

DALTON STATE COLLEGE



HAZARD MITIGATION PLAN

(Updated November 2017)

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CHAPTER 1 – EXECUTIVE SUMMARY

- I. This Hazard Mitigation Plan represents Dalton State College's commitment to reducing risks from both natural and technological hazards, and also serves as a guide for decision makers as they commit resources to reducing the effects of potential hazards. In addition, this Hazard Mitigation Plan provides a list of mitigation goals, objectives and related actions that may assist in reducing risk and preventing loss from future natural hazard events.

This Hazard Mitigation Plan is the result of the Board of Regents initializing the Disaster Resistant University (DRU) planning process. With guidance from GEM&HSA, this Plan will meet requirements for the federal Disaster Mitigation Act of 2000 (DMA2K). The Plan will identify the risks and vulnerabilities to natural hazards for our institution. The Plan will identify mitigation activities that can be undertaken to reduce those risks and vulnerabilities.

Dalton State College agrees that mitigation makes sense. It has been proven time and again that the impact of hazards can be lessened, and sometimes avoided altogether, if appropriate action is taken before hazardous events occur. Through the identification of vulnerable areas and the implementation of measures aimed at minimizing exposure, the negative impacts of natural hazards can be greatly reduced. Action starts through the preparation and implementation of a comprehensive mitigation strategy.

- II. Information in the Dalton State College Disaster Mitigation Plan is based on research from a variety of sources. These sources include: The National Climatic Data Center, National Weather Service, Georgia Department of Natural Resources, Georgia Forestry Commission, Georgia Tornado Database, and Whitfield County Emergency Operations Plan.

Environmental Health, Occupational Safety and Risk Management (EH&OS) was responsible for updating the mission statement for the planning initiative (Appendix A), as well as the goals, objectives and action items identified in the plan.

III. A Hazard, Risk, and Vulnerability assessment was accomplished by compiling and reviewing historical data on the location of specific hazards, the value of existing property in hazard locations, and analyzing the risk of life, property and the environment that could potentially result from future hazard events. The Dalton State College EH&OS accomplished the HRV by conducting the following steps:

Inventorying Critical Facilities: Critical facilities are important in that these entities provide essential products and services to the public that are necessary to preserve the welfare and quality of life in the surrounding area. The critical facilities for Dalton State College have been identified in Appendix C.

Hazard Identification: Map and historical data sources were studied and reviewed in order to identify the geographic extent, intensity, and probability of occurrence for various hazard events. EH&OS identified four major hazards – severe thunderstorms and tornados, winter storms, wildfires, and earthquakes that typically could affect Whitfield County. A comprehensive hazard description and history for Whitfield County is provided in Appendix B.

Profiling Hazard Events: The causes and characteristics of each hazard, how it has affected Whitfield County in the past, and what part of Whitfield County’s population and infrastructure has historically been vulnerable to each specific hazard has been analyzed. A profile for each hazard discussed in this plan is provided in Chapter 2.

Vulnerability Assessment: This step was accomplished by comparing each previously identified hazard with the inventory of affected critical facilities and population exposed to each hazard.

Estimating Losses: Using the best available data, this step involved estimating damage and financial losses likely to be sustained in a geographic area by the use of mathematical models. Describing vulnerability in terms of dollar losses provides the college with a common framework in which to measure the effects on critical facilities (Appendix C).

MITIGATION GOALS AND OBJECTIVES

In assessing Vulnerability/Estimating Potential Losses EH&OS was responsible for performing a detailed risk assessment of the campus. EH&OS reviewed and analyzed hazard event and profiles and related critical facilities to determine expected losses from specific hazard events. Potential losses include people, buildings, infrastructure, and other important college assets.

The Dalton State College Pre-Disaster Mitigation Planning Committee used the results of the Hazard, Risk and Vulnerability assessment to identify and prioritize goals, objectives and related actions. Mitigation Goals and

Objectives were identified by the Planning committee and then prioritized based on the number of students it would affect and the cost to perform each project. Each mitigation goal includes required actions for implementation, as well as potential resources, which may include grant programs or human resources

- IV. As determined during the planning process, EH&OS shall assume the responsibility for the upkeep and maintenance of the plan. It shall be the responsibility of EH&OS to ensure that this plan is utilized as a guide for initiating the identified mitigation measures. The Director of Public Safety, or his designee, shall be authorized to convene a committee to review and update this plan periodically (at least biennial) throughout the useful life of the plan, not to exceed five years.

Through this process, the committee shall identify projects that have been successfully undertaken in initiating mitigation measures throughout the campus. These projects shall be noted within the planning document to indicate their completion. Additionally, the committee shall brainstorm and identify any new or additional mitigation projects that may arise. The Dalton State College DRU Plan will be made available to Whitfield County for incorporation into their Pre-Disaster Mitigation Plan as needed.

- V. The Dalton State College Pre-Disaster Mitigation Planning Committee, working with appropriate local officials, will be responsible for initiating implementation of plan action items and undertaking a formal review process.

The Plan Maintenance Section of this document, Chap 4. Para IV, details the formal process that will ensure that the Dalton State College Disaster Mitigation Plan remains an active and relevant document. The plan maintenance process includes monitoring and evaluating the plan biennially, and producing a plan revision every five years. Additionally, Dalton State College will develop steps to ensure public participation throughout the plan maintenance process.

- VI. Dalton State College currently has a population of approximately 5,700 faculty, staff and students. This population is present on campus at various times, not all at once.

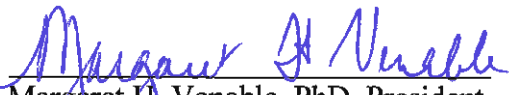
Resolution and Proclamation


Whereas new regulations require that Dalton State College has an approved hazard mitigation plan in place before they can be considered for future disaster assistance, including hazard mitigation funding.

Whereas Dalton State College approved a planning committee to meet guidelines set forth by the Georgia Emergency Management & Homeland Security Agency (GEM&HSA).

Whereas the Dalton State College Disaster Mitigation Plan has been approved by the Georgia Emergency Management & Homeland Security Agency (GEM&HSA).

Therefore, the Dalton State College Disaster Mitigation Plan has been approved. It is effective for planning purposes for Dalton State College.


Margaret H. Venable, PhD, President
Dalton State College


Date

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

The Dalton State College Office Environmental Health, Occupational Safety and Risk Management (EH&OS) confirmed all natural hazards that had been previously identified and that could potentially affect Whitfield County. These hazards include wildfires, winter storms, earthquakes, tornados, flooding and severe thunderstorm incidents. Even though all of these hazards have not directly affected any portion of Whitfield County in recent years, the potential still remains that at any time; they could become a significant threat.

The list of potential hazards was then narrowed to only the hazards that are most likely to impact the campus. These threats include wildfires, earthquakes, winter storms, tornados and severe thunderstorms incidents. As a result of the disaster mitigation planning process, EH&OS determined that four natural hazards pose a direct, measurable threat to Dalton State College. Tornados/severe thunderstorms, winter storms, earthquakes and wildfires are all potential threats to the campus. Flooding on the other hand, is isolated to select areas of the county that are within the flood plain and/or hazard area. Each of these potential hazards is addressed individually with relevant supporting data.

I. Tornados/Severe Thunderstorms -

- A.** Tornados and severe thunderstorms regularly affect Whitfield County. Reference Whitfield County Hazard Mitigation Plan Section 2.1 and 2.2. See Appendix B, Hazard Frequency Table.
- B.** According to Whitfield County Hazard Frequencies Table records for Whitfield County, over the last 50 years there have been one hundred one ninety-six documented incidents of thunderstorm events that include high winds, lightening or hail and six tornado events. High winds and tornados can pose a risk at any time. The historical data for tornado activity is 12 percent/year chance of future occurrence. For thunderstorms, the historical data indicates a 202 percent/year chance of future occurrence. Data for both hazards is covered in the Whitfield County Plan. Dalton State College has the same exposure so the Hazard Frequency Table is included in Appendix B.
- C.** There are fourteen critical facilities on campus. These consist of 14 total buildings; 6 classroom buildings-Health Prof., Memorial, Liberal Arts, Sequoya, Brown Center, Peoples Hall; 1 Admin-Westcott; 1 library; 2 support buildings - Parking deck, Plant Ops; 1 Student Center; 1 Gymnasium; 1 Athletic Admin Building; 1 Residential Hall - Mashburn Hall. The combined value is approximately \$147,700,000. Reference Inventory of Assets in Appendix C.
- D.** All facilities at Dalton State College are vulnerable to tornados and thunderstorms. The most vulnerable buildings would be the Pope Student Center and Roberts Library. These buildings have exposed large

windows and are less resistant to wind. The combined total value of these buildings is \$39,800,000.

- E. It is impossible to determine probability or extent of tornados and thunderstorms so all construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code (2012 edition) with Georgia Amendments (2014) (2015). The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards. The existing development patterns on campus and the majority of our academic and administrative structures use concrete and metal construction. This construction is particularly wind resistant. No private residential buildings exist on campus.
- F. Dalton State College does have residents of the surrounding counties on campus much of the time, especially during daylight and evening hours and is concerned with evacuation. This population number is approximately 5,700 and consists of faculty, staff and students. This population is present on campus at various times, not all at once.
- G. Tornados and thunderstorms are a very real threat to Dalton State College. the potential for damage in any area is significant. Public awareness of how to prepare for and what to do during severe storms may reduce the risk of deaths, but no preparations can be made for a particular area.

II. Winter Storms

- A. Winter Storms occur relatively infrequently in Whitfield County; they have the potential to wreak havoc on the community when they do strike. Reference Whitfield County Hazard Mitigation Plan Section 2.2. See Appendix B, Hazard Frequency Table.
- B. According to the Whitfield County Hazard Frequencies Table records for Whitfield County, during the last 50 years, documentation of 19 winter storms was found. Based on the entire fifty-year period, a winter storm is likely to occur within Whitfield County once every 2.6 years. Another way of stating these findings is that every year in Whitfield County there is a 38% chance of a winter storm. Dalton State College has the same exposure so the Hazard Frequency Table is included in Appendix B.
- C. There are fourteen critical facilities on campus. These consist of 14 total buildings; 6 classroom buildings-Health Prof., Memorial, Liberal Arts, Sequoia, Brown Center, Peebles Hall; 1 Admin-Westcott; 1 library; 2 support buildings - Parking deck, Plant Ops; 1 Student Center; 1 Gymnasium; 1 Athletic Admin Building; 1 Residential Hall - Mashburn Hall. The combined value is approximately \$147,700,000. Reference

Winter Storm Map in Appendix B and Inventory of Assets in Appendix C.

- D. All facilities at Dalton State College are vulnerable to damaging Winter Storms due to the flat roofs of our buildings.
- E. It is impossible to determine probability or extent of Winter Storm damage so all construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code (2000 edition). The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with regulations for most natural hazards. The existing development patterns on campus and the majority of our academic and administrative structures use concrete and metal construction. This construction is particularly winter storm resistant. No residential buildings exist on campus.
- F. Dalton State College does have residents of the surrounding counties on campus much of the time, especially during daylight hours, and is concerned with evacuation. This population numbers 5,700 and consists of faculty, staff and students. This population is present on campus at various times, not all at once.
- H. Damaging winter storms are a very real threat to Dalton State College. The potential for damage in any area is significant. Public awareness of how to prepare for and what to do during severe storms may reduce the risk of deaths, but no preparations can be made for a particular area.

III. Wildfire

- A. Wildfires are a serious threat to Whitfield County. Reference Whitfield County Hazard Mitigation Plan Section 2.5. See Appendix B, Hazard Frequency Table.
- B. According to Whitfield County Hazard Frequencies Table records for Whitfield County, over the past 50 years, documentation of 3301 wildfire events was found. Based on the entire fifty-year period, it is likely that a wildfire event will occur an average of once a week in Whitfield County. Another way of stating these findings is that every month in Whitfield County there is a 550% chance of a wildfire event. Dalton State College has the same exposure so the Hazard Frequency Table is included in Appendix B.
- C. There are fourteen critical facilities on campus. These consist of 14 total buildings; 6 classroom buildings-Health Prof., Memorial, Liberal Arts, Sequoia, Brown Center, Peebles Hall; 1 Admin-Westcott; 1 library; 2 support buildings - Parking deck, Plant Ops; 1 Student Center; 1 Gymnasium; 1 Athletic Admin Building; 1 Residential Hall - Mashburn

Hall. The combined value is approximately \$147,700,000. Reference Inventory of Assets in Appendix C.

- D. All facilities at Dalton State College are vulnerable to damages of Wildfires due to the lay of the land and surrounding woodlands.
- E. It is impossible to determine probability or extent of damaging wildfires so all construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code (2000 edition). The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards. The existing development patterns on campus and the majority of our academic and administrative structures use concrete and metal construction. This construction is particularly fire resistant. No private residential buildings exist on campus.
- F. Dalton State College does have residents of the surrounding counties on campus much of the time, especially during daylight hours, and is concerned with evacuation. This population numbers 5,700 and consists of faculty, staff and students. This population is present on campus at various times, not all at once.
- G. Damaging wildfires are a very real threat to Dalton State College. The potential for damage in any area is significant. Public awareness of how to prepare for and what to do during wildfires may reduce the risk of deaths, but no preparations can be made for a particular area.

IV. Earthquakes

- A. All Structures and facilities within Whitfield County are susceptible to earthquake damage since they can occur in any portion of the County or Municipalities. Reference Whitfield County Mitigation Plan Section 2.7. See Appendix A, Hazard Frequency Table.
- B. The Whitfield County HMPC reviewed historical data from the National Oceanic and Atmospheric Administration, the National Climatic Data Center, and the U.S. Geological Survey in researching earthquake events of the County. Evidence of one earthquake is all that was found within the past fifty years. However, the State of Georgia has experienced seven earthquakes from 1974 to 2003, according to USGS information. The HMPC was unable to determine which of these additional earthquakes affected Whitfield County and, if so, to what degree. Nevertheless, the HMPC believes that these earthquakes would have occurred close enough to Whitfield County (even if they occurred in South Georgia) to merit consideration. The threat of earthquakes in Whitfield County may be

more significant than the one documented earthquake incident would seem to indicate. Dalton State College has the same exposure so the Hazard Frequency Table is included in Appendix B.

- C. There are fourteen critical facilities on campus. These consist of 14 total buildings; 6 classroom buildings-Health Prof., Memorial, Liberal Arts, Sequoya, Brown Center, Peoples Hall; 1 Admin-Westcott; 1 library; 2 support buildings - Parking deck, Plant Ops; 1 Student Center; 1 Gymnasium; 1 Athletic Admin Building; 1 Residential Hall - Mashburn Hall. The combined value is approximately \$147,700,000. Reference Inventory of Assets in Appendix C.
- D. All facilities at Dalton State College are vulnerable to earthquakes except for the Brown Center building which was designed using the 2000 IBC code. Under that code, this area is classified as 'Zone D'. 'Zone F' is the highest classification. All utilities, electrical, gas, and water are underground in ridged pipes making them more susceptible to damage from earthquakes.
- E. It is impossible to determine probability or extent of earthquakes so all construction must adhere to the Georgia State Minimum Standards Codes (Uniform Codes Act) and the International Building Code (2000 edition). The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards. The existing development patterns on campus and the majority of our academic and administrative structures are concrete and metal construction. No private residential buildings exist on campus.
- F. Dalton State College does have residents of the surrounding counties on campus much of the time, especially during daylight and evening hours, and is concerned with evacuation. This population number is approximately 5,700 and consists of faculty, staff and students. This population is present on campus at various times, not all at once.
- G. All of Whitfield County can potentially be affected by earthquakes since the entire County is located within the highest seismic threat zone. Public Awareness of how to prepare for and what to do during an earthquake may reduce the risk of deaths, but no preparations can be made for a particular area.

**CHAPTER 3 – CAMPUS NATURAL HAZARD MITIGATION GOALS,
OBJECTIVES AND ACTION STEPS
OVERALL COMMUNITY MITIGATION GOALS, POLICIES
AND VALUES NARRATIVE**

I. Tornadoes/Severe Thunderstorms

- A.** The mitigation goals associated with severe thunderstorms are largely the same as those associated with tornados. Tornados are by far the most deadly, unpredictable natural hazard Dalton State College experiences and are usually more destructive and less frequent than thunderstorms, but both represent similar threats. A tornado and severe thunderstorms have the potential to cause injury, loss of life, and incalculable damage to public and private property, utilities and infrastructure. Severe thunderstorms represent one of the greatest threats to Dalton State College. Severe thunderstorms are one of the most frequently occurring natural hazards in Whitfield County. Although the severity of tornados and thunderstorms is often unpredictable, advanced planning can help limit the damages they cause. There are two main goals for tornados and severe thunderstorms at Dalton State College. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible. The Whitfield County Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the deadly effects of tornados and severe thunderstorms.
- B.** Dalton State College has recommended certain measures that can be implemented to protect the campus. Mitigation strategies include both structural and non-structural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modification to older structures.

1. Mitigation Goal #1:

“Develop and implement education and awareness programs aimed at mitigating the effects of natural hazards and reducing the risks to students and critical facilities.”

Objective #1:

“Develop natural hazard mitigation awareness programs.”

ACTION STEPS:

- a.** *Develop and distribute education and awareness materials or brochures related to hazard mitigation and preparedness to include tornados and storm safety, fire*

safety, first aid, and various other topics as needed.

- b.** *(Category: Education and Awareness)*
Responsible Org: Dalton State College
Coordinating Org: Dalton State College
Timeline: 2007 - Continual
Approximate Cost: Low
Funding Source: General Funds and Staff Time
Education of our population will result in the population's ability to make the right choices in any hazardous situation.
- c.** The Public Safety Department distributes various informational material to the community yearly.

2. Mitigation Goal #2:

"Keep a hazard mitigation mindset active and alive at Dalton State College."

Objective #1:

"Establish an on-going role for the Dalton State College-Disaster Mitigation Planning Committee."

ACTION STEPS:

- a.** *Establish clear roles for committee members, meet biennial in order to pursue and evaluate implementation of mitigation measures.*
- b.** *(Category: Education and Awareness)*
Responsible Org: Dalton State College
Coordinating Org: Committee Members/Dalton State College
Timeline: 2007 - Continual
Approximate Cost: Low
Funding Source: General Funds
Regular evaluations will benefit the campus as a whole.
- c.** The Planning Committee met with all members in attendance in November, 2017. The committee's purpose as well as each member's responsibilities were discussed.

3. **Mitigation Goal #3:**
“Protect the integrity of Information Technology Services.”

Objective #3:
“Maintain I.T. operations.”

ACTION STEPS:

- a. *a generator and switching unit to use as a backup source of power in case of interruption in electrical services.*
- b. *(Category: Property Protection)*
Responsible Org: Dalton State College
Coordinating Org: Dalton State College, Plant Ops & OCIS
Timeline: 2007 - Continual
Approximate Cost: \$56,000
Funding Source: FEMA/GEMA Grant Funds
This would ensure our operational capabilities with the benefit to student, faculty and staff.
- c. A generator has been installed to assist in maintaining power for the internal I.T. operations.

4. **Mitigation Goal #4:**
“Protect the integrity of Information Technology Services.”

Objective #3:
“Maintain I.T. operations.”

ACTION STEPS:

- a. *IT Director states that systems are backed up to servers in Athens, Georgia. It was stated that these systems would be available if the infrastructure on campus was damaged. The Blackboard System would take approximately 12 hours to restore to operating condition for transactions and door access on campus. Due to security in place, access to Banner would be difficult to obtain within a reasonable amount of time currently. IT Director is working to obtain clearer procedures for accessing Banner if infrastructure were compromised. Will work to secure agreements with another institution to use their infrastructure to access systems and continue business.*
- b. *(Category: Property Protection)*
Responsible Org: Dalton State College
Coordinating Org: Dalton State College, OCIS
Timeline: 2017 - Continual
Approximate Cost: Low

Funding Source: Internal as required.

5. **Mitigation Goal #5:**
Reduce the risk of injury to students
Objective #3:
Work to make tornado safe areas safer

ACTION STEPS:

- a. *Install tornado safe film on glass in lecture room on lower level of the Brown Center. This will make the occupants of the building and the room safer in the event of strong winds and tornados.*
- b. *(Category: Property Protection)*
Responsible Org: Dalton State College
Coordinating Org: Dalton State College, OCIS
Timeline: 2013
Approximate Cost: Medium
Funding Source: Internal as required.
- c. Film was installed on the windows on the lower level conference room.

II. Winter Storms

- A. Winter storms have the potential to cause injury, loss of life, and serious damage to public and private property, utilities and infrastructure. These storms represent one of the greatest natural hazard threats to Dalton State College. Most of the damage within Whitfield County during winter storms is caused by the formation of ice on roads and tree limbs, and power lines. These storms are usually predictable and can be forecasted in advance. However, some storms do come by surprise. Either way, advanced planning can help prevent much of the damage winter storms cause. There are two main mitigation goals for winter storms at Dalton State College. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible. The Whitfield County Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the damaging effects of winter storms.
- B. Dalton State College has recommended certain measures that can be implemented to protect the campus. Mitigation strategies include both structural and non-structural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modification to older structures.

1. **Mitigation Goal #1:**
“Keep a hazard mitigation mindset active and alive at

Dalton State College.”

Objective #1:

“Establish an on-going role for the Dalton State College-
Disaster Mitigation Planning Committee.”

ACTION STEPS

- a. *Establish clear roles for committee members, meetings regularly in order to pursue and evaluate implementation of mitigation measures.*
- b. *(Category: Education and Awareness)*
Responsible Org: Dalton State College
Coordinating Org: Committee Members/Dalton State College
Timeline: 2007 - Continual
Approximate Cost: Low
Funding Source: General Funds
Regular evaluations will benefit the campus as a whole.
- c. The Planning Committee met with all members in attendance in November, 2017. The committee’s purpose as well as each member’s responsibilities were discussed.

2. **Mitigation Goal #2:**

Protect the integrity of Information Technology Services.”

Objective #1:

“Maintain I.T. Operations.”

ACTION STEPS:

- a. *Purchase a generator and switching unit to use as a backup source of power in case of interruption in electrical services.*
- b. *(Category: Property Protection)*
Responsible Org: Dalton State College
Coordinating Org: Dalton State College, Plant Ops & OCIS
Timeline: 2007 - Continual
Approximate Cost: \$56,000
Funding Source: FEMA/GEMA Grant Funds
This would ensure our operational capabilities with the benefit to students, faculty and staff.
- c. A generator has been installed to assist in maintaining power for the internal I.T.

operations.

3. **Mitigation Goal #3:**
Lessen property damage

Objective #1:

Maintain campus trees and shrubbery to lessen the likelihood of limbs damaging campus or personal property.

ACTION STEPS

a. *Plant Operations to trim trees*

b. *(Category: Prevention)*

- c. **Responsible Org:** Dalton State College
Coordinating Org: Plant Operations
Timeline: 2017 - Continual
Approximate Cost: Low
Funding Source: General Funds

III. Wildfire

- A. Wildfire is one of the most frequently occurring natural hazards within Whitfield County. Wildfires have the potential to cause injury, loss of life, and serious damage to public, and private property, utilities and infrastructure. These events represent a potentially devastating threat to Dalton State College. There are two main goals at Dalton State College. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible. The Whitfield County Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both officials and citizens can use to mitigate the deadly effects of Wildfires.
- B. Dalton State College has recommended certain measures that can be implemented to protect the campus. Mitigation strategies include both structural and nonstructural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modification to older structures.

1. **Mitigation Goal #1:**
Reduce the under lament of debris.”

Objective # 1:

“Damage potential can be reduced in most areas susceptible to wildfire by ensuring that structures are surrounding by defensible space and buffer zones. These manageable areas generally 30 to 100 feet, are designed to remain clear of combustible materials. Slopes facing south and east are more vulnerable to dryness and heat from sun

exposure.”

ACTION STEPS:

- a. *Maintain the inner and outer perimeters of the college campus to prevent the loss of life, serious damage to public and private properties, utilities and infrastructures.*
- b. *(Category: Life/Property Protection)*
Responsible Org: Dalton State College
Coordinating Org: Dalton State College, Plant Ops
Timeline: 2007 – Continual
Approximate Cost: \$25,000
Funding Source: Internal
By taking this step we will lessen the likelihood of Wildfires causing injury to students, faculty, staff and the destruction to campus properties.
- c. Plant Operations maintains campus grounds with a fire prevention mindset. In addition, George Rice Drive would act as a buffer in the event of a wildfire to the west of the main campus.

2. **Mitigation Goal #2:**

“Protecting the integrity of Information Technology Services.”

Objective #1:

“Maintain I.T. Operations.”

ACTION STEPS:

- a. *Purchase a generator and switching unit to use as a backup source of power in case of interruption in electrical services.*
- b. *(Category: Communication)*
Responsible Org: Dalton State College
Coordinating Org: Dalton State College, Plant Ops & OCIS
Timeline: 2007 Continual
Approximate Cost: \$56,000
Funding Source: FEMA/GEMA Grant Funds

- This would ensure our operational capabilities with the benefit to student, faculty and staff.
- c. A generator has been installed to assist in maintaining power for the internal I.T. operations.

IV. Earthquakes

- A. All of Whitfield County can potentially be affected by earthquakes since the entire County is located within the highest seismic threat zone. Earthquakes have a great potential to cause injury, loss of life, and serious damage to public and private property, utilities and infrastructure. Such events are uncommon within Whitfield County. As a matter of fact, no records of serious earthquake damage have been found for Whitfield County. Nevertheless, the tremendous destructive capacity of an earthquake requires Dalton State College to consider mitigation strategies.

Dalton State College developed two main mitigation goals for earthquakes within the campus. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible. The Whitfield County Mitigation Planning Committee (HMPC) has identified measures to help mitigate the destructive force of earthquakes.

- B. Dalton State College has recommended certain measures that can be implemented to protect the campus. Mitigation strategies include both structural and nonstructural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modification to older structures.

1. **Mitigation Goal #1:**
"Reduce risk of Gas and Water ruptures."

Objective #1

"Continue replacement all current rigid pipes with flexible Pipes and shut valves at each building."

ACTION STEPS:

- a. *Obtain necessary funding and new replacement pipes and shut off valves to meet new codes.*
- b. *(Category: Life/Property Protection)*
Responsible Org: Dalton State College
Coordinating Org: Dalton State College,

Timeline: Plant Ops
2007 - Continual
Approximate Cost: \$240,000
Funding Source: Internal

By undertaking this step we will lessen the likelihood of gas leaks and explosions in case of earthquake.

- c. All exterior gas lines were replaced with flexible gas lines.

2. Mitigation Goal #2:

“Protecting the integrity of Information Technology Services.”

Objective # 1:

“Maintain I.T. Operations.”

ACTION STEPS:

- a. *Purchase a generator and switching unit to use as a backup source of power in case of interruption in electrical services.*

- b. *(Category: Property Protection)*

Responsible Org: Dalton State College
Coordinating Org: Dalton State College,
Plant Ops & OCIS
Timeline: 2007 - Continual
Approximate Cost: \$56,000
Funding Source: FEMA/GEMA
General Funds

This would ensure our operational capabilities with the benefit to students, faculty and staff.

- c. A generator has been installed to assist in maintaining power for the internal I.T. operations.

CHAPTER 4 – EXECUTING THE PLAN

I. CAMPUS IMPLEMENTATION ACTION PLAN -

- A.** The disaster mitigation planning process was overseen by EH&OS with the assistance of the Disaster Mitigation Planning Committee. This Plan was submitted to GEMA for approval.
- B.** Dalton State College will act to formally adopt this plan.
- C.** This Disaster Resistant College Plan will become even more effective when incorporated with the Whitfield County Hazard Mitigation Plan. This Plan will be made available to the County for their utilization as needed to incorporate into their PDM Plan at their next update.

II. MONITORING AND UPDATES -

- A.** The Dalton State College EH&OS will be responsible for monitoring any hazardous event or changes to the plan.
- B.** Collaboration between Dalton State College and Whitfield County will occur to review and update this plan.
- C.** Assessment will be performed after any hazardous event and/or every year. The plan will be updated every five years in coordination with Whitfield County to ensure maximum efficiency of the plan.

III. MULTI-JURSDICTIONAL STRATEGY AND CONSIDERATIONS -

- A.** The difference with respect to the Dalton State College plan and the Whitfield County Plan is that each entity will be responsible to carry out their own individual Plan within their respective jurisdictions.

IV. PLAN UPDATE AND MAINTENANCE -

- A.** The Planning Committee will convene in order to accomplish the plan evaluation. Additionally, EH&OS will schedule meetings as required to preserve a continuity and consistency throughout the process. These meetings will provide an opportunity to discuss the progress of the action items and maintain the partnerships that are essential for the sustainability of the mitigation plan.

CHAPTER 5 – CONCLUSION

I. CONCLUSION SUMMARY

- A.** As previously stated, the Dalton State Colleges Office of Environmental Health, Occupational Safety and Risk Management (EH&OS), will be charged with ensuring that this plan is monitored and updated biennial or more often if deemed necessary. The method of evaluation will consist of utilizing a checklist to determine what mitigation actions were undertaken, the completion date of these actions, the cost associated with each completed action, and whether actions were deemed to be successful. Also, items discovered by EH&OS that need to be addressed will be discussed.

- B.** The cost benefit of a project was based upon the anticipated cost in relation to the perceived benefit of the action taken. A proposed action with a high price tag, but minimal benefit to the campus, was considered to have a low cost benefit. Conversely, if minimal expenditures were required and the entire campus would benefit, this received favorable cost benefit rating. All proposed mitigation actions were evaluated to determine the favorability of the benefit in relation to the cost associated with completing the project. Determining the feasibility of mitigating hazards can provide decision makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects.

I. REFERENCES -

Numerous sources were utilized to ensure the most complete planning document could be assembled.

A. Publications

FEMA Pre-Disaster Mitigation *How-to Guides* # 1, 2, 3, 7

GEM&HSA Supplements to FEMA Pre-Disaster Mitigation How-to Guides

Whitfield County Emergency Operation Plan (2016)

APPENDIX A

- **Plan Committee**
- **Mission Statement**

**DALTON STATE COLLEGE
PRE-DISASTER MITIGATION COMMITTEE**

SUBCOMMITTEES

IDENTIFY CRITICAL FACILITIES/EQUIPMENT

- Nick Henry
- George Brewer
- Michael Masters
- Paul Tate
- Terry Bailey

IDENTIFY HAZARDS AND ESTIMATE LOSSES

- Nick Henry
- George Brewer
- Michael Masters
- Paul Tate

INVENTORY ASSETS

- Nick Henry
- Penny Cordell

IDENTIFY GOALS AND FUTURE PROJECTS

- George Brewer
- Michael Masters
- Paul Tate

MISSION STATEMENT

FOR THE

DALTON STATE COLLEGE HAZARD MITIGATION PLAN

**THROUGH EFFECTIVE PLANNING, DEVELOP A CAMPUS-WIDE MITIGATION
MINDSET THROUGH STAFF AND FACULTY LEADERSHIP
AND COMMUNITY-BASED PARTNERSHIP, LEADING THE WAY TO A
SAFE AND SECURE ENVIRONMENT FOR ALL.**

APPENDIX B

- **Thunderstorm Hazard Description**
- **Assets Exposed to Hazard Map - Thunderstorms**
- **Tornado Hazard Description**
- **Fujita Scale of Tornado Intensity Table**
- **Tornados in Georgia Graph**
- **Recorded Tornados in Whitfield County Graph**
- **Number of Tornados per County Map**
- **Assets Exposed to Hazard Map – Tornados**
- **Winter Storm Hazard Description**
- **Assets Exposed to Hazard Map – Winter Storm**
- **Wildfire Hazard Description**
- **Observed Fire Danger Map**
- **Assets Exposed to Hazard Map – Wildfire**
- **Earthquake Hazard Description**
- **Probability of Earthquake Map**
- **Mercalli Intensity Scale**
- **Magnitude/Intensity Comparison Table**
- **Earthquake Magnitude Map**
- **Assets Exposed to Hazard Map - Earthquake**

Severe Thunderstorm Hazard Description – A Severe Thunderstorm is defined as a thunderstorm producing wind at or above 58 mph and/or hail $\frac{3}{4}$ of an inch in diameter or larger. This threshold is met by approximately 10% of all thunderstorms. These storms can strike any time of year, but similar to tornados, are most frequent in the spring and summer months. They are nature's way of providing badly needed rainfall, dispersing excessive atmospheric heat buildup and cleansing the air of harmful pollutants. Not only can severe thunderstorms produce injury and damage from violent straight-line winds, hail, and lightning, but these storms can produce tornados very rapidly and without warning. Note: For the purposes of this Plan, severe thunderstorms that result from tropical storms and hurricanes are included in this section.

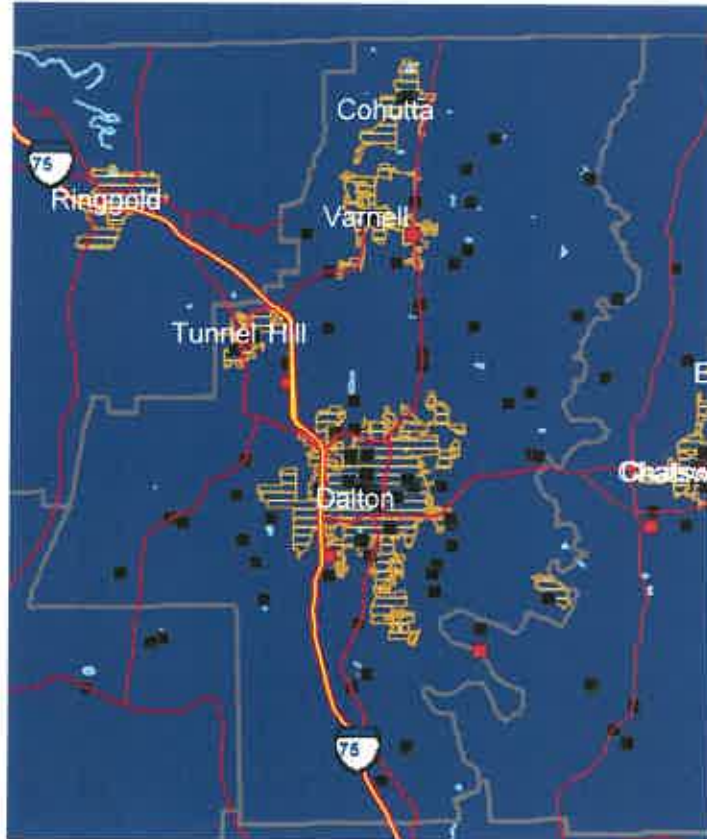
The most damaging phenomena associated with thunderstorms, excluding tornado activity, are thunderstorm winds. These winds are generally short in duration involving straight-line winds and/or gust in excess of 50 mph. However, these winds can gust to more than 100 miles per hour, overturning trailers, unroofing homes, and toppling trees and power lines. Such winds tend to affect areas of the County with significant tree stands, as well as areas with exposed property, infrastructure, and above-ground utilities. Resulting damage often includes power outages, transportation and economic disruptions, and significant property damage. Severe thunderstorms can ultimately leave a population with injuries and loss of life. Thunderstorms produce two types of wind. Tornados are characterized by rotational winds. The other more predominant winds form a thunderstorm, downbursts, are small areas of rapidly descending air beneath a thunderstorm that strike the ground producing isolated areas of significant damage. Every thunderstorm produces a downburst. The typical downburst consists of only a 25 mph gusty breeze, accompanied by a temperature drop of as much as 20 degrees within a few minutes. However, severe downburst winds can reach from 58 to 100 mph, or more, significantly increasing the potential for damage to structures. Downbursts develop quickly with little or no advance warning and come from thunderstorms whose radar signatures appear non-severe. There is no sure method of detecting these events, but atmospheric conditions have been identified which favor the development of downbursts. Severe downburst winds have been measured in excess of 120 mph, or the equivalent of and F2 tornado, on the Fujita Scale. Such winds have the potential to produce both a loud "roaring" sound and the widespread damage typical of a tornado. This is why downbursts are often mistaken for tornados.

Hail can also be a destructive aspect of severe thunderstorms. Hail causes more monetary loss than any other type of thunderstorm-spawned severe weather. Annually, the United States suffers about one billion dollars in crop damage from hail. Storms that produce hailstones only the size of a dime produce dents in the tops of vehicles, damage roofs, break windows and cause significant injury or even death. Unfortunately, hail is often much larger than a dime and can fall at speeds in excess of 100 mph. Hailstones are created when strong rising currents of air called updrafts carry water droplets high into the upper reaches of thunderstorms where they freeze. These frozen droplets bump into and coalesce with unfrozen water droplets and are then carried back up high within the storm where they refreeze into larger drops. This cycle may repeat itself several times until the

frozen water droplets become so large and heavy that the updraft can no longer support their weight. Eventually, the frozen water droplets fall back to earth as hailstones.

Finally, one of the most frightening aspects of thunderstorms is lightening. Lightening kills nearly one hundred people every year in the United States and injures hundreds of others. A possible contributing reason for this is that lightning victims frequently are struck before or just after the occurrence of precipitation at their location. Many people apparently feel safe from lightening when they are not experiencing rain. Lightening tends to travel the path of least resistance and often seeks out tall or metal objects. With lightening however, it's all relative. A 'tall' object can be an office tower, a home, or a child standing on a soccer field. Lightening can and does strike just about any object its path. Some of the most dangerous and intense lightening may occur with severe thunderstorms during the summer months, when outdoor activities are at their peak

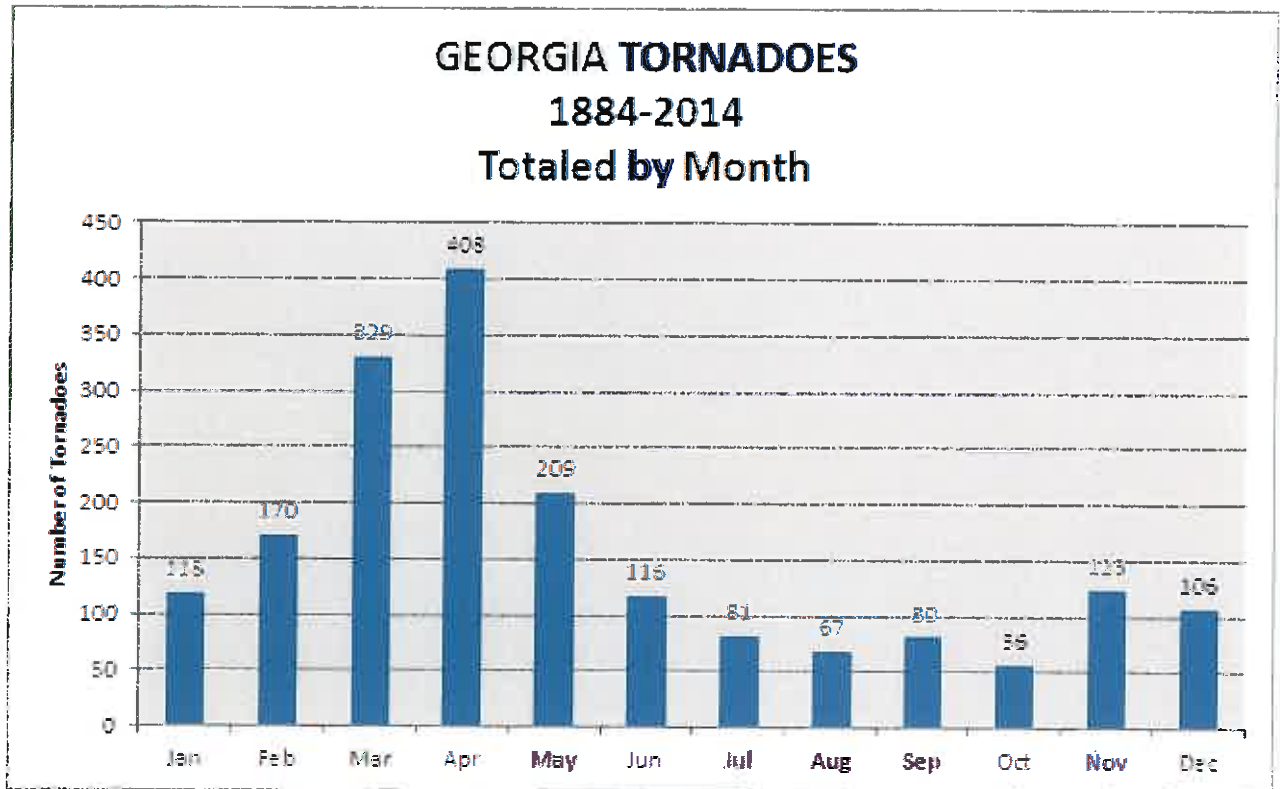
Thunderstorm: Assets Exposed to Hazard – In evaluating assets that are susceptible to severe thunderstorms, hail, and lightning, the committee determined that, since this hazard is not spatially defined, all public and private property is susceptible to severe thunderstorms, including all critical facilities. The map below identifies critical facilities located within the hazard area which, in the case of severe thunderstorms (all blue areas), includes the entire County.



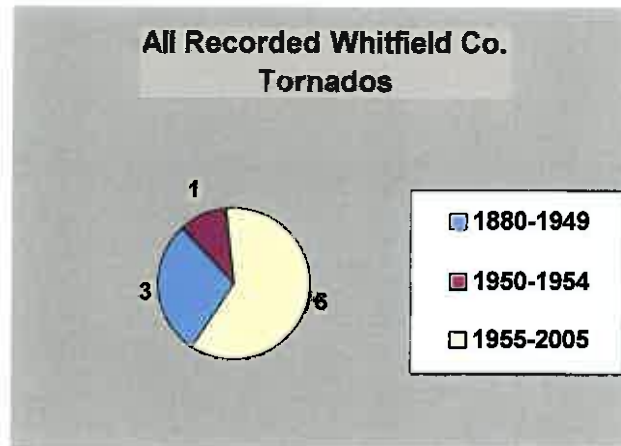
Tornado Hazard Description – A tornado is a dark, funnel-shaped cloud containing violently rotating air that develops below a heavy cumulonimbus cloud mass and extends toward the earth. The funnel twists about, rises and falls, and where it reaches the earth causes great destruction. The diameter of a tornado varies from a few feet to a mile; the rotating winds attain velocities of 200 to 300 mph, and the updraft at the center may reach 200 mph. A tornado is usually accompanied by thunder, lightning, heavy rain, and a loud "freight train" noise. In comparison with a hurricane, a tornado covers a much smaller area but can be just as violent and destructive. The atmospheric conditions required for the formation of a tornado include great thermal instability, high humidity, and the convergence of warm, moist air at low levels with cooler, drier air aloft. A tornado travels in a generally northeasterly direction with a speed of 20 to 40 mph. The length of a tornado's path along the ground varies from less than one mile to several hundred. The Fujita Scale is the standard scale for rating the severity of a tornado as measured by the damage it causes (see table below).

The Fujita Scale of Tornado Intensity			
F-Scale Number	Intensity Phrase	Wind Speed	Type of Damage Done
F0	Gale tornado	40-72 mph	Some damage to chimneys; breaks branches off trees, pushes over shallow-rooted trees, damages sign boards
F1	Moderate tornado	73-112 mph	The lower limit is the beginning of hurricane wind speed, peels surface off roofs, mobile homes pushed off foundations or overturned, moving autos pushed off the roads, attached garages may be destroyed
F2	Significant tornado	113-157 mph	Considerable damage. Roofs torn off frame houses, mobile homes demolished; boxcars pushed over, large trees snapped or uprooted, light object missiles generated
F3	Severe tornado	158-206 mph	Roof and some walls torn off well constructed houses, trains overturned; most trees in forest uprooted
F4	Devastating tornado	207-260 mph	Well-constructed houses leveled, structures with weak foundations blown off some distance, cars thrown and large missiles generated
F5	Incredible tornado	261-318 mph	Strong frame houses lifted off foundations and carried considerable distances to disintegrate, automobile sized missiles fly through the air in excess of 100 meters, trees debarked, steel reinforced concrete structures badly damaged

Tornados are considered to be the most unpredictable and destructive of weather events, even though they are not the most frequently occurring natural hazard within Whitfield Co. Tornado season in Georgia ordinarily runs from March through August, with the peak activity being in March and April. However, tornados can strike at any time of the year when certain atmospheric conditions are met. See graph below.

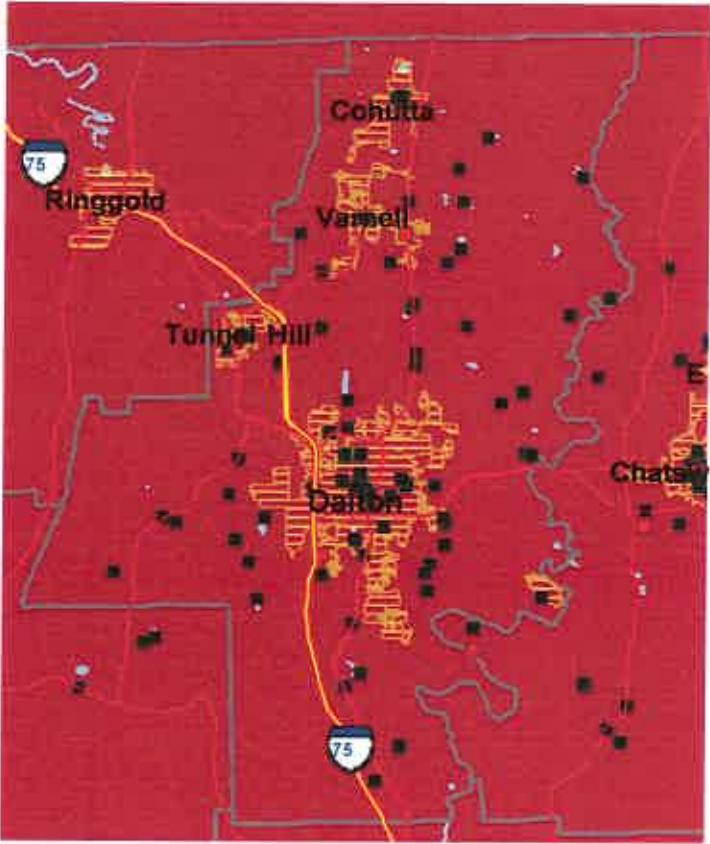


During the past fifty years, documentation of seven tornado events were found. Based on the entire fifty-year period, it can be inferred that a tornado is likely to occur within Whitfield Co. a little less than once every eight years. Another way of stating these findings is that every year in Whitfield Co. there is an 12% chance of a tornado event. When only the past ten-year period is taken into consideration, the likelihood of such an event in Whitfield Co. is estimated at a 10% chance per year (or about once every ten years).



The statewide map on the following page shows tornados on record dating back to 1950 which, due to the map dating just beyond the 50-year history we are reviewing, accounts for one additional tornado, for a “map total” of seven. In other words, six tornados have occurred in Whitfield Co. within the past fifty years, and seven tornados have occurred in Whitfield Co. within the past fifty-five years. We knew this map would cause some confusion because of the different time period assessed, but we wanted to demonstrate the tornado activity of Whitfield Co. in relationship to surrounding counties, and the entire state. Beyond the map’s period dating back to 1950, three other tornados are on record as having occurred in Whitfield Co. (an eighth, ninth, and tenth). These three tornados occurred in 1880 (2) and 1932. The following chart may help clarify this issue:

Tornados: Assets Exposed to Hazard - Tornados are unpredictable and are indiscriminate as to when or where they strike. In evaluating assets that may potentially be impacted by the effects of tornados, the HMPC determined that all critical facilities, public and private property, are susceptible. The map below identifies critical facilities located within the hazard area which, in the case of tornados (all red areas), includes the entire County.

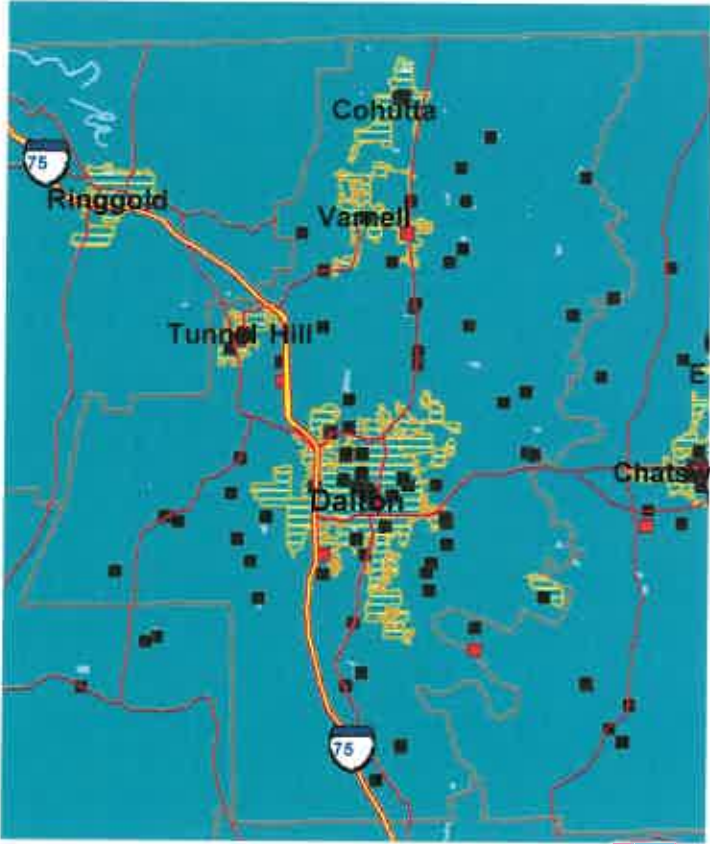


Winter Storm Hazard Description – Winter storms bring the threat of freezing rain, ice, sleet, snow and the associated dangers. A heavy accumulation of ice, especially when accompanied by high winds, devastates trees and power lines. Such storms make highway travel or any outdoor activity extremely hazardous due to falling trees, ice, and other debris.

Although winter storms occur relatively infrequently, they have the potential to wreck havoc on the community when they do strike. Winter storms within Whitfield County typically cause damage to power lines, trees, buildings, structures, and bridges, to varying degrees. Due to the County's high elevation, many highways have steep grades, resulting in very hazardous travel conditions when they are covered with frozen precipitation.

Another hazard exists due to the large tree population. Trees and branches weighed down by snow and ice become very dangerous to person and property.

Winter storm: Assets Exposed to Hazard - In evaluating assets that may potentially be impacted by the effects of winter storms, the HMPC determined that all critical facilities, public and private property, are susceptible. The following map identifies critical facilities located within the hazard area which, in the case of winter storms (all light blue areas), includes the entire County.



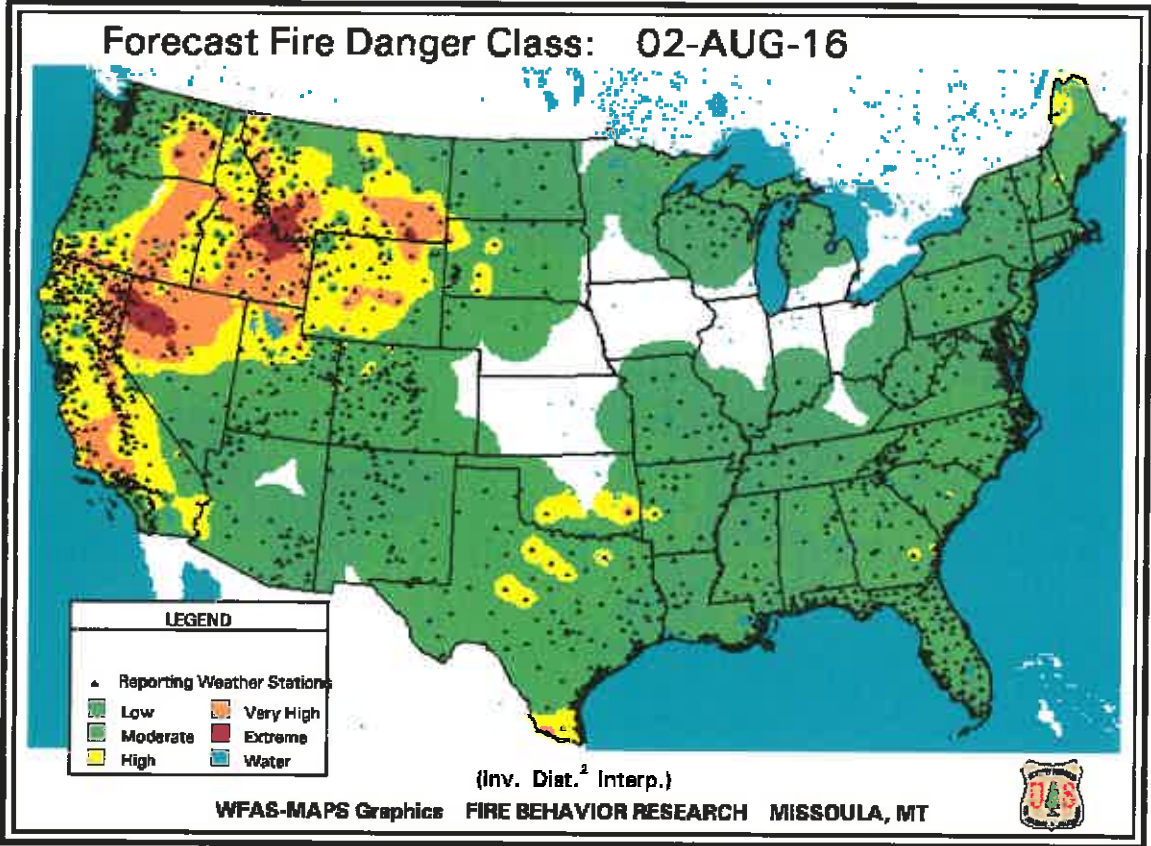
Wildfire Hazard Description – A wildfire is defined as an uncontrolled fire occurring in any natural vegetation. For a wildfire to occur there must be available oxygen, a supply of fuel, and enough heat to kindle the fuel. Often, these fires are begun by combustion and heat from surface and ground fires and can quickly develop into a major conflagration. A large wildfire may crown, which means it may spread rapidly through the topmost branches of the trees before involving undergrowth or the forest floor. As a result, violent blowups are common in forest fires, and on rare occasions they may assume the characteristics of a firestorm. A firestorm is a violent convection caused by a continuous area of intense fire and characterized by destructively violent surface in drafts. Sometimes it is accompanied by tornado-like whirls that develop as hot air from the burning fuel rises. Such a fire is combustible in the locality. No records were found of such an event ever occurring within Whitfield County, but his potential danger should be considered when planning mitigation efforts.

The threat of wildfire varies with weather conditions: drought, heat and wind participate in drying out the timber or other fuel, making it easier to ignite. Once a fire is burning, drought, heat, and wind all increase its intensity. Topography also affects wildfire, which spreads quickly uphill and slowly downhill. Dried grass, leaves, and light branches are considered flash fuels; they ignite readily, and fire spreads quickly in them, often generating enough heat to ignite heavier fuels such as tree trunks, heavy limbs, and the matted duff of the forest floor. Such fuels, ordinarily slow to kindle, are difficult to extinguish. Green fuels (growing vegetation) are not considered flammable, but an intense fire can dry out leaves and needles quickly enough to allow ready ignition. Green fuels sometimes carry a special danger: evergreens, such as pine, cedar, fir, and spruce, contain flammable oils that burst into flames when heated sufficiently by the searing drafts of a wildfire.

Tools for fighting wildfires range from the standard equipment of fire departments to portable pumps, tank trucks, and earth-moving equipment. Firefighting forces specially trained to deal with wildfires are maintained by local, state and federal entities including the Whitfield Co. Fire Department, Georgia Forestry, and U.S. Forest Service. These trained firefighters may attack a fire directly by spraying water, beating out flames, and removing vegetation at the edge of the fire to contain it behind a fire line. When the very edge is too hot to approach, a fire line is built at a safe distance, sometimes using strip burning or backfire to eliminate fuel in the path of the uncontrolled fore or to change the fire's direction or slow its progress. Backfiring is used only as a last resort.

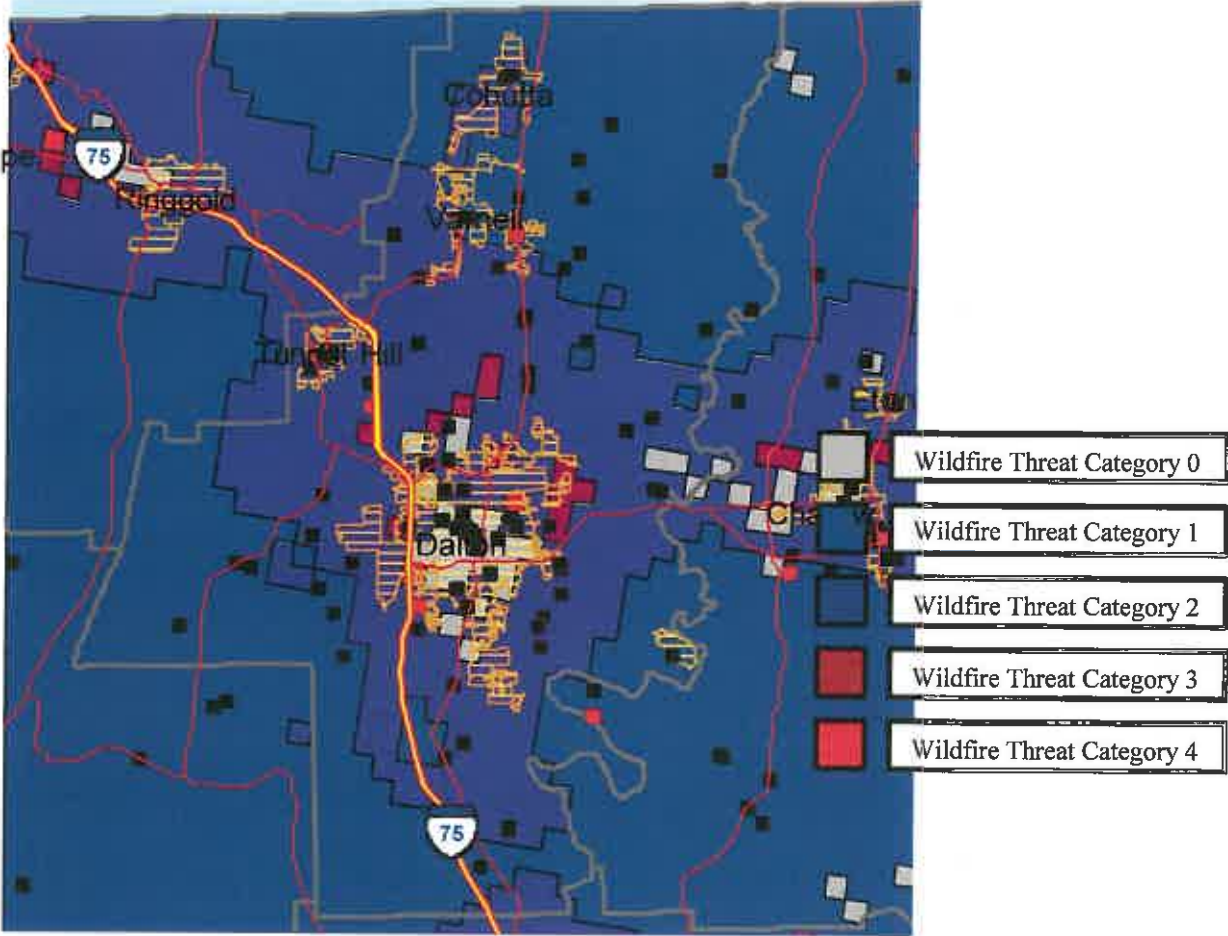
The control of wildfires has developed into an independent and complex science costing approximately \$100 million annually in the United States. Because of the extremely rapid spreading and customary inaccessibility of fires once started, the chief aim of this work is prevention. However, despite the use of modern techniques (e.g., radio communications, rapid helicopter transport, and new types of chemical firefighting apparatus) more than 10 million acres of forest are still burned annually. Of these fires, about two thirds are started accidentally by people, almost one quarter is of incendiary origin, and more than 10% are due to lightning.

At the time this plan was reviewed, Whitfield County's threat of wildfire was classified as "Moderate". However, this status can change from week to week. See the following map.



Wildfire: Assets Exposed to Hazard – In evaluating assets that are susceptible to wildfire, the committee determined that all public and private property is susceptible to wildfire, including all critical facilities. The map below identifies critical facilities located within the hazard area which, in the case of wildfire, includes the entire County to varying degrees. The Wildfire Threat Categories are defined as:

Category	Description
0	Lowest Threat: includes areas with no houses, with bodies of water, agricultural areas, and/or cities.
1	Very Low Threat
2	Low Threat
3	Moderate Threat
4	High Threat



Fortunately, most of the County has been classified under Wildfire Threat Categories 0, 1, or 2, the lowest threats on a scale of 0 to 4. Only a few relatively small areas located in and around the City of Dalton have been classified under Wildfire Threat Categories 3 or 4.

Earthquake Hazard Description – One of the most frightening and destructive natural hazards is a severe earthquake. An earthquake is a sudden movement of the Earth, caused by the abrupt release of strain that has accumulated over a long time. The forces of plate tectonics shape the Earth as the huge plates that form the Earth's surface slowly move over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free. If the earthquake occurs in a populated area, it may cause many deaths, injuries and extensive property damage.

The goal of earthquake prediction is to give warning of potentially damaging earthquakes early enough to allow appropriate response to the disaster, enabling people to minimize loss of life and property. The U.S. Geological Survey conducts and supports research on the likelihood of future earthquakes. This research includes field, laboratory and theoretical investigations of earthquake mechanisms and fault zones. A primary goal of earthquake research is to increase the reliability of earthquake probability estimates. Ultimately, scientists would like to be able to specify a high probability for a specific earthquake on a particular fault within a particular year. Scientists estimate earthquake probabilities in two ways: by studying the history of large earthquakes in a specific area and the rate at which strain accumulates in the rock.

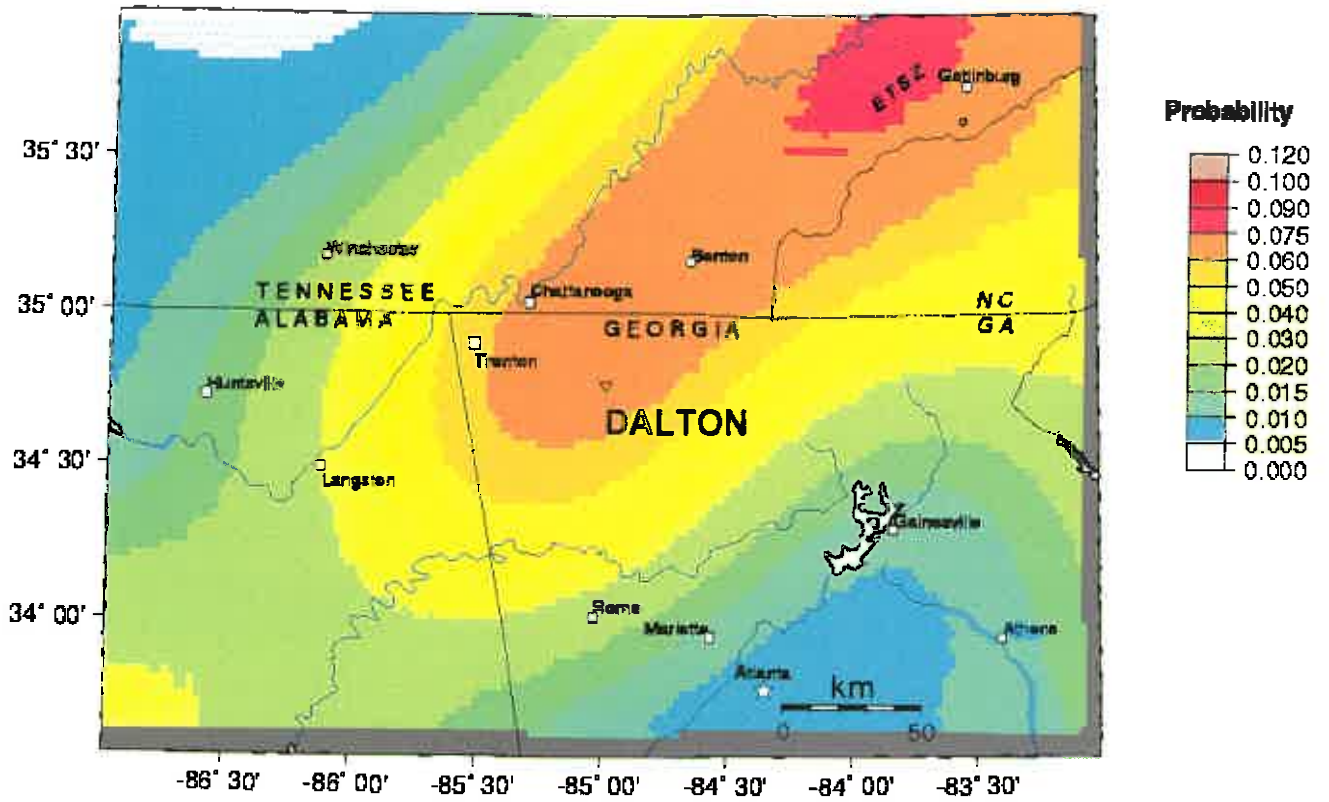
Scientists study the past frequency of large earthquakes in order to determine the future likelihood of similar large shocks. For example, if a region has experienced four magnitude 7 or larger earthquakes during 200 years of recorded history, and if these shocks occurred randomly in time, then scientists would assign a 50 percent probability (that is, just as likely to happen as not to happen) to the occurrence of another magnitude 7 or larger quake in the region during the next 50 years. But in many places, the assumption of random occurrence with time may not be true, because when strain is released along one part of the fault system, it may actually increase on another part.

Another way to estimate the likelihood of future earthquakes is to study how fast strain accumulates. When plate movements build the strain in rocks to a critical level, like pulling a rubber band too tight, the rocks will suddenly break and slip to a new position. Scientists measure how much strain accumulates along a fault segment each year, how much time has passed since the last earthquake along the segment, and how much strain was released in the last earthquake. This information is then used to calculate the time required for the accumulating strain to build to the level that results in an earthquake. This simple model is complicated by the fact that such detailed information about faults is rare. In the United States, only the San Andreas fault system has adequate records for using this prediction method.

Probability of earthquake with $M \geq 5.0$ within 25 years & 50 km

U.S. Geological Survey PSHA Model

Site: DALTON GA ZipCode



GMI Nov 16 12:54 Earthquake probabilities from USGS 2002 PSHA, 50 km maximum horizontal distance. Site of interest: triangle. Epicenters $m \geq 5$ black circles; rivers blue.

The following two tables describe the Abbreviated Modified Mercalli Intensity Scale, and show intensities that are typically observed at locations near the epicenter of earthquakes of different magnitudes.

Abbreviated Modified Mercalli Intensity Scale

- I.** Not felt except by a very few under especially favorable conditions.
- II.** Felt only by a few persons at rest, especially on upper floors of buildings.
- III.** Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
- IV.** . Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
- V.** Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
- VI.** . Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
- VII.** Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
- VIII.** Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
- IX.** Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
- X.** Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
- XI.** . Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
- XII.** Damage total. Lines of sight and level are distorted. Objects thrown into the air

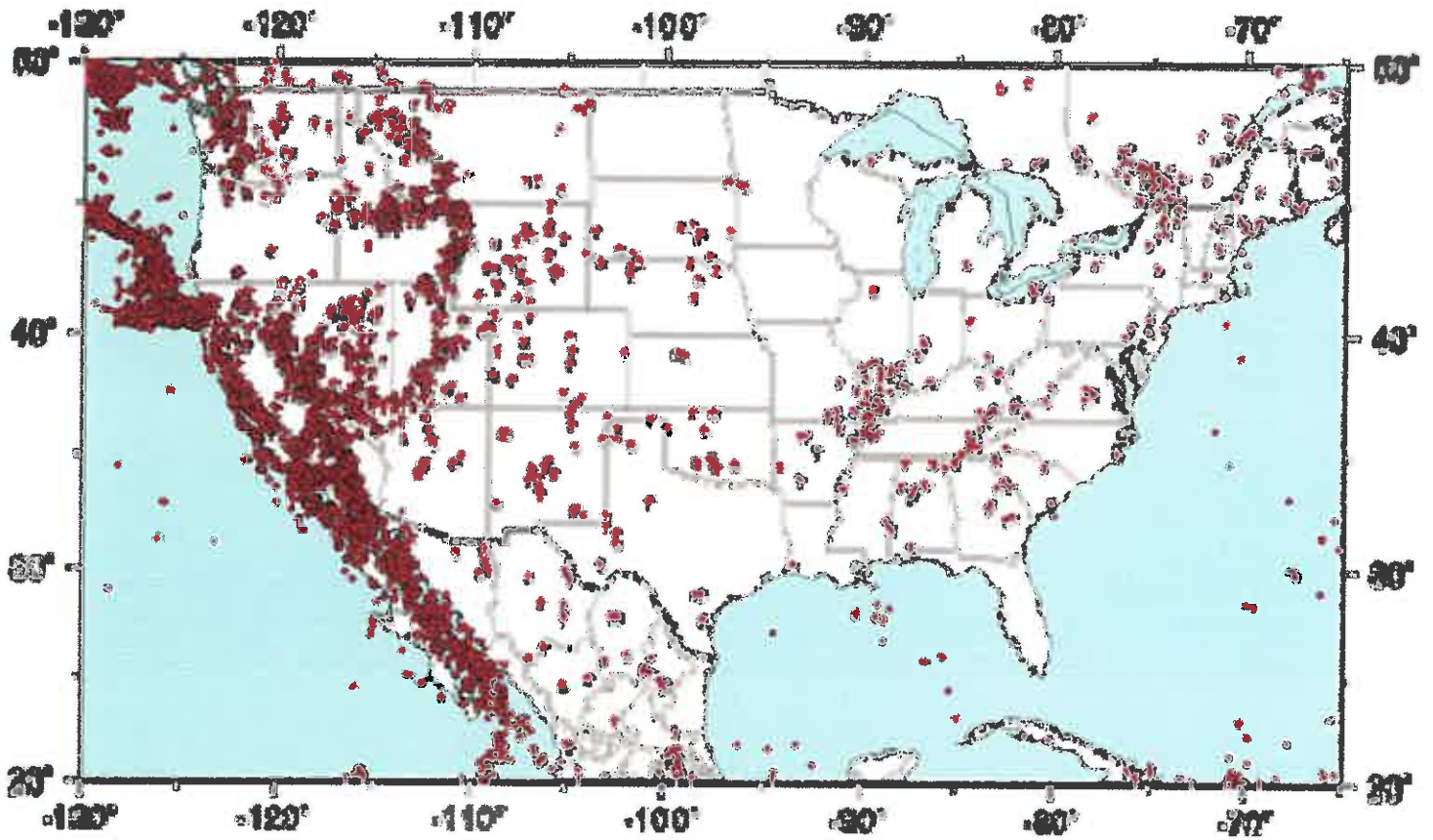
Magnitude / Intensity Comparison

Magnitude

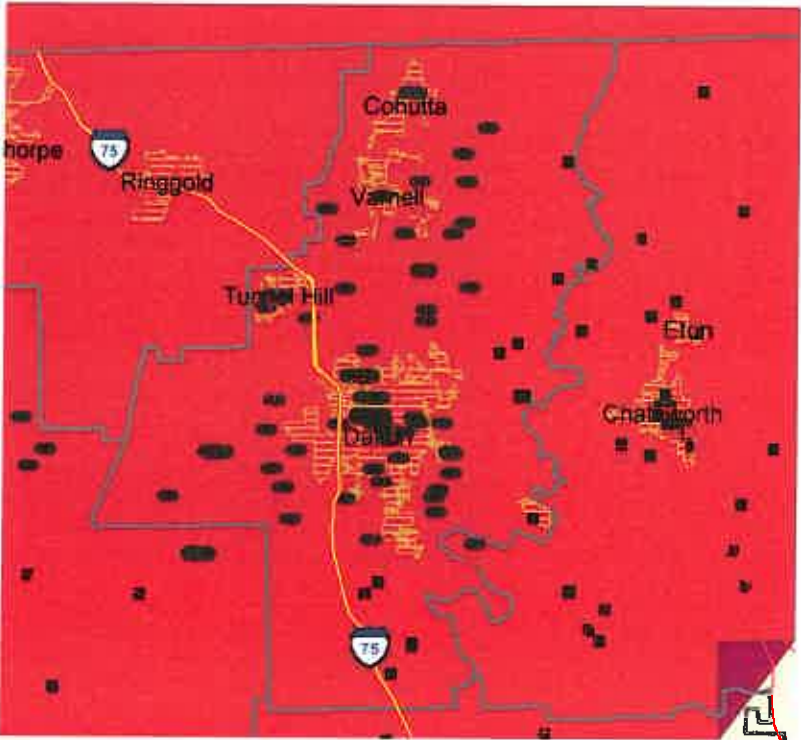
**Typical Maximum
Modified Mercalli Intensity**

1.0 - 3.0	I
3.0 - 3.9	II - III
4.0 - 4.9	IV - V
5.0 - 5.9	VI - VII
6.0 - 6.9	VII - IX
7.0 and higher	VIII or higher

Earthquakes, Magnitude 3.5 and greater 1974 to 2003



Earthquake: Assets Exposed to Hazard - All structures and facilities within Whitfield County are susceptible to earthquake damage since they can occur in any portion of the County or Municipalities. Unfortunately, all of Whitfield County is located in the highest seismic threat zone (all red areas). See map below.



APPENDIX C

- **Critical Facilities**
- **Hazard Frequency Table**
- **Inventory of Assets**
- **Seismic Hazard Score**
- **Wildfire Hazard Score**
- **Wind Hazard Score**

CRITICAL FACILITIES

- **Westcott Hall – College Administration**
- **Memorial Hall – Office of Computing and Information Services**
- **Mashburn Hall – College Dormitory**
- **Health Professions (south end) – Public Safety**
- **Plant Operations**

Appendix C – Whitfield County Hazard Frequency Table

Hazard	Number of Events in Past 10 Years	Number of Events in Past 20 Years	Number of Events in Past 50 Years	Historic Recurrence Interval (years) Past 10 Years	Historic Recurrence Interval (years) Past 20 Years	Historic Recurrence Interval (years) Past 50 Years	Historic Frequency chance/year Past 10 Years	Historic Frequency chance/year Past 20 Years	Historic Frequency chance/year Past 50 Years	Past 10 Year Record Frequency Per Year	Past 20 Year Record Frequency Per Year	Past 50 Year Record Frequency Per Year
Hurricane Surge - Cat 1	0	0	0	0.00	0.00	0.00	0.00%	0.00%	0.00%	0	0	0
Hurricane Surge - Cat 2	0	0	0	0.00	0.00	0.00	0.00%	0.00%	0.00%	0	0	0
Hurricane Surge - Cat 3	0	0	0	0.00	0.00	0.00	0.00%	0.00%	0.00%	0	0	0
Hurricane Surge - Cat 4	0	0	0	0.00	0.00	0.00	0.00%	0.00%	0.00%	0	0	0
Hurricane Surge - Cat 5	0	0	0	0.00	0.00	0.00	0.00%	0.00%	0.00%	0	0	0
Tropical Storm/Hurricane	5	5	5	2.00	4.00	10.00	50.00%	25.00%	10.00%	0.5	0.25	0.1
High Winds (Non-Thunderstorm)	5	7	7	2.00	2.86	7.14	50.00%	35.00%	14.00%	0.5	0.35	0.14
Flooding	16	17	17	0.63	1.18	2.94	160.00%	85.00%	34.00%	1.6	0.85	0.34
Wildfire	538	1419	3301	0.02	0.01	0.02	5380.00%	7095.00%	6602.00%	53.8	70.95	66.02
Earthquake	1	1	1	10.00	20.00	50.00	10.00%	5.00%	2.00%	0.1	0.05	0.02
Tornado	1	2	6	10.00	10.00	8.33	10.00%	10.00%	12.00%	0.1	0.1	0.12
Severe Thunderstorm, Hail, Lightning	66	84	101	0.15	0.24	0.50	660.00%	420.00%	202.00%	6.6	4.2	2.02
Drought	13	13	13	0.77	1.54	3.85	130.00%	65.00%	26.00%	1.3	0.65	0.26
Extreme Heat	8	8	8	1.25	2.50	6.25	80.00%	40.00%	16.00%	0.8	0.4	0.16
Extreme Cold	13	13	13	0.77	1.54	3.85	130.00%	65.00%	26.00%	1.3	0.65	0.26
Winter Storm	16	19	19	0.63	1.05	2.63	160.00%	95.00%	38.00%	1.6	0.95	0.38
Landslide	0	0	0	0.00	0.00	0.00	0.00%	0.00%	0.00%	0	0	0
Dam Failure	0	0	0	0.00	0.00	0.00	0.00%	0.00%	0.00%	0	0	0
Fog	1	1	1	10.00	20.00	50.00	10.00%	5.00%	2.00%	0.1	0.05	0.02
HazMat Release	200	386	386	0.05	0.05	0.13	2000.00%	1930.00%	772.00%	20	19.3	7.72

NOTE: The historic frequency of a hazard event over a given period of time determines the historic recurrence interval. For example: If there have been 20 HazMat Releases in the County in the past 5 years, statistically you could expect that there will be 4 releases a year.

Realize that from a statistical standpoint, there are several variables to consider. 1) Accurate hazard history data and collection are crucial to an accurate recurrence interval and frequency. 2) Data collection and accuracy has been much better in the past 10-20 years (NCDC weather records). 3) It is important to include all significant recorded hazard events which will include periodic updates to this table.

By updating and reviewing this table over time, it may be possible to see if certain types of hazard events are increasing in the past 10-20 years.

Reporting for Seismic Hazard by Jurisdiction Grouped by Hazard Score

NOTE: Only completed facilities will be reported

Government Jurisdiction	Type	Name or Structure Description	Essential Facility	Transportation System	Lifeline System	High Potential Loss	Haz Mat Facility	Important Facility	Vulnerable Population	Economic Assets	Special Considerations	Historic Considerations	Other	Size of Bldg. (sq. ft.)	Replace Value (\$)	Replace Value Year	Contents Value	Contents Value Year	Functional Value	Displace Cost (\$per day)	Occupancy	Hazard Score
Dalton city	Public Four Year College	BJ Bandy Gymnasium						X						29,411	\$8,000,000	2015	\$2,100,000	2015				4
Dalton city	Public Four Year College	Gignilliat Memorial Education Building						X						30,191	\$8,600,000	2015	\$2,700,000	2015				4
Dalton city	Public Four Year College	Brown Education Building						X						26,000	\$8,500,000	2015	\$1,900,000	2015				4
Dalton city	Public Four Year College	Lorberbaum Hall Education Building						X						50,671	\$14,000,000	2015	\$2,500,000	2015				4
Dalton city	Public Four Year College	Maintenance/Plant Operations Building						X						15,005	\$5,000,000	2015	\$1,900,000	2015				4
Dalton city	Public Four Year College	Pope Student Center						X						43,772	\$12,200,000	2015	\$3,900,000	2015				4

Reporting for Wildfire Hazard Countywide Grouped by Hazard Score

NOTE: Only completed facilities will be reported

Government Jurisdiction	Type	Name or Structure Description	Essential Facility	Transportation System	Lifeline System	High Potential Loss	Haz Mat Facility	Important Facility	Vulnerable Population	Economic Assets	Social Considerations	Historic Considerations	Other	Size of Bldg. (sq. ft.)	Replace Value (\$)	Replace Value Year	Contents Value	Contents Value Year	Functional Value	Displace Cost (\$per day)	Occupancy	Hazard Score
Dalton city	Public Four-Year College	BJ Bandy Gymnasium						X						29,411	\$8,000,000	2015	\$2,100,000	2015				4
Dalton city	Public Four-Year College	Gignilliat Memorial Education Building						X						30,191	\$8,600,000	2015	\$2,700,000	2015				4
Dalton city	Public Four-Year College	Brown Education Building						X						26,000	\$8,500,000	2015	\$1,900,000	2015				4
Dalton city	Public Four-Year College	Lorberbaum Hall Education Building						X						50,671	\$14,000,000	2015	\$2,500,000	2015				4
Dalton city	Public Four-Year College	Maintenance/Plant Operations Building						X						15,005	\$5,000,000	2015	\$1,900,000	2015				4
Dalton city	Public Four-Year College	Pope Student Center						X						43,722	\$12,800,000	2015	\$3,800,000	2015				4
Dalton city	Public	Roberts Library						X						59,323	\$17,000,000	2015	\$6,700,000	2015				4

**Reporting for Wind Hazard Countywide
All Hazard Scores Greater than Zero**

NOTE: Only completed facilities will be reported

Government Jurisdiction	Type	Name or Structure Description	Essential Facility	Transportation System	Lifelines System	High Potential Loss	Haz Mat Facility	Important Facility	Vulnerable Population	Economic Assets	Special Considerations	Historic Considerations	Other	Size of Bldg. (sq. ft.)	Replace Value (\$)	Replace Value Year	Contents Value	Contents Value Year	Functional Value	Displace Cost (\$per day)	Occupancy	Hazard Score
Dalton city	Public Four-Year College	BJ Bandy Gymnasium						X						29,411	\$8,000,000	2015	\$2,100,000	2015				4
Dalton city	Public Four-Year College	Gignilliat Memorial Education Building						X						30,191	\$8,600,000	2015	\$2,700,000	2015				4
Dalton city	Public Four-Year College	Brown Education Building						X						26,000	\$8,500,000	2015	\$1,900,000	2015				4
Dalton city	Public Four-Year College	Lorberbaum Hall Education Building						X						50,671	\$14,000,000	2015	\$2,500,000	2015				4
Dalton city	Public Four-Year College	Maintenance/Plant Operations Building						X						15,005	\$5,000,000	2015	\$1,900,000	2015				4
Dalton city	Public Four-Year College	Pope Student Center						X						43,722	\$12,800,000	2015	\$3,800,000	2015				4

