    - Cost of purchasing disaster supplies such as flashlights
    - Hotel room fees or having to live in a shelter until power is restored
    - Lost wages because employer is experiencing power outage
- Emotional or psychological toll of surviving
    - If a friend or family member dies in storm individual may feel great sense of guilt or stress
    - If major damage occurs for an individual, they will likely experience stress and anxiety dealing with evacuating, staying in shelters, working to get insurance payments, working to get government assistance, etc.
    - Being forced to leave or forfeit a pet in an unsafe area during or after a tropical cyclone

The Taylor County community, the residents, the structures, and critical facilities can suffer from tropical cyclone events. An economic effect or financial impact could be devastating from a

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large-scale hurricane event not only during the crisis phase, which immediately follows the event, yet through the recovery and rebuilding stages.

Vulnerability

The area along the coastline is the area most vulnerable to hurricanes; however, the entire county is at risk from a direct hit from a category 3, 4, or 5 event. Approximately 3,000 persons live in the coastal areas especially in the communities of Dark Island, Dekle Beach, Keaton Beach, Ezell, Steinhatchee and Cedar Island. Every year there are multiple evacuation notices for citizens along the coast. Over 300 persons live in flood-prone areas along the Steinhatchee, Aucilla and Econfina Rivers, another 600+ live in inland flood-prone area (mainly around Perry), and an additional 1,700+ persons live in non-flood prone area mobile homes. During scallop season from July through September, the population of Steinhatchee increases from 3,200 to approximately 8,500. In the event of a hurricane, all these persons would be vulnerable to surge, flooding, and high winds.

Taylor County's most vulnerable populations are its youth, elderly, disabled, and impoverished. Unfortunately, this incorporates a large amount of the population. The table below shows the most vulnerable persons of Taylor County.

Table 9. Taylor County's Vulnerable Populations

Age Distribution	
0-5 years old	4.7% (1,039 persons)
18 years and younger	19.2% (4,243 persons)
65 years and older	19.1% (4,221 persons)
Poverty Rate (i.e. those living below poverty level)	19.8% (4,375 persons)
Disability (overall)	22.7% (5,016 persons)
Hearing	6.7% (1,480 persons)
Vision	5.9% (1,304 persons)
Cognitive	8.7% (1,922 persons)
Ambulatory Difficulty	14.6% (3,226 persons)
Self-Care Difficulty	6.0% (1,326 persons)
Independent Living Difficulty	9.0% (1,989 persons)

2019 United States Census American Community Survey Data

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Table 10. Taylor County Mobile Home Locations by Surge Zone

SURGE ZONE	MOBILE HOME COUNT	MOBILE HOME VALUE
TROPICAL STORM	103	$1,913,210
CAT 1	295	$5,282,150
CAT 2	804	$14,543,760
CAT 3	994	$17,976,170
CAT 4	1471	$26,618,190
CAT 5	1868	$33,790,540

Source: Taylor County Property Appraiser 2020

Tropical Storm	
Category 1	
Category 2	
Category 3	
Category 4	
Category 5	

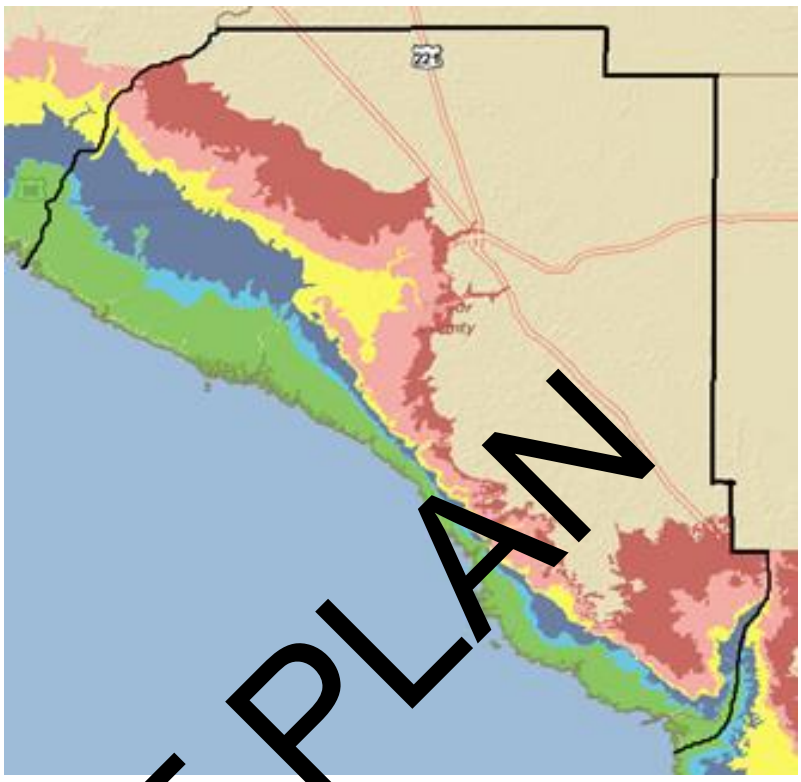

Figure 4 Taylor County Hurricane Surge Inundation Zones

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The low-lying coastline and shallow bathymetry along the coast of Taylor County can produce some of the largest storm surges in the nation. In fact, Taylor County's potential storm surge is only surpassed worldwide by those that occur in Bangladesh along the Indian Ocean. The storm surge from a Category 2 hurricane will damage and close Highway 98 and would call for the immediate evacuation of the 1,200 prisoners at the nearby state prison. During a hurricane and its aftermath the primary issues will be isolation due to debris in roads, power outages, lack of telephone service, and difficulty with notification and contact with the 67 registered special needs residents in the county.

Table 11 – Flood Vulnerability for Taylor County's Population with Percent of Total Population

100-Year	500-Year
1,319 (6.0%)	1,850 (8.4%)

Source: 2018 State Enhanced Hazard Mitigation Plan, Table 20, Page E.3

Figure 5: Critical Facility Locations

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Of the 67 critical facilities designated by the Taylor County LMS Working Group, 21 of these locations are in the coastal high hazard area. The map below approximately identifies the location of each facility. Note: Because of the close proximity of several of the critical facilities, individual markers on the map may represent several critical facilities.

Critical Facilities Vulnerable To Hurricane Surge Impacts

INDUSTRIAL	
PACEM Defense	10625 Puckett Road
Florida Gas Transmission Station	Pisgah Road, County Road 361
TAYLOR COUNTY SCHOOLS	
Steinhatchee School	1209 1st Ave. SE, Steinhatchee
COUNTY GOVERNMENT	
Taylor County Correctional Facility	County Road 356 West
TC Correctional Facility Water Treatment	County Road 356 West
Econfina Volunteer Fire Dept.	Econfina Road
Keaton Beach Vol. Fire Dept	Beach Road
Taylor County FD – Steinhatchee	12th St. SE – Steinhatchee
COUNTY DISPOSAL SITES	
Shady Grove Roll-Off	CR – 14A
98/14 Roll-Off	CR – 14 (near Econfina)
Blue Springs Roll-Off	Blue Springs Lake Rd. – Keaton Beach
Steinhatchee Roll-Off	CR 361 – Steinhatchee
Blue Creek Land Fill	CR 361 (inactive)
Dekle Beach Landfill	CR 361 at Beach Road (Inactive)
Steinhatchee Landfill	CR 361 - Steinhatchee

STATE GOVERNMENT

Taylor Correctional Institute	8501 Hampton Springs Road

WATER/WASTEWATER TREATMENT

Taylor Coastal Water & Sewer District	18820 Beach Rd. Keaton Beach
Big Bend Water & Sewer Authority	1313 First Ave. SE Steinhatchee

OTHER UTILITIES

Tri-County Electric Cooperative	Perry Sub Station US 19S at Beach Road
	Steinhatchee Sub Station Hwy 51

OTHER HURRICANE SHELTERS

Fellowship Baptist Church	1st Ave, Steinhatchee

Table 12. Summary of Facilities in Storm Surge Areas Based on Event Type

Event Type	Fire Stations	FS Value ($)	Schools (public)	Public School Value($)	Other Structures	Other Structures Value($)	Total	Total Value($)
Category 2	3	168,190	1	1,161,350	4	50,550	10	2,352,840
Category 5	3	168,190	1	1,161,350	6	573,000	10	2,352,840

Source: 2018 State Enhanced Hazard Mitigation Plan, Page E.30

Table 13. Probabilistic Hurricane Wind Count and Value of Structures

Return Period	10	20	50	100	200	500	1000
Structure Count	3	6	60	3[illegible]	1,054	2,767	4,417
Value	5,000	410,000	712,000	9,374,000	19,278,000	47,670,000	98,737,000

Source: 2018 State Enhanced Hazard Mitigation Plan, Pages E.31 & 34

Tropical cyclones are also causes of flooding incidents. Flooding is described and studied in more depth in the Hazardous Analysis section for flooding ahead in this document.

Future Development and Hurricanes

Taylor County is growing but the growth is relatively slow. In anticipation of future development pressure in the coastal areas, the County developed the *Vision 2060 Plan*. In the next forty years, the county could experience significant growth, especially due to recent trends of Americans moving out of the New England states and settling in the southeast United States. Florida has seen as many as 900 plus people a day moving into the state. The Taylor County *Vision 2060 Plan* can accommodate between 50,000 and 188,000 new housing units, most of which would be located in an area vulnerable to coastal hurricanes. Dekle Beach, Keaton Beach, Dark Island, Ezell, Steinhatchee, and Spring Warrior would all be impacted. This new development will increase the overall vulnerability of Taylor County to hurricanes and tax the existing infrastructure for basic services, response, and recovery. There is also growth and development in the City of Perry, and this increasing population and economic base will increase the vulnerability to direct impacts from larger storms.

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City of Perry – Vulnerability

Based on the hurricane's strength and landfall position, the vulnerable areas, facilities, and populations will vary. Obviously the stronger the storm, the more potential damage to the county, however the primary area-at-risk is along the coastline. The risks and vulnerability for the City of Perry is not substantially different from the risks to the unincorporated county. For this reason, no specific or individualized research and analysis has been performed for the city. All of the maps and analysis numbers are equally valid for the City of Perry as for the entire county.

2. Thunderstorms (including high winds, lightning, and hail)

General Description

THUNDERSTORMS

A thunderstorm is a local storm produced by a cumulonimbus cloud and accompanied by lightning and thunder. A thunderstorm forms from a combination of moisture; rapidly rising warm air; and a force capable of lifting air, such as a warm front, cold front, a sea breeze, or a mountain. Thunderstorms form from the equator to as far north as Alaska. Although thunderstorms generally affect a small area when they occur, they have the potential to become dangerous due to their ability to generate tornadoes, hail storms, strong winds, flash flooding, and lightning.

Thunderstorms can lead to heavy rain induced flooding, landslides, strong winds, and lightning. Roads may become impassable from flooding, downed trees or power lines, or a landslide. Downed power lines can lead to loss of utility services, such as water, phone, and electricity. Typical thunderstorms are 15 miles in diameter and last an average of 30 minutes. During the summer, thunderstorms are responsible for most of the rainfall.

A severe thunderstorm contains either hail one inch or greater and winds gusts more than 50 knots (57.5 mph), or a tornado. Thunderstorms have the potential of causing power outages and destruction or damage to buildings and can result in loss of life. Flash flooding from rainfall, fires from lightning, strong straight-line winds can knock down trees, mobile homes and tornadoes can be very destructive.

Thunderstorms facts:

- They may occur as single units, in clusters, or in lines.
- Some of the most severe occur when a single thunderstorm affects one location for an extended period.
- Thunderstorms typically produce heavy rain for a brief period, which can occur from 30 minutes to an hour, or longer.
- Warm and humid conditions are highly favorable for thunderstorm development.
- About 10% of thunderstorms are classified as severe—one that produces hail at least three-quarters of an inch or larger in diameter, has winds of approximately 58 miles per hour or higher, or spawns a tornado

HAIL STORMS

Hail is precipitation in the form of lumps of ice produced by convective clouds and typically accompanies thunderstorms. They can grow by colliding with supercooled water drops, which

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will freeze on contact with ice crystals, frozen raindrops, dust or some other nuclei. Thunderstorms that have a strong updraft keep lifting the hailstones up to the top of the cloud where they encounter more supercooled water and continue to grow. The hail falls when the thunderstorm's updraft cannot support the weight of the ice or the updraft weakens and the stronger the updraft the larger the hailstone can grow. Hail can damage aircraft, homes and cars, and can be deadly to livestock and people.

LIGHTNING

Lightning is a giant spark of electricity in the atmosphere between clouds, the air, or the ground. In the early stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground. When the opposite charges builds up enough, this insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning.

The flash of lightning temporarily equalizes the charged regions in the atmosphere until the opposite charges build up again. Lightning can occur between opposite charges within the thunderstorm cloud (intra-cloud lightning) or between opposite charges in the cloud and on the ground (cloud-to-ground lightning).

Perhaps the most dangerous and costly effect of thunderstorms is lightning. As a thunderstorm grows, electrical charges build up within the cloud. Oppositely charged particles gather at the ground below. The attraction between positive and negative charges quickly grows strong enough to overcome the air's resistance to electrical flow. Racing toward each other, they connect and complete the electrical circuit. Charge from the ground then surges upward at nearly one-third the speed of light and produces a bright flash of lightning.

On average, more people are killed by lightning than any other weather event. Florida leads in the nation in lightning related deaths and injuries (National Lightning Safety Institute). Florida also has the most strikes, about 12 strikes per square kilometer per year in some places (National Lightning Safety Institute). Nationwide, lightning related economic losses amount to over $5 billion dollars per year, and the airline industry alone loses approximately $2 billion a year in operating costs and passenger delays from lightning. The peak months for lightning strikes are June, July, and August, but no month is safe from lightning danger.

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Location

Thunderstorms and the concurrent events of lightning, strong winds and hail can occur over a widespread area of the county whereas tornadoes are more localized. Thunderstorms have occurred frequently over the entire county.

Extent

Hail size is often estimated by comparing it to a known object. Most hailstorms are made up of a mix of different sizes, and only the very largest hail stones pose serious risk to people caught in the open. When reporting hail, estimates comparing the hail to a known object with definite size are good, but measurements using a ruler, calipers, or a tape measure are best.

- Pea = 1/4-inch diameter
- Mothball = 1/2-inch diameter
- Penny = 3/4- inch diameter

- Nickel = 7/8- inch
- Quarter = 1 inch — hail quarter size or larger is considered severe
- Ping-Pong Ball = 1 1/2 inch
- Golf Ball = 1 3/4 inches
- Tennis Ball = 2 1/2 inches
- Baseball = 2 3/4 inches
- Teacup = 3 inches
- Softball = 4 inches
- Grapefruit = 4 1/2 inches

Lightning extent is measured by lightning activity level (LAL), see Figure 6. This helps to determine the severity of lightning. The following are facts about lightning:

- At 54,000 degrees Fahrenheit, a lightning bolt is roughly five times hotter than the surface of the sun.
- Lightning's unpredictability increases the risk to individuals and property.
- Lightning often strikes outside of heavy rain and may occur as far as 10 miles away from any rainfall.
- "Heat lightning" is actually lightning from a thunderstorm too far away for thunder to be heard, however, the storm may be moving in your direction.
- Most lightning deaths and injuries occur when people are caught outdoors in the summer months during the afternoon and evening.
- Your chances of being struck by lightning are estimated to be 1 in 600,000 but could be reduced even further by following safety precautions.
- Lightning strike victims carry no electrical charge and should be attended to immediately.

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Lightning Activity Level (LAL)	
Is a scale which describes lightning activity. Values are labeled 1-6:	
LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five minute period.
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5 minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced Lightning is frequent, 11 to 15 cloud to ground strikes in a 5 minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater then 15 cloud to ground strikes in a 5 minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.

Figure 6. Lightning Activity Levels and Their Descriptions

Historical Occurrences

Thunderstorm events over the last 50 years are nume*rous. The* NOAA, National Centers for Environmental Information, Storm Events Database has record of 105 days with events totaling $1.336 million of damage and one death and seven injuries. These are only the recorded events, as some events are not always recorded due to various factors.

In July of 1997, an outflow of strong winds from thunderstorms caused 5 to 7 boats to capsize around the Steinhatchee River entrance to the Gulf of Mexico. One man received chemical burns over 80% of his body from the gasoline that poured from his capsized boat. His wife died from cardiac arrest while in the water.

In August 1998, lightning ignited a natural gas pipeline at the Florida Gas Transmission Company, about three miles northeast of Perry. A pair of explosions sent a 600-foot fireball skyward forcing the evacuation of about 100 residents. Five homes were incinerated, and natural gas supplies were shut off to Perry and surrounding communities. Four firefighters and a gas plant employee suffered burns. The American Red Cross set up a temporary shelter at the Taylor County High School for displaced families. Units from Leon, Dixie, Jefferson, and Wakulla County joined the Taylor County and Perry firefighting effo

In February 2017, trees were blown down along Jefferson Street in Perry. One tree fell on a car. Damage was estimated at $10,000. Besides the tornado damage discussed below, this was the last time a storm had caused reported financial damage.

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Table 14. Thunderstorm Events from 2010 to 2020 in Taylor County

Location	Date	Event	Magnitude	Damages ($)
Perry	6/18/2010	Thunderstorm Wind	50	1000
(40J)Perry-Foley Arpt	6/[illegible]/2010	Thunderstorm Wind	50	1500
Keaton Beach	[illegible]30/2011	Thunderstorm Wind	50	0
Fenholloway	4/5/2011	Thunderstorm Wind	55	0
Salem	[illegible]/2011	Hail	1	0
Foley	6/[illegible]2011	Thunderstorm Wind	50	2000
Bucell Junction	6/6/2011	Thunderstorm Wind	50	1000
Perry	6/[illegible]2011	Thunderstorm Wind	56	3000
Shady Grove	4/21/2012	Hail	0.88	0
Hampton Springs	5/9/2012	Thunderstorm Wind	45	500
(40J)Perry-Foley Arpt	5/28/2012	Heavy Rain		0
(40J)Perry-Foley Arpt	6/6/2012	Heavy Rain		0
[illegible]	6/23/2012	Heavy Rain		0
Perry	7/12/2012	Thunderstorm Wind	50	3000
Perry	8/19/2012	Heavy Rain		0
Perry	8/20/2012	Heavy Rain		0
Eridu	3/23/2013	Hail	1	0
Buckhorn	6/14/2013	Thunderstorm Wind	50	0
Cabbage Grove	1/11/2014	Thunderstorm Wind	50	500
Perry	5/14/2014	Thunderstorm Wind	50	1000
Eridu	6/6/2014	Thunderstorm Wind	50	1000
Perry	8/21/2014	Thunderstorm Wind	50	3000
Bucell Junction	10/14/2014	Thunderstorm Wind	50	2000
Perry	2/25/2015	Thunderstorm Wind	55	10000
Secotan	4/19/2015	Thunderstorm Wind	50	0
Steinhatchee	4/20/2015	Thunderstorm Wind	50	5000
Lake Bird	6/13/2015	Thunderstorm Wind	50	5000
(40J)Perry-Foley Arpt	6/30/2015	Thunderstorm Wind	60	10000
Secotan	7/2/2015	Thunderstorm Wind	50	0
Scanlon	7/29/2015	Thunderstorm Wind	50	5000
Adams Beach	9/12/2015	Thunderstorm Wind	50	0
Hampton Springs	1/15/2016	Thunderstorm Wind	50	0

Lake Bird	3/24/2016	Thunderstorm Wind	50	0
Blue Springs	3/24/2016	Thunderstorm Wind	50	2000
Perry	5/20/2016	Thunderstorm Wind	50	0
Perry	5/20/2016	Thunderstorm Wind	50	2000
Perry	7/22/2016	Lightning		5000
Hampton Springs	2/7/2017	Thunderstorm Wind	50	0
Perry	2/7/2017	Thunderstorm Wind	50	10000
Econfina	7/13/2017	Thunderstorm Wind	50	2000
Foley	3/19/2018	Thunderstorm Wind	50	2000
Perry	4/15/2018	Thunderstorm Wind	50	3000
Perry	6/2/2018	Thunderstorm Wind	50	2000
Boyd	6/26/2018	Thunderstorm Wind	50	0
Hampton Springs	7/3/2018	Thunderstorm Wind	50	0
Secotan	7/21/2018	Thunderstorm Wind	50	2000
Perry	7/22/2018	Thunderstorm Wind	50	0
(40J)Perry-Foley Arpt	8/28/2018	Thunderstorm Wind	50	0
Lake Bird	9/3/2018	Thunderstorm Wind	50	2000
Secotan	3/3/2019	Thunderstorm Wind	50	2000
Perry	9/18/2019	Thunderstorm Wind	50	2000
Boyd	9/18/2019	Thunderstorm Wind	50	3000
Salem	2/6/2020	Thunderstorm Wind	50	0
Secotan	4/13/2020	Thunderstorm Wind	50	0
Boyd	4/13/2020	Thunderstorm Wind	50	0
Athena	4/14/2020	Thunderstorm Wind		2000
Salem	4/23/2020	Thunderstorm Wind	50	0
Hampton Springs	4/24/2020	Thunderstorm Wind	50	3000

Source: NOAA, National Centers for Environmental Information, Storm Events Database

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Probability: High

A severe thunderstorm contains either hail one inch or greater and winds gusts in excess of 50 knots (57.5 mph). The thunderstorm/winds have the potential of causing power outages, destruction and damage to buildings and can result in loss of life. Flash flooding from rainfall and strong straight-line winds can knock down trees, and damage mobile homes and roofs. Thunderstorms occurring are an extremely high probability in Taylor County. According to NCDC data, 51 severe thunderstorms were recorded during the last 10 years. That is an average of 5 a year. This is a common annual occurrence due to Taylor County's proximity to the coast where land breeze and sea breeze air masses clash causing moist air to rise and cause thunderstorms in the summer months.

Impacts

The entire planning area is subject to the impacts of thunderstorms and its products (i.e. lightning, strong winds, hail, heavy rain, and tornadoes). They typically cause:

- Power outages
- Downed trees blocking roadways
- Infrastructure damage (washouts of culverts, roadways, possibly bridges)
- House damage
    - Roofs
    - Windows
- Hail damaged cars and homes
- Lightning damaged homes and trees
- Freshwater flooding in homes and businesses
- Wind/hail damage to crops

- Wildfires from lightning causing subsequent damages to homes, crops, wildlands
- Debris
- Economic loss

Vulnerability

Taylor County is vulnerable to these wind disasters due to a high amount of the population residing in manufactured or mobile homes, approximately 33.3%. Rural areas are equally at risk from severe thunderstorms and tornadoes but due to the much lower population density they are not as vulnerable as the area in and around Perry. Coastal areas are of great concern due to the population concentration that exists there and quantity of mobile home structures in the area. In addition, many people enjoy recreational activities along the Taylor County coast. As has been seen in the past, some severe storms have surprised recreation seekers and have caused severe injury and death as occurred in the July 1997 thunderstorm noted above, where one many was severely injured and his wife died when several boats were capsized due to the storm.

Taylor County's most vulnerable populations are its youth, elderly, disabled, and impoverished. Unfortunately, this incorporates a large amount of the population. The table below shows the most vulnerable persons of Taylor County. When combining these populations with substandard housing, they become extremely vulnerable to severe weather events.

Table 15. Taylor County's Vulnerable Populations

Age Distribution	
0-5 years old	4.7% (1,039 persons)
18 years and younger	19.2% (4,243 persons)
65 years and older	19.1% (4,221 persons)
Poverty Rate (i.e. those living below poverty level)	19.8% (4,375 persons)
Disability (overall)	22.7% (5,016 persons)
Hearing	6.7% (1,480 persons)
Vision	5.9% (1,304 persons)
Cognitive	8.7% (1,922 persons)
Ambulatory Difficulty	14.6% (3,226 persons)
Self-Care Difficulty	6.0% (1,326 persons)
Independent Living Difficulty	9.0% (1,989 persons)

2019 United States Census American Community Survey Data

Additionally, the county's 3,726 mobile homes, valued over $68 million according to the county property appraiser are greatly vulnerable.

City of Perry Vulnerability

The City of Perry is as equally vulnerable to severe storms and tornadoes as the rest of the county. However, due to the higher population density, there is a greater probability of loss of life and property damage in Perry than in the unincorporated areas of the county. Warning the population is also more difficult due to the number of people that must be notified in a short period of time. Along this same line, there is a much larger number of buildings with higher property values in the City of Perry than throughout the rest of the county. Therefore, there is again a higher chance of damage when storm systems hit the city rather than the unincorporated

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areas. Though the risk is the same, there is a greater vulnerability for the city in terms of potential human and economic impact.

3. Tornadoes

General Description

Every year in the United States, tornadoes do about 400 million dollars in damage and kill about 70 people on average. Extremely high winds tear homes and businesses apart. Winds can also destroy bridges, flip trains, send cars and trucks flying, tear the bark off trees, and suck all the water from a riverbed.

Tornadoes are nature's most violent storms. Spawned from powerful thunderstorms, tornadoes can cause fatalities and devastate a neighborhood in seconds. A tornado appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the ground with whirling winds that can reach 300 miles per hour. Damage paths can be more than one mile wide and 50 miles long. Every state is at some risk from this hazard.

Some tornadoes are clearly visible, while rain or nearby low-hanging clouds obscure others. Some tornadoes develop rapidly with little advance warning and then may dissipate just as quickly. Most tornadoes are on the ground for less than 15 minutes. Before a tornado hits, the wind may die down and the air may become very still. A cloud of debris can mark the location of a tornado even if a funnel is not visible. It is not uncommon to see clear, sunlit skies behind a tornado. Facts about tornadoes:

- They may strike quickly, with little or no warning.
- They may appear nearly transparent until dust and debris are picked up or a cloud forms in the funnel.
- The average tornado moves Southwest to Northeast, but tornadoes have been known to move in any direction.
- The average forward speed of a tornado is 30 MPH, but may vary from stationary to 70 MPH.
- Tornadoes can accompany tropical storms and hurricanes as they move onto land.
- Waterspouts are tornadoes that form over water.
- Tornadoes are most frequently reported east of the Rocky Mountains during spring and summer months.
- Peak tornado season in the southern states is March through May; in the northern states, it is late spring through early summer.
- Tornadoes are most likely to occur between 3 p.m. and 9 p.m. but can occur at any time.

Source: FEMA http://www.fema.gov/hazard/tornado/index.shtm

Location

Tornadoes have occurred and been reported in all geographic areas of Taylor County.

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Extent

Enhanced Fujita Scale

According to NOAA's National Weather Service, Storm Prediction Center, the Enhanced Fujita Scale was implemented February 2007. The storm events database documentation notes that the Tornado EF Scale was based on the original Fujita-Scale. Details from NOAA's National Weather Service Storm Prediction Center on the Enhanced Fujita scale states the tornado must continue to support and maintain the original tornado database and there must be some conformity to that of the F-Scale that is listed in the database.

The six categories of the Enhanced Fujita Scale are listed below in order of increasing intensity. Although the wind speeds and photographic damage examples are updated, the damage descriptions given are those from the Fujita scale that are more or less accurate.

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Scale	Wind speed estimate		Potential damage
	mph	km/h	
EF0	65–85	105–137	Minor 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 supposed to be rated EF0 as a matter of policy; however, some NWS local offices have adopted an "EFU" (for "unknown") rating for such tornadoes.
EF1	86–110	138–177	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111–135	178–217	Considerable damage. Roofs torn off from 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	218–266	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 are badly damaged.
EF4	166–200	267–322	Devastating damage. Well-constructed and whole frame houses completely leveled; some frame homes may be swept away; cars and other large objects thrown and small missiles generated.
EF5	>200	>322	Incredible damage. Strong-framed, well-built houses leveled off foundations and swept away; steel-reinforced concrete structures are critically damaged; tall buildings collapse or have severe structural deformations; cars, trucks, and trains can be thrown approximately 1 mile (1.6 km).

Figure 7. Enhanced Fujita Scale with Damage Descriptions

When using the EF-Scale to determine the tornado's EF-rating, begin with the 28 Damage Indicators. Each one of these indicators has a description of the typical construction for that category of indicator. Then the next step is to find the Degree of Damage (DOD). Each DOD in each category is given and expected estimate of wind speed, a lower bound of wind speed and an upper bound of wind speed.

Enhanced Fujita Scale Twenty-Eight (28) Damage Indicators		
DI No.	Damage Indicator (DI)	Degree of Damage (DOD)
1	Small barns or farm outbuildings (SBO)	8
2	One- or two-family residences (FR12)	10
3	Manufactured home – single wide (MHSW)	9
4	Manufactured home – double wide (MHDW)	12
5	Apartments, condos, townhouses [three stories or less] (ACT)	6
6	Motel (M)	10
7	Masonry apartment or motel building (MAM)	7
8	Small retail building [fast-food restaurants] (SRB)	8
9	Small professional building [doctor's office, branch banks] (SPB)	9
10	Strip mall (SM)	9
11	Large shopping mall (LSM)	9
12	Large, isolated retail building [K-Mart, Wal-Mart] (LRB)	7
13	Automobile showroom (ASR)	8
14	Automobile service building (ASB)	8
15	Elementary school [single-story; interior or exterior hallways] (ES)	10
16	Junior or senior high school (JHSH)	11
17	Low-rise building [1–4 stories] (LRB)	7
18	Mid-rise building [5–20 stories] (MRB)	10
19	High-rise building [more than 20 stories] (HRB)	10
20	Institutional building [hospital, government or university building] (IB)	11
21	Metal building system (MBS)	8
22	Service station canopy (SSC)	6
23	Warehouse building [tilt-up walls or heavy-timber construction] (WHB)	7
24	Electrical transmission lines (ETL)	6
25	Free standing towers (FST)	3
26	Free-standing light poles, luminary poles, flag poles (FSP)	3
27	Trees: hardwood (TH)	5
28	Trees: softwood (TS)	5

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Figure 8. Enhanced Fujita Scale Damage Indicators

The Enhanced Fujita (EF) Scale is a set of wind estimates (not measurements) based on damage. Its uses three-second gusts estimated at the point of damage based on a judgment of 8 levels of damage to the 28 indicators listed below. These estimates vary with height and exposure. The 3 -second gusts are not the same wind as in standard surface observations. Standard measurements are taken by weather stations in open exposures, using a directly measured, and “one-minute mile" speed. See Figure 48, the Enhanced F Scale for specifics on tornado damage.

Enhanced Fujita Scale						
Fujita Scale			Derived Scale		Operations EF Scale	
F Number	Fastest ¼ Mile (MPH)	3 Second Gust (MPH)	EF Number	3 Second Gust (MPH)	EF Number	3 Second Gust (MPH)
0	40-78	45-78	0	65-85	0	65-85
1	79-117	79-117	1	86-109	1	86-110
2	118-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-262	210-261	4	168-199	4	165-200
5	261-318	262-317	5	200-234	5	Over 200

Historical Occurrences

Since the last update, Taylor County has had four tornadoes, see Table 16. The most recent tornado in April 2020 caused $50,000 damage when a tornadic waterspout came ashore into Keaton Beach and severely damaged a boat rental facility pulling concrete pilings out of the ground. The tornado lifted shortly after that. During the last 70 years of recording from NOAA's National Centers for Environmental Information, tornadoes have damages $1.355 million and caused nine reported injuries.

The most significant tornado occurred in March of 2008, an EF2, causing $500,000 damage and injuring two persons. A waterspout came ashore as a tornado at Keaton Beach. Damage began along Keaton Beach Drive, just south of Beach Road, and continued east to Marina Drive where most of the significant damage occurred. Sporadic tree and power line damage was observed near Marina Drive. Fifteen homes between Marina Drive and Keaton Beach Drive sustained minor to moderate roof damage. Several decks on these homes failed. One home was destroyed when it was blown off its foundation and tossed into the road. Two injuries were reported. A few small boats were lofted into the air, with one boat moved over 100 feet. The tornado quickly lifted over an open area east of Marina Drive.

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Table 16. Tornado Occurrences in the Last 70 Years in Taylor County

Location	Date	Time	Magnitude	Injuries	Damage
Taylor County	9/24/1956	1800	F2	0	$250,000
Taylor County	9/30/1957	1245	F2	0	$250
Taylor County	6/6/1964	950	F1	0	$2,500
Taylor County	5/19/1969	1525		0	$0
Taylor County	10/27/1972	1450	F2	1	$250,000
Taylor County	5/12/1974	130	F1	3	$25,000
Taylor County	3/18/1975	1800	F1	1	$2,500
Taylor County	5/16/1976	1730	F0	0	$30
Shady Grove	10/2/1994	1444	F1	2	$50,000
Lake Bird	10/2/1994	1650	F0	0	$500
PERRY	10/28/2003	1530	F1	0	$100,000
STEINHATCHEE	9/16/2004	850	F0	0	$50,000
JACK LEE ISLAND	3/7/2008	836	EF2	2	$500,000
DEKLE BEACH	4/28/2008	1206	EF0	0	$75,000
PERRY	12/20/2012	1742	EF0	0	$0
HOWELL PLACE	9/1/2016	1907	EF0	0	$0

ADAMS BEACH	9/1/2016	1936	EF0	0	$0
SALEM	9/1/2016	2139	EF0	0	$0
JACK LEE ISLAND	4/23/2020	1856	EF1	0	$50,000
					$1,355,780

Source: NOAA, National Centers for Environmental Information, Storm Events Database

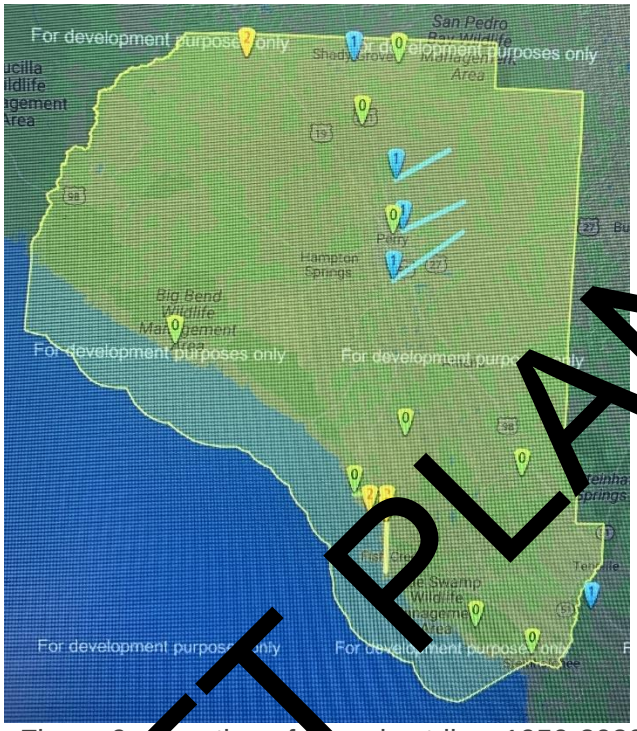

Figure 9 Location of tornado strikes 1950-2020

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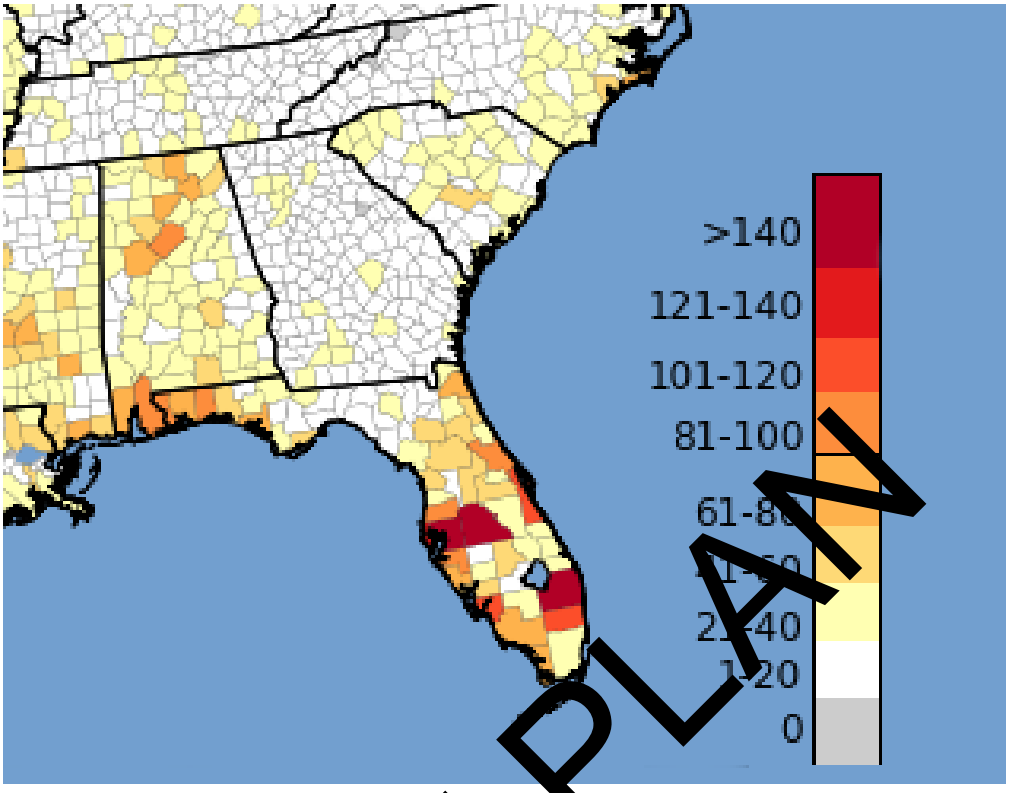
Probability: Medium/High

In Figure 10, it can be determined that Taylor County that in the 59 years from 1955 to 2014 the county experienced 15 tornadoes, showing up as white on the map. Adding the four tornadoes which occurred in the last five years, it still is less than 20 which would continue as white on the map. Taylor County does not run a high probability for tornadoes. The 2018 State Enhanced Hazard Mitigation Plan considers Taylor County a high probability for tornadoes, which is a probability for an occurrence once or more each year. The return period for tornados is closer to one every three and a half years, which is more of a medium/high probability.



Source: NOAA Storm Prediction Center

Figure 10. Total Number of Tornados Per County 1955 – 2014

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Impacts

The Taylor County community, the residents, and structures, have suffered from tornado events. The impacts associated with tornadoes can be very destructive or catastrophic on the county residential, commercial, and public buildings, as well as the critical infrastructure such as transportation, water, energy, and communication systems. In addition, the economic effect or financial impact could be devastating from a strong tornado event not only during the crisis phase, which immediately follows the event, through the recovery and rebuilding stages. Also, the effects could have a significant impact on agriculture and silviculture. A large tornado could cause hundreds of acres of damage to crops and commercial timberland, include damage to valuable wildlife habitat.

Vulnerability

The worst-case scenario would be an F5 tornado, with destructive winds of 261 – 318 miles per hour, with complete devastation of homes leveled off foundations and swept away; trees debarked; and incredible phenomena would occur. However, NCDC data reveals that the highest magnitude in the last 70 years, was the F2 tornado of 2008 that had property damage in Taylor County of $500,000, and injured 2 residents (specific details can be found above in the historical occurrences section). Mobile homes are particularly vulnerable to the impacts of tornados because of their construction and are located throughout the entire county.

The vulnerability to tornado events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. Taylor County is vulnerable to these wind phenomena due to a high concentration of the population residing in mobile homes, which is approximately 33.3%, or 3,721 mobile homes according to the Taylor County Property Appraiser 2020 data.

The greatest area of vulnerability lies in unincorporated areas of Taylor County (see tornado occurrence data) because of the difficulty in warning the residents to seek shelter due to the speed of onset and unpredictability of tornadoes. Mobile homes and poorly constructed homes are particularly vulnerable to the impacts of tornados because of their construction and based on the number of mobile homes within the county 91% of them are in the unincorporated areas within the county. These residents residing in the mobile homes could include the elderly, the sick, the special needs, and the poor.

4. Forest Fires

See Appendix 6, Annex 3 for the Taylor County Wildfire Protection Plan for more information.

General Description

A wildfire is any uncontrolled fire in combustible vegetation that occurs in the countryside or a wilderness area. Other names such as brush fire, bushfire, forest fire, grass fire, hill fire, peat fire, vegetation fire and wildland fire may be used to describe the same phenomenon depending on the type of vegetation being burned.

Florida's ecosystems are dependent on natural fire. These low intensity fires re-nourish soil, thin abundant vegetation, and provide proper conditions for reproduction and forage. However, since the early 1950's when Floridians actively began to suppress all fires to protect newly planted forest areas and keep newly built dwellings safe, vegetative fuel has become dense and thick. Natural fires have given way to dangerous wildfires, which often damage rather than benefit natural surroundings.

Wildfires occur in Florida throughout the entire year but are perhaps most prevalent in the spring and summer months, from March to August. Typically, north Florida, including Taylor County, sees the greatest number of wildfires occurring during the months of April, May and June, with June being the most active month due to the occurrence of "dry lightning," or lightning without measurable precipitation.

The growing number of people relocating to Florida adds to the wildfire problem as nearly 900+ people move to Florida each day. Additionally, Floridians who are tired of big-city life are moving to rural areas to "get back to nature". Many of them choose to live in areas where natural vegetation meets homes and communities. These areas are called the Wildland-Urban Interface (WUI), and many of these new residents are unaware of the natural role of fire in Florida and therefore are unprepared. The Wildland-Urban Interface fires are fast moving fires that often require many pieces of firefighting equipment, and suppression is a difficult and time-consuming operation. Wildfire suppression must also take on the challenge of home protection during almost every fire that is detected. The cost of these operations grows proportionally with their complexity.

The WUI is defined as the area where people live and whose homes, and other human structures, either meet or intermingle with wildland vegetation. It can be a major sub-division, or it can be four homes on an open range. Inclusive would be WUI buffers of 1.5 miles around

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actual places where people live as well as significant infrastructure, utility corridors and major evacuation routes.

Development trends in North Florida for the next 20+ years also indicate that an increasing population will put pressure on existing rural land use categories to supply the necessary housing. As more homes are constructed in the WUI, more homes will be threatened by wildfire and the potential for property loss will increase. The number of persons at risk from wildfire will also increase, as will the economic values of their structures. Both will require more funds to cover suppression costs unless effective mitigation strategies are implemented throughout the county.

This development pattern increases the risk of wildfires in two ways. First, wildfires that occur in this area have a greater chance of damaging residential structures, and second, where there are people, there is an increased risk of wildfires being started.

The Florida Forest Service has identified several areas in the county where prescribed burns and/or clearing of brush and trees are needed to reduce the likelihood of wildfires developing or spreading. These areas are all located in the WUI in the vicinity of the City of Perry and Steinhatchee.

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Location

Wildfires could burn in any woodland area throughout the county and at most times of the year. As discussed later in this section, most of the county is covered in timberland and most of the population lives in or near wooded areas. According to calculations from the Southern Wildfire Risk Assessment Portal (SouthWRAP), 98.5 percent of the total population lives within the WUI. The WUI represents 93,574 acres of Taylor County. These are the likely locations of wildfire ignitions.

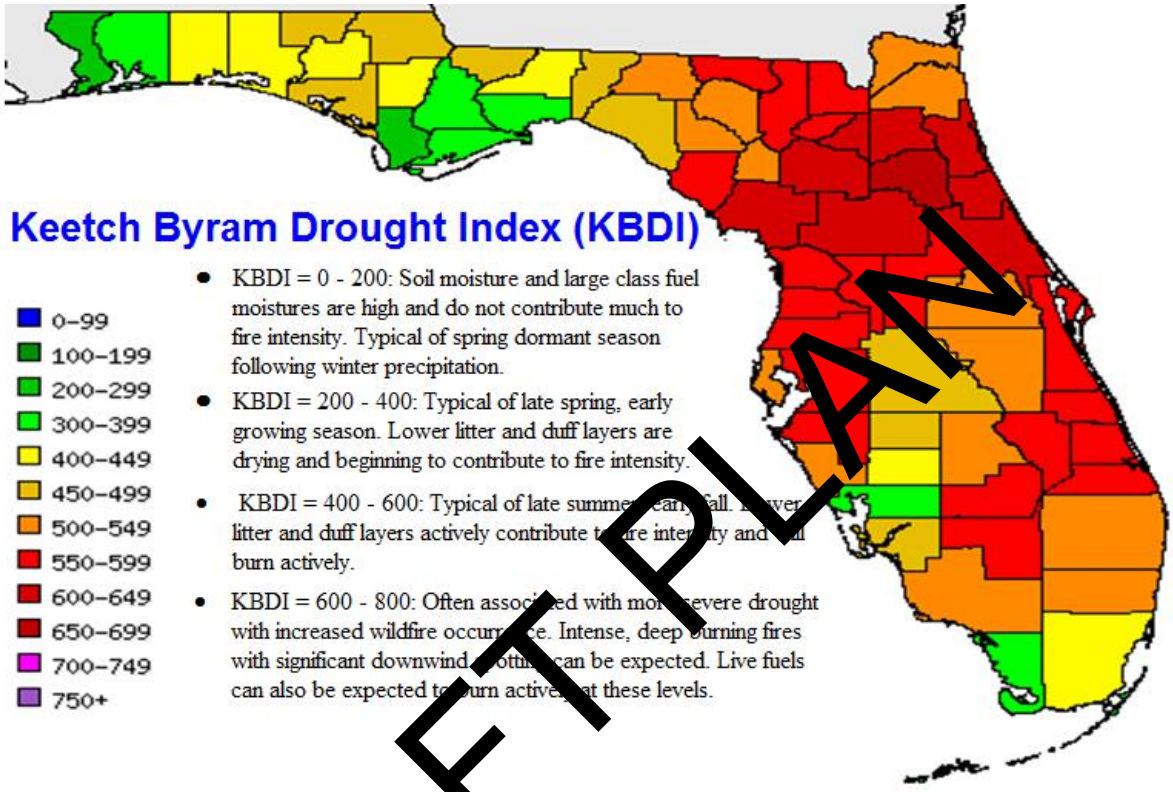
Extent

The Florida Forest Service uses a web-based software portal called SouthWRAP to determine probability, vulnerability, and impact for communities, counties, and statewide. This application was designed by the United States Forest Service, the Southern Group of State Foresters and Southern Regional Extension Forestry. It utilizes geospatial data about vegetation and department of revenue data with field checked information to determine fire factors. These factors are used in the prevention, mitigation, and response to wildfires.

The Keetch-Byram drought index (KBDI) (Figure 11) is a continuous reference scale for estimating the dryness of the soil and duff layers. The index increases for each day without rain (the amount of increase depends on the daily high temperature) and decreases when it rains. The scale ranges from 0 (no moisture deficit) to 800. The range of the index is determined by assuming that there is 8 inches of moisture in a saturated soil that is readily available to the vegetation.

For different soil types, the depth of soil required to hold 8 inches of moisture varies (loam=30", clay=25" and sand=80"). A prolonged drought (high KBDI) influences fire intensity largely because more fuel is available for combustion (i.e. fuels have a lower moisture content). In addition, the drying of organic material in the soil can lead to increased difficulty in fire suppression.

High values of the KBDI are an indication that conditions are favorable for the occurrence and spread of wildfires, but drought is not by itself a prerequisite for wildfires. Other weather factors, such as wind, temperature, relative humidity and atmospheric stability, play a major role in determining the actual fire danger.



Source: Florida Forest Service

Figure 11. KBDI Levels Explained

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Another measurement for fire danger is the National Fire Danger Rating System (NFDRS) (Figure 12). It is a system that allows fire managers to estimate today's or tomorrow's fire danger for a given area. It combines the effects of existing and expected states of selected fire danger factors into one or more qualitative or numeric indices that reflect an area's fire protection needs. It links an organization's readiness level (or pre-planned fire suppression actions) to the potential fire problems of the day. It gives fire managers a short narrative about fire factors such as, ignition, spread, spotting and control.

Source: United States Forest Service, https://www.fs.fed.us/research/highlights/highlights_display.php?in_high_id=1425

Figure 12. National Fire Danger Rating System

Historical Occurrences

Taylor County is a predominantly rural county with a large percentage of its land area covered in forest. As a result, many areas of the county are susceptible to wildfires and may be caused by a number of reasons, such as: lightning strikes, arson, escaped yard trash burns, etc., see Table 17, Fires by Causes.

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Table 17. Fires by Cause over the period 2009 to 2019

Cause	Fires	Percent	Acres	Percent
Campfire	11	1.96	10.1	0.32
Children	17	3.03	4.6	0.15
Debris Burn--Auth--Broadcast/Acreage	12	2.14	118.8	3.75
Debris Burn--Auth--Piles	13	2.32	40.0	1.26
Debris Burn--Auth--Yard Trash	39	6.95	30.1	0.95
Debris Burn--Nonauth--Broadcast/Acreage	21	3.74	81.9	2.59
Debris Burn--Nonauth--Piles	36	6.42	45.4	1.43
Debris Burn--Nonauth--Yard Trash	50	8.91	105.8	3.34
Equipment use*	0	0	0.0	0
Equipment--Agricultural	14	2.50	51.5	1.63
Equipment--Logging	3	0.53	0.3	0.01
Equipment--Recreation	4	0.71	5.4	0.17
Equipment--Transportation	26	4.63	14.3	0.45
Incendiary	108	19.25	624.4	19.73
Lightning	103	18.36	1,890.6	59.75
Miscellaneous --Breakout	0	0	0.0	0
Miscellaneous --Electric Fence	0	0	0.0	0
Miscellaneous --Fireworks	2	0.36	0.2	0.01
Miscellaneous --Power Lines	25	4.46	29.0	0.92
Miscellaneous --Structure	11	1.96	5.8	0.18
Miscellaneous--Other	23	4.10	51.4	1.62
Railroad	0	0	0.0	0
Smoking	9	1.60	3.9	0.12
Unknown	34	6.06	50.7	1.60
Total	561		3,164.2	

Source: Florida Forest Service, Fire Management Information System database 2019

In the last ten years the majority of wildfires have been relatively small, averaging 5.6 acres per fire for the 561 wildfire incidents listed above. Significant recent incidents are discussed below.

June 2012, Ocean Pond Fire - a yard trash fire was started in a residential neighborhood endangering homes and residents. The fire was in the Ocean Pond Subdivision for a total of 24 acres. The fire endangered six homes and two outbuildings. The burner was charged for the suppression of the fire. The fire was contained the same day and controlled a few days later.

May 2016, Tide Swamp Fire – this fire was caused by lightning and burned 232 acres of commercial forest and 800 acres of swamp along the Gulf of Mexico coast. This area has a marsh grass which grows in delicate soils and was designated as a bear habitat. The fire at no time were buildings or residences at risk. The fire was completely on State of Florida rural property managed by Florida Fish and Wildlife Conservation Commission. The main hazard to the public was the smoke on the road hazard on the Beach Road which is a main thoroughfare in the county along the coast. The fire burned for 11 days until it was contained and was declared controlled (i.e. dead out) on day 12.

May 2017, Dallus Creek Fire – this fire was caused by an incendiary device and burned 352 acres of commercial forest. The fire was located about two miles off the coastline. The fire burned for 25 days and burned no structures. It took two weeks to contain the fire. More than 30 firefighters were assigned to the fire to contain it initially. Damage caused by the fire was estimated to be over $100,000. The person who set the incendiary device was never found.

Most other fires were less than 10 acres in size and insignificant as they were controlled rapidly. Some of this is due to good fire prevention communication during dry times where fire managers ensure the public is aware of the fire danger at that time through social media and traditional media routes.

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Probability: High

According to Florida Forest Service data, an average of 56 fires a year occur in the planning area. The ignition of fires is determined by many factors, such as fuel type, weather conditions and population density. As Taylor County is most wooded and fires are a natural part of the Florida ecosystem, fires will continue to be a high probability into the future. As more people move into the wildland-urban interface and they choose to maintain their private land, carelessness will continue to be a human factor in causing wildfires in this area.

Impacts

Periods of drought or long periods of dry conditions may also increase the onset of wildfires, as well as their severity. Wildfires impact communities in the following ways:

- Reduction in air quality
- Destruction of homes and structures
- Destruction of commercial timberlands
- Destruction of wildland habitat
- Reduction in water quality in natural areas
- Damage to infrastructure like powerlines
- Obstruction to transit from road closures

From the above-mentioned historical occurrences of wildfires, residents suffered road closures causing delays in transit, damage to homes, and smoke hazards like visibility and inhalation issues; not to mention the more than one hundred thousand dollars in timber revenue lost. Impacts can be severe and can linger long after a fire has been contained due to various organic

soils that Florida is known for. Often called muck soils, found in swampy areas can actually burn causing an acrid smoke to be produced which is very dangerous to people with compromised breathing capacity and troublesome for people with healthy lung capacity.

Vulnerability

In Taylor County, 98.5% of the total area population lives within the WUI. The WUI represents 93,574 acres, and 40% of the area is sparsely populated with 1 house per 40 acres. 34.7% live in a WUI area with a housing density of 1 house to 2 acres to 3 houses to 1 acre.

Table 18. WUI Population by Acreage and Housing Density

	Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
	LT 1hs/40ac	749	3.4 %	[illegible]	43.4 %
	1hs/40ac to 1hs/20ac	879	4.0 %	16,8[illegible]	18.0 %
	1hs/20ac to 1hs/10ac	1,710	7.7 %	[illegible]23	14.9 %
	1hs/10ac to 1hs/5ac	2,638	11.9 %	10,122	10.8 %
	1hs/5ac to 1hs/2ac	5,157	23.3 %	8,087	8.6 %
	1hs/2ac to 3hs/1ac	7,691	34.[illegible]%	3,772	4.0 %
	GT 3hs/1ac	3,348	[illegible].1 %	205	0.2 %
	Total	**22,17[illegible]**	**100.0 %**	**93,574**	**100.0 %**

Source: South WRAP, Southern Group of State Foresters

Housing Density is important when calculating the WUI Risk Rating for communities within Taylor county. 39.7 percent of WUI acres are rated at or above a 5 on the WUI Risk Rating Impact Scale, with the majority being rated a 5 overall. Over 10 percent of the population lives in an area rated from 7 to 9 representing the highest level of impact on the scale.

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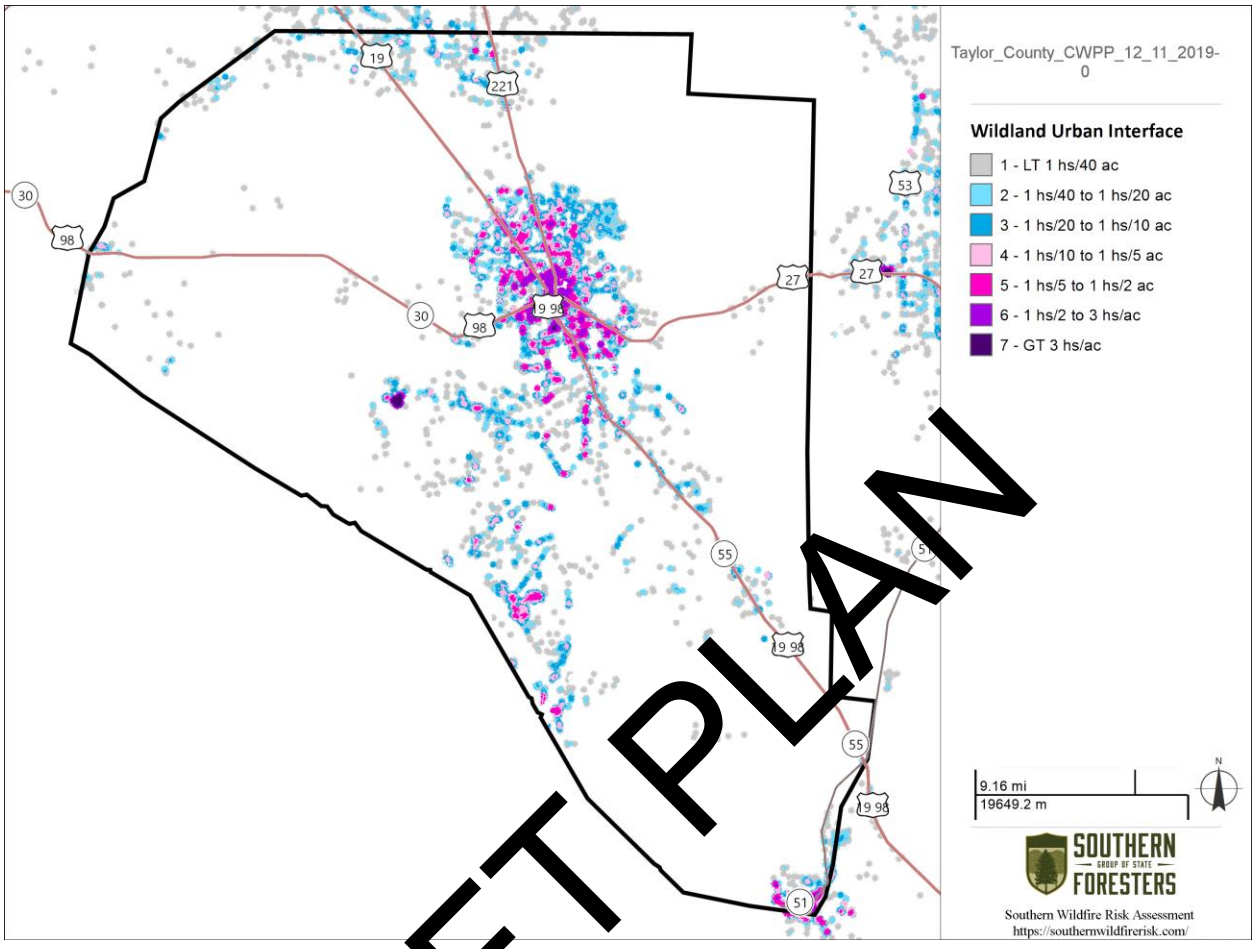

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Figure 13. Housing Density Map for Determining WUI Vulnerability

Critical Facilities Vulnerability

These facilities represent critical resources for firefighting as well as critical infrastructure for the community, and areas that would necessary to evacuate in the case of extreme fires. The following list identifies critical facilities in Taylor County and their threat level.

Using SouthWRAP each critical facility can be examined by address and obtain a threat level for that area. These threat level represent the area and not the building or facility. The surrounding threat would cause the facility to evacuate if an extreme wildfire were present.

Table 19. Critical Facility Vulnerability to Extreme Wildfire Threat

Name	Type	Address	Area Wildfire Threat Level
Doctor's Memorial Hospital	Hospital	333 N Byron Butler Parkway Perry Fl	Very Low
Perry City Water Plant	Utility	713 N Faulkner Street Perry Fl	Moderate
Florida Gas Transmission	Utility	2065 Pisgah Road Perry FL	Moderate to High
Foley Water Plant	Water management	3249 Red Padgett Road Perry Fl	Low to Moderate

Taylor County Jail	Law Enforcement	589 US 27 Perry Fl	Moderate
Taylor Correctional Institution	Law Enforcement	8501 Hampton Springs Road Perry Fl	Moderate to High
Perry Police Department	Law Enforcement	211 S Washington St Perry Fl	Moderate
Taylor County Sheriff's Office	Law Enforcement	108 N Jefferson Street Perry Fl	Moderate to High
Taylor County Courthouse	Courthouse	108 N Jefferson Street Perry Fl	Moderate to High
Taylor County Rescue 1	Fire Station	301 Industrial Dr Perry, FL	Minimal
Taylor County Rescue 2	Fire Station	178 McKinley Maddox Perry, FL	Low to Moderate
Taylor County Rescue 3	Fire Station	3160 Johnson Stripling Rd, Perry, FL	Moderate
Taylor County Rescue 4	Fire Station	4395 Ecofina River Road Lamont, FL	Moderate
Taylor County Rescue 6	Fire Station	16725 Beach Rd, Perry, FL	Moderate to High
Taylor County Rescue 7	Fire Station	1 12th St NE Steinhatchee,	Moderate to High
Taylor County Rescue 8	Fire Station	39 Alton Wentworth Greenville, FL	Low to Moderate
City of Perry Fire Department	Fire Station	224 S Jefferson St Perry, FL	Moderate
Florida Forest Service - Perry District	Forestry Station	618 Plantation Rd Perry Fl.	Moderate
Perry Primary	School	1600 E Green St, Perry, FL	Moderate to High
Taylor County Elementary School	School	1600 E Green St, Perry, FL	Moderate to High
Taylor County Middle School	School	601 East Lafayette Street Perry, FL	Moderate
Taylor County High School	School	900 Johnson Stripling Rd. Perry, FL	Low to Moderate
Next Generation Christian Academy	Private School	1012 S Washington St, Perry, FL	Moderate
Point of Grace Christian School	Private School	920 N Courtney Rd, Perry, FL	Moderate
Taylor County Christian Academy	Private School	900 W Ash St, Perry, FL	Moderate
Taylor Technical Institute	Adult Education	3233 US-19, Perry, FL	Moderate to High
Steinhatchee School	School	1209 1st Ave SE Steinhatchee, FL	Moderate to High
Kidz Corner	Day Care	212 E Green St, Perry, FL	Moderate
Jack and Jill Daycare	Day Care	802 N Faulkner St, Perry, FL	Moderate
Good Shepherd Child Development Center	Day Care	405 E Hampton Springs Ave, Perry, FL	Moderate
Happy time Preschool	Day Care	1012 N Washington St, Perry, FL	Low to Moderate

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Kiddie Kollege Kindergarten	Day Care	305 W High St, Perry, FL	Low to Moderate
Room to Grow Pre School	Day Care	310 Plantation Rd, Perry, FL	Low to Moderate
Boy's & Girls Club of Perry	Day Care	903 N Washington St, Perry, FL	Moderate
Taylor Senior Citizens Center Inc	Senior Center	800 W Ash St, Perry, FL	Moderate
Marshall Health and Rehabilitation Center	Adult Care	207 Marshall Dr, Perry, FL	Low to Moderate
Perry-Foley Airport	Small Regional Airport	401 Industrial Dr, Perry, FL	Low to Moderate
Taylor County EOC	Emergency Operations Center	108 N Jefferson St, Perry, FL 32347	Moderate to High

In Taylor County, approximately 75 to 80% of the county is comprised of timberlands, which are regularly maintained and protected by the Florida Forest Service. Of the 669,000 acres in the unincorporated areas of the county, over 83% of this land is classified as forestland and therefore is highly susceptible to forest fires.

The City of Perry is surrounded by forested land and is therefore vulnerable to forest fires. The likelihood of fires in Perry is less than some of the more wooded areas, but due to the high density of population and the number of buildings and businesses in the area, the City is more vulnerable to fires than the rest of the county. The density also increases the probability of residents burning materials that may easily blow off their pile and start larger, fast running wildfires.

Homes in the WUI will be the main priority for mitigation efforts (Figures 13 & 14). Fuel reductions, mowing, cutting, and emplacement of fire lines should be done in such a way to provide the most protection to homes in the WUI.

The second priority will be mitigation efforts in timberlands. The value of timber in the county as an economic force cannot be ignored, and efforts should be made to protect the timber is the Forest Capital of the South.

Areas that have been identified as a priority for mitigation efforts include:

- Leisure Retreats (Long/Lat 29.88932° N 83.61214° W)
- Steinhatchee (Long/Lat 29.67243° N 83.38803° W)
- Shady Grove (Long/Lat 30.28812° N 83.63226° W)
- Dennis Howell Road (Long/Lat 29.93872° N 83.59171° W)

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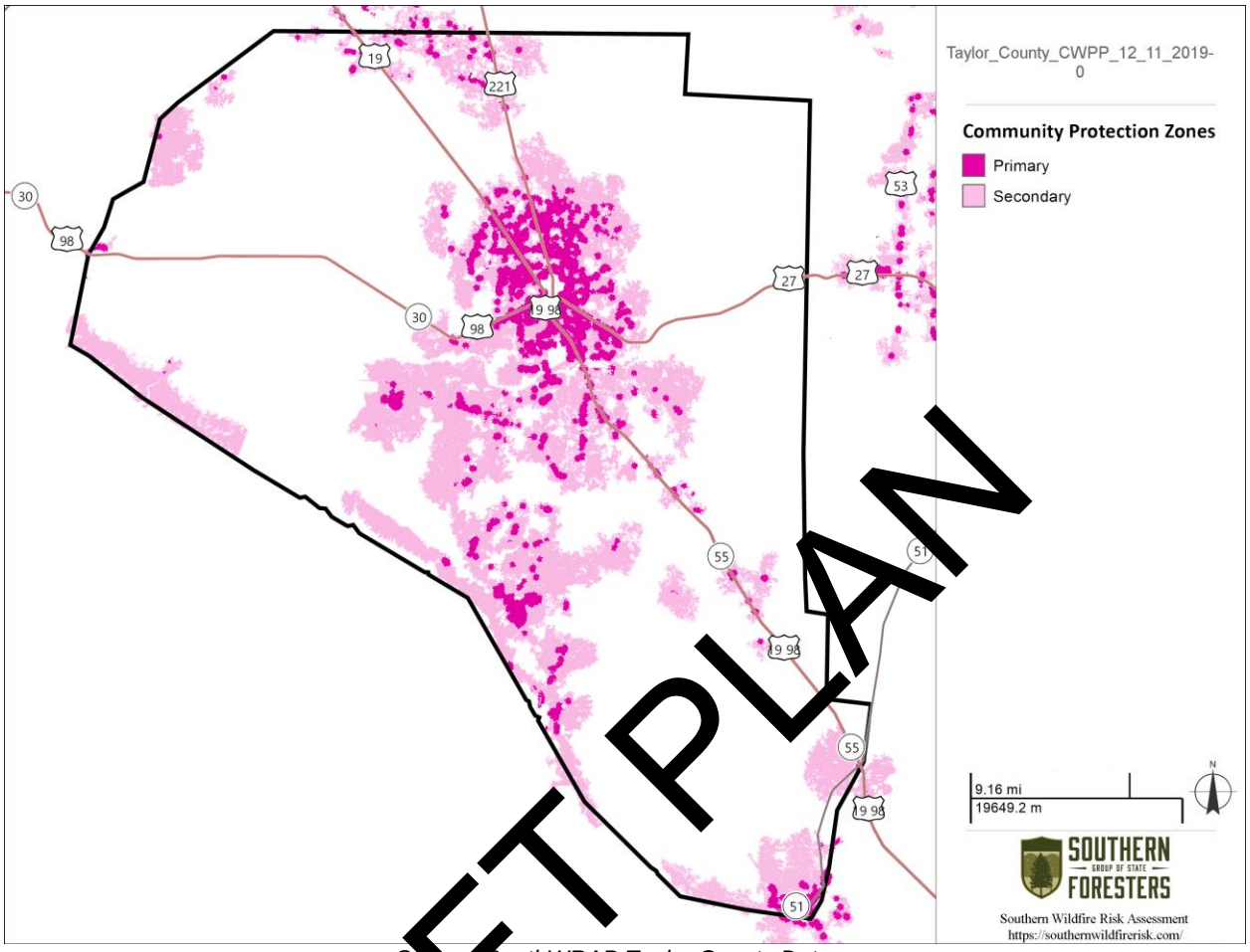

Source: SouthWRAP Taylor County Data

Figure 14. Primary and Secondary Mitigation Areas

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5. Floods

See also: Appendix F Annex 2: Flood and Sudden Coastal Surge Warning and Evacuation Plan

General Description

Floods are the most common and widespread of all natural disasters. Most communities in the United States have experienced some kind of flooding from spring rains, heavy thunderstorms, tropical storms, or winter snow thaws.

Florida is affected by a large number of tropical weather systems. Although storm surge has the greatest potential for loss of life, recent research indicates that inland flooding was responsible for the greatest number of fatalities over the last 30 years. Studies show that 59 percent of the tropical cyclone deaths in the United States resulted from severe inland flooding.

Flood or flooding refers to the general or temporary conditions of partial or complete inundation of normally dry land areas by surface water runoff from any source. Floodplains are defined as any land areas susceptible to being inundated by water from any flooding source. In Florida, several variations of flooding occur due to the different effects of severe thunderstorms,

hurricanes, seasonal rain and other weather-related conditions and is a natural part of the earth's hydrologic system.

Based on frequency, floods are the most destructive category of natural hazards in the United States. The loss of life, personal property, crops, business facilities, utilities, and transportation are major impacts of flooding. Additional losses and economic hardships ensue when supplies or supply routes are damaged or destroyed. Floodwaters present an additional hazard as a public health problem when they inundate drinking water facilities, chemical and waste storage facilities, wastewater treatment facilities and solid waste disposal sites. In general, flooding can be divided into two major categories: coastal and riverine. In Florida a hurricane or severe winter storm can result in both types of flooding. Many areas of Florida are susceptible to flooding from both storm surge and watershed runoff.

Coastal flooding is usually the result of a severe weather system such as a tropical or sub-tropical cyclone, like a hurricane, tropical storm or "nor'easter", which contains the element of high winds. The extent and nature of coastal flooding is related to the physical features of the terrain and the characteristics of the adjoining body of water. The damaging effects of coastal floods are caused by a combination of higher water levels of the storm surge, the winds, rains, erosion and battering by debris. Floodwaters are usually driven ashore by the wind, an event known as storm surge. Loss of life and property damage are often more severe since it involves high velocity wave action and accompanying winds. The velocity and range of coastal floods vary in part with the severity of the storm that induces them.

Florida's low-lying topography combined with its subtropical climate makes it highly vulnerable to inland or riverine flooding. Riverine flooding is associated with a river's watershed, which is the natural drainage basin that conveys water runoff from rain. Riverine flooding occurs when the flow of runoff is greater than the carrying capacities of the natural drainage systems. Rainwater that is not absorbed by soil or vegetation, seek surface drainage lines following natural topography lines. These lines merge to form hierarchical systems of rills, creeks, streams, and rivers. Generally, floods can be slow or fast rising, depending on the size of the river or stream. The rivers in north Florida drain portions of Alabama and Georgia, and excessive rainfall in those states often cause flood conditions in Florida. One of the consequences of flooding is repetitive loss properties. A repetitive loss property is one for which two or more NFIP losses of at least $1000 each have been paid over a 10-year period.

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Location

Although Taylor County historically experiences only moderate rainfall, the primary causes of flooding are hurricanes and tropical storms, which generally occur between June and October. In addition, northern Florida is subject to flooding from heavy rains in southern Georgia, which contains the headwaters for the rivers and streams that crisscross much of the panhandle. In Taylor County, the Aucilla, Econfina, Fenholloway, and Steinhatchee Rivers are a source of flooding during periods of heavy rainfall. Flooding is primarily caused by periods of heavy rainfall resulting in riverbank overflows and ponding, or from coastal surge associated with hurricanes and tropical storms due to the county's proximity to the Gulf of Mexico.

Areas of 100-year flood prone probability were identified as those lands which are subject to occasional flooding due to seasonal rainfall or other storm events with a probability of being flooded of one percent in any given year. Flood prone areas include those areas within the 100-year floodplain, being a broad belt around existing river and stream channels. Other flood prone areas are associated with lakes and other isolated depressions. Floodplains and flood prone areas are shaped in part by topography, storm water volume, vegetation and other natural or artificial forces which affect water flow.

The northwestern, southern and northeastern portions of the unincorporated area are subject to flooding and many of the flood prone areas contain wetlands. Since the county's participation in the National Flood Insurance Program, development has been required to meet standards which protect new construction from future flooding. In addition, wetland areas located within flood prone areas require special permits from the county, state and/or federal government to dredge and fill these lands.

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Extent

Stream Gauges

A stream gage is a structure installed beside a stream or river that contains equipment that measures and records the water level (called gage height or stage) of the stream. Stream flow (also called discharge) is computed from measured water levels using a site-specific relation (called a stage-discharge rating curve) developed from onsite water level and streamflow measurements made by hydrographers. Gaging stations automatically monitor streams, wells, lakes, canals, reservoirs, or other water bodies. Instruments at these stations collect information such as water height, discharge, water chemistry, and water temperature.

There are 9 stream gauges within Taylor County at specific point along the rivers of the planning area. Three gauges monitor the Steinhatchee, the river which has the greatest number of persons living along and within its flood prone areas. The next most critical is the Fenholloway River which has four gauges along its route through the county. This river has a number of residences along it flood prone areas towards the center of the county near the City of Perry. The next is the Econfina River which has one gauge as does the Aucilla River.

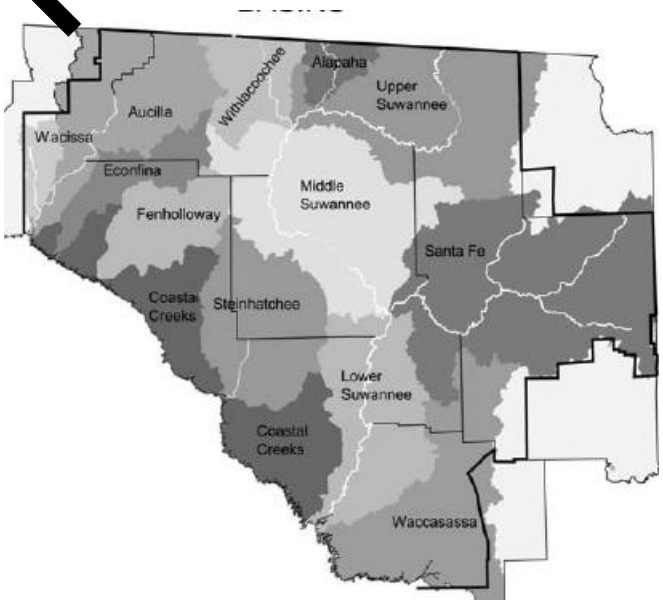

Figure 15. Taylor County River Basins

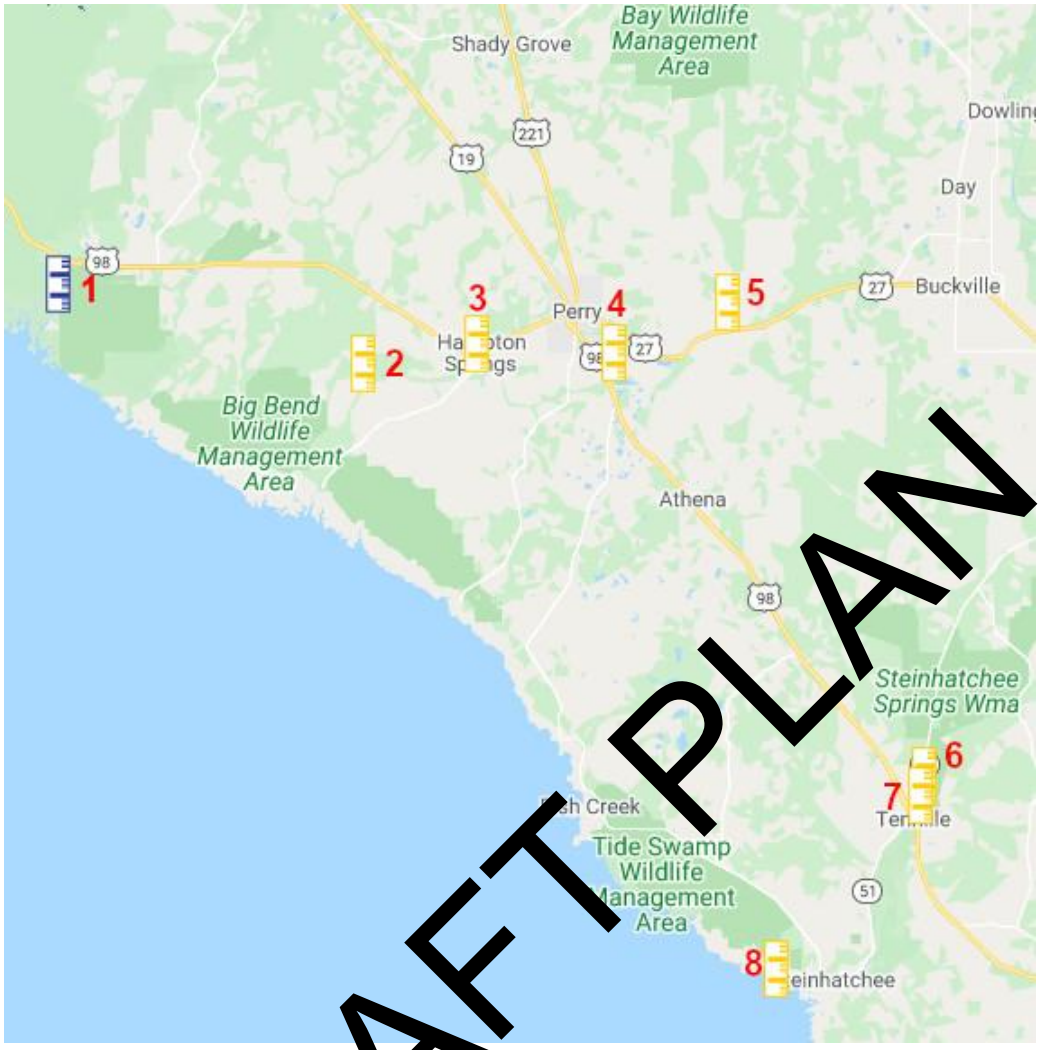

Figure 16. Stream Gauges within Taylor County

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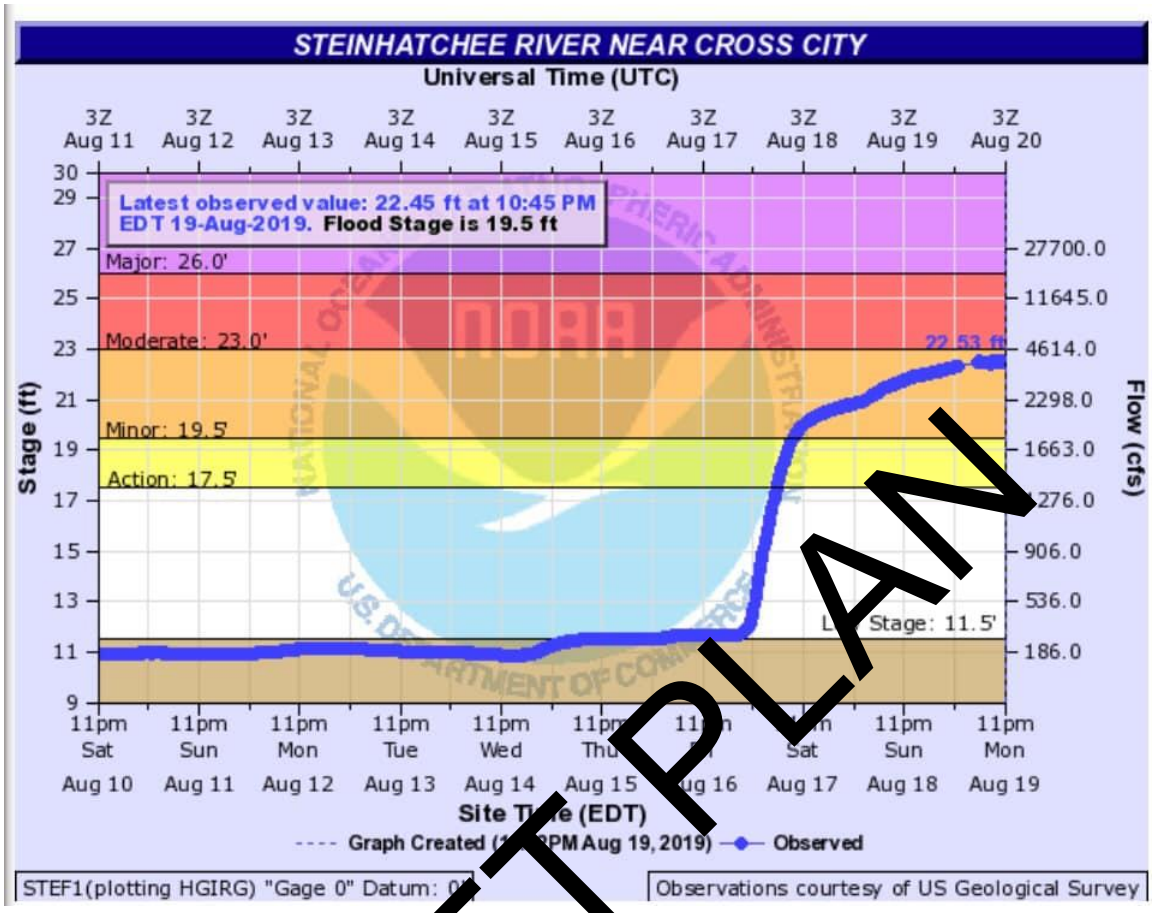

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Major Flood Stage:	26
Moderate Flood Stage:	3
Flood Stage:	19.
Action Stage:	17.5
Low Stage (in feet)	11.5

Figure 17. Sample Stream Gauge Readings on the Steinhatchee River

FEMA Risk Mapping

The Federal Emergency Management Agency (FEMA) partners with Tribal nations, States, and communities through the Risk Mapping, Assessment, and Planning (Risk MAP) program to identify flood hazards, assess flood risks, and provide accurate data to guide stakeholders in taking effective mitigation actions that result in safer and more resilient communities. This data is incorporated into flood maps, known as Flood Insurance Rate Maps (FIRMs), that support the National Flood Insurance Program (NFIP) and provide the basis for community floodplain management regulations and flood insurance requirements. Flood hazards are dynamic and can change frequently because of a variety of factors, including weather patterns, erosion, and new development. FEMA, through the Risk MAP program, works with communities to collect new or updated flood hazard data and periodically updates flood maps to reflect these changes.

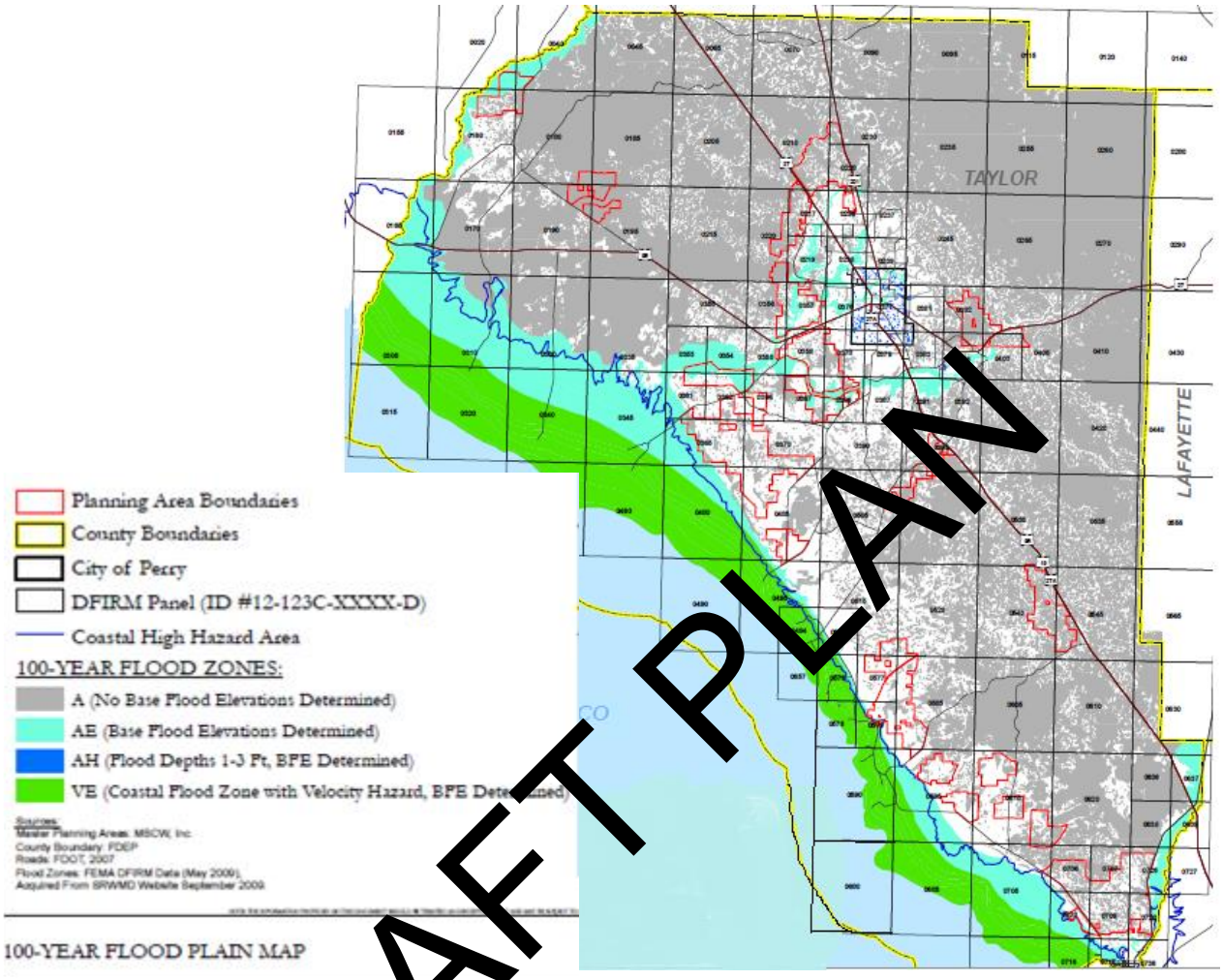

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Figure 18. FEMA Composite 100-Year Flood Zones

A	Area with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30 yr mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	Area with a 1% chance of flooding and a 26% chance of flooding over the life of a 30 yr mortgage. In most instances, base flood elevations derived from detailed analyses are shown at selected intervals within these zones
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30 yr mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
AO	River or stream flood hazard areas and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
VE	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30 yr mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones

Figure 19. FEMA FIRM Map Zones Description

Historical Occurrences

Flooding in Taylor County primarily results from periods of high rainfall or from coastal storm surges associated with hurricanes and tropical storms. In 2012 Tropical Storm Debby heavy rainfall resulted in the Steinhatchee River flooding, damaging 6 structures with no injuries. Since 2012 the Steinhatchee has flooded twice in 2014 and once in 2015. Only one structure was damaged from the riverine flooding, however over 60 dwellings were affected or damaged from the areal flooding that was caused by 20 inches of rainfall one weekend. Areal flooding in the spring of 2014 caused over 50 dwellings to be affected or damaged by flooding within the unincorporated areas around the City of Perry. The flooding was caused from an extended period of rainfall over a 2 month period.

Run off from the San Pedro Bay area in the northeast portion of the county generally flows in a southwesterly direction by way of the Spring and Pimple Creeks. Both of these creeks have flooded portions of the City of Perry in the past. Significant flood stages on the Fenholloway River have not been recorded.

After Hurricane Dora passed to the north of Taylor County in 1964, significant riverine flooding occurred on the floodplains of the Steinhatchee River. Records taken from the USGS gage at the Town of Steinhatchee on the coast indicate this flood event had a magnitude greater than that which would occur once, on the average, every 200 years.

Because of undeveloped shoreline areas and a sparse coastal population, high water marks and tide gage data for storm surge flooding are limited. Historical hurricane tracks do show that the county has experienced a number of hurricanes and tropical storms. Recent hurricanes that did not have direct paths through Taylor County, but have affected the county nevertheless include Hurricanes Frances (2004), Ivan (2004), Jeanne (2004), and Dennis (2005).

In the City of Perry, according to local residents, notable flooding occurred in 1934 and 1948, although no records of these floods are available. Extensive flooding occurred on June 9, 1957, when Spring and Pimple Creeks overflowed their banks causing several million dollars in damages. According to the report on this flood prepared by the USGS, 11.7 inches of rainfall was recorded in Perry for a two-day period, which is estimated to be about a 50-year (2-percent annual chance) storm (one that would occur on the average once every 50 years). The rainfall in the headwaters of Spring Creek, Pimple Creek, and East Branch averaged about 14 inches for this same period which is estimated to be in excess of a 100-year (1-percent annual chance) rainfall event. Flooding occurred along the full length of the Spring and Pimple Creeks and East Branch inundating several streets and causing damage to many homes and commercial establishments. According to the above report, flooding was aggravated by the heavy growth of vegetation which occurred in sections of the streams. In addition, there are over 30 crossings of the streams which restrict the flow.

According to NOAA, National Centers for Environmental Information, Storm Events Database, there have been 15 flood events in the last 21 years resulting in $1.477 million in damages. The most expensive recorded was in August 2019 doing $513,000 in damage when a multi-day, significant flooding event occurred in the Steinhatchee area. A 5 day rainfall total of 31.79 inches was measured by a personal weather station in the Steinhatchee area. A total of 48 homes received minor water damage with an additional 15 homes receiving major water damage. A curfew was in place for Steinhatchee during the overnight hours. The county estimated that the damage to homes was around $513,000 in southeast Taylor county.

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Probability: High

According to the NOAA, National Centers for Environmental Information, Storm Events Database, Taylor County has experienced 15 flood events in 21 years. This translates to a return period of sooner than every one and a half years resulting in a high probability that a flood will occur.

Flooding is the most likely event that occurs nationwide. Flooding occurs regularly in Taylor County and it will continue to happen due to thunderstorms and seasonal tropical storms, especially when the area receives repeated weeks of heavy rains and soils are too saturated and the wetlands are too full to accept more water. There is a very high probability that flood areas of the county and the City of Perry will continue to cause damage and potential injury and loss of life. During the past 5 years Taylor County has experienced the Steinhatchee flooding 5 times and Areal flooding on 2 occasions, 2014 and 2015.

The area's that are most likely to flood are around the major rivers and are delineated on the printed FIRM maps on file with the county. Also, the map modernization effort is well underway with the Suwannee River Water Management District. Individual FIRM panels can be viewed at https://msc.fema.gov/portal/home, which is FEMA's Map Service Center (Also see Figure 20, for Tropical Cyclone Storm Surge Levels).

Impacts

The impacts from flooding can be massive as it is the number one killer of people in disasters across the United States. Annually it takes nearly 70 lives nationwide. The following are some impacts experienced in Taylor County:

- Water damage to vehicles
- Water damage to structures, homes, businesses
- Damage to infrastructure like roads, power systems, drainage systems
- Obstruction to roads and bridges due to debris and damage
- Economic loss
- Reduction in response capability by emergency services
- Power outages
- Downed trees due to saturated soils loosening root systems

In the past two decades in the planning area, residents of the county have experienced many impacts due to flooding. As noted in the historical occurrences section, flooding has caused $1.477 million in recorded damage. In the flooding episodes of 2014 and 2015 Taylor County suffered over 100 dwellings damaged from riverine and areal flooding.

There are also many impacts not easily recorded, such as timber losses which may only been seen at time of harvesting. For example, the weeks of standing water after flooding in commercial timberlands stressing the trees to the point insects infect them and kill large patches. These isolated patches are rarely recorded by the timber companies; however, over years add up to hundreds of thousands of timber dollars. A stand of pine trees with a 20-year rotation can experience various episodes of flooding.

Table 20. shows the building loss based on the Property Appraiser data combined with storm surge rise according to the strength of the storm. This also shows the financial impact of losing outbuildings and added features to properties.

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Table 20. Financial Impacts by Storm Surge According to Storm Strength

Storm Strength	Building Values	Extra Feature Values
Tropical Storm	$60,078,530	$5,150,480
Category 1	$93,496,120	$7,697,420
Category 2	$126,426,940	$14,030,182
Category 3	$134,000,180	$15,346,422
Category 4	$178,205,260	$20,775,422
Category 5	$211,570,020	$23,500,902

Source: 2020 Taylor County Property Appraiser Data

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Vulnerability

COASTAL SURGE

Based on information reported in numerous studies including the 2020 Comprehensive Emergency Management Plan (CEMP) the Taylor County coastline is extremely shallow going out a considerable distance into the Gulf of Mexico. At times the water is as shallow as 3 feet for miles out from the coastline. This natural topography along the coast causes very severe surge potential with Taylor County being ranked the second worst area for surge in the world behind Bangladesh. The National Weather Service (NWS) Sea, Lake, and Overland Surges from Hurricanes (SLOSH) models have identified that the storm surge from a Category 2 or above will damage and close Highway 98 and would call for the immediate evacuate of the 1,200 prisoners at the nearby state prison.

HURRICANE VULNERABILITY ANALYSIS

The area along the coastline is the area most vulnerable to hurricanes and tropical storms; however the entire county is at risk from a direct hit from a category 3, 4, or 5 event. More than 2,000 persons live in the coastal areas (Table 23) especially in the communities of Dark Island, Dekle Beach, Keaton Beach, Ezell, Steinhatchee and Cedar Island. Every year there are multiple evacuation notices for citizens along the coast. Over 300 persons live in flood-prone areas along the Steinhatchee, Aucilla and Econfina Rivers, another 600+ live in inland flood-prone areas (mainly around Perry), and an additional 1,700+ persons live in non-flood prone area mobile homes. During scallop season from July through September, the population of Steinhatchee increases from 3,200 to approximately 8,500. In the event of a hurricane, all these persons would be vulnerable to surge, flooding, and high winds.

Most of the 45 mile coastline for Taylor County is tidal marsh, all of which lies within the hurricane flood zone. The flood zone extends 2 to 8 miles inland from the coast. The three main hazards caused by a hurricane are: (1) storm surge: (2) high winds; and (3) rain induced freshwater flooding. The height of the storm surge above mean sea level varies with hurricane strength, direction of travel and location of landfall. During a Category 5 hurricane, surge induced flooding can occur over 10 miles inland.

Table 21. Potential Storm Tide Height

Storm Strength*	Storm Tide**
Category 1	Up to 11.1’
Category 2	Up to 19.5’
Category 3	Up to 27.7’
Category 4	Up to 33.5’
Category 5	Up to 38.5’

*Based on Saffir-Simpson Hurricane Wind Scale

**Surge heights represent the maximum values from SLOSH MOM’s (In feet above NAVD88)

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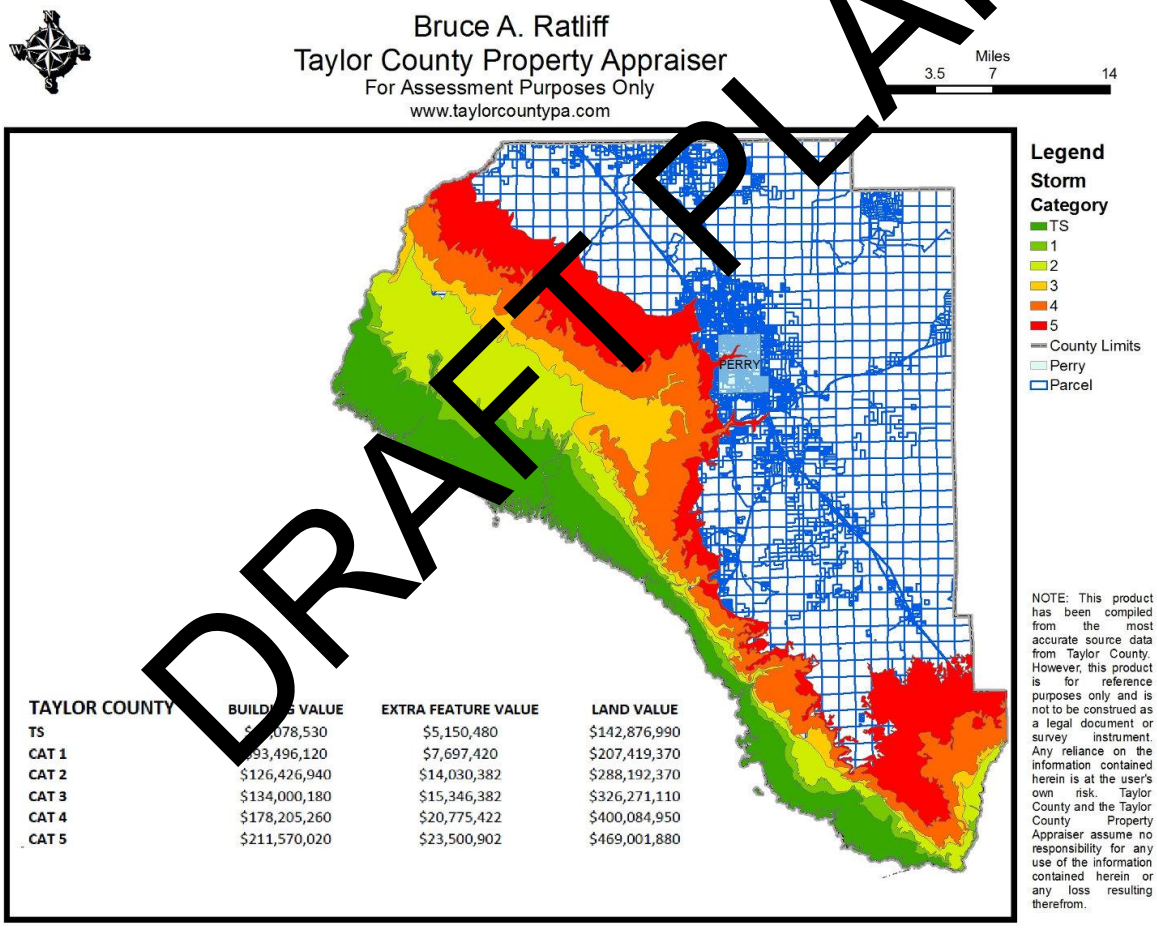

Figure 20. Flooding levels based on tropical cyclone strength and dollars of damage according to flooding

Table 22. Taylor County Mobile Home Locations by Surge Zone

SURGE ZONE	MOBILE HOME COUNT	MOBILE HOME VALUE
TROPICAL STORM	103	$1,913,210
CAT 1	295	$5,282,150
CAT 2	804	$14,543,760
CAT 3	994	$17,976,170
CAT 4	1471	$26,618,190
CAT 5	1868	$33,790,540

Source: Taylor County Property Appraiser 2020

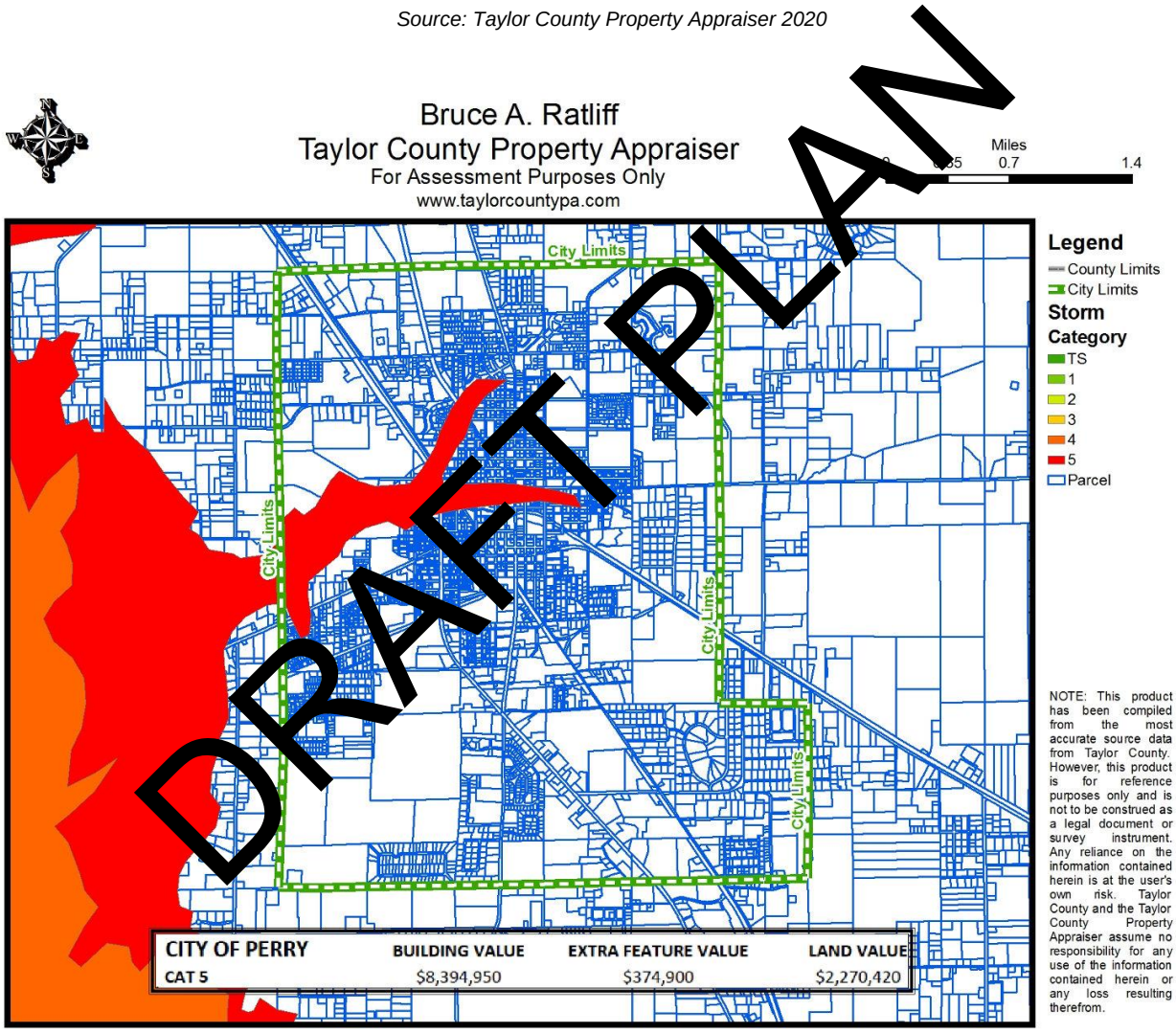

Figure 21. Flooding levels based on tropical cyclone strength and dollars of damage according to flooding in the City of Perry

The City of Perry Vulnerability

The City of Perry has an individualized FIRM map that shows the specific areas prone to flooding. These are the areas around the Fenholloway River and Rocky Creek. One specific location in Perry is particularly vulnerable to flooding in the future. The Doctor's Memorial Hospital located at 333 North Byron Butler Parkway has been renovated for $21 Million. The hospital is elevated and has been approved by Engineering and Emergency Management, but based on the existing FIRM maps, this facility lies within the designated 100-year flood plain. Also specific to the City of Perry, Spring and Pimple Creeks have flooded portions of Perry in the past.

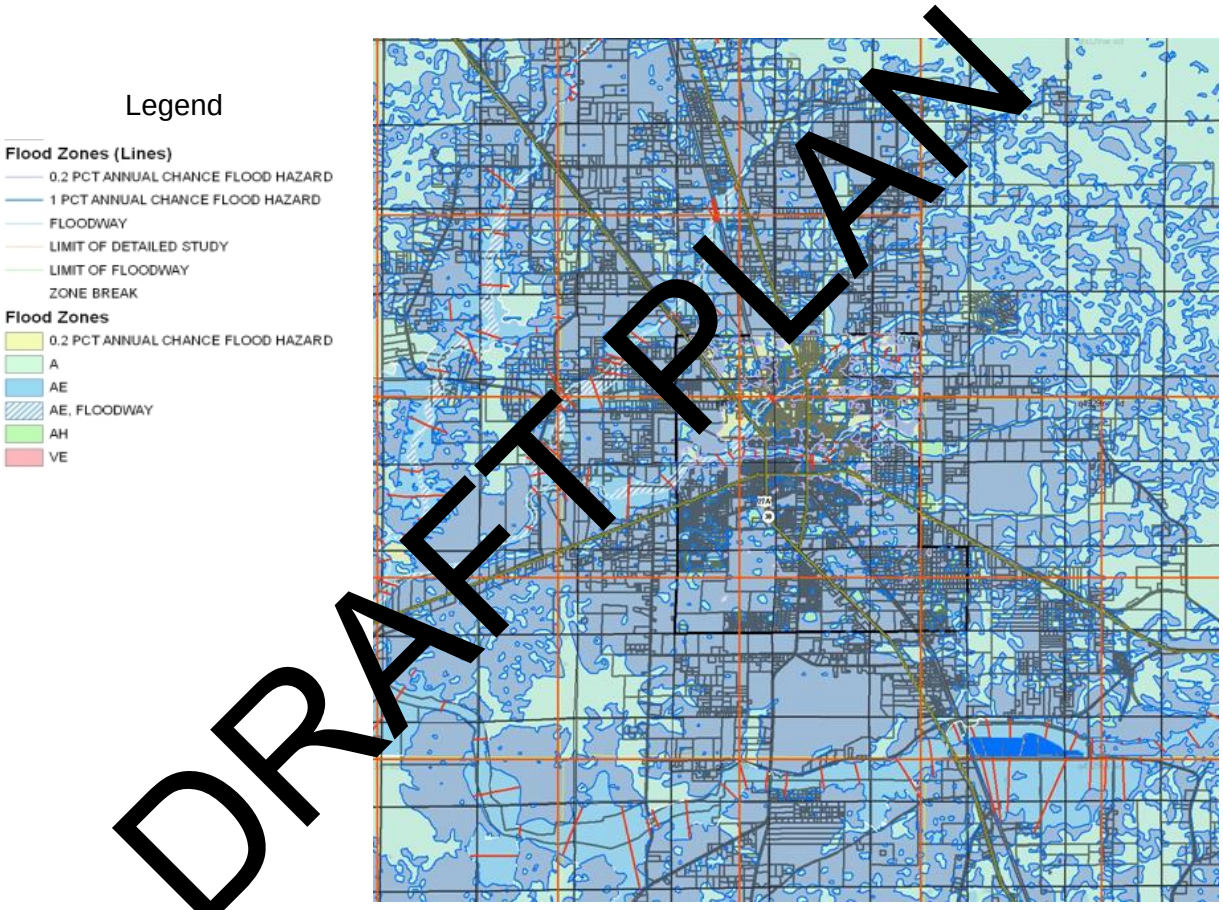

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Figure 22. FIRM for City of Perry.

As noted earlier, greater detail can be secured by expanding any panel from the website. As can be seen, the majority of City of Perry lies outside of the 100-flood zone (Figure 22).

CRITICAL FACILITIES

The following critical facilities were found to be in a velocity zone, or a 100-year flood zone:

INDUSTRIAL

Georgia Pacific	County Road 30 East (Foley)
Martin Electronic	Puckett Road, Rt. 1 Box 700

TAYLOR COUNTY SCHOOLS

Taylor Schools Admin. Offices	318 North Clark Street
Steinhatchee School	1209 1st Ave. SE, Steinhatchee

COUNTY GOVERNMENT

Shady Grove Vol. Fire Dept.	Alton Wentworth Road
Johnson Stripling VFD	Johnson Stripling Road
Econfina Vol. Fire Dept.	Econfina Road
Keaton Beach Vol. Fire Dept	Beach Road
Taylor County FD – Steinhatchee	12th St. SE – Steinhatchee

COUNTY DISPOSAL SITES

Carlton Roll-Off	Carlton Cemetery Road
Harrison Blue Roll-Off	Harrison Blue Road
Blue Springs Roll-Off	Blue Springs Lake Rd. – Keaton Beach
Steinhatchee Roll-Off	CR 361 – Steinhatchee
Blue Creek Land Fill	CR 361
Dekle Beach Land Fill	CR 361 at Beach Rd.
Steinhatchee Land Fill	SR 361

STATE GOVERNMENT

Taylor Correctional Institute	501 Hampton Springs Road

HEALTH FACILITIES

Doctor's Memorial Hospital	333 N. Byron Butler Pkwy

WATER/WASTEWATER TREATMENT

Perry Wastewater Treatment Plant	507 West Golf Course Road
City of Perry Spray field	Landfill Rd. Hampton Springs
Taylor Coastal Water & Sewer Dist.	18820 Beach Rd. Keaton Beach
Big Bend Water & Sewer	1313 First Ave. SE Steinhatchee

OTHER UTILITIES

Duke Energy	Substation: 1690 East Green St
	Substation: 433 US 19 N
Tri-County Electric Cooperative	Perry Sub – US 19S at Beach Rd.
	Scanlon Sub – Hwy 14 off US 98
	Steinhatchee Sub Hwy 51 – Steinhatchee

COMMUNICATIONS

Comcast Cablevision	1485 Buckeye Nursery Road

OTHER HURRICANE SHELTERS

Covenant Christian Fellowship Church	6050 Puckett Road
Fellowship Baptist Church – Steinhatchee	1st Ave.
Church of Jesus Christ of Latter Day Saints	Woods Creek Road

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Flooding Vulnerability Analysis

FEMA's NFIP Map Modernization data has produced new FIRM maps for Taylor County. They are maintained and easily accessed by going to the website. The quality of the maps are superior over what was available in 2005. Many of these maps include LIDAR images of actual facilities in the approximate flood zones.

This electronic map provides all the FIRM panels for Taylor county. The website provides the capability to zoom down to property boundaries for determination of the flooding potential anywhere in Taylor county. The maps clearly show the extensive velocity zone Taylor County has, and the facilities located within that critical zone. This web-based capability is a significant improvement and allows for ease in determining what flood zone a piece of property is located.

The following is a categorization of the different floodplain areas used by FEMA. This helps establish the probability of the extent of flooding that can occur in a[illegible] the flood prone areas in Taylor county. They correspond to the legends provided on the FEMA FIRMs provided on the following pages. Most of the county expects to receive wide-spread shallow inland flooding but can receive up to a 30 foot storm surge in the V-Zone along the coastline from a hurricane.

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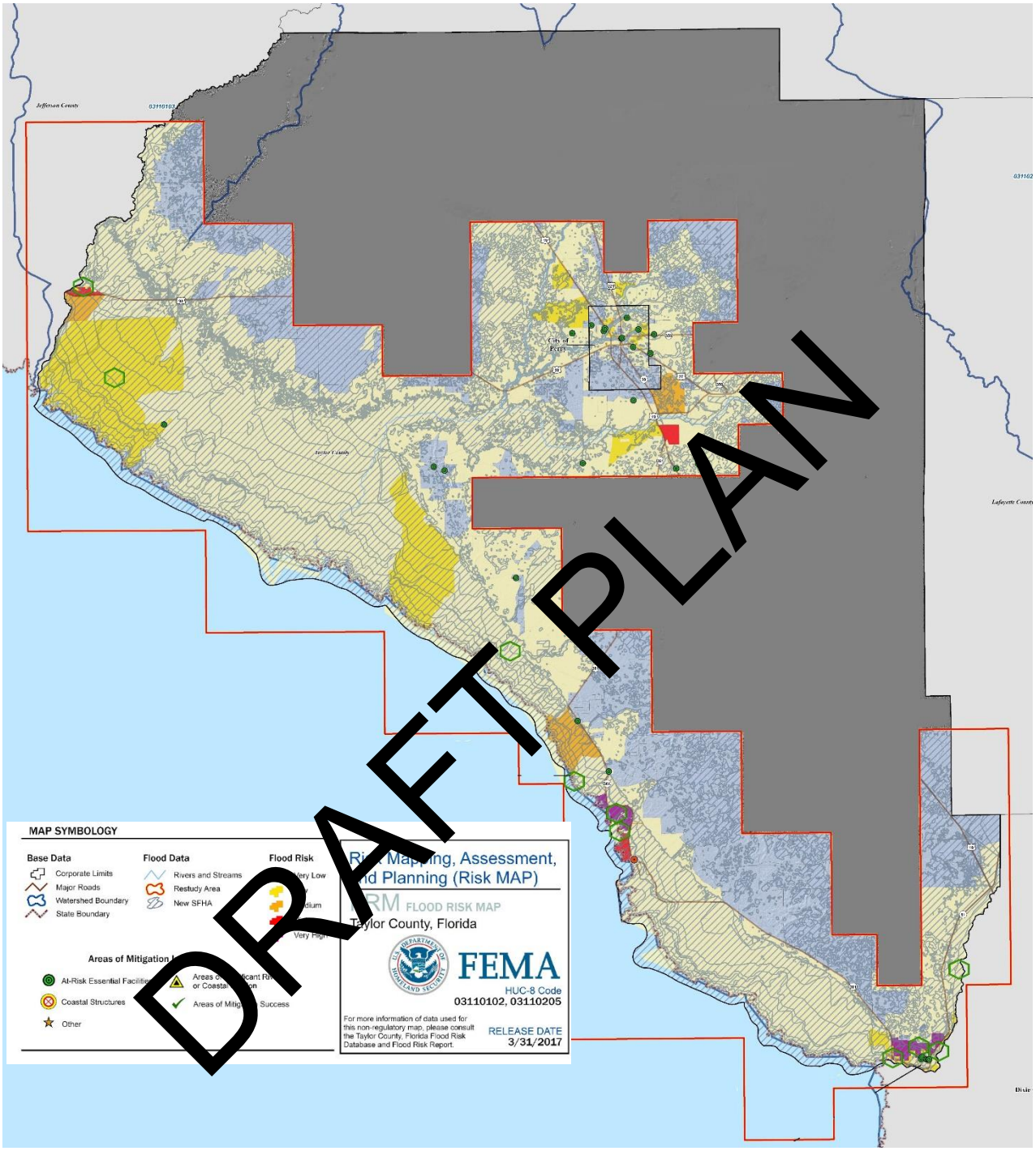
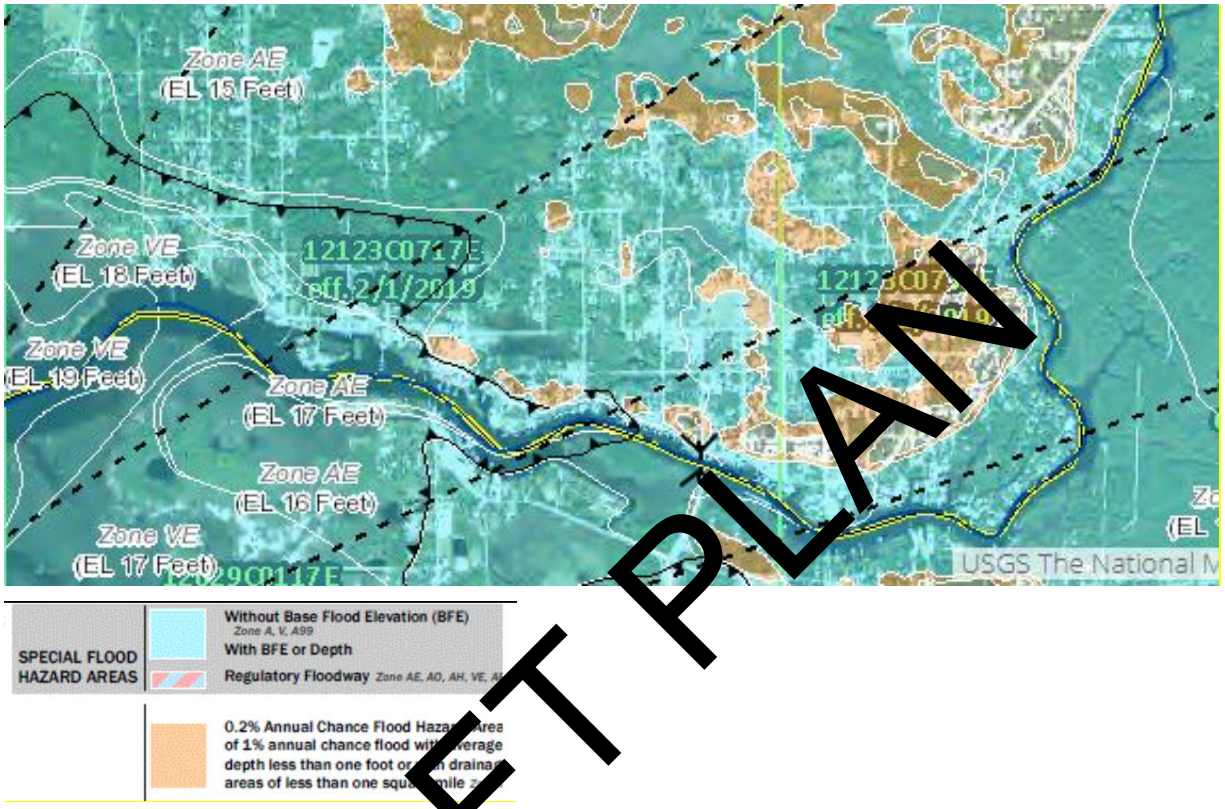


Source: FEMA's Map Service Center

Figure 23. NFIP Flood Zones (Updated September, 2019)

Using the same map, the section below shows the full expansion of one portion of a FIRM panel covering Steinhatchee. Individual property parcels, street names, and LIDAR imaging are visible.



Source: FEMA's Map Service Center 2019 Dataset

Figure 24. Maximum Resolution of FIRM Map for Steinhatchee Community

The total population potentially affected by inland flooding is more than 1,621 and all the coastal communities are continuously vulnerable (Table 23). Additionally, certain roadways in the county could be inundated such as County Road 361, State Road 51 and portions of U.S. Highway 98 at the Aucilla River. The coastal roads in particular are routinely damaged due to saltwater and debris. U.S. Highway 221 floods north of Perry due to Woods Creek and the Econfina River and Julia Street often floods and cannot be corrected for fear that the increased water flow will affect the downstream sewage plant. The Main Bay Canal by U.S. Highway 27 also floods. These roadways are key roadways used by all residents for transit and the residents are often likely to take risks crossing them with limited roadway visibility due to flooding over the road. Campaigns and public service announcements are frequent during severe weather events about flooding and "turn around, don't drown."

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Table 23. Coastal Community's Populations

Coastal Community	Population
Cedar Island	112
Dark Island	28
Dekle Beach	49
Econfina Park	46
Ezell Beach	28
Keaton Beach	169
Mandalay	11
Nutall Rise	106
Spring Warrior	31
Steinhatchee	1541
TOTAL ENTRIES	**2,121**

Source: Taylor County Property Appraiser

The following are the number of active NFIP policies in Taylor County and the City of Perry and is an indication of the vulnerability of the county's residents.

Table 24. NFIP Policy Statistic – Taylor County and City of Perry (March 2020 data)

	Policies In-force	Insurance In-force whole $	Written Premium In-force
City of Perry	85	17,927,000	57,750
Unincorporated Taylor County	483	83,208,200	563,911

Source: FEMA NFIP https://nfipservices.floodsmart.gov/reports-flood-insurance-data

Taylor County will continue to comply with the NFIP. The following efforts identify efforts to ensure compliance:

1. Enforcement of all NFIP ordinances in Taylor County.
2. Incorporate NFIP provisions into the County Land Development Regulations/ Comprehensive Plan, Future Land Use Map, and Zoning Regulations.
3. Enforce Flood zone "A" height requirements and free board.
4. Provide flood information at annual county fair, and the local Florida Forest Festival.
5. Require non-designated floodway setback requirements.
6. Require freeboard requirements for new construction, or reconstruction if required by the 50% rule.

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The City of Perry will continue to comply with the NFIP. The City of Perry's efforts towards compliance include:

1. Regulation of residential, nonresidential, and elevated buildings to meet specific standards above the NFIP.

2. Maintaining supplies of FEMA/NFIP materials to help homeowners evaluate measures to reduce damage.

3. Maintaining a map of areas that flood frequently and prioritizing those areas for inspection immediately after the next flood or heavy rains.

4. Regulation of residential, nonresidential, and elevated buildings to meet specific standards above the NFIP.

5. The prohibition of new development within a designated floodway

Future Development and Flooding

The *Vision 2060 Plan* projects 20-year growth increments through the year 2060, mostly occurring along Taylor County's coastal zone. Future flooding will be a concern. Taylor County is a participant in the National Flood Insurance Program, and as such, has adopted and incorporated a local flood plain ordinance that contains the federal requirements for building in any 100-year flood zone. Taylor County has substantial tracts of undeveloped coastal property, and as development pressure is placed on the county, the LMS Working Group will continue to work to ensure that future development in all flood zones meets or exceeds minimum flood protection standards. The areas along the coastline and near the town of Steinhatchee are particularly susceptible to flooding. As these areas grow, the risks due to flooding will increase proportionally. Also, as the City of Perry grows there is the likelihood of increased damage due to flooding. The development associated with streets and infrastructure and the increases of concrete could cause issues with storm water drainage that could result in flooding and damage.

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6. Drought and Heat Wave

General Description

Drought can be defined based on rainfall amount over some period of time, vegetation conditions, agricultural productivity, soil moisture, levels in reservoirs and stream flow, or economic impacts. In basic terms, a drought is a significant deficit in moisture availability due to lower than normal rainfall. This deficiency results in a water shortage for some activity, group or environmental sector. Excessively dry and hot conditions can provoke dust storms and low visibility. Droughts occur when a long period passes without substantial rainfall.

Drought is a normal, recurrent feature of climate, although many perceive it as a rare and random event. In fact, each year some part of the U.S. has severe or extreme drought.

Although it has many definitions, drought originates from a deficiency of precipitation over an extended period of time, usually a season or more. It produces a complex web of impacts that spans many sectors of the economy and reaches well beyond the area producing physical drought. This complexity exists because water is essential to our ability to produce goods and provide services.

Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat, or those prolonged excessive

heat/humidity episodes. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air nears the ground.

Location

Due to the nature of drought and heat waves, the entire planning area would be affected equally. Droughts occur regionally and rarely affect one specific area as small as a county. As see in the figure below on drought severity, severity indices can differ by one or two magnitudes crossing severity zones; however, due to Florida's topography, they will not show multiple magnitudes of difference like you may find in the Western United States from one side of a mountain to another.

Extent

Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as a heat wave. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground. Excessively dry and hot conditions can provoke dust storms and low visibility. Droughts occur when a long period passes without substantial rainfall. A heat wave combined with a drought is a very dangerous situation.

Figure 25 shows the extent of heat wave for various temperatures and corresponding relative humidity. According to the NWS, the "Heat Index" (HI) is sometimes referred to as the "apparent temperature". The HI, given in degrees F, is an accurate measure of how hot it really feels when relative humidity (RH) is added to the actual air temperature.

IMPORTANT: Since HI values were devised for shady, light wind conditions, exposure to full sunshine can increase HI values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous. Note on the HI chart the shaded zone above 105°F. This corresponds to a level of HI that may cause increasingly severe heat disorders with continued exposure and/or physical activity.

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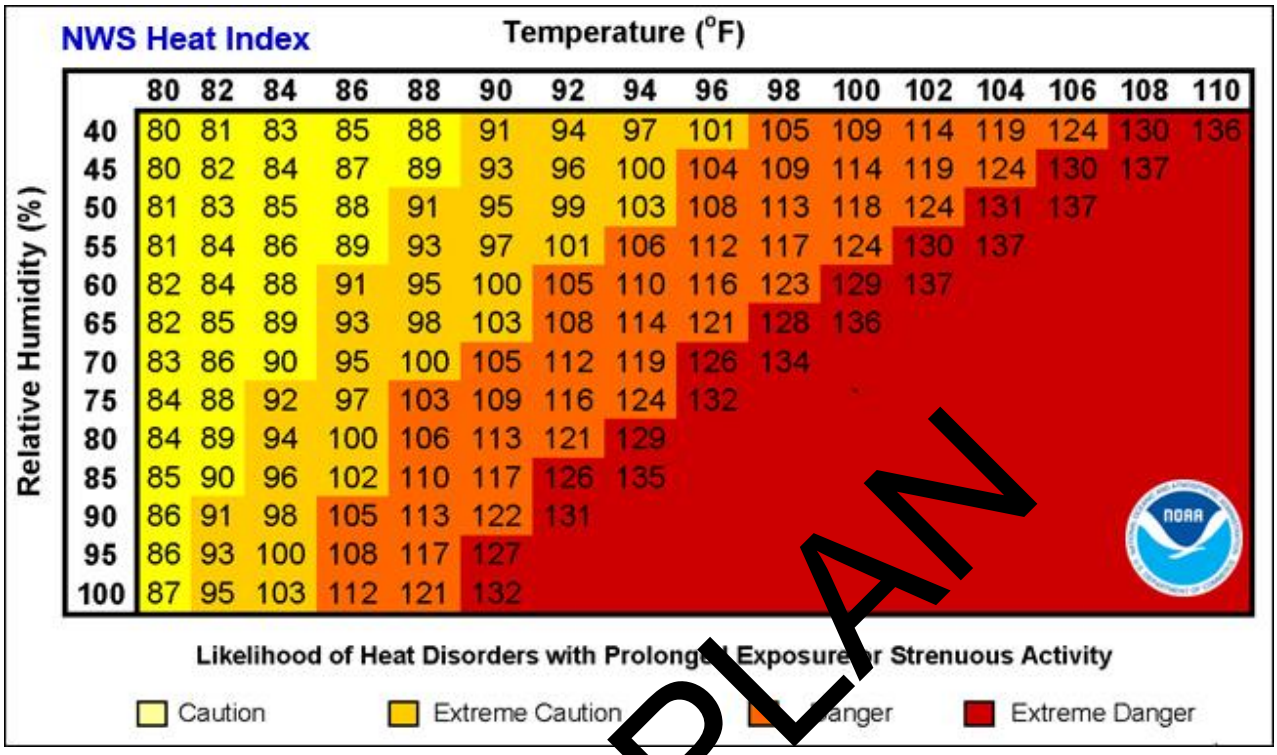
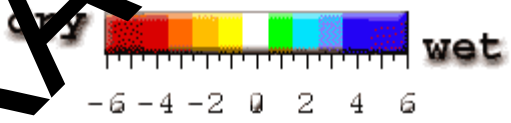


Figure 25. National Weather Service's Heat Index Chart

The Palmer Drought Severity Index (PDSI) has been the most commonly used drought index in the United States and was developed to measure intensity, duration, and spatial extent of drought. PDSI values are derived from measurements of precipitation, air temperature, and local soil moisture, along with prior values of these measures. Values range from -6.0 (extreme drought) to +6.0 (extreme wet conditions), and have been standardized to facilitate comparisons from region to region.



Source: http://www.ncdc.noaa.gov/paleo/drought/drght_pdsi.html

Figure 26. Palmer Drought Severity Index (PDSI)

Figures 27 and 28 show both measurements for drought intensity and the Keetch Byram Drought Index. The Drought Severity and Coverage Index is an experimental method for converting drought levels from the U.S. Drought Monitor map to a single value for an area. DSCI values are part of the U.S. Drought Monitor data tables. If you want to compute it yourself, using cumulative Drought Monitor data, add the values for D0 through D4 to get the Drought Severity and Coverage Index. Or, to see more math, use categorical (not cumulative) Drought Monitor data, and compute a weighted sum.

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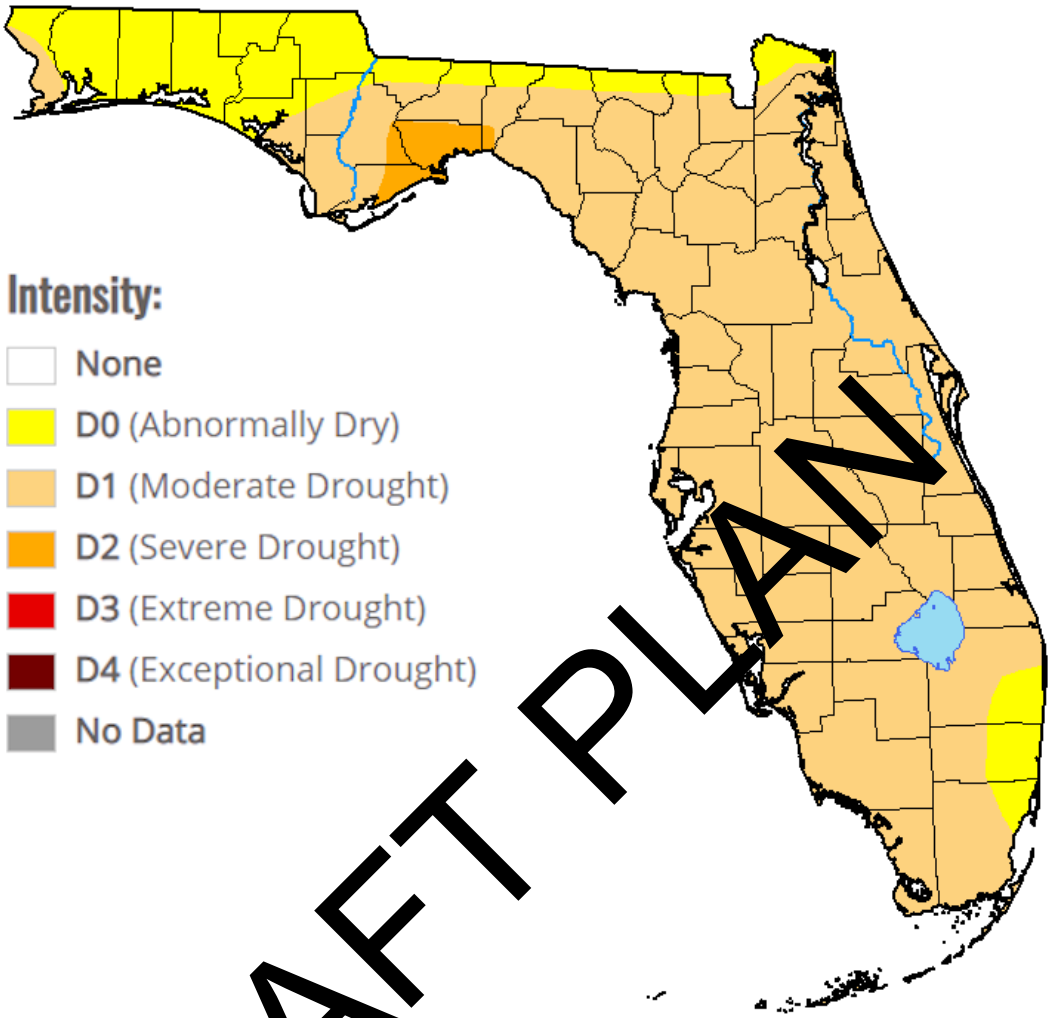

Source: https://droughtmonitor.unl.edu/Maps.aspx

Figure 27 – United States Drought Monitor for Florida

The Keetch-Byram drought index (KBDI) is a continuous reference scale for estimating the dryness of the soil and duff layers. The index increases for each day without rain (the amount of increase depends on the daily high temperature) and decreases when it rains. The scale ranges from 0 (no moisture deficit) to 800. The range of the index is determined by assuming that there is 8 inches of moisture in a saturated soil that is readily available to the vegetation.

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Source: Florida Forest Service www.FDACS.gov

Figure 28. – Keetch Byram Drought Index (KBDI)

Historical Occurrences

Conforming to Florida State University, Florida Climate Center description drought is defined on so many different levels, has differing impacts, and can happen on short or long-time scales, it is hard to compare one drought to another. An examination of weather records since 1900 reveals that in every decade there has been at least one severe and widespread drought somewhere within Florida. Droughts that began in 1906, 1927, 1945, 1950, 1955, 1961, 1968, 1980, 1984, 1998, and 2006 were the most severe.

Using data from the Palmer Drought Severity Indices (PDSI) for summer (June-August), the above data can be generated for the past 100 years, and beyond that into the 1700's based on

data gathered from tree rings. Additional years of drought occurred in 1849, 1890, 1896, 1897, 1898, 1925, 1927, 1932, 1955, 1967, 1981, 1986, 1998, and 1999. Between 1845 – 2009, there have been approximately 18 years of extreme dry conditions, averaging one event every 8.25 years. Consequences have resulted in some drinking water wells going dry, and crop losses. Drought affects minimal tourist activities such as fishing and water sports.

Probability: Low

Records seem to mirror the National average every 8.25 years. Suwannee River Water Management District records reveal that Taylor County was in a drought period from 2009 until 2012 when Tropical Storm Debby occurred. If an issue arises, it will occur over a period of days and weeks, so there will be time for preparations and contingency planning at the time of the event.

Although the probability is low, occurring longer than every five years, the severity can be extreme due to its long duration. For a state that receives about 58 inches of rain annually, a discussion of drought in Florida might appear to be of little relevance, but drought is a part of our climate, just like hurricanes, thunderstorms, wildfires, and tornadoes. Unlike the other hazards that affect the state, droughts can impact large areas and last for months, even years.

Impacts

As stated by the National Drought Mitigation Center…"A few examples of direct impacts of drought are: reduced crop, rangeland, and forest productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality rates; and damage to wildlife and fish habitat. Social impacts include public safety; health; conflicts between water users; reduced quality of life; and inequities in the distribution of impacts and disaster relief. Income loss is another indicator used in assessing the impacts of drought; reduced income for farmers has a ripple effect throughout the regional economy".

The heat can kill by taxing the human body beyond its abilities. In a normal year, about 175 Americans die to the demands of summer heat. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the disastrous heat wave of 1980, more than 1,250 people died. Elderly persons, small children, chronic invalids, and those on certain medications or drugs, are particularly susceptible to heat reactions, especially during heat waves in areas where a moderate climate usually prevails.

Heat kills by pushing the human body beyond its limits. Under normal conditions, the body's internal thermostat produces perspiration that evaporates and cools the body. However, in a heat wave and high humidity, evaporation is slowed, and the body must work extra hard to maintain a normal temperature. Most heat disorders occur because the victim has been overexposed to heat or has over exercised for his or her age and physical condition. Other conditions that can induce heat-related illnesses include stagnant atmospheric conditions and poor air quality.

A prolonged drought can have a serious economic impact on a community. Increased demand for water and electricity may result in shortages of resources. Taylor County has not experienced any major droughts in the past several years. However, should a prolonged drought occur during the summer months, with temperatures above normal levels, there could be losses in certain areas of the agriculture production.

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The risk of wildfire cannot be understated. Although covered earlier, serious wildfire threat can tax emergency services, water supplies, and reduce air quality. Typically, drought and wildfire risk go hand in hand.

Vulnerability

Small children are incredibly susceptible to heat, especially in a vehicle as it only takes approximately 10 minutes to heat up 19 degrees, so that it can reach lethal temperatures quickly. A child is more susceptible than adults to heat as their bodies heat up 3 to 5 times quicker and can suffer a heat stroke.

If the county experiences extended periods of extreme heat, especially when combined with high humidity, it can result in heat-related illness among vulnerable populations, as well as place excess stress on agricultural production, water supplies, and energy generation.

People 65 years old and older are the most vulnerable population for this weather phenomena. Taylor County has 19.1% which is 4,221 persons in this age class. The next classification of people most vulnerable to heat waves would the 19.8% of the population, which is 4,375 persons living below the poverty level who may have substandard housing without air conditioning or a reliable vehicle that may overheat easily or not have air conditioning. In an extended heat wave situation this could be very serious causing the need for shelters or comfort stations to open.

Drought situation would be deleterious to crops and timberland. Extended droughts or heat waves can kill crops. Extended droughts can stress timberlands to a point they are weakened and could cause an outbreak of the deadly Southern Pine Beetle which attacks stressed trees and begins to spread to healthy trees. Southern Pine Beetle causes millions of dollars of timber loss each year and has been identified in Taylor County as recently as 2017.

Due to the hot and humid climate of Florida, all residents and business are used to high temperatures so this type of hazard does not represent as much of a hazard situation as it would to other areas with less water resources, air-conditioning, and refrigeration capabilities.

The City of Perry - Vulnerability

The City of Perry has a slightly different vulnerability to heat and drought than the rest of the county. The urban environment of the City and the surrounding areas puts a higher population of humans at risk from heat related illnesses. There are additional resources in the City that can aid these problems, but the human risk is higher than the rest of the county at large. The city does not have a substantial economic risk from this hazard. The county areas with the high level of agriculture, livestock, and timber forest are much more economically vulnerable than the City of Perry.

Future Development and Drought

As Taylor County and the City of Perry grow, it increases the risks of drought and related heat issues. Higher population will increase the demand on water resources for human, agricultural and livestock needs. This will make the environment more prone to drought conditions. In addition, larger populations of humans and animals will increase the possibilities of injury, sickness, and death due to heat conditions.

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7. Freeze and Winter Storms

General Description

Winter storms may include extreme cold temperatures (freeze), high winds, snow, and ice, all of which have the potential to impact people, structures, and infrastructure. During the winter, the North Florida region is occasionally invaded by massive cold fronts that originate far to the north and the results are carried to the Southern states. Although the temperature within these air masses rises significantly during their passage to Florida, they are capable of bringing intense cold to the State.

Florida has experienced occasional cold fronts that can bring high winds and relatively cooler temperatures for the entire state, with high temperatures that could remain into the 40s and 50s (4 to 15 °C) and lows of 20s and 30s (-7 to 4 °C) *for few days* in the northern and central parts of Florida, although below-freezing temperatures are very rare in the southern part of the state.

Temperatures can reach freezing levels enough to cause damage to crops and water lines/pipes. Freezing occurs when temperatures are below freezing (32° F) over a wide spread area for a significant period of time. Freezing temperatures can damage agricultural crops and burst water pipes in homes and buildings. Frost, often associated with freezes, can increase damaging effects. Frost is a layer of ice crystals that is produced by the deposition of water from the air onto a surface that is at or below freezing. A freeze warning is issued to make the public and agricultural interests aware of anticipated freezing conditions over a large area. Similarly, hard freeze is issued under the same conditions as a freeze warning, but the temperatures may stay well below 28° F for a duration of four hours or more.

Not a year goes by when there is not some damage to the citrus or vegetable crop somewhere in the State. Severe freezes in the 19th and 20th centuries gradually drove the center of citrus production southward from the Orlando area to southern Polk County. Winter vegetable growers have long concentrated their production south of Lake Okeechobee, where they gamble each year that their crop will be spared a severe blow from freezes.

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Location

The entire planning area is susceptible to winter storms and freezes. Taylor County is not generally susceptible to winter storms, because temperatures rarely reach snow-producing levels; this does not mean that snow and winter weather is unheard of, but it is a rare occurrence. The climactic conditions for long lasting winter storms are also not favorable.

Extent

A winter storm can range from moderate snow over a few hours to blizzard conditions with high winds, freezing rain or sleet, heavy snowfall with blinding wind-driven snow and extremely cold temperatures that lasts several days. Some winter storms may be large enough to affect several states while others may affect only a single community. All winter storms are accompanied by cold temperatures and blowing precipitation, which can severely reduce visibility.

A freeze is when the surface air temperature is expected to be 32°F or below over a widespread area for a climatologically significant period of time. Use of the term is usually restricted to advective situations or to occasions when wind or other conditions prevent frost. "Killing" may be used during the growing season when the temperature is expected to be low enough for a sufficient duration to kill all but the hardiest herbaceous crops. A Freeze Warning is issued during the growing season when surface temperatures are expected to drop below freezing over a large area for an extended period of time, regardless whether or not frost develops.

Historical Occurrences

The State's record minimum temperature was set in February 1899 when Tallahassee experienced -2° F. Once cold waves move onto the peninsula the relatively warm waters of the Atlantic and the Gulf of Mexico exert their influence, and the airmass' temperature rises.

In the winter of 1989, Taylor County suffered a major freeze lasting over two days. Temperatures remained below 32° during the day and dropped down to 17°F at night, causing some roadways to ice over and creating hazardous traffic conditions. For example, approximately 52 traffic accidents, without major injuries, occurred one morning within an 8-mile section of Highway 19 between Pineland and the south county line. The death of one elderly person was also attributed to the freeze due to lack of adequate heating in the home. Electricity was out through the county due to problems with power lines and trees and debris. The restoration of services was also delayed by transportation issues caused by icy conditions.

During the past 5 years Taylor County has averaged freezing levels only 23 days below 32°.

In January 2018, Taylor County had a severe freeze but it only lasted a few days. No accidents due to the weather were caused in the planning area. Some powerlines did freeze and were laden with ice and a few broke. All in all, it was minor impacts to the residents. North of the planning area, in Tallahassee, there were some blackouts, some snow, sleet, and much more ice causing the closing of Interstate 10 for one day.

Probability: Low

There is a distinct probability that winter weather will again impact anywhere in Taylor County in the near term. Every winter this possibility must be considered and appropriate preparations must be made for traffic conditions and potential power outages. However, the chance of a seriously damaging winter season is not high when compared with the rest of the county. The probability of a significantly damaging winter storm is considered low by the LMS Working Group.

The climate in the Florida Panhandle is mild, compared to the remainder of the nation to the north, and winter storms of this nature are very rare. During the winter, Florida has approximately double the amount of hours of sunlight than the states to the north, resulting in milder temperatures, so winter storms and freezes are not a very high priority for the Taylor County LMS Working Group. However, should a prolonged freeze occur any time between January and March, there is potential risk to human life due to exposure to the weather and more importantly automobile accidents due to freezing road conditions.

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Impacts

In climates like North Florida where people are not accustomed to freezing temperatures, crops are planted for warmer climates and home or businesses do not winterize, impacts can, at times, be severe. Broken pipes impacting water supplies, increased accidents from inexperience driving on icy roadways, icy powerlines breaking and interrupting electricity, extensive damage to crops. These are rare occurrences in North Florida occurring about every thirty years. For the most part, the impacts are not severe and are not long lasting.

Vulnerability

Vulnerability in Taylor County due to winter storms and freezing conditions can be characterized in three categories:

- Human health issues due to exposure. In severe conditions many Floridians will be unprepared for extreme cold. Being a state near the tropics, warm and hot temperatures are the norm. Therefore, most residents focus on cooling and air-conditioning investments rather than heating. Some residents will not have sufficient heat and could be exposed and suffer the consequences. Other residents will cause themselves injury or worse using dangerous electric and propane heaters or even open fires. At least once per year, Taylor County opens a small shelter or puts one on standby to assist citizens without proper heating capabilities.
- Agricultural and livestock issues due to exposure. Much of Taylor County's economy is based on agriculture and livestock, so extreme cold conditions will severely impact this sector. Prolonged periods of cold will result in losses to crops and animals that will endanger the businesses of many small and medium sized farms.
- Transportation issues due to icy driving conditions. Highways 19, 98, 221 and 361 are the major transportation corridors for the county. With winter storms, these roads may become icy causing dangerous conditions for commercial and residential traffic throughout the county. Accidents are a high probability with the subsequent injuries and economic impact. In addition, there will be an increase in costs to the county for providing services such as police for accident reporting and traffic control, public works for debris removal and road repairs, and emergency services for managing the event.

People 65 years old and older are the most vulnerable population for this weather phenomena. Taylor County has 21.1% which is 4,221 persons in this age class. The next classification of people most vulnerable to freezes and winter weather would the 19.8% of the population, which is 4,375 persons living below the poverty level who may have substandard housing without heating. In some extreme freezing weather shelters can be opened to protect vulnerable populations from the weather.

City of Perry - Vulnerability

The likelihood of winter weather affecting the City of Perry is exactly the same as it is for the rest of the unincorporated county. Based on the overall vulnerability for the county, the City of Perry does differ in the lack of agriculture and commercial livestock. The city will be most vulnerable to transportation and traffic issues due to the greater number of roads and the higher and denser population. Also the larger number of people will increase the probability of injuries, illnesses or deaths related to the cold.

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8. Sinkholes

General Description

A sinkhole is a natural depression or hole in the Earth's surface caused by karst processes — the chemical dissolution of carbonate rocks or suffosion processes for example in sandstone. Sinkholes may vary in size from less than 1 to 600 meters (3.3 to 2,000 ft) both in diameter and depth and vary in form from soil-lined bowls to bedrock-edged chasms. They may be formed gradually or suddenly and are found worldwide.

Sinkholes are a common feature of Florida's landscape. They are only one of many kinds of karst landforms, which include caves, disappearing streams, springs, and underground drainage systems, all of which occur in Florida. Dissolution of carbonate rocks begins when they are exposed to acidic water. Most rainwater is slightly acidic and usually becomes more acidic as it moves through decaying plant debris.

Limestone in Florida is porous, allowing the acidic water to percolate through their strata, dissolving some limestone and carrying it away in solution. Over time, this persistent erosion process has created extensive underground voids and drainage systems in much of the carbonate rocks throughout the state. Collapse of overlying sediments into the underground cavities produces sinkholes.

Although a sinkhole can form without warning, specific signs can signal potential development:

- Slumping or falling fence posts, trees or foundations;
- Sudden formation of small ponds;
- Wilting vegetation;
- Discolored well water; and/or
- Structural cracks in walls, floors.

According to the Suwannee River Water Management District (SRWMD) and the U.S. Geological Survey there are many types of sinkholes, but the two occurring most often within the SRWMD are *collapse* and *solution* sinkholes.

A collapse sinkhole forms suddenly as the weight of the overlying soil suddenly becomes too great, and the earth collapses until it fills the limestone cavity. At land surface, a circular hole appears, which may or may not contain water. Factors that may contribute to the collapse include:

- Large changes in the water table caused by too much or little rain
- Drilling a well into the cavity
- Pumping groundwater from near the cavity
- Constructing buildings above the cavity
- Diverting drainage to the areas where a cavity exists.

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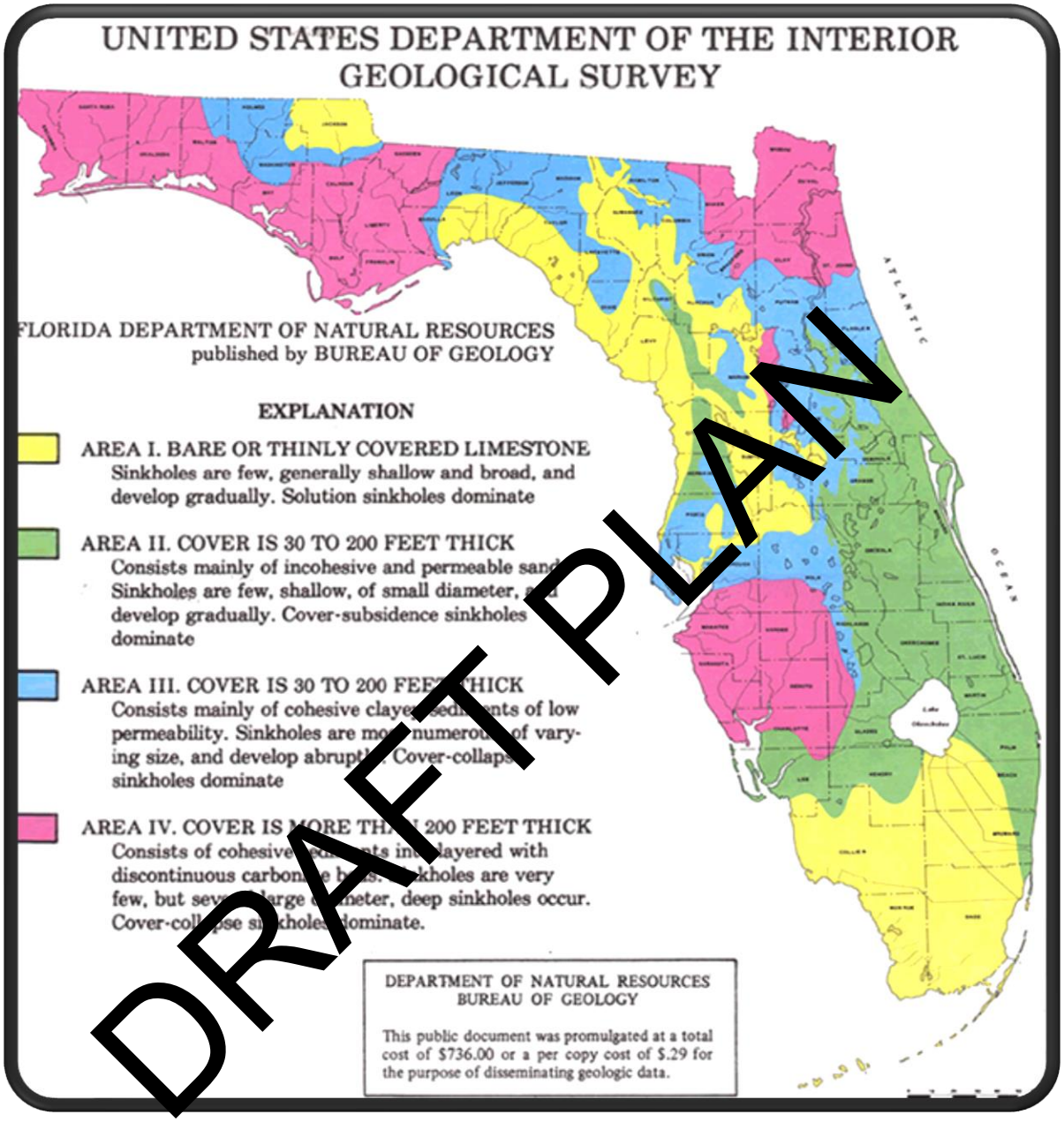

Source: United States Department of Natural Resources, published by the Bureau of Geology

Figure 29. Explanation and Map of Sinkhole Areas

A solution sinkhole, on the other hand, develops slowly and continuously. It forms where sand or other relatively thin materials slowly and steadily sprinkle downward to fill the cracks and joints that occur in the underground limestone layers.

As a sinkhole gets bigger, it collects more surface water and runoff, which commonly carries sand, silt and clay particles. This material can sometimes plug the sinkhole, thereby creating a lake or pond. Lakes that once were collapse sinkholes can sometimes unplug and drain into the

underground aquifer. If the lake becomes polluted, this can be a health hazard to the people whose drinking water wells tap into the connected aquifer.

Location

Sinkholes may occur anywhere in the planning area due to the geology. Sinkholes have been recorded in most areas of the county (Figure 30).

Extent

According to the United States Department of Natural Resources, published by the Bureau of Geology, Taylor County is in Area I in most of the county and Area III in the northeastern portion of the county (Figure 29). In Area I, has bare of thinly covered limestone. The sinkholes are few, generally shallow and broad, and develop gradually. Solution sinkholes dominate. The Area III cover is 30 feet to 200 feet thick. This Area consists mainly of cohesive clayey sediments of low permeability. Sinkholes are numerous of varying size and develop abruptly. Cover-collapse sinkholes dominate.

Historical Occurrences

The Florida Department of Environmental Protection (FDEP) maintains the official sinkhole database for the State of Florida and has over 2,[illegible] individual reports. The following is pulled directly from the FDEP website and is a site map of all reported sinkholes in the general area of Taylor County. The database shows a total of 27 sinkholes for Taylor County.

Taylor County has had multiple reports of small sinkholes that have opened on private property, but without any structure damage. In the areal flooding experienced in the Spring of 2014 a large 10'X 10' sinkhole opened in the vicinity of the flooding in a private driveway off of Dewey McGuire Rd. Other small sinkholes opened on private property with size ranging from 1 foot across to 2 foot across.

In August/September 2015 the Steinhatchee area was impacted by over 20 inches of rainfall in a short period causing both riverine and areal flooding. As the water receded a sinkhole developed at an area on CR 51 north of Steinhatchee. The hole cost the FDOT over $300,000 to repair and caused the roadway to be closed at various times during the month long process. Road closures caused long detours for residents, school students and the seasonal tourist and fishing industry. Several other small sinkholes (1'x1') opened during this same flooding event, including one on county maintained River Avenue and also on Granger Drive. All sinkholes on county maintained roads were quickly filled after each incident.

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Table 25. List of Sinkholes for Taylor County

Reference #	Date	Longitude	Latitude		Reference #	Date	Longitude	Latitude
38-005	1/1/1970	-83.5856	30.07919		38-001	7/7/2003	-83.6514	29.97361
38-004	2/23/1970	-83.513	30.00524		38-501	7/20/2007	-83.3246	29.77511
38-503	6/1/1970	-83.5667	30.11719		38-510	8/23/2008	-83.5748	30.12542
38-008	8/14/1970	-83.6753	30.08893		38-509	3/23/2013	-83.5091	30.07859
38-504	8/29/1971	-83.575	30.11542		38-512	6/27/2013	-83.3247	29.77895

38-007	10/11/1971	-83.5588	30.07731		38-003	8/23/2013	-83.6886	30.0963
38-002	7/17/1972	-83.8472	30.14305		38-011	1/11/2014	-83.6223	29.9647
38-012	7/29/1982	-83.6046	30.12409		38-502	5/29/2014	-83.5461	30.07694
38-010	9/5/1984	-83.5528	30.06975		38-013	8/15/2015	-83.5394	30.08499
38-508	10/11/1984	-83.5583	30.16656		38-009	No Data	-83.5588	30.00395
38-006	8/14/1985	-83.358	29.68804		38-507	No Data	-83.583	30.05395
38-505	12/10/1986	-83.6033	30.06421		38-511	No Data	-83.6274	29.89821
38-513	7/17/2000	-83.6319	30.46477		38-506	No Data	-83.5689	30.11067
38-500	10/3/2000	-83.3246	29.77511					

Source: https://ca.dep.state.fl.us/mapdirect/?focus=fgssinkholes

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Source: https://ca.dep.state.fl.us/mapdirect/?focus=fgssinkholes

Figure 30. Historical record of sinkholes in Taylor County.

Probability

The probability that a sinkhole will occur in Taylor County sometime in the near future is low to medium, but the likelihood of this hazard causing significant damage to the county in general is

very low. These events are isolated and usually very small in geographic extent. This hazard is considered a relatively low priority for the LMS Working Group.

Impacts

The impacts in the planning area are few. Sinkholes occurring in a major roadway could be dangerous and severely impact transportation. U.S. Highways 27, 98, and 221 pass through the county with goods for other parts of the county, not to mention the massive timber industry in the county. Impacts to transportation could cause high impacts to the local and potentially surrounding economy.

Other impacts include damage to houses or personal property, damage to businesses, and damage to infrastructure. The sinkholes the occur in these geologic areas referenced above, do not typical become very large across. Many of the sinkholes that have occurred in the planning area have been filled or repaired.

Vulnerability: Low

Sinkholes are very localized in nature. Any vulnerability is to individual structures or roadways. As noted earlier, historically and geologically, these types of sinkholes do not become extremely wide encompassing vast areas. Due to these factors the vulnerability is low for the planning area.

Future Development and Sinkholes

Based on the levels of risk shown on the map above, the area around the City of Perry has a higher degree of risk than other areas of the county. As the city continues to grow relatively more than the unincorporated county, the risks associated with sinkholes in this area will increase with the higher populations and the greater number of structures.

City of Perry – Vulnerability

The areas in and around the City of Perry are more at risk to sinkholes than other areas of the unincorporated county. Based on participation and feedback from the City Public Works Department, sinkholes can damage the city's infrastructure including water and sewer pipes and roads. Some of the roads at risk include Courtney Road and also 9th Street.

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9. Coastal and Riverine Erosion

General Description

Soil erosion is the process by which the land surface is worn away by the action of wind, water, ice and gravity. The process of soil erosion involves detachment of sediments from the soil mass, transportation primarily by flowing water or wind, and eventual deposition of sediment. Raindrops falling on bare or sparsely vegetated soil detach soil particles. Water flowing over the ground picks up the particles and carries them. As runoff gains velocity, it tends to form channels and detaches more soil particles. This action cuts rills and gullies into the soil, adding to the sediment load. Wind erosion is also a significant cause of soil loss, especially in peninsular Florida. Winds blowing across unvegetated, disturbed land pick up soil particles and carry them along. Additional information on wind erosion and its control is available from the Natural Resources Conservation Service (formerly the Soil Conservation Service). Sedimentation is the settling out of the soil particles transported by water and wind.

Sedimentation occurs when the velocity of water in which the soil particles are suspended is slowed to a sufficient degree, and for a sufficient period of time, to allow the particles to settle out of suspension. Heavier particles, such as sand and gravel, settle out more rapidly than do fine particles such as clay and silt.

Natural, or geologic erosion, has occurred at a relatively slow rate since the earth was formed. It is a major factor in creating the earth as we know it today. The great river valleys of the panhandle, the rolling farmlands and orchards of the central ridge, the productive estuaries, and the barrier islands of the coast are all products of geologic erosion and sedimentation. Except for some cases of shoreline and stream channel erosion, natural erosion occurs at a very slow and uniform rate; and is a vital factor in maintaining environmental balance. Geologic erosion produces about 30 percent of all sediment in the United States.

However, not all erosion is gradual. It can occur quite quickly as the result of a flash flood, coastal storm, or other event. Most of the geomorphic change that occurs in a river system is in response to a peak flow event. It is a natural process, but its effects can be exacerbated by human activity. Erosion is a problem in developed areas where the disappearing land threatens development and infrastructure.

Over 50% of Florida's beaches are experiencing erosion. At present, about 299 of the state's 825 miles of sandy beaches are experiencing "critical erosion", a level of erosion which threatens substantial development, recreational, cultural, or environmental interests. The impact of raindrops and sheet flow on the soil surface is the beginning in the erosion process. The extent of erosion is determined on the size and velocity of raindrops and the amount of precipitation and intensity or severity of thunderstorms, hurricane or tropical storm events, which can be very erosive to the soil. Moving water is the most likely natural agent of erosion. Erosion by rivers is caused by the scouring action of the sediment-containing flowing water.

Human intervention, as by the removal of natural vegetation for farming or grazing purposes, can lead to or accelerate erosion by wind and water. The erodibility is influenced by many factors, some of which vary during the year and/or vary with soil management.

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Location

The planning area can experience coastal erosion along its 45 miles of coast and along its major and minor riverine waterways (Figure 31).

Figure 31. Coastal Area and River System of Taylor County

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Extent

Coastal erosion is measured by feet of erosion per year. This is not a major issue on the Taylor County Coast owed to the vegetated coast and low energy waves that are found there.

There are a variety of methods for measuring riverbank erosion rates. A direct method is to insert metal rods (called "erosion pins") into the bank and marking the position of the bank surface along the rods at different times. This simple measurement technique can be enhanced with the use of a data logger attached to a rod of photoreceptors; the logger records the voltage, which is an indication of how much of the rod is exposed.[3] Another common method is to survey a stream cross section repeatedly over time. This measures the erosion rate in addition to changes in the geometry of stream banks. Aerial and satellite imagery can be used to measure rates of bank erosion and river channel migration at larger spatial scales by comparing bank locations at various times. Finally, there are a variety of less common methods like using sedimentology or tree age to calculate erosion rates by approximating historic locations of the river channel. *Source: Wikipedia: Bank Erosion*

Historical Occurrences

There are no records of historical occurrences of coastal erosion besides the short distance of critically eroded beach in Dekle Beach discussed below.

During the 2015 flood event in Steinhatchee over 20 roads were underwater requiring various level of repair after water receded. This also can affect the other coastal communities of Dark Island, Keaton Beach, Ezell and Cedar Island.

Hurricane Hermine in September 2016 caused extensive damage, including beach erosion to the Keaton Beach area. In 2017, repairs to beach amounted to $10,500 for 400 tons of masonry sand to replace beach lost during the storm.

Probability: Low

Taylor County has approximately 45 miles of low energy (no waves) coastline this and the heavy vegetation along the coast combine to make coastal erosion a low probability. Riverine erosion is exacerbated by destruction of vegetation along the river's edge. Taylor County is a major timber producer in the southeast United States. The State of Florida implements the silvicultural best practices monitored by the Florida Forest Service. These practices are designed as the minimum standards necessary for protecting and maintaining the State's water quality as well as certain wildlife habitat values, during forestry activities. As such, they represent a balance between overall natural resource protection and forest resource use. In the past few years there have been no violations of these best practices which directly translates to a protection of the riverine system of Taylor County.

Impacts

Erosion leads to increased pollution and sedimentation in streams and rivers, clogging these waterways and causing declines in fish and other species. Degraded lands along rivers and streams are also often less able to hold onto water, which can worsen flooding. Coastal flooding can lead to loss of land, habitat, and affect critical infrastructure.

Vulnerability

According to the Florida Department of Environmental Protection, Division of Water Resource Management Critically Eroded Beaches in Florida study (June 2019), there is 0.2 miles classified as critically eroded beach (Figure 32). This area is close to some residences; however, does pose a serious threat to residents.

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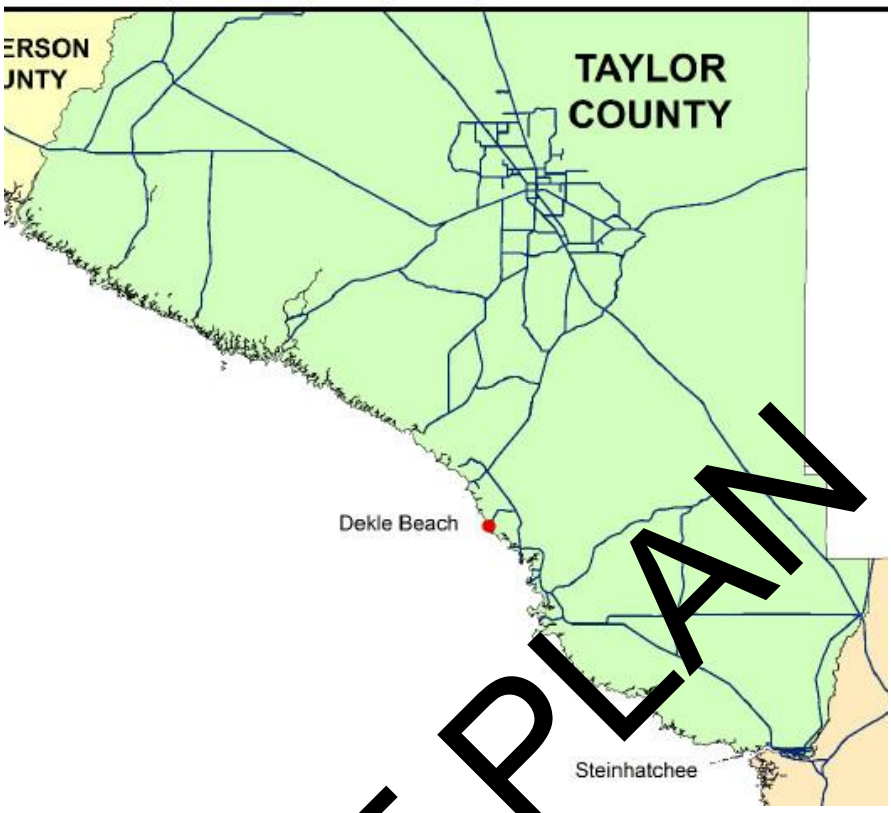

Figure 32. 0.2 Miles of the 45 Mile Coast is Classified as Critically Eroded Beach

Most of this coastal area is partially vulnerable to erosion caused by astronomical high tides or from storm surges. The extent of the erosion is minor, and not expected to exceed one foot of shore per decade. This can be exacerbated by hurricanes or winter storms. Particular attention is focused on the roads that run along the coastlines.

These roads tend to be impacted by saltwater and debris and over time the ground around the roads is eroded. This road damage is in constant need of repair by the county. River Road in Steinhatchee and Front Road in Dekle Beach are both very close to the coast and are vulnerable to erosion.

The major rivers do have some erosion and the potential for more, but there is little established data for comparisons and analysis. Taylor County group does not consider this hazard to be a primary threat to human life or of significant economic potential. Further research about the probability, extent and damage associated with this hazard needs to be conducted and will be addressed in the future by the Taylor County LMS Work Group as applicable.

Taylor County does not have fast flowing rivers and is not susceptible to any significant degree of riverine erosion. The coastline is predominately tidal marsh land and does not erode. The coastal area is not susceptible to subsidence either.

Future Development and Erosion

As the county and the City of Perry grow and develop, the issue of erosion may become more important. This is especially true considering the increased development considered in the County Vision 2060 Plan where up to an extra 188,000 units could be built near the coastline.

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City of Perry – Vulnerability

The Fenholloway River flows on the southern side of the City of Perry and is not susceptible to erosion due to the well vegetated banks and nearly negligible amounts of disturbance on its banks.

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Taylor County

Flood and Sudden Coastal Surge

Warning and Evacuation Plan

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July 15, 2020

Taylor County Board of County Commissioners

Department of Emergency Management

591 E US Highway 27

Perry, FL 32347

850-838-3575

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Introduction

Taylor County recognizes the importance not only of effective flood warning and response in a comprehensive floodplain management program, but also of coordinating public information, regulatory programs, and flood protection with the efforts of emergency management.

Taylor County participates in the National Flood Insurance Program Community Rating System Activity 610 (Flood Warning and Response). This plan is based on the principle that an ample warning combined with a flood response plan can prevent loss of life and damage to property.

This plan will focus on activities on emergency warnings and response, because adequate notification combined with a plan for how to respond can save lives and prevent and/or minimize property damage. The plan emphasizes coordinating emergency management functions within the community's other floodplain management efforts, such as providing public information and implementing a regulatory program.

The objective of this plan is to encourage Taylor County communities to ensure timely identification of impending flood threats, disseminate warnings to appropriate floodplain occupants, and coordinate flood response activities to reduce the threat to life and property.

Taylor County Emergency Management participates in the National Weather Service (NWS) Storm Ready and Tsunami Ready programs. For the purpose of this Warning and Evacuation Plan we have adjusted our Tsunami information and education to encompass an All-Hazards approach and will refer to Tsunami Ready information as either Tsunami or Sudden Coastal Surge.

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TAYLOR COUNTY PROFILE

Taylor County is located in the Big Bend of Florida, centrally on the west coast, between the northern panhandle and the southern peninsula. Taylor County is bordered on the north by Madison County, on the south by the Gulf of Mexico, on the east by Dixie County and Lafayette County and on the west by Jefferson County.

There is one incorporated municipality within the County, listed below.

GEOGRAPHIC INFORMATION

Taylor County encompasses 1,043.31 square miles. The County has approximately 50 miles of coastline on the Gulf of Mexico, which is mostly comprised of marshland. Approximately 70% of Taylor County is comprised of timberland. Elevation in Taylor County ranges from zero to 90 feet with an average of 26 feet.

The primary highways in the County include United States' Highways 19, 27, 98 and 221. U.S. 98 and 27 accommodate east/west travel and U. S. 19/27Alt. and 221 accommodate the north/south travel. The city of Perry is approximately 25 miles south of Interstate 10. There are also two railroads operating in Taylor County, the CSX Transportation Railroad and the Southern Railway.

Taylor County's geology is characterized by limestone formations overlain in areas by clays and sands. The upper limestone formations constitute the Floridian aquifer system. The Floridian aquifer is characterized by solution cavities along fractures and bedding planes in the limestone. Sinkholes are often formed in limestone by collapse of solution cavities and propagation of the collapse to the surface. A number of sinks and springs occur along the banks of the Suwannee River. The Floridian aquifer is comprised of three formations in Taylor County. These formations are the Crystal River, Suwannee and Alachua Formations.

The eastern boundary of the county is formed by San Pedro Bay (low-lying area) and the Steinhatchee River. The western boundary of the County is the Aucilla River. The Steinhatchee River and its tributaries drain large swampy areas in the south and central parts of the county, including San Pedro Bay and Mallory Swamp. The Steinhatchee also runs southwest to the Gulf of Mexico. In addition, the Econfina and Fenholloway Rivers also flow southwest into the Gulf of Mexico.

The water tends to flow from the northeast to the southwest, with a considerable amount being received from San Pedro Bay. San Pedro Bay is a large cypress and timber swamp encompassing the northeastern part of the county. The water flows through flood control canals and through and around the City of Perry into the Gulf of Mexico.

The Steinhatchee River is approximately 30 miles in length and flows southwest forming the southeast boundary of the County. The Fenholloway River is also approximately 30 miles in length and flows southwest expanding from the central portion of the County near the City of Perry into the Gulf of Mexico. The Aucilla River, which forms in the counties north of Taylor County, flows southwest and forms the western boundary of the County. Total water area in Taylor County, including rivers, lakes, ponds, streams and wetlands is estimated at approximately 317,697 acres.

The coastal areas, approximately 50 miles of tidal marsh, are most vulnerable to flooding from hurricanes. All of the coastal area lies within the tropical storm flood zone. The category five (5) hurricane flood zone extends as much as eight (8) miles inland.

Inland flooding usually occurs around the Steinhatchee, Econfina, Aucilla and Fenholloway Rivers. This land is mostly low-lying with elevation ranging from sea level at the coast to as much as 15 feet inland along the rivers. Flooding along the rivers is usually a result of heavy rainfall resulting in riverbank

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overflow and ponding or from coastal storm surge.

TAYLOR COUNTY DEMOGRAPHICS

According to 2019 US Census estimates, Taylor County has an estimated population of 21,569, down from 22,715 from the 2012 US Census count. This includes the estimated City of Perry population of 6,879. Taylor County's strong economy, coupled with its appeal to retirees and tourists, suggests the area's population will continue to grow. These demographic trends – when combined with the County's exposure to hurricanes and other hazards – illustrate the potential vulnerability of citizens and tourists to major disasters. The following statistics highlight the vulnerability of the County's population:

- The population density of Taylor County is 21.6 persons per [illegible]. The population is distributed 30.9% within the only municipality, Perry, and 69.1% within the unincorporated area.
- Without the State's prison inmates the estimated population would be 21270.
- The age distribution in Taylor County is as follows: 5.4% are between 0-5 years old; 19.7% persons are under 18 years old; and 21.0% are over 65 years old. Females are 45.7% of the population.
- Taylor County has a moderate seasonal tourist population primarily in the coastal communities based on fishing and scallop seasons.
- 6.6% of the population has a language other than English spoken at home. Approximately 14.3% of American adults report some degree of hearing loss. (Deaf Service Center Association)
- An estimated 33.3 percent of the County's total housing units are manufactured homes, which have historically been vulnerable to high winds, flooding and storm surge.
- Approximately 3,843 individuals in the County are 65 years or older, which represents 16.9 percent of the total population. The elderly are more vulnerable than other population segments to the effects of disaster.
- Marshall Health and Rehabilitation Center is the only nursing home in Taylor County. The facility is licensed for 120 beds.
- In July 2020, 70 citizens were registered and qualified with the Taylor County Department of Emergency Management as a special needs client with 30 of those in need of transportation to a special needs shelter. Also 397 total are registered with 64 in need of transportation to a public shelter.
- There are very few individuals who can be classified as migrant, transient or seasonal workers in Taylor County. 10% of the population work in agriculture related industry.

Florida does have a natural defense against a tsunami. The state's shallow, coastal waters will act as a breakwater, dissipating some of the powerful wave's energy.

Although the incidence of Atlantic tsunamis is low, the threat should be taken seriously because millions of people live in low-elevation locations around the rim of the Atlantic basin. (Orlando Sentinel, 2011)

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Fortunately for U.S. residents, the threat to the American mainland is not as dramatic as that facing the Caribbean islands. Florida's west coast, scientists say, would likely be spared from major tsunami damage should a quake occur near Puerto Rico, because the Bahamas would block most of the wave energy. (W Williams, 2005)

THREAT ASSESSMENT

COASTAL SURGE

Based on information reported in numerous studies including the 2020 Comprehensive Emergency Management Plan (CEMP), and the Local Mitigation Strategy (LMS) Working Group the Taylor County coastline is extremely shallow going out a considerable distance into the Gulf of Mexico. At times the water is as shallow as 3 feet for miles out from the coastline. This natural topography along the coast causes very severe surge potential with Taylor County being ranked the 2nd worst area for surge in the world behind Bangladesh. The National Weather Service (NWS) Sea, Lake, and Overland Surges from Hurricanes (SLOSH) models have identified that the storm surge from a Category 2 or above will damage and close highway 98 and would call for the immediate evacuation of the 1,200 prisoners at the nearby state prison.

HURRICANES AND TROPICAL STORMS

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 counter clockwise spiral around a relatively calm center known as the "eye". The "eye" is generally 20 to 30 miles wide, and the storm may extend outward as much as 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 two weeks over open waters and can run a path across the entire length of the eastern seaboard. August and September are the peak months during the Atlantic hurricane season that lasts from June 1 through November 30.

HURRICANE VULNERABILITY ANALYSIS

The area along the coastline is the area most vulnerable to hurricanes; however, the entire County is at risk from a direct hit from a category 3, 4, or 5 event. Approximately 3,000 persons live in the coastal areas especially in the communities of Dark Island, Dekle Beach, Keaton Beach, Ezell, Steinhatchee and Cedar Island. Every year there are multiple evacuation notices for citizens along the coast. Over 300 persons live in flood-prone areas along the Steinhatchee, Aucilla and Econfina Rivers, another 600+ live in inland flood-prone area (mainly around Perry), and an additional 1,700+ persons live in non-flood prone area mobile homes. During scallop season from July through September, the population of Steinhatchee increases from 3,200 to approximately 8,500. In the event of a hurricane, all these persons would be vulnerable to surge, flooding, and high winds.

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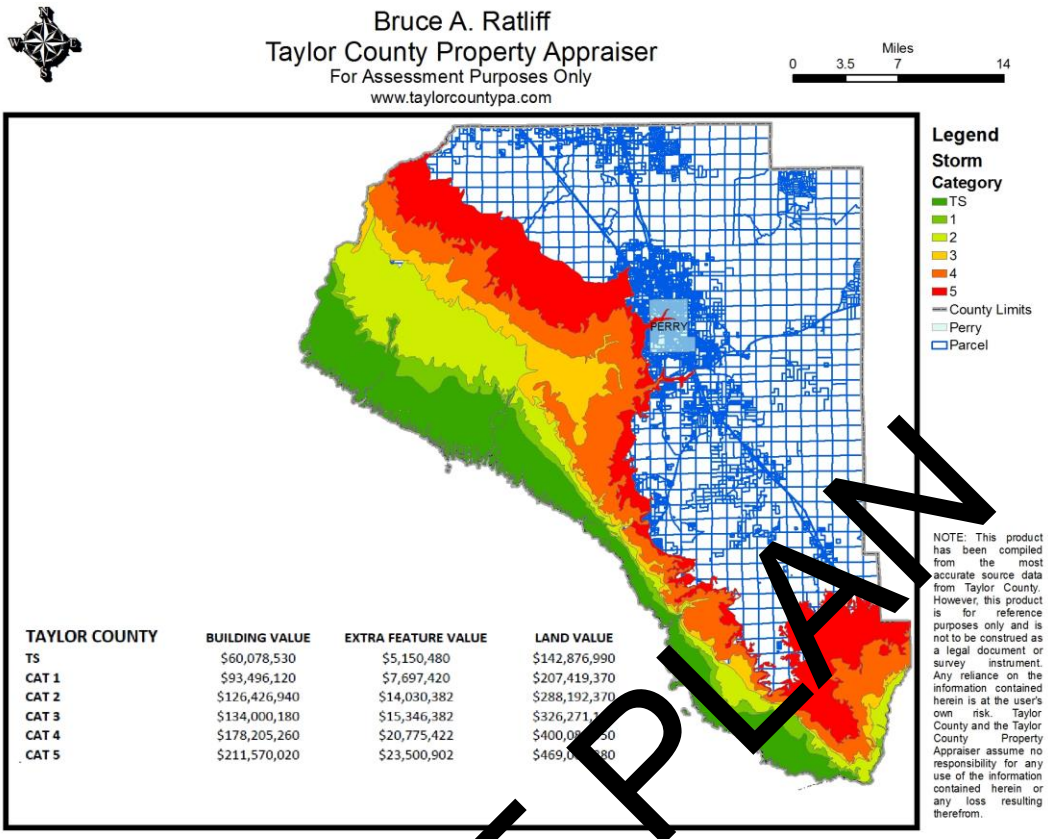

Tropical Storm Surge Level

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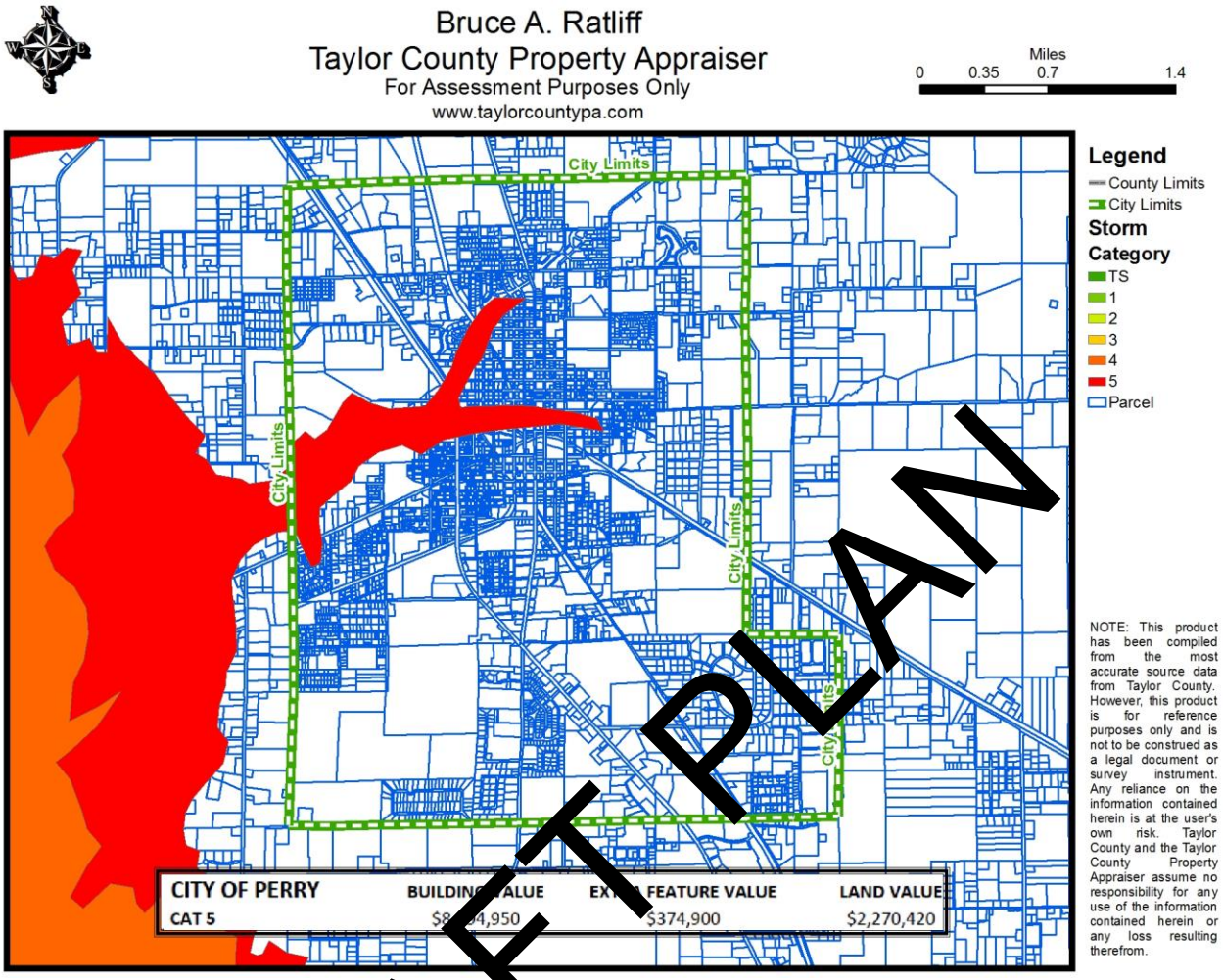
Most of the 45 mile coastline for Taylor County is tidal marsh, all of which lies within the hurricane flood zone. The flood zone extends 2 to 8 miles inland from the coast. The three main hazards caused by a hurricane are: (1) storm surge; (2) high winds; and (3) rain induced freshwater flooding. The height of the storm surge above mean sea level varies with hurricane strength, direction of travel and location of landfall. During a Category 5 hurricane, surge induced flooding can occur over 10 miles inland.

Potential Storm Tide Height (In feet above NAVD88)

Storm Strength*	Storm Tide**
Category 1	Up to 11.1’
Category 2	Up to 19.5’
Category 3	Up to 27.7’
Category 4	Up to 33.5’
Category 5	Up to 38.5’

*Based on Saffir-Simpson Hurricane Wind Scale
**Surge heights represent the maximum values from SLOSH MOM’s



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TSUNAMI

Since the recent earthquake in Haiti (2010) which could have produced a significant tsunami, a new emphasis has been placed on this type of natural hazard. Taylor County has never been impacted by a tsunami and the working group considers an impact from this hazard a very low likelihood. The effects of a tsunami would be almost identical to the impact of the storm surge from a major hurricane although the warning time would be much shorter. Therefore, any potential hurricane mitigation initiatives would automatically protect against a seismically originated tsunami.

Tsunami risk in Florida is difficult to assess, as there are minimal reliable historical records. Consequently, simulation techniques were used. Three classes of initiating events were simulated: Caribbean volcanic events, Caribbean and Central American earthquakes, and East Atlantic (Azores) volcanic events. In general, in north Florida, these events produced at worst a 4-meter wave, while in some parts of south Florida this value grew to nearly 6 meters. Expert opinion suggests that this would be approximately a 1 in 500-year event.

Note that these tsunami zones are all smaller than those of a category 5 hurricane, an event of comparable frequency. However, a tsunami wave from the Azores would more than likely inundate virtually the entire Atlantic coastline, as opposed to only a few dozen miles of coastline in the case of a hurricane.

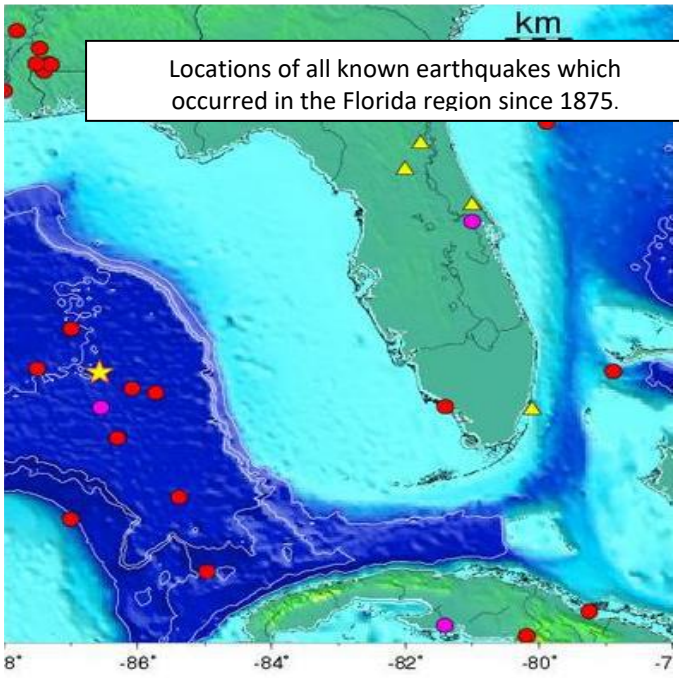
A key to effective hazards management is effective communication. This is especially true in tsunami emergencies, since wave arrival times may be measured in just minutes. Such a "short fused" event requires an immediate but careful response. To ensure such a proper response, Taylor County is currently in the process to become Tsunami Ready certified by the National Weather Service.

WHAT IS A TSUNAMI AND WHERE DO THEY HAPPEN?

A tsunami is a series of large ocean waves started by a sudden displacement of ocean water, usually caused by earthquakes in marine and coastal regions, a landslide or volcanic activity. Like the waves spreading out from a dropped rock, a tsunami's waves rapidly travel in all directions away from the disturbance and can spread across entire ocean basins. Tsunamis are not affected by tides or currents; a tsunami in the ocean means the whole water column is moving, not just the surface. A tsunami can strike any ocean shoreline. Most tsunamis are produced by large (greater than 7 on the Richer scale), shallow focus (< 30 km depth in the earth) earthquakes associated with the movement of oceanic and continental plates. They frequently occur in the Pacific, where dense oceanic plates slide under the lighter continental plates.

Other large-scale disturbances of the sea -surface that can generate tsunamis are explosive volcanoes and asteroid impacts.

Less frequently, tsunami waves can be generated from displacements of water resulting from rock falls, icefalls and sudden underwater landslides or slumps. Such events may be caused impulsively from the instability and sudden failure of sediment, which are sometimes triggered by the ground motions of a strong earthquake. For example in the 1980's, earth moving and construction work of an airport runway along the coast of Southern France triggered an underwater landslide which generated destructive tsunami waves in the harbor of Thebes.



Locations of all known earthquakes which occurred in the Florida region since 1875.

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Major earthquakes are suspected to cause many underwater landslides, which may contribute significantly to tsunami generation.

CAN A TSUNAMI HAPPEN HERE ON THE WEST COAST OF FLORIDA?

Due to a variety of geological features, earthquakes are relative rare in Florida: as such the risk from a tsunami is rather low. However, earthquakes have occurred in the past and could potentially happen again. The strongest earthquake in Florida's history occurred near St. Augustine on January 12, 1879.

The occurrence of earthquakes is more common in the Gulf of Mexico compared to Florida, but is still infrequent. On September 10, 2006, a magnitude 5.8 earthquake occurred in the Gulf of Mexico 251 miles southwest of Anna Maria, FL and was felt throughout west central and southwest Florida. However, the magnitude of the quake was not strong enough to create a tsunami along the Gulf Coast. Typically, devastating tsunamis occur in subduction zones, areas where one tectonic plate is forced under another and following very powerful earthquakes (magnitude 7.0 or greater). Japan is located in one of the planet's most active subduction zones and is no stranger to earthquakes and tsunamis. Fortunately, there are no major subduction zones in the Gulf of Mexico which greatly reduces the risk for catastrophic tsunamis as seen in Japan. Since records began, tsunami waves recorded along the Gulf Coast have all been less than 1 meter (3.28 feet) high.

There are two Tsunami Warning Centers that are operated by NOAA in the United States and their function is to monitor seismological and tidal stations throughout the Pacific and Atlantic Basins to evaluate potentially tsunamigenic earthquakes and disseminate Tsunami Warning information. There locations are:

- The National Tsunami Warning Center in Palmer (ATWC), Alaska has responsibility for the following areas:
  - Alaska south to California
  - U.S. Gulf of Mexico and Atlantic Coast
  - Puerto Rico and U.S. Virgin Islands
- The Pacific Tsunami Warning Center (PTWC) in Ewa Beach, Hawaii has responsibility for the following areas:
  - Hawaii
  - A national/international warning center for tsunamis that pose a Pacific-wide threat.
  - Caribbean (except Puerto Rico and U.S. Virgin Islands)

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RIVERINE AND FLOOD PLAIN

Taylor County is supported by the Suwannee River Water Management District (SRWMD). It's Springs Protection and Management system is networked to monitor the water resources in the region. This District-wide network is comprised of rainfall, river stage and discharge, lake stage, surface water quality data, groundwater data, and biological data.

The District monitors river and lake levels at 6 automated stations, and at an additional 26 stations in cooperation with the U.S. Geological Survey.

The river levels are given in feet above Mean Sea Level (MSL), which is roughly equivalent to the surveying datum NGVD 1929. These values show the elevation of the water surface above sea level, and not how deep the water is relative to the bottom. The water levels are normally posted within four hours of observation.

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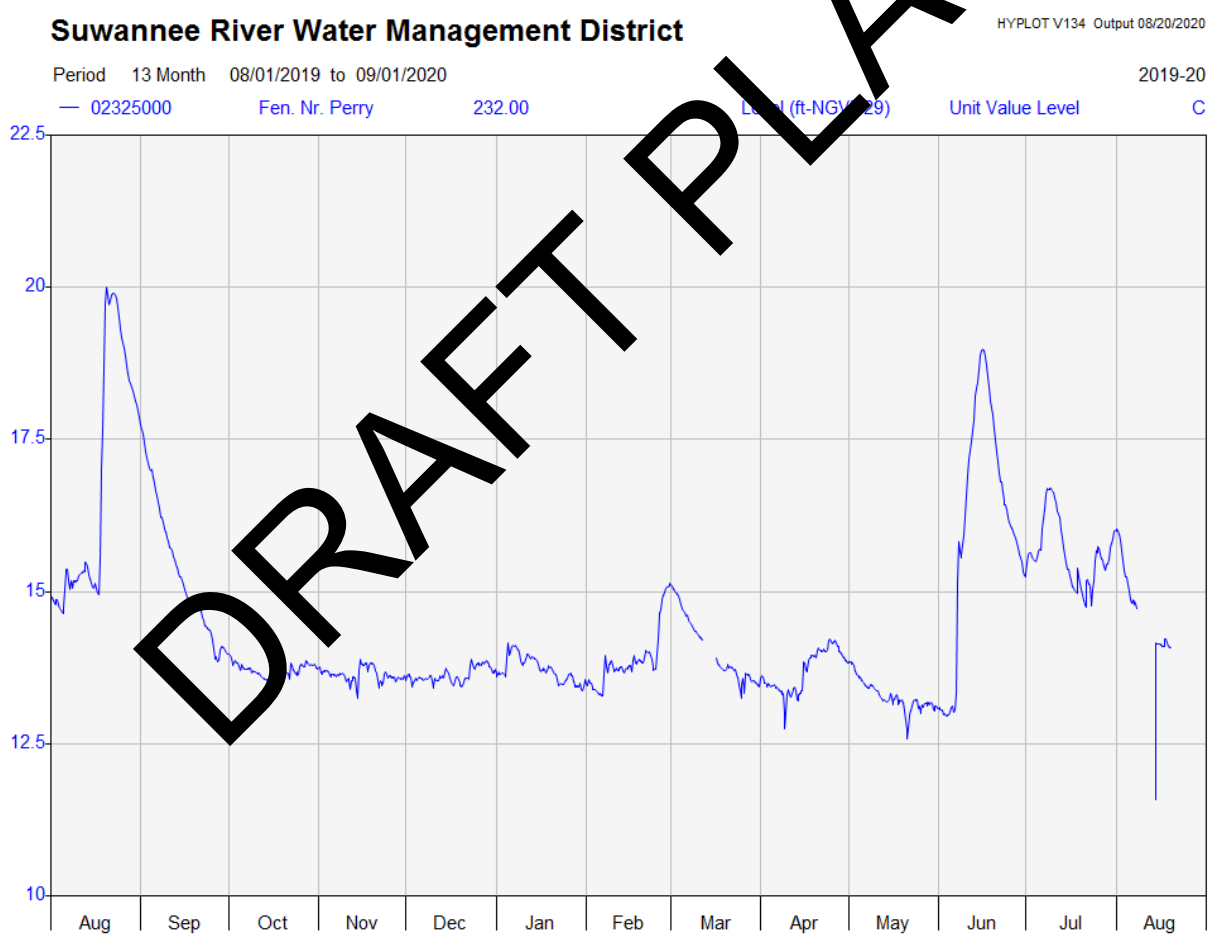
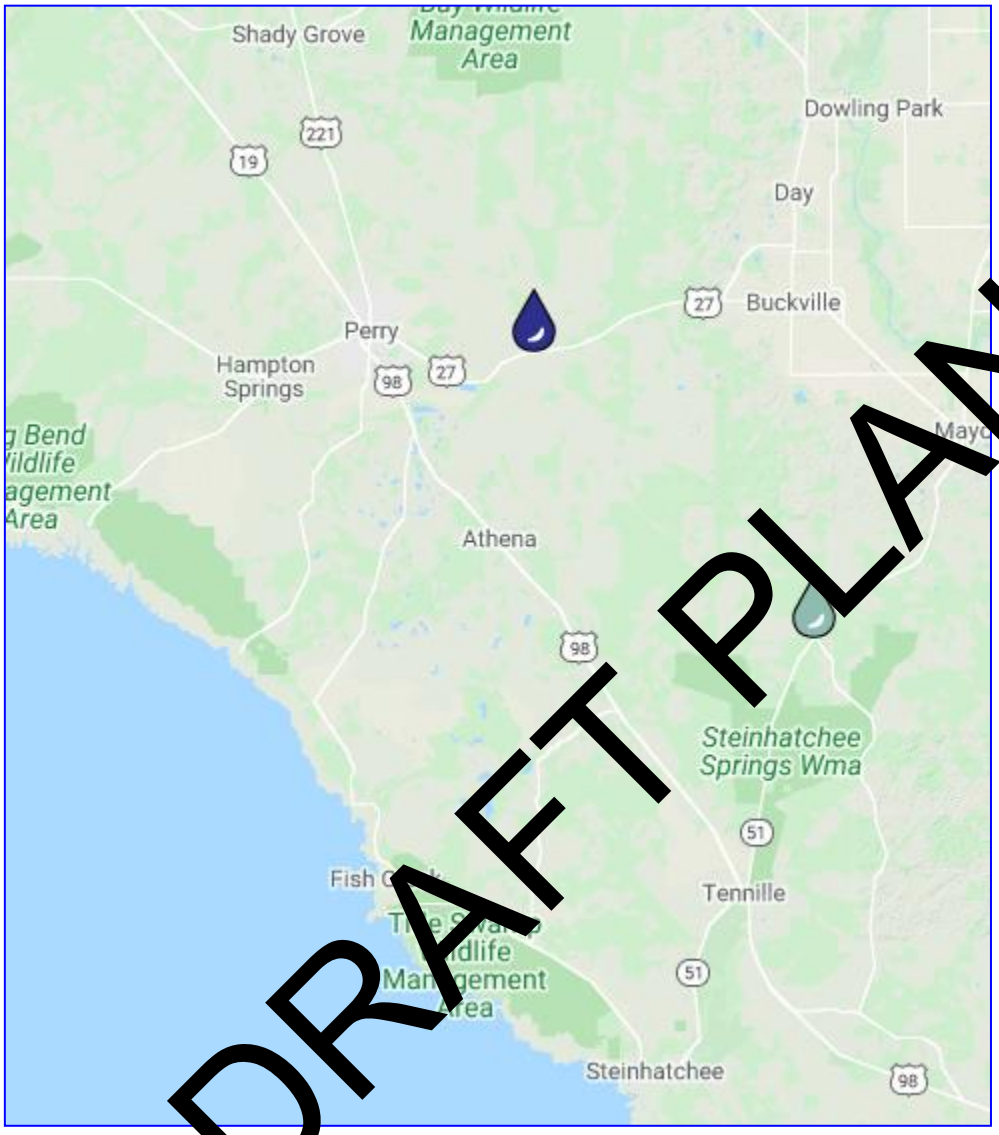


http://www.mysuwanneeriver.com/realtimeriverlevels/realtimeriverlevels.aspx



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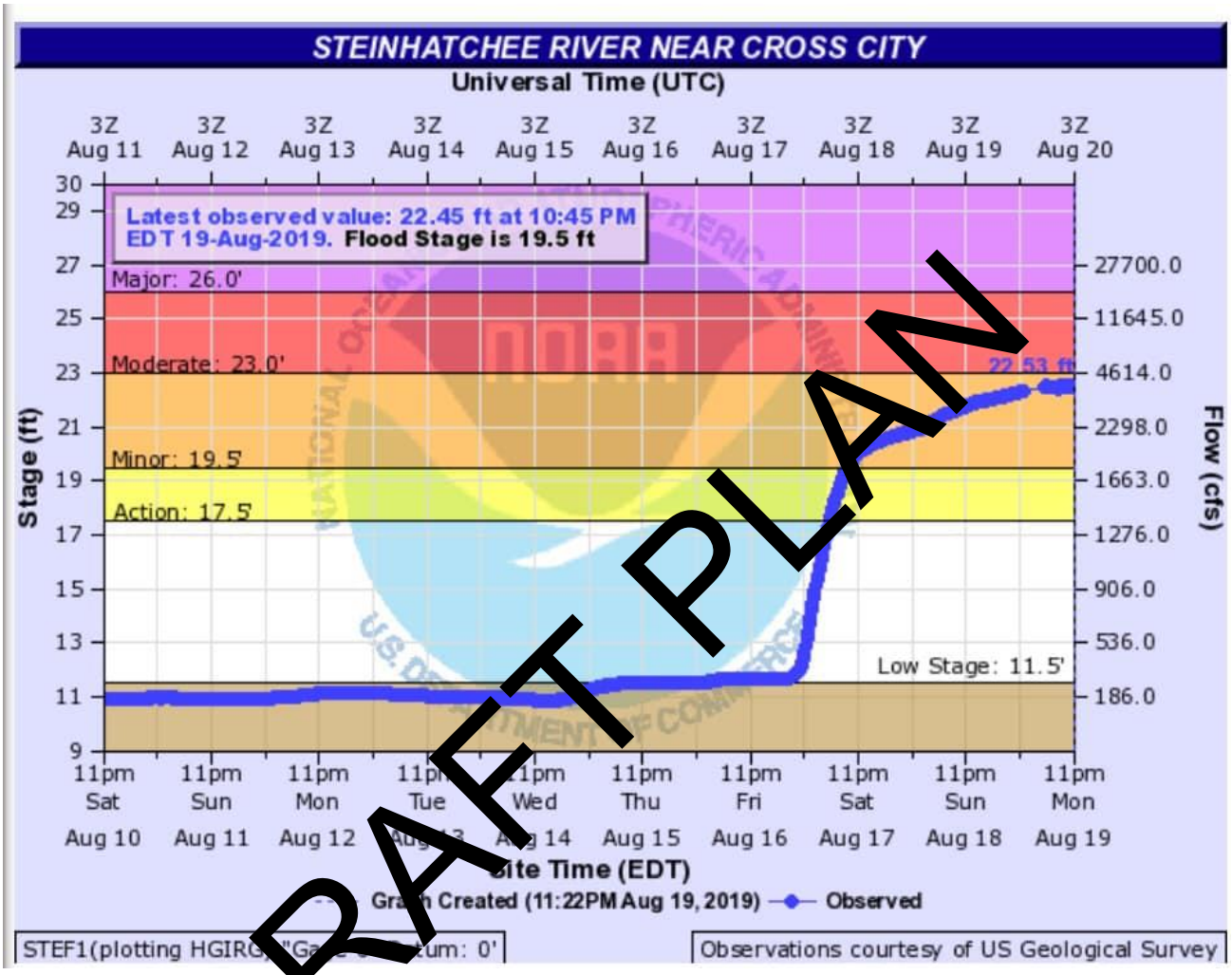
The District also monitors rainfall at 39 real-time gages. Automated sensors around the District return current data.

Realtime Rainfall Data

SRWMD Water Data Portal

http://www.mysuwanneeriver.com/realtimerainfall/realtimerainfall.aspx

Taylor County Emergency Management also works closely with the NWS in identifying Flood Categories in our flood prone riverine areas. Data has been collected from historical events to identify what areas will be impacted at certain levels and stages of river rise.



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EXAMPLE OF NWS FLOOD IMPACTS FOR STEINHATCHEE RIVER:

18.66 Significant flood impacts along River Road NE and in the Ancient Oaks Community in Steinhatchee. Water will begin to impact the RV Park in Tennile.

15.66 Water has flooded all of River Road NE and Ancient Oaks private roads up to 3 feet deep in some areas. All houses and mobile homes now have water flowing underneath. Water is also flooding property and is under some houses on Cooey Island near Palm Street NE.

12.16 Water begins to flood downstream at Steinhatchee Falls Park. Minor flooding of roads begins along River Road NE. Water will begin to encroach onto the yards of residences in the Ancient Oaks Community in Steinhatchee.

ACTUAL NOTIFICATION FROM NWS MONITORING AND NOTIFICATION TO TAYLOR COUNTY:

-----Original Message-----

Good morning everyone: 8/20/2019

The Steinhatchee River near Cross City crested overnight (around 4 am at 22.67 ft) and has begun to fall at the gauge site. The river will continue to drop, but is expected to remain above flood stage (19.5 ft) into Thursday.

Our forecast over the next few days returns to the typical summertime pattern of scattered afternoon and evening showers and thunderstorms. Rainfall chances may increase late in the weekend as another tropical disturbance approaches the area.

We'll continue to monitor conditions on the Steinhatchee through the week, but with the river now crested, I don't anticipate any additional forecast updates unless we see heavy rain within the basin. If you need specific support for the river, please let me know, and I'll make sure that gets provided. As a reminder, river flood warnings will continue for the Steinhatchee River until the river falls below flood stage.

-Kelly --

Kelly G. Godsey
Senior Service Hydrologist / Meteorologist
National Weather Service
Tallahassee, Florida
Phone: 850-942-8833 ext. 228
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Riverine flooding is associated with a river's watershed, which is the natural drainage basin that conveys water runoff from rain. Riverine flooding occurs when the flow of runoff is greater than the carrying capacities of the natural drainage systems. Rainwater that is not absorbed by soil or vegetation, seek surface drainage lines following natural topography lines. These lines merge to form hierarchical systems of rills, creeks, streams, and rivers. Generally, floods can be slow or fast rising, depending on the size of the river or stream. The rivers in north Florida drain portions of Alabama and Georgia, and excessive rainfall in those states often cause flood conditions in Florida. One of the consequences of flooding is repetitive loss properties. A repetitive loss property is one for which two or more NFIP losses of at least $1000 each have been paid over a 10-year period.

Northern Florida is subject to flooding from heavy rains in southern Georgia, which contains the headwaters for the rivers and streams that crisscross much of the panhandle. In Taylor County, the Aucilla, Econfina, Fenholloway, and Steinhatchee Rivers are a source of flooding during periods of heavy rainfall. Flooding is primarily caused by periods of heavy rainfall resulting in riverbank

overflows and ponding, or from coastal surge associated with hurricanes and tropical storms due to the County's proximity to the Gulf of Mexico.

Areas of 100-year flood prone probability were identified as those lands which are subject to occasional flooding due to seasonal rainfall or other storm events with a probability of being flooded of one percent in any given year. Flood prone areas include those areas within the 100-year floodplain, being a broad belt around existing river and stream channels. Other flood prone areas are associated with lakes and other isolated depressions. Floodplains and flood prone areas are shaped in part by topography, storm water volume, vegetation and other natural or artificial forces which affect water flow.

The northwestern, southern and northeastern portions of the unincorporated area are subject to flooding and many of the flood prone areas contain wetlands. Since the County's participation in the National Flood Insurance Program, development has been required to meet standards which protect new construction from future flooding. In addition, wetland areas located within flood prone areas require special permits from the County, state and/or federal government to dredge and fill these lands.

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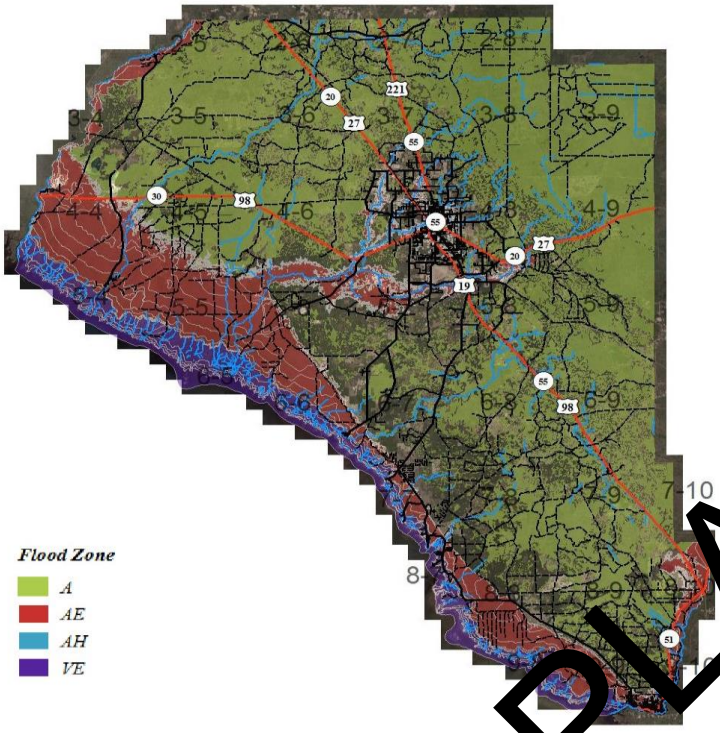
Consolidated Coastal River Basins



NFIP Flood Zones (Updated July 2020)

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FORECASTING

All river forecasts are provided by the National Weather Service, as needed during times of high water. Taylor County Emergency Management monitors the latest forecasts to be prepared to take necessary precautions to protect life and property.

FLASH FLOODING

The National Weather Service (NWS) defines a flash flood event as a flood which occurs within six hours or less of the causative event. (NWS, 2005) This fast occurring type of flood is often a threat to life and property. In fact, flash flooding is the convective storm-related event across the United States that is associated with the most fatalities (Doswell et al., 1996).

For this reason, the NWS has greatly improved flash flood prediction through better forecasting tools and techniques during the past decade. These advances have come mainly in the improvement of heavy precipitation forecasting, a key component of flash flood prediction. However, the challenge of flash flood forecasting is made more difficult by the interaction of the

meteorology with hydrology.

A given precipitation event's chance of producing a flash flood is dramatically affected by such factors as soil moisture, the size of the drainage basin, the topography of the basin, the amount of urban use within the basin, etc. Thus, a flash flood event is many times a result of the combined effects of a meteorological event with a particular hydrological situation (Doswell et al, 1996).

Taylor County is in a Flat Terrain area with less chance of a flash flood event, unlike those areas with higher sloped terrain that have a greater potential for faster flow velocities due to gravity.

Springs Protection and Management is the network through which SRWMD monitors the water resources in our region.

This District-wide network is comprised of rainfall, river stage and discharge, lake stage, surface water quality data, groundwater data, and biological data.

CRITICAL FACILITIES

City of Perry – Vulnerability

The primary flood danger will be due to threat of a hurricane. Based on the hurricane's strength and landfall position, the vulnerable areas, facilities, and populations will vary. Obviously the stronger the storm, the more potential damage to the County, however the primary area-at-risk is along the coastline. With this in mind the risks and vulnerability for the City of Perry is not substantially different from the risks to the unincorporated county. For this reason, no specific or individualized research and analysis has been performed for the City. All of the following maps and analysis numbers are equally valid for the City of Perry as for the entire County.

Impact Summary

Peak winds 87 mph, peak water depth 1.3ft

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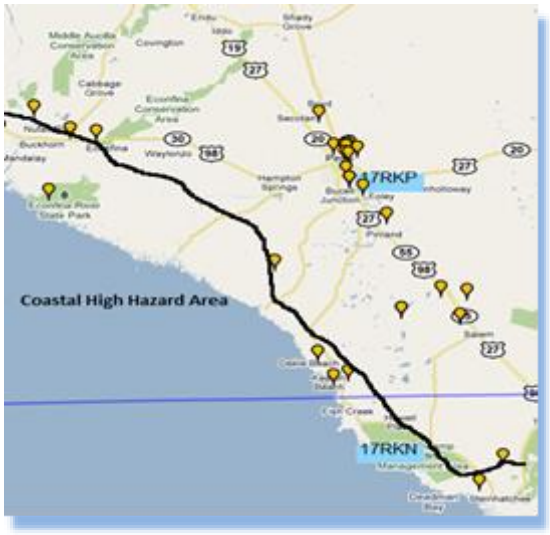
Critical Facilities Vulnerable To Hurricane Surge Impacts



Based on this data, the following critical facilities were found to be in a 100-year flood zone:

INDUSTRIAL	
Foley Cellulose	1 Buckeye Drive
PACEM	4700 Providence Road
TAYLOR COUNTY SCHOOLS	
Taylor Schools Admin. Offices	318 North Clark Street
Steinhatchee School	1209 1st Ave. SE, Steinhatchee
COUNTY GOVERNMENT	
Shady Grove Vol. Fire Dept	Alton Wentworth Road
Johnson Stripling VFD	Johnson Stripling Road
Econfina Vol. Fire Dept	Econfina Road
Keaton Beach Vol. Fire Dept	Beach Road
Taylor County FD – Steinhatchee	12th St. SE – Steinhatchee
COUNTY DISPOSAL SITES	
Carlton Roll-Off	Carlton Cemetery Road
Harrison Blue Roll-Off	Harrison Blue Road
Blue Springs Roll-Off	Blue Springs Lake Rd. – Keaton Beach
Steinhatchee Roll-Off	CR 361 – Steinhatchee
Blue Creek Land Fill	CR 361
Dekle Beach Land Fill	CR 361 at Beach Road
Steinhatchee Land Fill	SR 361
STATE GOVERNMENT	
Taylor Correctional Institute	8501 Hampton Springs Road

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HEALTH FACILITIES	
Doctor's Memorial Hospital	333 N. Byron Butler Pkwy
WATER/WASTEWATER TREATMENT	
Perry Wastewater Treatment Plant	507 West Golf Course Road
City of Perry Spray field	Landfill Rd. Hampton Springs
Taylor Coastal Water & Sewer Dist.	18820 Beach Rd. Keaton Beach
Big Bend Water & Sewer	1313 First Ave. SE Steinhatchee
OTHER UTILITIES	
Duke Energy Florida	Substation: 1690 East Green St
	Substation: 433 US 19 N
Tri-County Electric Cooperative	Perry Sub – US 19S at Beach Rd
	Scanlon Sub – Hwy 14 off US 9
	Steinhatchee Sub Hwy 51 Steinhatchee
COMMUNICATIONS	
Comcast Cablevision	1485 Buckeye Nursery Road
OTHER HURRICANE SHELTERS	
Covenant Christian Fellowship Church	6050 Puckett Road
Fellowship Baptist Church –	Steinhatchee 1st Ave.
Church of Jesus Christ of Latter Day Saints	1766 W Julia St

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WARNING AND EVACUATION INFORMATON

THE FOLLOWING WARNING AND EVACUATION SECTIONS ARE INTERCHANGABLE FOR STORM SURGE, SUDDEN COASTAL FLOODING (TSUNAMI), RIVERINE FLOODING OR FLASH FLOODING SCENERIOS.

Taylor County Coastal Sudden Flood Surge Safe Zone

Taylor County Emergency Management has defined the following Sudden Coastal Surge or Tsunami Safe Zones:

- North of River Road NE in Steinhatchee and north of Dallus Creek Road.
- For the Keaton Beach the area north of the Taylor County Coastal Water and Sewer Office, 18820 Beach Road
- Dark Island and Cedar Island inland via Fish Creek Grade for 1 mile is an optimal distance
- The safe zone for Spring Warrior residence is the intersection of Puckett Road and Spring Warrior Rd
- In the Econfina River Resort area the safe zone is Hwy 98 and SR 14
- The safe Zone for Aucillia River residents is Hwy 98 and Powell Hammock Road

Taylor County Coastal Sudden Flood Surge Watch

A tsunami/flood was or may have been generated, but is at least two hours travel time to the area in watch status. The watch area may be upgraded to an advisory or warning or canceled based on updated information and analysis. Therefore, emergency management officials and the public should prepare to take action. Watches are normally issued based on seismic

information without confirmation that a destructive tsunami is underway.

County Actions:

- EM officials will notify County/local public safety officials of the Tsunami Watch.
- Officials will review plans and stand prepared to order/enact evacuation for the Hazard Zone if the Tsunami Watch is upgraded to a Tsunami Warning or Tsunami Advisory.

Taylor County Coastal Sudden Flood Surge Warning

A potential tsunami or sudden coastal surge with significant widespread inundation is imminent or expected. Warnings alert the public that widespread, dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after arrival of the initial wave. Warnings also alert emergency management officials to take action for the entire tsunami hazard zone. Appropriate actions to be taken by local officials may include the evacuation of coastal areas, and the repositioning of ships to deep waters when there is time to safely do so. Warnings may be updated, adjusted geographically, downgraded or cancelled. To provide the earliest possible alert, initial warnings are normally based only on seismic information.

County Actions:

- Officials will immediately enact evacuation plans by notifying and enforcing evacuation of those in the ocean, on the beaches and within the Tsunami Hazard Zone.

Taylor County Coastal Sudden Flood Surge Advisory

An earthquake occurred which might generate a tsunami and produce strong currents or waves dangerous to those in or near the water. Coastal regions historically prone to damage due to strong currents induced by tsunamis are at the greatest risk. The threat may continue for several hours after the arrival of the initial wave, but significant widespread inundation is not expected for areas under an advisory. Appropriate actions to be taken by local officials may include closing beaches, evacuating harbors and marinas, and the repositioning of ships to deep waters when there is time to safely do so. Advisories are normally updated to continue the advisory, expand/contract affected areas, upgrade to a warning, or cancel the advisory.

County Actions:

- Officials will immediately enact evacuation plans by notifying and enforcing evacuation of those in the ocean and on the beaches.

Sudden Coastal Surge or Tsunami Information Statement

An earthquake occurred or a Tsunami Watch, Advisory, or Warning was issued for another section of the Gulf of Mexico. In most cases, information statements are issued to indicate there is no threat of a destructive tsunami and to prevent unnecessary evacuations as the earthquake may have been felt in coastal areas. An information statement may, in appropriate situations, caution about the possibility of destructive local tsunamis. Information statements may be re-issued with additional information, though normally these messages are not updated. However, a watch, advisory, or warning may be issued for the area, if necessary, after analysis and/or updated information becomes available.

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County Actions:

- If earthquake magnitude is 6.5 or greater, continue to monitor tsunami Information Statements for a possible upgrade to a Tsunami Watch/Warning/Advisory.
- Otherwise, no further actions are required.

For further warning and evacuation planning refer to the matrix at the end of this document.

Communications and Coordination

Taylor County's 24-Hour Warning Point is located at the Taylor County Sheriff's Office 911 Public Safety Dispatch Unit. The warning point has the following capabilities:

- 24-hour operations
- Warning reception capability
- Warning communication/dissemination capability
- Ability and authority to activate local warning systems

They have the capability of receiving NWS weather information and to provide local reports and advice after normal business hours.

Activation/Coordination of Emergency Operations Center

The Taylor County Emergency Operations Center would be activated and staffed during tsunami events to execute the warning point's tsunami warning functions. All EOC functions would be in accordance with the Comprehensive Emergency Management Plan and would include the following tsunami-related roles:

Activate EOC based on predicted flood/tsunami events
- (Watch/Warning/ Advisory).
- Staff EOC by all emergency support function primary representatives and Department of Emergency Services administrative staff.
- Coordinate warning reception/dissemination
- Communicate with adjacent EOCs/Warning Points and local NWS office.

Warning Reception

The warning point and EOC have multiple ways to receive NWS weather alerts, including Flood and Tsunami Warnings. Our threat recognition system is tested on a daily basis and includes the following elements:

- NOAA Weather Radio receiver with tone alert
- Emergency Management Network (EMnet) - a satellite-based emergency

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messaging system serving state and municipal government emergency operation centers and local National Weather Service offices

- National Weather Service telephone notification, provided to the EOC when a potential weather/tsunami event may impact Taylor County
  Direct link to NWS office amateur or VHF radio and NWS CHAT
- Radio/TV via Emergency Alert System – Local radio, TV or cable TV
- IPAWS with pre-recorded notifications
- NWS EAS

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Warning Dissemination

The warning point and EOC have multiple ways to disseminate emergency alerts including Flood and Tsunami Warnings. Our goal is to communicate the threat to as much of the population as possible. Our warning dissemination system is tested regularly and includes the following elements:

- NOAA Weather Radio – We have a campaign to educate our citizens on the potential life saving benefits of an all-hazard NOAA Weather Radio. NOAA Weather Radios were distributed by emergency management and can be found in the following facilities:
  - 24-hour Warning Point
  - Emergency Operations Center
  - All municipal administrative offices
  - School District
  - Courthouse
  - Public libraries
  - Hospitals – Doctors' Memorial Hospital
  - All Schools
  - All health care facilities (nursing homes and assisted living facilities)
- Television audio/video overrides
- Taylor County Emergency Management Emergency Alert Everbridge, which provides subscribers emergency alerts via cell phone and e-mail.
- Taylor Coastal Siren System, audible alert with public address broadcast in Steinhatchee and beaches.
- Audible notification/alert provided by county and municipal law enforcement/fire rescue officials in the form of public address system announcements from county/municipal public safety vehicles.
- School District Black Board, which provides a recorded message to all clients registered for school district.
- Internet web page – Taylor County has a website that provides updates on emergency conditions as well as assistance with disaster planning and recommended protective actions.
- Social media – Taylor County implemented Facebook in 2014 to increase our public outreach.
- The Taylor County Sheriff's Office patrol units have the ability to provide

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notification of Tsunami Warning/Advisory via a public address system for those within the ocean and on the beaches.

- Taylor County EM is IPAWS certified and has Pre-recorded evacuation messages for dissemination to local media.

Exercising Tsunami Plan

Annually, Taylor County Emergency Management will participate in the National Tsunami Exercise or incorporate a local Tsunami Exercise in with our annual Flood Exercise. The exercise will involve partners such as law enforcement, Fire Rescue, public works, recreation, municipal agencies, National Weather Service, etc. to ensure a high level of tsunami awareness and readiness in the event a Tsunami Watch/Warning/Advisory is issued for the local coastline.

Tsunami Watch/Warning Process

- The National Tsunami Warning Center (NTWC) issues Tsunami Warnings/Advisories for U.S. West coast coastal locations close to the earthquake for magnitude 6.5 to 7.5 events, and for larger coastal regions if the magnitude is 7.6 to 7.8. For magnitude 7.9 or greater earthquakes anywhere within the Atlantic a Tsunami Watch/Warning/Advisory may be issued for the US west coast.
- NWS Office in Tallahassee, Florida receives Tsunami Watch/Warning/Advisory from the ATWC via immediate electronic bulletin and email.
- If the potential tsunami impact area includes the east-central Florida coast, NWS Tallahassee will issue a Tsunami Watch/Warning/Advisory to trigger the Emergency Alert System (EAS), including activating All Hazards NOAA Weather Radios.
- NWS Tallahassee will also notify east central Florida coastal county warning points and emergency management offices by telephone.
- NWS Tallahassee will then issue hourly "Special Weather Statements" to include local details concerning potential tsunami impacts (expected time of arrival, potential impacts, protective actions, and evacuation information from public safety officials).

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Tsunami Warning and Response Plan

Although it is highly unlikely that a tsunami will impact Florida, it is not impossible. Floridians may also travel to locations where tsunamis are more likely. It is vital to know (and instruct children) that if the ocean suddenly recedes from the shore do not stand and stare. It is necessary to immediately move inland away from the shore and go to the highest location possible which may mean up the stairs of a substantial building.

The purpose of this plan is to:

1. Establish warning procedures for residents in a risk area
2. Establish evacuation procedures in response to a Tsunami Watch/Warning/Advisory from the National Weather Service
3. Establish search and rescue procedures

4. Establish procedures for dealing with a potential mass casualty event
5. Coordinate disaster recovery
6. Establish public outreach and educating the public of the potential for a tsunami

Notification Procedure

Once we receive notification from the Tallahassee National Weather Service office to the Taylor County Warning Point/Emergency Management that a Tsunami Watch/Warning/Advisory is in effect, the following notifications will take place:

1. State Warning Point
2. County Administrator
3. Taylor County Fire Rescue on Duty Supervisor
4. Taylor County Sheriff's Office 9-1-1 Communications
5. City of Perry Police Department
6. Coastal notifications (via bull-horn, siren, radio and television announcements)
7. Taylor County School District – superintendent
8. Emergency Support Function primary representatives

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Emergency Operations Center Activation

A Tsunami Watch/Warning/Advisory for Taylor County would be an activation trigger for staffing our Emergency Operations Center (EOC). The initial level of activation would be Level II – partial activation. All emergency support function primary representatives and Emergency Services administrative staff would be called to staff the EOC. The Public Information lines would be established and all documentation procedures would begin. An initial briefing would be held by the EOC manager to discuss what is known up to that point. A policy level meeting would be held by the Emergency Management Director. Plans and procedures from the Comprehensive Emergency Management Plan would be implemented.

Local Evacuation

In the unlikely event that a tsunami was to affect the west coast of Florida it would likely originate from a long distance. The first wave would take two hours or more to reach our beaches, and more likely four to eight hours. Successive tsunami waves would then likely continue for many hours (~12 hours) and the first wave usually will not be the most significant one. The triggering earthquake would like be too far way for residents to feel and there would be plenty of time for an official warning and evacuation to safety.

The magnitude of the seismic event and origin of the tsunami determines the subsequent risk to Taylor County. The following evacuation areas have been designated and are dependent upon the earthquake magnitude and origin:

- An earthquake of magnitude 7.9 or greater in the central Gulf of Mexico could trigger a tsunami that would require an evacuation within Taylor County for those persons in the gulf (fishermen, swimmers, etc.), on the beaches, and possibly up to 300 feet inland. Evacuation orders for this scenario would be for those persons near the immediate coast to move inland beyond the Tsunami Hazard Zone or evacuate at least 15 feet vertically (3rd floor or higher within a modern, secure building) prior to the arrival of tsunami waves.

These evacuation areas may be modified for expected conditions depending on the characteristics of the tsunami. Any sheltering or other emergency operations as a result of a tsunami will be in accordance with the Taylor County Comprehensive Emergency Management Plan. Evacuations for a threatening tsunami are likely to be short term (12 hours or less).

All persons in the announced evacuation order have the following options:

- Evacuate the designated coastal risk following the recommended evacuation routes and/or seek shelter in one of the following locations:
    - Home of friend or relative
    - Commercial building (mall, department store, movie theater, etc.)
    - Designated tsunami shelter/area outside the Tsunami Hazard Zone. A centrally located tsunami shelter/area has been designated in a safe area outside the tsunami hazard zone. Taylor County Emergency Management will announce this area to the public at the time of a Tsunami Warning.
- Vertical evacuation. Vertical evacuation consists of the evacuation of persons from an entire area, floor, or wing of a building to a higher floor or wing. The National Weather Service has determined that 15 feet (3rd floor or higher of a modern, secure building) is the minimum acceptable level for vertical evacuation within the Tsunami Hazard Zone.

Plans for vertical evacuation of coastal residents and visitors would only be effective if designated structures are designed to withstand the velocity and impact loads of tsunami inundation. Since no studies have been conducted to evaluate the level of protection current structures provide, vertical evacuation is only recommended from a near-source tsunami when public notification may not be possible (unlikely for Taylor County); or, when only a few hours or minutes of warning is available.

All Taylor County residents will receive notifications over NOAA weather radio, local television and radio, and from public safety officials via bull-horn announcements that the local area has been put into an official Tsunami Watch/Warning/Advisory.

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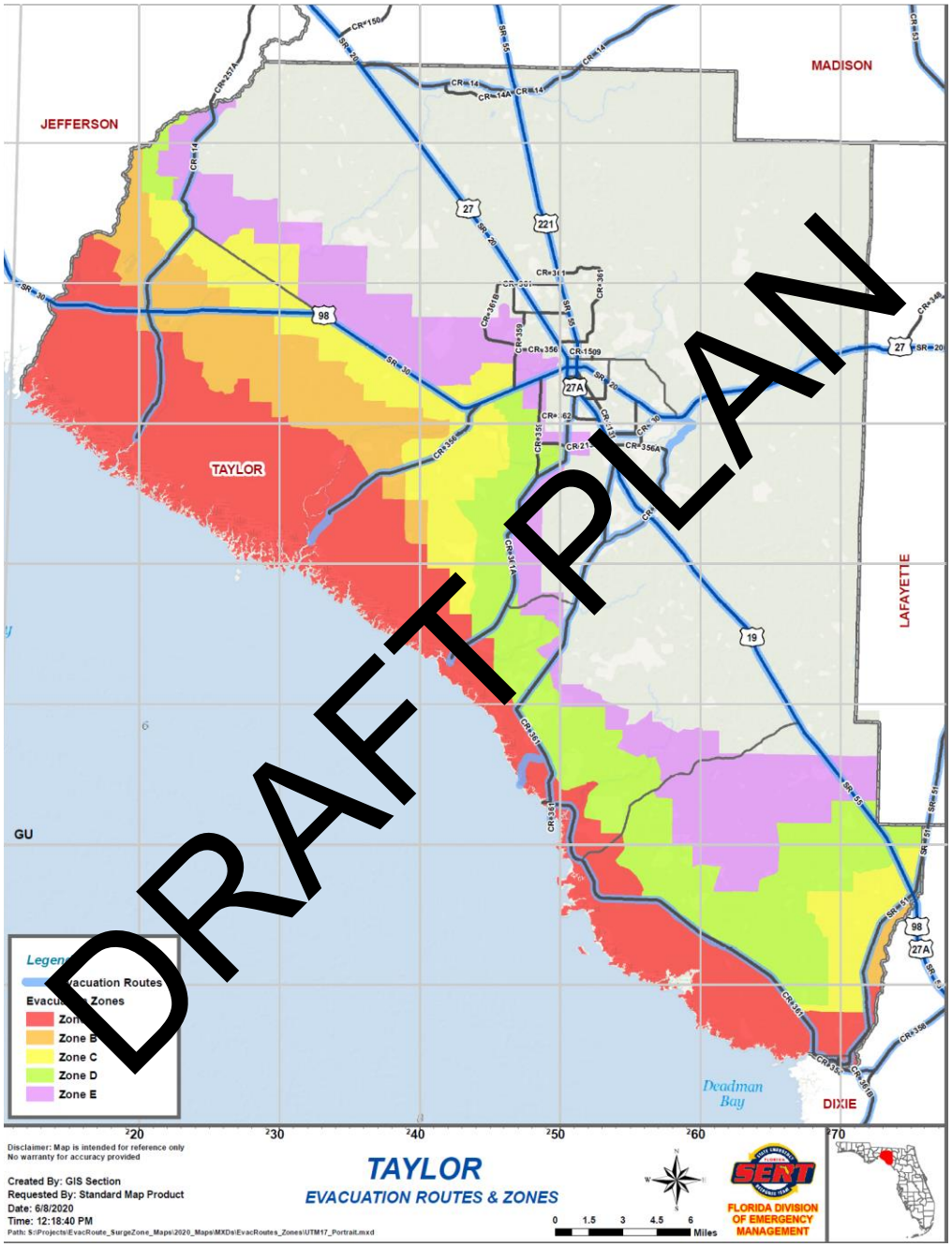
Taylor County Surge Evacuation Zones



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Population/Estimated Risk Area Evacuation Time:

The estimated 2010 permanent resident properties of the Tsunami Hazard Zone are 929. This is based on current property record data along with internal methods to identity the Census Blocks that are impacted by the risk area. Much of the Coastal Residential homes are of a seasonal nature, however during certain times of year the homes are rented by fishermen and other families that enjoy the coastal area. Tsunami lead times of between two and 10 hours will likely be provided by the National Tsunami Warning Center (and NWS Tallahassee) prior to the arrival of impacts along the Florida coast, based on the location of the seismic event or tsunami generation. All evacuations within Taylor County would have to occur within this time frame (dictated by the actual tsunami event).

CEDAR ISLAND	112
DARK ISLAND	28
DEKLE BEACH	49
ECONFINA PARK	46
EZELL BEACH	28
KEATON BEACH	169
MANDALAY	11
NUTALL RISE	106
SPRING WARRIOR	31
STEINHATCHEE	1541
TOTAL ENTRIES	**2,121**

Coastal Resident Assessment

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Evacuation of Special Needs Persons and Low-Lying Areas (Zone A)

- Tropical Storm – In the event Taylor County is in the designated tropical storm warning area (issued by the National Hurricane Center about 36 hours before tropical storm conditions are expected), the EM Department will provide information to the BCC to describe the hazard and offering a recommendation regarding evacuation. Evacuation orders will be issued at the discretion of the BOCC and will apply to at-risk areas as determined by Emergency Management.
- Category 1 Hurricane – In the event Taylor County is in the designated hurricane warning area for a Cat 1 hurricane (issued by the National Hurricane Center about 24 hours before hurricane conditions are expected), the EM Department will recommend that the BOCC issue a mandatory evacuation for, mobile homes, RV parks, and low lying areas.

General Evacuation of Taylor County (Zone A-E)

- Category 2 Hurricane – In the event Taylor County is in the designated hurricane warning area for a Category two or greater intensity hurricane, the EM Department will recommend that the BOCC issue a mandatory evacuation of the county.
- The entire county, especially the coastal area and interior areas with wind-vulnerable structure, will be under an evacuation order in response to a Cat 2 or greater intensity hurricane.

Public Awareness Campaign

By educating the public about all-hazards, communities become informed and empowered to take actions that prepare them for the potential dangers. People are taught to recognize the warning signs of an impending tsunami. They can also plan and maintain escape routes to inland areas, and discuss ways to assist children and persons with limited mobility.

It is important that we educate our community of all hazards that may affect our area. Our goal is to provide understandable information that is readily available. Successful public awareness campaign activities include:

- Conducting presentations to various groups in the community (homeowner's associations, civic groups, etc.).
- Providing lectures, and informal talks offered by local experts that describe our vulnerability to hazards (including tsunamis), identify risk areas, and recommend safety precautions.
- Displaying materials such as brochures and preparedness guides at common meeting points within the community such as public libraries and government buildings.
- Installing evacuation route signs in recognized hazard zones; and other signs that direct residents toward established evacuation routes leading to safety.
- Encouraging schools to include tsunami information in their curriculums.
- Articles concerning the tsunami hazard and safety precautions periodically posted in newspapers, newsletters or popular magazines.
- Information booths set up during festivals or other community events to educate the public.

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Post-Flood Actions

If our area is impacted by a high-level coastal flood, evacuation orders will remain until a minimum of two hours after arrival of the last wave or upon an ALL CLEAR announcement from Emergency Management. The following actions will occur before issuance of an ALL CLEAR:

- After a two-hour safety period, secure damaged areas from re-entry by non- residents and property owners, emergency responders, and the press. Initiate windshield damage assessment. Request Taylor County Health Department to inspect damaged areas to ensure the area is safe for residents.
- Upon approval by the Health Department that areas are safe for resident re- entry, allow residents, property owners, responders, the press, and other authorized individuals to enter area. Based on damage, consider Declaration of Emergency or Disaster. Establish response priorities and mutual aid requirements. Coordinate press releases with ESF #14 (Public Information). Coordinate FEMA/State disaster recovery programs, if available.

Sample Tsunami/Evacuation Signage

Evacuation Signs have been placed along established evacuation routes which will be also utilized for hurricane evacuation.

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Flood/Coastal Surge EOC Activation Checklist

SITUATION	ACTION	RESPONSIBILITY	STATUS
Flood/Tsunami Information Statement issued (Watch, Warning or Advisory has been issued for any portion of the Atlantic beyond Taylor County).	Contact National Weather Service Tallahassee (850-942-8833) for additional information/confirmation. Also, inform NWS Tallahassee of any significant public safety actions for inclusion within NWS tsunami updates (public/media).	EM Staff	
	Determine response actions, to include alerts and notification, EOC activation level, possible evacuations of the Tsunami Hazard Zone.	EM Staff	
Flood/Tsunami Watch/Advisory has been issued or upgraded from Information Statement, to include Taylor County.	Contact National Weather Service Tallahassee (850-942-8833) for additional information/confirmation. Also, inform CWO and NWS Tallahassee of any significant public safety actions for inclusion within NWS tsunami updates (public/media).	EM Staff	
	Determine response actions, to include alerts and notification, EOC activation level, possible evacuations of the Tsunami Hazard Zone.	EM Staff	

	Prepare to order/enact evacuation of the Tsunami Hazard Zone if the Tsunami Watch is upgraded to a Tsunami Warning or Tsunami Advisory.	EM Director	
	Monitor threat status and modify response as necessary.	EM Staff	
	Brief executive/policy group (county Administrator, county commissioners, county department heads).	EM Director	
	Brief ESF #14 (PIO) and place public information operators on stand-by.	EM Director ESF #5	
	Decide on level of EOC activation (partial or full based on situation)	EM Director	
	Using conference call list, initiate conference calls to brief and coordinate. Participants include, but are not limited to: Law enforcement School Municipal government Dept. of Health Environmental Services Public Works CERT Local State Partners	EM Director	
	Notify Emergency Support Function (ESF) primary representatives of possible EOC activation.	EM Staff	
	Launch A/V equipment in EOC	EM Staff	
	Launch E Team and create an Incident.	EM Staff	
	Notify State Warning Point if EOC is activated.	EM Staff	

Flood/ Tsunami Warning issued to include Taylor County	Contact National Weather Service Tallahassee (850-942-8833) for additional information/confirmation. Also, inform NWS Tallahassee of any significant public safety actions for inclusion within NWS tsunami updates (public/media).	EM Staff	
	Determine response actions, to include alerts and notification, EOC activation level, possible evacuations of the Tsunami Hazard Zone.	EM Staff	
	Initiate Level II EOC activation by recalling all ESF primary representatives.	ESF #5 (Information & Planning)	

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	Enact evacuation plans by notifying and enforcing evacuation of those in the coastal areas on the beaches, and within the Flood Hazard Zone. Assistance with evacuation notifications will include, but not be limited to, the following methods: ESF #14 (PIO) Public address system (TCSO patrol units, law enforcement, fire rescue, etc.) via roving vehicle through neighborhoods within the Hazard Zone NOAA Weather Radio County website and social media (Facebook, Twitter, etc.) Cable TV override Emergency Alert System Local news agencies Radio Emergency alert via e-mail subscriber list IPAWS Pre-Recorded messages	EM Director	
	Prepare a "*Draft*" local Declaration of Emergency for the Board's signature and request a state Declaration of Emergency, if needed.	ESF #5 (Information & Planning)	
	Coordinate all public information activities including: • Establishing a Joint Information Center (JIC) • Distributing public notification/warning to the public, along with recommended protection actions.	ESF #14 (PIO)	

Flood/Tsunami Warning issued to include Taylor County Continued	• Coordinating interviews with the press.		
	Coordinate with ESF #1 (School District): • Possible opening of Steinhatchee or Taylor County Elementary School for convenience evacuation site. • Stand-by of school buses for transportation assistance.	EM Director ESF #1	
	Prepare and send emergency alert message via e-mail subscriber list.	EM Director	
	Notify law enforcement to clear the roadways (within their jurisdiction) of pedestrians and vehicles.	EM Director ESF #16	

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	Secure a safe perimeter from the Hazard Zone and manage crowd control.	ESF #16	
	Notify/brief emergency response personnel for possible recall.	ES Director	
	Place ESF #6 (Mass Care) and ESF #11 (Red Cross) on alert for possible opening and maintaining shelter services, including: feeding, first-aid, disaster welfare inquiry services for displaced residents and visitors, etc.	EM staff ESF #6 ESF #11	
	Coordinate road closures with law enforcement.	EM Director ESF #16 (Law Enforcement)	
	Prepare regular Situation Reports/Incident Action Plans for distribution to FDEM.	ESF #5 (Information & Planning)	
	Coordinate animal rescue operations.	ESF #17 (Animal Care)	
	Implement emergency utility cutoff as needed.	ESF #3 (Public Works) ESF #12 (Utilities)	
	Coordinate with hospitals and clinics.	ESF #8 (Public Health)	
	Assist with evacuation routes and traffic control points.	ESF #3 (Public Works)	
Damage Assessment	Determine status of damage, injuries, and fatalities before issuing all-clear.	Fire Rescue Law Enforcement Emergency Mgt. Public Works Damage assessment teams	
	Coordinate clearing debris from roads and over-all debris management.	ESF #3 (Public Works)	

Damage Assessment Continued	Coordinate evaluation of and response to environmental issues (hazardous materials or other risks)	ESF #10 (Environmental Health)	
	Coordinate the evaluation and response to public health threats (water, broken sewer lines, downed utility lines, animal or human remains, etc.)	ESF #8 (Public Health)	

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	Conduct damage assessment and reconnaissance of public infrastructure, safety of roads, bridges, etc.	ESF #3 (Public Works)	
All-Clear	Coordinate "All-Clear" issuance and public announcements, including notifying all agencies previously alerted.	EM Director ESF #14	
	Debrief policy group	EM Director	
	Demobilize EOC	EM Director	
Re-Entry	Closed areas will reopen by issuing public safety announcements.	EM Director ESF #14	
Disaster Assistance	Coordinate disaster assistance if available: Public Assistance Individual Assistance Small Business Administration (SBA) Disaster Loan Assistance	EM Staff	
	Coordinate recovery activities with state and federal relief agencies.	EM Staff	
	Arrange for emergency housing as necessary.	ESF #6 (Mass Care)	
Post-Event	Coordinate debriefing and hot wash for compilation of After Action Report.	EM Director	

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