The Auburn University Disaster Resistant University Hazard Mitigation Plan

2016

Approvable Pending Adoption Draft

June 20, 2016

WITT | O'BRIEN'S

Table of Contents

Section 01
Executive Summary

Contents of this Section

1.1 Overview

On October 30, 2000, the President signed into law the Disaster Mitigation Act of 2000, also known as DMA 2000. Among its other features, DMA 2000 established a requirement that in order to be eligible to receive federal disaster assistance and grant funds, local and state governments must develop and adopt hazard mitigation plans. On February 26, 2002, the Federal Emergency Management Agency (FEMA) published an Interim Final Rule (IFR) that set forth the guidance and regulations under which such plans are supposed to be developed. The IFR provides detailed descriptions of both the planning process that states and localities are required to observe and the contents of the plan that emerges. In October 2011, FEMA issued the *Local Mitigation Plan Review Guide,* which became effective October 01, 2012. In March 2013, FEMA issued the *Local Mitigation Planning Handbook,* which was effective immediately upon publication.

The FEMA document *Building a Disaster Resistant University* (FEMA 443, August 2003) closely follows the FEMA mitigation planning guidance for local communities, and encourages coordinative efforts among University resources, community stakeholders, local, state and federal government entities, nonprofit organizations, and private sector entities. The Disaster Resistant University (DRU) is a planning initiative designed to develop campus hazard mitigation plans similar to city and county planning efforts, which promotes the need for campus disaster preparedness, mitigation, response, and recovery activities. *The Auburn University Disaster Resistant University Hazard Mitigation Plan* (the Plan) responds to those requirements and guidance.

Hazard mitigation is often defined as actions taken to reduce the effects of natural hazards on a place and its population. Auburn University (Auburn) decided to develop this plan because of

continued awareness and understanding that natural hazards have the potential to affect people, physical assets, and operations within the Auburn Campus and other University holdings.

Contact information for the Plan is:

Mr. Robert Mann
Planner, Emergency Management
Department of Public Safety & Security
Auburn University
543 West Magnolia Avenue
Auburn, Alabama 36849-5325
334.844.2237
ram0012@auburn.edu

The purpose of a mitigation plan is to rationalize the process of determining appropriate hazard mitigation actions. The document includes a detailed characterization of natural hazards that can affect Auburn, a risk and vulnerability assessment that describes potential losses to physical assets, people, and operations, a mitigation strategy that guides campus mitigation activities, and a detailed plan for implementing and monitoring the Plan. In accordance with federal planning requirements, this Plan also includes details and supporting documentation illustrating the process by which the Plan was developed.

The Plan focuses on thirteen (13) natural hazards determined to have the potential to damage physical assets, people, and operations at Auburn University. These hazards are:

1. Communicable disease/pandemic
2. Drought
3. Earthquake
4. Extreme temperature
5. Flood
6. Hail
7. High wind
8. Lightning
9. Severe thunderstorm
10. Sinkhole/land subsidence
11. Tornado
12. Wildfire
13. Winter storm

Both the risk assessment and mitigation strategy sections reflect these hazards, which were the result of careful consideration by the Auburn DRU Advisory Committee.

1.2 Organization of the Plan

The Plan is organized to parallel the structure provided in the IFR. The Plan has seven primary sections and several appendices.

Section 1	Executive Summary
Section 2	University Profile
Section 3	Planning Process
Section 4	Hazard Identification & Risk Assessment
Section 5	Capability Assessment & Future Development
Section 6	Mitigation Strategy
Section 7	Plan Monitoring & Maintenance
Appendices A-E	

There are references to the IFR throughout the Plan. Where possible, these provide specific section and subsection notations to aid the review process.

1.3 Hazards and Risks

Sections 3 and 4 of this Plan includes detailed descriptions of the process that was used to assess and prioritize Auburn's risks from natural hazards, qualitative risk assessments for the main Auburn campus as a whole, and more detailed assessments for certain asset classes. Eighteen (18) hazards were considered by the Advisory Committee for potential inclusion in this Plan. This list was discussed and reviewed by the Advisory Committee. After review and discussion, the Committee determined that thirteen (13) of these hazards posed measureable risks to Auburn, and should be included in this Plan. These are:

1. Communicable disease/pandemic
2. Drought
3. Earthquake
4. Extreme temperature
5. Flood
6. Hail
7. High wind
8. Lightning
9. Severe thunderstorm
10. Sinkhole/land subsidence
11. Tornado
12. Wildfire
13. Winter storm

For each of these hazards, the profiles in Section 4 include:

- Description
- Location
- Extent and severity
- Potential impact to life, property, and operations
- Historic occurrences
- Probability of a future occurrence

A risk calculation is a FEMA requirement. Risk is a numerical indication of potential future damages. Although the range of events from winter weather to drought all have some potential to affect the Auburn main campus, thirteen (13) hazards were singled out for assessment, based on history and the experience of the Advisory Committee members. All hazards profiled received a qualitative risk assessment. Additional discussion, and consideration of the best data available, identified four (4) hazards to receive an additional quantitative risk assessment: flood, high wind, tornado, and winter storm.

These four (4) specific hazards were selected for much more detailed assessments and estimations of future damages. Section 4 includes details about the calculation methodologies and updated results of the campus wide risk and vulnerability assessment; these results are represented in Table 1 (below and following).

Risk Assessment Summary					
Hazard	**Risk to People / Life Safety**	**Risk to Assets /Buildings**	**Risk to Infrastructure**	**Risk to the Mission of the University**	**Average Risk Ranking**
Communicable disease/ pandemic	2.18 Moderate	1.00 Low	1.32 Low	2.06 Moderate	1.64 Low-Moderate
Drought	1.00 Low	1.21 Low	1.32 Low	1.28 Low	1.20 Low
Earthquake	1.13 Low	1.38 Low	1.38 Low	1.47 Low	1.34 Low
Extreme temperature	1.26 Low	1.25 Low	1.28 Low	1.50 Low-Moderate	1.32 Low
Flood	1.50 Low-Moderate	1.88 Low-Moderate	1.72 Low-Moderate	1.85 Low-Moderate	1.74 Low-Moderate
Hail	1.24 Low	1.31 Low	1.23 Low	1.24 Low	1.25 Low
High wind	1.82 Low-Moderate	2.19 Moderate	2.00 Moderate	2.21 Moderate	2.05 Moderate

Risk Assessment Summary					
Hazard	**Risk to People / Life Safety**	**Risk to Assets /Buildings**	**Risk to Infrastructure**	**Risk to the Mission of the University**	**Average Risk Ranking**
Lightning	1.47 Low	1.38 Low	1.47 Low	1.28 Low	1.40 Low
Severe thunderstorm	1.25 Low	1.46 Low	1.30 Low	1.34 Low	1.34 Low
Sinkhole/land subsidence	1.00 Low	1.20 Low	1.20 Low	1.31 Low	1.18 Low
Tornado	2.09 Moderate	2.41 Moderate	2.31 Moderate	2.38 Moderate	2.30 Moderate
Wildfire	1.03 Low	1.22 Low	1.22 Low	1.37 Low	1.21 Low
Winter storm	1.21 Low	1.47 Low	1.63 Low-Moderate	2.00 Moderate	1.57 Low-Moderate

Table 1

1.4 Capability Assessment & Future Development

Section 5 of this Plan describes Auburn's capabilities for undertaking and implementing mitigation actions, and discusses the known future development planned for the campus.

1.5 Mitigation Strategy

Section 6 of this Plan describes Auburn's priorities for mitigation actions. The section divides the actions by priority, and describes the estimated funding required, sources of funding, the level of support, and the proposed timing of the action. The section also includes Auburn's hazard mitigation goals and objectives.

1.6 Planning Process

Section 3 provides details about the process that was used to develop this Plan. The process closely followed the guidance in the *FEMA 386* series of planning guidance, which recommend a four-stage process for developing mitigation plans.

- Step 1: Organize resources
- Step 2: Assess risks
- Step 3: Develop a mitigation plan
- Step 4: Implement the plan and monitor progress

Step 1, organizing resources, is described in Section 3 (Planning Process). The section includes details about who was involved, the processes that were used to establish leadership and advisory groups, and public and other outreach and involvement efforts.

Step 2, the risk assessment, was completed by the DRU Advisory Committee. The Risk Assessment is included as Section 4 of the Plan, and includes a Hazard Identification discussion for each hazard.

Step 3, development of the Mitigation Plan, is described in Section 3 (Planning Process) and Section 6 (Mitigation Strategy). Section 3 includes details about who was involved, the processes that were used, and the products that were developed. Section 6 includes specific details about the identification and development of the mitigation strategy based upon Section 4 (Hazard Identification & Risk Assessment) and Section 5 (Capability Assessment & Future Development).

Step 4, implementing the Plan, is described in the Mitigation Strategy in Section 6, which includes details about who is responsible for implementation of specific strategies and actions; and in Section 7, the Plan Monitoring & Maintenance section, which describes long-term implementation through periodic updates and reviews.

1.7 Approval

Note to Reviewers: These dates will be filled in once the actions have been completed.

The DRU Advisory Committee was responsible for recommending plan approval to the President of Auburn University (the President) and the Board of Trustees (the Board). Following approval, the Plan was submitted to the Alabama Emergency Management Agency (AEMA) and FEMA Region IV. AEMA and FEMA reviewed and found the plan to be Approvable Pending Adoption. Consistent with that APA approval, the President approved this Disaster Resistant University Plan on {Insert DATE}. Documentation was submitted to AEMA and FEMA, who formally approved the Plan on {Insert Date}.

1.8 Implementation

The implementation process is described as part of the specific actions in the Mitigation Strategy in Section 6 and the Plan Monitoring & Maintenance process described in Section 7.

1.9 Monitoring and Updating the Plan

Section 7 (Plan Monitoring &Maintenance) describes the schedule and procedures for ensuring that the Plan stays current. The section identifies when the Plan must be updated, who is responsible for

monitoring the Plan, and ensuring that the update procedures are implemented. This section provides a combination of cyclical dates (oriented to FEMA requirements) and triggering events that will initiate amendments and updates to the Plan.

The Auburn University Associate Director for Emergency Management is responsible for monitoring the Plan and initiating the update process. The point of contact at Auburn is:

Mr. Chance Corbett
Associate Director, Emergency Management
Department of Public Safety & Security
Auburn University
543 West Magnolia Avenue
Auburn, Alabama 36849-5325
334.844.4808
ccorbett.cem@auburn.edu

1.10 Federal Planning Requirements

According to the federal rules describing the Disaster Mitigation Act of 2000 (FR 8848, Feb. 26, 2002, as amended at 67 FR 61515, Oct. 1, 2002), "The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards." Local plans serve "as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the state to provide technical assistance and to prioritize project funding."

Relevant federal planning requirements include establishing minimum standards for grant program eligibility and outlining a planning process.

Grant Program Eligibility

The various federal mitigation grant programs and their planning requirements are listed below:

Hazard Mitigation Grant Program (HMGP)
According to 44 CFR §201.3, " For disasters declared after November 1, 2004, a local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants."

Pre-Disaster Mitigation (PDM)
According to 44 CFR §203, " By November 1, 2003, local governments must have a mitigation plan approved pursuant to this section in order to receive a project grant through the PDM program, authorized under Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5133. PDM planning grants will continue to be made available to all local governments after this time to enable them to meet the requirements of this section."

Flood Mitigation Assistance (FMA)
According to 44 CFR §78.4, " To be eligible for Project Grants, an eligible applicant will develop, and have approved by the FEMA Regional Director, a Flood Mitigation Plan in accordance with §78.5."

Public Assistance (PA)
State and local governments are eligible to receive assistance in the *emergency* categories of the PA program (Categories A and B). However, an approved state hazard mitigation plan is required for any applicant, state or local, to be eligible to obtain funding assistance for any categories of "permanent work" under the FEMA Public Assistance Program [Categories C through G].

According to 44 CFR §206.226, " In order to receive assistance under this section, as of November 1, 2004 (subject to 44 CFR 201.4(a)(2)), the state must have in place a FEMA approved State Hazard Mitigation Plan Update in accordance with 44 CFR part 201."

Planning Process Requirements

The process used to develop this Plan for Auburn is consistent with the requirements defined in the Interim Final Rule and 44 CFR, §201.6.

Section 02
University Profile

Contents of this Section

2.1 Introduction

The recommendations and findings in the Auburn University Disaster Resistant University Hazard Mitigation Plan (the Plan) are based in large part on identification of past and potential problems due to natural hazards. As part of the process of identifying potential problems, it is useful to understand the physical and social characteristics of the Auburn University campus. It is also important to understand any related planning efforts by Lee County and the State of Alabama's Emergency Management Agency (AEMA).

History

The East Alabama Male College was chartered in 1856, and opened its doors in 1859 as an all-male liberal arts educational institution. The college was closed from 1861 to 1866, due to the Civil War. From its inception, the college had an affiliation with the Methodist Church. Due to a dire financial situation, however, the church transferred legal control of the college to the State of Alabama in 1872, making it the first land-grant college in the former Confederacy to be established separate from the state university. After the transfer, the name was changed to the Agricultural and Mechanical College of Alabama.[1]

The Morrill Act established funding for land-grant colleges for the purpose of "without excluding other scientific and classical studies and including military tactic, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professional in life."[2] Auburn University received this designation in 1872, under the name Agricultural and Mechanical College of Alabama.[3]

Beginning in 1892, Auburn University began admitting women, thus making Auburn the oldest coeducational university in the state of Alabama and the second oldest in the Southeast. In 1899, the institution changed names again, to Alabama Polytechnic Institute. In 1960, the university finally adopted its current moniker – Auburn University.[4]

Today, Auburn University contains thirteen (13) colleges and schools:

- College of Agriculture (1872)
- Samuel Ginn College of Engineering (1872)
- Graduate School (1872)
- James Harrison School of Pharmacy (1885)
- College of Veterinary Medicine (1907)
- College of Architecture, Design, & Construction (1907)
- College of Education (1915)
- College of Human Sciences (1916)
- College of Business (1967)
- School of Nursing (1979)
- School of Forestry and Wildlife Sciences (1984)
- College of Sciences and Mathematics (1986)
- College of Liberal Arts (1986)[5]

Today, Auburn University is among a handful of American universities designated as a land-grant, sea-grant, and space-grant research center.[6]

Governance

Since 1920, Auburn University has been governed by a Board of Trustees, presided over by the Governor of Alabama. Currently comprised of fourteen members (including the Governor, who serves as President of the Board) the Board serves as the University's governing body.[7]

The University's executive office is overseen by the University President. Executive staff, such as the Chancellor, the Provost, and various vice presidents, report to the University President. Other governing bodies at Auburn University include the Administrative & Professional Assembly, the Student Government Association, the University Senate, and the University Staff Council.[8]

Vision & Mission

Auburn University's current Vision & Mission statement was approved by the Board of Trustees in 1997, and amended in 2004. The statement says in part:

> Auburn University's mission is defined by its land-grant traditions of service and access. The University will serve the citizens of the State through its instructional, research and outreach programs and prepare Alabamians to respond successfully to the challenges of a global economy. The University will provide traditional and non-traditional students broad access to the institution's educational resources. In the delivery of educational programs on campus and beyond, the University will draw heavily upon the new instructional and outreach technologies available in the emerging information age.
>
> As a comprehensive university, Auburn University is committed to offering high-quality undergraduate, graduate, and professional education to its students. The University will give highest priority for resource allocation for the future development of those areas that represent the traditional strengths, quality, reputation, and uniqueness of the institution and that continue to

effectively respond to the needs of students and other constituents. Consistent with this commitment, the University will emphasize a broad and superior undergraduate education that imparts the knowledge, skills, and values so essential to educated and responsible citizens. At the same time, the University will provide high-quality graduate and professional programs in areas of need and importance to the state and beyond. To accomplish these educational goals, Auburn University will continue to compete nationally to attract a faculty distinguished by its commitment to teaching and by its achievements in research, both pure and applied. The University will strive to attract a faculty that will bring distinction and stature to the undergraduate, graduate and professional programs offered by the University.

Because research is essential to the mission of a land-grant university, Auburn University will continue development of its research programs. The primary focus of this research will be directed to the solution of problems and the development of knowledge and technology important to the state and nation and to the quality of life of Alabama citizens. The University's research programs will make important contributions to instructional programs through the involvement of graduate and undergraduate students and the renewal of the faculty. Research will also provide the knowledge base for outreach programs. In carrying out its research mission, the University will emphasize established areas of strength and will focus available resources in those areas of research and doctoral study that are, or have the potential to develop into nationally and internationally recognized centers of excellence. Extension and outreach programs are fundamental to the land-grant mission because these programs directly affect the lives of all citizens in the state. The University will maintain the strengths of its traditional outreach programs and will increasingly involve the broader University in outreach programs that respond to the changing needs of the society in which we live. The University will continue to seek new and innovative ways to reach out to the people it serves.[9]

2.2 Location, Climate, and Population of Auburn University

Location

Auburn, AL is a small university town located in eastern Alabama, approximately 50 miles east of Montgomery, the state capital, and 115 miles southwest of Atlanta.[10] The city of Auburn has a population of approximately 60,000 people, according to the 2014 US Census Bureau estimate.[11]

Auburn University is situated on approximately 1,841 acres, largely within the city of Auburn, AL. *Figure 1* (following) illustrates the location of the campus in relation to the larger community.[12]

Figure 1

Climate and Topography

According to the *Lee County, Alabama Natural Hazards Mitigation Plan*, Auburn typically experiences long, warm summers and short, mild winters. The annual mean temperature is approximately 65 degrees Fahrenheit. The average annual precipitation is approximately 55 inches.

The natural resources in the area include water, forest, clay, sand, and gravel. A large network of creeks and lakes, as well as the Chattahoochee River, form a larger watershed in the eastern portion of the area. The western portion of the area are drained by the Saugahatchee and Chewala creeks, which flow into the Tallapoosa River.[13]

Population

Student Population

For the 2015-2016 academic year, total enrollment for the University was 27,287 students, broken down as follows:

Auburn University Student Count	
Category	**Count**
Total enrollment	27,287
Undergraduate students	21,786
Graduate students	4,398
Professional students	1,103

Table 1

For the 2015-2016 academic year, the male to female student ratio is evenly split 50/50.[14]

Employee Population
As of September 2015, Auburn University employed 12,062 people, in the following classifications[15]:

Auburn University Employee Count	
Category	**Count**
Full-time 9 month faculty	891
Full-time biweekly employees	1,444
Full-time 12 month faculty	348
Full-time 12 month employees	2,202
Graduate assistants	1,980
Part-time 9 month faculty	163
Part-time biweekly employees	235
Part-time 12 month faculty	22
Part-time 12 month employees	39
Student workers (graduate and undergraduate)	3,264
Temporary employment service	1,326
Workstudy students	148
Total	12,062

Table 2

The student/faculty ratio at Auburn University is 18:1. 93% of the faculty at the University has a terminal degree; 205 faculty members are classified as minorities.[16]

2.3 Transportation

According to the *Lee County, Alabama Natural Hazard Mitigation Plan,* the county is bisected by Interstate 85, and lies center between the capital cities of both Alabama and Georgia. There are 984 miles of paved roads and 424 miles of unpaved roads in the area. The area is served by freight rail through the Norfolk Southern and Seaboard railroads.[17]

Auburn University has a variety of transportation options available to both campus users and to the community at large. Tiger Transit is a free transit service to all University students and employees

for all campus routes. The service generally runs from 7:00 until 17:00 when classes are in session.[18] The service is also available to the general public on a demand basis. Trips may also be scheduled in advance, such as for medical appointments. Fares for the public are based on service and distance.[19]

Other transit offerings on the Auburn campus include the Campus Security Shuttle, which offers rides from and to any on-campus location from 18:00 to 7:00 each day (except for evening football games and University holidays). Night Transit runs to all external Tiger Transit destinations each weekday evening from 18:15 to 22:00. In addition, biking is encouraged on the campus, and students and employees may bring a personal vehicle, but must register their vehicle with parking services.[20]

Jordan-Hare Stadium

For approximately six Saturdays each fall, Jordan-Hare Stadium becomes the fifth-largest city in the State of Alabama. Situated in the heart of the Auburn University campus, Jordan-Hare is the 10th largest on-campus football stadium. When filled to capacity, as it often is, the stadium seats 87,451, not including several hundred players, coaches, and athletic staff.[21]

Home football games on the Auburn University campus significantly increase the number of campus users and the amount of traffic on the campus. Because of this, many campus roads are closed to vehicular traffic several hours prior to kickoff, and special parking rules are placed in effect for several hours before and after each game. For some games, such as the annual Iron Bowl, those special rules are in effect for several days prior to the start of the game.[22] Figure 2 (following) provides an illustration of the changes to parking, traffic, and pathways for pedestrians on Gamedays.[23]


AUBURN GAMEDAY MAP
PARKING & ENTRY
CO(F4) - Cars Only (FREE) - Friday at 4pm **
CRVT (T2) - Cars/RVs (FREE) - Tailgating Allowed / Thursday at 2pm **
CRVT (F4) - Cars/RVs (FREE) - Tailgating Allowed / Friday at 4pm **
COT(F4) - Cars Only (FREE) - Tailgating Allowed / Friday at 4pm **
CO(S8) - Cars Only (FREE) Saturday at 8am
TUF PREMIUM PARKING
PERMIT PARKING
NO PARKING ON GRASS
ACCESSIBLE PARKING
STUDENT PARKING
PAID CAR PARKING
TAILGATE AT THE PARK
TIGER TRANSIT BUS STOPS
MASS TRANSIT DROP-OFF/PICK-UP
SECURITY BARRIERS:
SECURITY BARRIERS:
NO PARKING:
FANS ON FOOT
Facilities with Open Restrooms
Stadium Tram Routes:
Ticket Sales and Pick-Up
Coca-Cola Tiger Fan Fest
Tailgate Drop-off Location
Tailgate Guys
Alumni Tent
AU Team Shop
Wiggle Woods
Red Diamond Tailgate Show
Recycling Information
Concessions Vendor
ATM Machine
CRVT F4
CRVT F4
CRVT F4
TAP
TAP
CRVT T2
CRVT T2
AUBURN UNIVERSITY BOOKSTORE
AUBGAMEDAY.COM

Figure 2

2.4 Communications

Auburn University has a variety of on-campus communications means, including emergency communications. AU ALERT is the system designated to communicate time-sensitive information to all campus users, and to provide information and direction during potentially dangerous situations. The AU ALERT system is comprised of the following elements:

- Text, voice, and email messages: Emergency alerts are sent to all University email addresses and University-provided cell phones. Students and employees are required to register a phone number.
- Social networking sites: Twitter and Facebook are used as passive notification systems.
- Outdoor warning sirens: There are eight (8) voice/tone sirens on the campus, designed primarily to reach campus users who are outdoors.
- Indoor public address: Some campus buildings have indoor public address systems.
- Building fire alarms: These alarms are used to notify people to evacuate the building in the event of a fire or other emergency.
- Desktop alerting: Emergency alerts are sent directly to University computers, and are prominently displayed on the desktop when issued.
- Cable TV emergency alert system: The University's cable television system is equipped to broadcast messages issued by the National Weather Service and various federal, state, or local emergency management agencies, and can be used to issue University-specific messages.
- Digital displays: Many campus buildings have interior digital displays that can also be used to display emergency alerts and messages.[24]

2.5 Emergency Services

The Clery Act, passed in 1990, requires all colleges and universities who receive federal funding to share information regarding crime on their campus and the campus' efforts to information the public of crime on or around the campus. This information must be provided to the public through the university's annual security report. The Act also requires that colleges and universities must outline specific policies and procedures, including those related to disseminating timely emergency warnings and notifications, options for survivors of sexual assault, domestic violence, and stalking, and campus crime reporting processes.[25] Auburn University issues this annual security and safety report each October.[26]

Many of the emergency services provided on the Auburn University campus are provided in partnership with external agencies. These partnerships allow for robust response capacity and significant redundancy within the emergency services capacity on the campus.

On-campus security authorities are defined by the Clery Act as City of Auburn Police Division officers, Auburn University Department of Public Safety & Security personnel, other individuals who have responsibility for campus security (but who do not work for the Department of Public Safety & Security, including contracted security providers), or officials who have significant responsibility for student and campus activities. The City of Auburn Police Division provides police services for the campus, through a contract with the University. Auburn University does employ a limited number of sworn officers with arrest powers, to assist in University-specific investigations and enforcement of University policies. These officers are not responsible for law enforcement and are not responsible for writing reports, but do have the authority to enforce laws and University policies.

Likewise, Auburn University does not operate an internal fire response service. Rather, fire response and suppression services are provided through a contract with the City of Auburn Fire Division.[27]

Endnotes

[1] Auburn University. *About Auburn University.* Retrieved 01.19.16 from http://www.auburn.edu/main/welcome/aboutauburn.html
[2] 7 U.S.C., §304. Retrieved 01.19.16 from https://www.law.cornell.edu/uscode/text/7/304
[3] Auburn University. *About Auburn University.* Retrieved 01.19.16 from http://www.auburn.edu/main/welcome/aboutauburn.html
[4] Auburn University. *About Auburn University.* Retrieved 01.19.16 from http://www.auburn.edu/main/welcome/aboutauburn.html
[5] Auburn University. *About Auburn University.* Retrieved 01.19.16 from http://www.auburn.edu/main/welcome/aboutauburn.html
[6] Auburn University. *About Auburn University.* Retrieved 01.19.16 from http://www.auburn.edu/main/welcome/aboutauburn.html
[7] Auburn University. *Administration.* Retrieved 01.19.16 from http://www.auburn.edu/administration/
[8] Auburn University. *Administration.* Retrieved 01.19.16 from http://www.auburn.edu/administration/
[9] Auburn University. *Vision and Mission Statement.* Retrieved 01.19.16 from http://www.auburn.edu/main/welcome/visionandmission.html
[10] Auburn University. *About the Area.* Retrieved 01.19.16 from http://www.auburn.edu/main/welcome/abouttheare a.html
[11] US Census Bureau. *State & County Quickfacts: Auburn, AL.* Retrieved 01.19.16 from http://quickfacts.census.gov/qfd/states/01/0103076.html
[12] *Auburn University Comprehensive Campus Master Plan Update 2013.* Print.
[13] *Lee County, Alabama Natural Hazard Mitigation Plan.* 2010. Print.
[14] Auburn University. *Quick Facts.* Retrieved 01.19.16 from http://www.auburn.edu/main/welcome/factsandfigures.html
[15] Auburn University. *Employee Statistics as of 092815.* Print.
[16] Auburn University. *Quick Facts.* Retrieved 01.19.16 from http://www.auburn.edu/main/welcome/factsandfigures.html
[17] *Lee County, Alabama Natural Hazard Mitigation Plan.* 2010. Print.
[18] Auburn University. *Tiger Transit.* Retrieved 01.19.16 from http://www.auburn.edu/administration/parking_transit/transit/index.php
[19] Lee-Russell Council of Governments. *Lee-Russell Public Transit.* Retrieved 01.19.16 from http://www.lrcog.com/LRPT.html

[20] Auburn University. *Transportation.* Retrieved 01.19.16 from http://www.auburn.edu/student_info/student_affairs/AUPA/transportation.php
[21] Auburn University. *Auburn Gameday.* Retrieved 01.19.16 from http://www.auburntigers.com/facilities/jordan_hare_stadium.html
[22] Auburn University. *Auburn Gameday.* Retrieved 01.19.16 from http://www.auburntigers.com/gameday/parkingandtraffic.html
[23] Auburn University. *Auburn Gameday Map.* Retrieved 01.19.16 from http://grfx.cstv.com/photos/schools/aub/sports/m-footbl/auto_pdf/2015-16/misc_non_event/20150819_gameday_map.pdf
[24] Auburn University. *AU Alert.* Retrieved 01.19.16 from https://cws.auburn.edu/aualert/
[25] Clery Center for Security on Campus. *Summary of the Jeanne Clery Act.* Retrieved 01.29.16 from http://clerycenter.org/summary-jeanne-clery-act
[26] Auburn University. *Auburn University Security Reports.* Retrieved 01.19.16 from http://www.auburn.edu/administration/public_safety/campus_safety.html
[27] Auburn University. *Auburn University Main Campus 2014 Annual Security and Fire Safety Report.* 2015. Retrieved 01.19.16 from http://www.auburn.edu/administration/public_safety/documents/Main%20Campus%20Annual%20Security%20&%20Fire%20Safety%20Report%20FINAL.pdf

Section 03
Planning Process

Contents of this Section

3.1 Interim Final Rule Requirements for the Planning Process

*44 CFR, §201.6(*b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:
(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and non-profit interests to be involved in the planning process; and
(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

44 CFR, §201.6(c)(1): [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

3.2 Description of the Plan Development Process

How the Plan was Prepared (Overview)

The *Auburn University Disaster Resistant University Hazard Mitigation Plan* (the Plan) was prepared in accordance with the process established in B*uilding a Disaster Resistant University* (FEMA Publication 433) produced by the Federal Emergency Management Agency (FEMA), FEMA's *How To* Series (FEMA Publication 386), and the requirements of the February 26, 2002 Interim Final Rule (IFR). The process established in FEMA 386 and 433 includes four basic steps.

- **Step 1**: Organize resources
- **Step 2**: Assess risks
- **Step 3**: Develop a mitigation plan
- **Step 4**: Adoption and Implementation

The FEMA Publication *State and Local Mitigation Planning How-to Guides* (FEMA Publication Series 386) was referenced and used extensively for the development of this Plan. This is the main resource FEMA provides to state and local governments for developing hazard mitigation plans and as such the ideas, concepts, and method of this document correspond directly to FEMA 433 without the focus being solely on the University setting. The guidance proved valuable and applicable in almost all circumstances in the development of the Plan.

Step 1: Organize Resources

The Auburn University Emergency Management Division, housed within the Department of Public Safety and Security, was the lead office for the development of the Plan. At the beginning of the process, a consulting firm, Witt O'Brien's, was hired to provide technical support to the University in this process, to facilitate the development of the Plan, to draft all Plan documents, and to work with various local, state, and federal agencies during the review and approval process.

In addition, several individuals from University departments and organizations worked together to develop the Plan. These participants were organized into a group called the Disaster Resistant University (DRU) Advisory Committee. The DRU Advisory Committee is dedicated to protecting the life and safety of students and faculty and University property, as well as to protecting the University's ability to carry out its mission. The duties and responsibilities for this Committee consisted of representing their department or organization's interests, serving as the point of contact for their department or organization, and completing the necessary tasks, including data collection, identification of mitigation actions, and reviewing the Plan products.

The DRU Advisory Committee also identified the hazards that could affect University assets and campus users, and then developed a risk assessment which provided the foundation for everything in this Plan.

The table (Table 1) on the following pages provide details of the membership of the Advisory Committee.

Auburn University Disaster Resistant University Advisory Committee Membership			
Name	**Department / Organization**	**Phone Number**	**Email**
Acker, David	Auburn University, Risk Management & Safety	334.332.5353	daa0002@auburn.edu
Adams, John	Auburn University, Medical Clinic	334.844.6157	john.adams@eamc.org
Brown, Dwayne	Auburn University, Alumni Affairs	334.844.1144	dwaynebrown@auburn.edu
Carpenter, Bennett	East Alabama EMS	334.444.6595	bennett.carpenter@eamc.org
Carroll, Jim	Auburn University, Campus Planning & Space Management	334.703.9607	jcarroll@auburn.edu
Carson, Kathy	Lee County, Emergency Management Agency	334.749.8161	kcarson@leecoema.com
Clardy, Mike	Auburn University, Communications & Marketing	334.844.9999	clardch@auburn.edu
Colswell, Tommy	City of Auburn, Police Division	334.501.3121	tcolswell@auburnalabama.org
Cooper, Cathy	Auburn University, Risk Management & Safety	334.844.4533	coopeca@auburn.edu
Corbett, Chance	Auburn University, Department of Public Safety & Security	334.844.4808	cdc0009@auburn.edu
Eick, Christine	Auburn University, Risk Management & Safety	334.844.4755	eickchr@auburn.edu
Frazier, Kenny	City of Auburn, Police Division	334.501.3131	kfrazier@auburnalabama.org
George, Kelly	Witt O'Brien's, LLC	813.810.5429	kgeorge@wittobriens.com
Helms, John	Auburn University, Office of Information Technology	334.844.9357	helmsjm@auburn.edu
Hensarling, Robert	Auburn University, College of Agriculture	334.844.3596	hensara@auburn.edu
Holley, Jessica	Auburn University, International Programs	334.740.5123	jlh002@auburn.edu
Hoult, Kevin	Auburn University, University Housing & Residence Life	334.844.7705	kjhoo29@auburn.edu
Jordan, Matt	City of Auburn, Fire Division	334.501.3165	mjordan@auburnalabama.org
Kam, Frederick	Auburn University, Medical Clinic	334.740.6575	fred.kam@eamc.org
Kirkus, Asa	Alabama Department of Transportation	334.241.8590	kirkusa@dot.state.al.us

Auburn University Disaster Resistant University Advisory Committee Membership			
Name	**Department / Organization**	**Phone Number**	**Email**
Koch, Virginia	Auburn University, Residence Life	334.844.3460	virginia.koch@auburn.edu
Langley, Johnny	Lee County, Emergency Management Agency	334.749.8161	jlangley@leecoema.com
Lankford, John	City of Auburn, Fire Division	334.501.3163	jlankford@auburnalabama.org
Littlejohn, Lyn	Auburn University, Department of Public Safety & Security	334.844.8888	ljl2223@auburn.edu
Majors, James	Lee County Sheriff's Office	334.737.7101	jmajors@leecountysheriff.org
Mann, Robert	Auburn University, Department of Public Safety & Security	334.844.2239	ram0012@auburn.edu
Maxwell, Sandra	Witt O'Brien's, LLC	404.964.2935	smaxwell@wittobriens.com
McAllister, Susan	Auburn University, Department of Public Safety & Security	334.703.7255	mccalsm@auburn.edu
McCormick, Karla	Auburn University, Human Resources	334.844.4183	ksm0010@auburn.edu
Ostrowski, Stephanie	Auburn University, College of Veterinary Medicine	334.844.2722	sro0002@auburn.edu
Ramsey, Jeff	City of Auburn, Public Works	334.501.3000	jramsey@auburnalabama.org
Smith, Margaret	Auburn University, Facilities Management	334.703.2359	smithmm@auburn.edu
Steele, Jeff	Auburn University, Athletics	334.750.3129	steelmj@auburn.edu
Tennant, Andy	Auburn University, JCS Museum	334.844.3081	tennawa@auburn.edu
Wallace, Chris	Lee County Sheriff's Office	334.737.7182	cwallace@leecountysheriff.org
Weiss, Deborah	Auburn University, International Programs	334.748.8731	weissds@auburn.edu

Table 1

Meeting Schedule

There were several meetings conducted during the development of the Plan. The meetings focused primarily on the review of work-in-progress for the development of the Plan. Meetings also served as information and data collection sessions, as an opportunity for the members of the Advisory Committee to discuss and debate decisions, and as a format for the Committee to provide direction or guidance to the planning consultants. Additional discussions were held for the plan development activities but are not necessarily listed in the following table (Table 2), as they were not formal meetings of the Committee and may not have been documented.

Plan Development Meeting Summary		
Date	**Meeting**	**Summation**
October 08, 2015	Meeting #1	Plan development kickoff meeting for Advisory Committee; reviewed elements of plan to be developed, and regulatory requirements for plan development; completed hazard identification exercise, to determine hazards to be included/excluded from plan update; discussed Business Impact Analysis, and what each department will be asked to provide for the process.
October 29, 2015	Meeting #2	Plan development work meeting for Advisory Committee; completed qualitative ranking exercise for each hazard; discussed and determined hazards to receive quantitative assessment; reviewed and affirmed proposed mitigation strategy goals with some modifications; provided update on Business Impact Analysis.
December 01, 2015	Meeting #3	Final plan development work meeting for Advisory Committee; reviewed proposed mitigation strategy; discussed, affirmed, or excluded proposed actions; determined new actions to be included in 2015 Update.
January 2016	Work group meetings	Work group reviewed and determined priority and responsibility for actions included in the mitigation strategy.
February 2016	Advisory Committee review and comment	Review draft of plan provided to Advisory Committee for review and comment.
March 3, 2016 – April 15, 2016	Public review and comment	Public and external stakeholder review and comment of draft plan.

Table 2

Appendix B contains documentation for these meetings including agendas, sign-in sheets, invitee lists, presentation materials, and meeting notes where appropriate.

Step 2: Assess Risks

In accordance with mitigation planning practices, as well as the process FEMA established in its guidance, the risk assessment forms the basis for this Plan by quantifying and rationalizing information about how natural hazards affect Auburn's people and assets.

The processes used to complete the hazard identification and risk assessments, and the results of these activities, are described in Section 4 of this Plan. The assessment considered several aspects of the risks of hazards faced by the University:

- The natural hazards that are most likely to affect the planning area;
- How often hazards are expected to impact the planning area;
- The expected severity of the hazards;
- What localized areas are likely to be affected by hazards;
- How Auburn's mission, assets, operations, people, and infrastructure may be impacted by the hazards; and
- The expected future losses if the risk is not mitigated.

Using existing state and local mitigation plans as a guide, the Advisory Committee first identified all natural hazards with the potential to impact the University. Next, based on historic occurrence and institutional knowledge, the committee reduced the initial list of hazards down to thirteen (13) that were considered the most relevant for this type of planning process. These hazards are described in the Hazard Profiling portion of the Plan (Section 4).

As a result of in-depth examination of the characteristics of the reduced list of hazards, the Advisory Committee was able to make qualitative determinations that allowed further refinement of the focus of this Plan. These are considered by the Advisory Committee to represent the predominant risks to the University. Additional discussion determined that some hazards presented more significant risks to the University than others, and that these more significant hazards should receive additional quantitative assessments. For each of these hazards, the consultants performed quantitative risk assessments, i.e. calculations of estimated losses. The results of the risk assessment were also made available to the public during the public presentations. The full process and results of this work is presented in the Risk Assessment portion of this Plan (Section 4).

Further discussion determined that it was in the best interest of the University to limit the planning area to the areas and assets most commonly referred to as the Main Campus, located in Lee County, in Auburn, AL. The inclusion of Auburn's additional land holdings, located in each county of the state, is an extensive undertaking, and will be re-evaluated during future updates to this Plan. The Advisory Committee determined that the inclusion of these additional holdings would be a less daunting undertaking during future updates, once the base Plan was drafted, established, reviewed, approved, and implemented.

Step 3: Develop the Mitigation Plan

As part of their tasking, the consultants reviewed existing plans and documents, considered the results of the risk assessment, and developed a proposed mitigation strategy for review by the Advisory Committee. The Advisory Committee reviewed the proposed goals and objectives of the mitigation strategy, and determined that some minor edits to language were in order. Based on these goals and objectives, specific mitigation actions were affirmed/excluded/developed and

organized into the Mitigation Strategy. The Mitigation Strategy was discussed and validated by the Advisory Committee. The results of these efforts are detailed in Section 6.

Step 4: Adoption and Implementation

The Advisory Committee affirmed the process for on-going monitoring, evaluation, and revisions to the Plan for the next five years. Section 7 details the resulting monitoring, evaluation, and plan update procedures.

Finally, the Advisory Committee recommended the Plan for adoption by the University President and the Board of Trustees. A copy of the approval resolution may be found in Appendix A.

3.3 Involvement by the Public and Other Interested Parties

During the development of this Plan, outside stakeholders were involved through requesting their participation in at least three Committee meetings. Those participants are listed in Table 1. Their information also appear on the sign-in sheets for various Committee meetings. In addition, some external stakeholders were asked to provide specific data or documentation to be included in this Plan.

The general public and the University community were invited to comment on the review and final drafts of the Plan. The first opportunity for the public to comment came prior to the draft Plan's submission to AEMA and FEMA, in March and April 2016. The draft plan was made available via a link on Auburn's website, with an email address provided should any person wish to submit comments or suggestions. The public was afforded a second opportunity to comment in June 2016, this time on the final plan, and prior to the Advisory Committee's recommendation to the University President that the Plan be adopted.

After each of these public comment periods, the Advisory Committee was presented with the comments submitted by the public. The Advisory Committee reviewed the comments, and determined which, if any, should be acted upon. The Committee's decision was given to the consultant for action.

Notices for these public comment periods were posted on Auburn's website. Copies of these notices can be found in Appendix C.

In addition, adjacent jurisdictions and other interested parties were contacted when the Draft and Final Plans were available for review prior to adoption by Auburn University. These outside stakeholders were invited to provide comment and feedback on the content of the Plan, prior to its final approval.

3.4 Review and Incorporation of Plans, Studies, Reports, and Other Information

Federal Government

Selected key federal sources of information and pre-existing planning work are presented in Table 3 (below).

Federal Plans, Studies, Reports, Websites, and Information Reviewed	
Existing Program/Policy/Technical Documents	**Method of incorporation into the Plan**
FEMA Disaster Declarations database and other general hazard data	Used in hazard identification and risk assessment (HIRA) development and history of loss data for multiple hazards
FEMA/National Flood Insurance Program Flood Maps (Flood Insurance Rate Maps, DFIRMs, Q3data)	Used in development of HIRA, strategies, and mitigation actions
National Oceanic and Atmospheric Administration (NOAA)/National Climatic Data Center (NCDC) database	Used in development of history and description of major hazard events for multiple hazards
US Department of Agriculture, Wildfire Hazard Potential	Used in development of HIRA, strategies and mitigation actions
US Centers for Disease Control and Prevention	Used in development of HIRA, strategies and mitigation actions
US Geological Survey	Used in development of HIRA, strategies and mitigation actions
National Park Service, National Registry of Historic Places	Used in development of asset data and GIS products

Table 3

State of Alabama

Alabama State Hazard Mitigation Plan Update (2013)

The State Hazard Mitigation Plan (SHMP) is the demonstration of the State of Alabama's commitment to reduce risks from natural hazards and serves as a guide for both state and local decision makers as they commit resources to reducing the effects of natural hazards on lives and property. It is designed to outline a strategy to reduce risks from natural hazards in Alabama, and to aid state and local emergency management officials in developing hazard and risk reduction programs.

The State of Alabama uses the SHMP as a way to provide data to local and regional governments to support their mitigation planning processes, and to provide guidance on best practices. The statewide mitigation strategies, goals, and objectives, methods of incorporating a varied cross section of relevant disciplines, hazard specific information, and specific data sources are present within the SHMP and were utilized in the development of the *Auburn University Disaster Resistant University Hazard Mitigation Plan*.

Auburn University, Lee County, and City of Auburn

The most accurate, relevant, and important information is that which is gathered at the local level. This is because it proves to be very specific and pertinent to the area being analyzed. Because the University, for purposes of this Plan, is a community within the City of Auburn and Lee County, it has the opportunity to analyze and use city and county data to supplement that which has already been recorded by the University. This provides a broader understanding of risk while allowing for the opportunity to work together with the city and the county in developing sound mitigation strategies to reduce and eliminate overall future risk for the City of Auburn, Lee County, and Auburn University. Specific mitigation actions will sometimes cross jurisdictional boundaries and by working with the city and county, the most cost effective and feasible actions can be considered for implementation.

Selected key local sources of information and pre-existing planning work are presented in Table 4 (below).

Municipal, County, and University Data and Documents Reviewed	
Existing Program/Policy/Technical Documents	**Method of incorporation into the Plan**
Lee County Hazard Mitigation Plan	Used in development of hazard identification profiles and mitigation strategy
Auburn University 2013-8 Strategic Plan	Used in development of mitigation strategy and capability assessment
Auburn University Comprehensive Campus Master Plan Update 2013	Used in development of hazard identification profiles, mitigation strategy, and capability assessment
Auburn University Building Data Database	Used in development of risk assessment and mitigation strategy
Auburn University Main Campus 2014 Annual Security and Fire Safety Report	Used in development of campus profile, hazard identification and risk assessment, capability assessment, and mitigation strategy
Various studies, surveys, data sets and reports, prepared for a variety of purposes	Used in development of hazard identification profiles and risk assessments

Table 4

Section 04
Hazard Identification & Risk Assessment

Contents of this Section

4.1 IFR Requirement for the Hazard Identification & Risk Assessment

44 CFR, §201.6(c) Plan content. The plan shall include the following:

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

(i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

(ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:

(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate;

(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

4.2 Hazard Identification & Risk Assessment

In accordance with federal requirements, and as part of its efforts to support and encourage hazard mitigation initiatives, Auburn University has prepared this general assessment of hazards that have the potential to impact Auburn assets and people.

The term *planning area* is used frequently in this section. This term refers primarily to the geographic limits of Auburn's main campus, located in the City of Auburn and Lee County, Alabama. Auburn University has extensive land holdings outside of this main campus. They own and operate facilities throughout the State of Alabama, including the County Extension offices in each county. After consideration, the Advisory Committee determined that this initial planning effort should focus on the main campus, and that the inclusion of assets and holdings located in other areas should be reviewed during future update cycles.

Overview of Hazards

Numerous federal agencies maintain a variety of records regarding losses associated with natural hazards. Unfortunately, no single source is considered to offer a definitive accounting of all losses. The Federal Emergency Management Agency (FEMA) maintains records on federal expenditures associated with declared major disasters. The United States Army Corps of Engineers (USACE) and the Natural Resources Conservation Service (NRCS) collect data on losses during the course of some of their ongoing projects and studies. Additionally, the National Oceanic Atmospheric Administration's (NOAA) National Climatic Data Center (NCDC) database collects and maintains data about natural hazards in summary format. The data includes occurrences, dates, injuries, deaths, and costs.

Unfortunately, historical occurrences are typically documented only at the municipal or county level. In all instances, this Plan attempts to utilize local knowledge and University records when describing previous occurrences.

According to the NCDC database, between 1950 and 2015, Lee County experienced almost 400 hazard events[1], including the following:

- At least ten occurrences of extreme temperatures;
- At least 11 winter storms;
- At least 18 flood events;
- At least 104 occurrences of hail;
- At least 30 tornado events; and
- At least 158 wind events.

Lee County has received at least 15 Federal Disaster Declarations since 1961[2]; details can be found in Table 1 (following).

Federal Disaster and Emergency Declarations – Lee County, AL		
Disaster Number	**Date of Declaration**	**Nature of Event**
DR-4176	May 02, 2014	Severe storms, tornadoes, straight-line winds, and flooding
DR-1971	April 28, 2011	Severe storms, tornadoes, straight-line winds, and flooding
EM-3319	April 27, 2011	Severe storms, tornadoes, and straight-line winds
EM-3292	August 30, 2008	Hurricane Gustav
EM-3237	September 10, 2005	Hurricane Katrina Evacuation
DR-1593	July 10, 2005	Hurricane Dennis
DR-1549	September 15, 2004	Hurricane Ivan
DR-1466	May 12, 2003	Severe storms, tornadoes, and flooding
DR-1070	October 04, 1995	Hurricane Opal
EM-3096	March 15, 1993	Severe snowfall, winter storm
DR-619	April 20, 1980	Severe storms, tornadoes, flooding
EM-3045	July 20, 1977	Drought
DR-488	October 02, 1975	Severe storms, tornadoes, flooding
DR-458	March 14, 1975	Severe storms, flooding
EM-3007	January 18, 1975	Tornadoes

Table 1

Hazard Identification Process

In the initial identification process, the Auburn University Advisory Committee catalogued potential hazards to identify those with the highest probability of significantly affecting the main campus. The hazards included those that have occurred in the past and may occur in the future. A variety of sources were used in the investigation. These included national, regional, and local sources such as the *Lee County, Alabama Natural Hazard Mitigation Plan*, the *Alabama State Hazard Mitigation Plan*, websites, published documents, databases, and maps, as well as input from Auburn employees.

For this Plan, the Advisory Committee considered all possible natural hazards, and determined which of those hazards have the potential to impact the Auburn campus. Hazards considered were culled from the *Lee County, Alabama Natural Hazard Mitigation Plan,* the *Alabama State Hazard Mitigation Plan,* FEMA 386, and discussion among the Advisory Committee. Table 2 (below) provides the outcome of this process.

Hazard Identification			
Hazard	**Included in current SHMP?**	**Included in current Lee County Plan?**	**Include in Auburn DRU HMP?**
Communicable disease / pandemic			X
Dam failure	X		
Drought	X	X	X
Earthquake	X	X	X
Extreme temperatures		X	X
Flood	X	X	X
Hail	X	X	X
High winds	X	X	X
Landslides	X		
Lightning	X	X	X
Sea level rise	X		
Severe thunderstorms		X	X
Sinkholes & land subsidence	X	X	X
Tornadoes		X	X
Tropical depression/tropical storms/hurricanes		X	
Tsunami	X		
Wildfire	X	X	X
Winter storm	X	X	X

Table 2

The Advisory Committee conducted a hazard identification exercise, in which they reviewed and discussed each hazard identified in the above table. Discussion centered on the impact the hazard could have, past occurrences of the hazard, the likelihood of the hazard occurring in the future, the particular populations or assets that would be susceptible to damage or harm from the hazard, and the likelihood that they hazard would pose a threat to the University's mission. After lively discussion and debate, the preceding thirteen (13) hazards were selected for inclusion in the Plan by the Advisory Committee. The other hazards that were considered during the hazard identification exercise were determined to pose no threat to Auburn's people or assets, and are not discussed in this Plan.

Asset Identification

The asset inventory was based on information provided by Auburn University, specifically Facilities Management and the Department of Public Safety & Security. Federal and other non-University owned/operated assets were not included in this inventory. More than 400 assets were initially identified for this inventory; that figure was later reduced to 227 assets, once these non-University assets were eliminated. These 227 assets have a combined value of $2,320,032,141.[1] Details of these assets may be found in Appendix D (*Tabular Data*).

Hazard Profiles

Hazard profiles include the following discussions:

- Description of the hazard
- Location of the hazard
- Extent/severity of the hazard
- Impact on life, property, and operations
- Occurrences of the hazard
- Probability of future occurrences of the hazard

In order to determine the probability of future occurrences of each hazard profiled, the following scale was developed:

> **Low** indicates that the hazard occurs an average of less than once every five years, and has resulted or is anticipated to result in contained or minimal damage.
> **Moderate** indicates that the hazard has occurred or is occurring with some regularity (at least once in five years), but with limited spatial impacts, and either has or is anticipated to result in moderate or limited damage
> **High** indicates that the hazard regularly occurs annually, and has the potential to impact a widespread area of the jurisdiction.

[1] Note that all valuations used in this Plan are estimates for planning purposes only, and may not be accurate in the event of a real-world incident resulting in damages.

The five year separation points in this scale are based in part on FEMA's mitigation plan update cycle.

Risk Assessment Methodology

Risks can be analyzed as an expression of future losses resulting from the impacts of hazards, when appropriate data is available. However, it is often the case that such data is not available, or that the data that is available is either incomplete, inaccurate, or untrustworthy. For those hazards that were determined to be a significant enough risk to Auburn University that the Committee determined a quantitative assessment should be completed, that assessment was completed using the best available data. Where applicable, actions were included in the Mitigation Strategy to address these data limitations, so that this risk assessment may be expanded in future updates to this Plan.

This Plan uses a risk assessment methodology that is based on the one found in the *Alabama State Hazard Mitigation Plan.* From that plan:

> Although the Final Rule requires that all natural hazards affecting the state must be included in a detailed overview, it is not practical or desirable to perform detailed statewide risk assessment on all these hazards. This is because many of the hazards have little probability of affecting the state, limited data is available for analysis, and/or it is difficult to mitigate their effects. Because of this, the SHMT and FEMA determined that it would be desirable to reduce the initial list of hazards to those that have the most potential for damaging the state or its citizens in the future.
>
> To reduce the overall number of hazards that will be given detailed risk assessment, AEMA developed a rating system that uses the following five criteria to rate each hazard in two categories: relative probability of occurrence and capacity for mitigation. The term "relative" probability of occurrence is used here because the determination is less rigorous than the one used in the full risk assessment. The purpose of this ranking methodology is to rate Alabama risks relative to each other, in order to identify the most significant ones, and concentrate the risk assessment on these. The hazards are given low, medium, or high ratings in the two categories. This method was initially suggested by FEMA Region IV at the SHMT meeting on February 26, 2004. Minor changes were made during the 2013 plan update to the probability of occurrence ranking. The SHMT clarified that hazard occurrences are addressed in terms of significant occurrences.
>
> The criteria used were:
>
> 1. History - High rating indicates that the hazard has affected the state often in the past, and that the hazard has occurred often and/or with widespread or severe consequences.
> 2. Presence of susceptible areas - High rating indicates that the state has numerous facilities, operations, or populations that may be subjected to damage from the hazard.
> 3. Data availability - High rating indicates that sufficient quality data is available to permit an accurate and comprehensive risk assessment.
> 4. Federal disaster declarations - High rating indicates that the state has received numerous disaster declarations for the particular hazard.
> 5. Potential for mitigation - High rating indicates that there are ways to address the hazard, and that the methods are technically feasible and have the potential to be cost-effective (i.e.,

> mitigation measures are available at a reasonable cost, and damages to property, lives, and/or community functions would be reduced or eliminated).
>
> The SHMT determined that hazards with "high" ratings in both the probability and ease of mitigation categories are provided detailed and comprehensive risk assessments in later subsections. Those that received medium or low ratings in either category are not provided detailed risk assessments, but are in some cases included as risks to state-owned facilities, and are also included in mitigation goals, objectives, strategies, and actions. Further, as data and future plans permit, these hazards may be assessed.[3]

Each hazard profiled in this Plan received a qualitative risk assessment. The qualitative damage/loss estimates, using a Low/Moderate/High range, are based upon the Advisory Committee's knowledge of the University community and facilities. Committee members discussed each hazard in depth in terms of potential risk to people (loss of life or injury), risk to facilities and critical facilities (primarily damage to the physical structure), risk to infrastructure (utilities primarily), and risk to the mission of the University (patient care, loss of class time or research). The rankings for each hazard can be found in the *Tabular Data* appendix (Appendix D).

The Advisory Committee drew upon their own knowledge of past events, both at the University as well as events experienced in the surrounding area. The metrics utilized are described below:

Risk to People/Life Safety:

- Low (1) – some injury possible but unlikely
- Moderate (2) – injuries expected, some deaths possible
- High (3) – major injury and several deaths are expected

Risk to Facilities and Critical Facilities

- Low (1) – cosmetic damages to structures, loss of function for less than 1 day
- Moderate (2) – some structural damages, loss of function for 1-2 days
- High (3) – some structures irreparably damaged, loss of function for at least 3-5 days

Risk to Infrastructure

- Low (1) – some systems temporarily down, temporary power loss expected
- Moderate (2) – system failures, utility loss
- High (3) – long-term system damage, long-term power / utility loss

Risk to University Mission

- Low (1) – services / operations suspended or interrupted (less than 1 day)
- Moderate (2) – services / operations temporarily unable to function (2-4 days)
- High (3) – cancellation of services / operations until repairs are made (more than 1 week)

Communicable Disease/Pandemic

Description of the Communicable Disease/Pandemic Hazard
Infectious pathologies are also called communicable diseases or transmissible diseases due to their potential of transmission from one person or species to another by a replicating agent (as opposed to a toxin). An infectious disease is a clinically evident illness resulting from the presence of pathogenic microbial agents, including pathogenic viruses, pathogenic bacteria, fungi, protozoa, multi-cellular parasites, and aberrant proteins known as prions. Transmission of an infectious disease may occur through one or more pathways including physical contact with infected individuals. These infecting agents may also be transmitted through liquids, food, body fluids, contaminated objects, airborne inhalation, or through vector-borne spread.

Transmissible diseases, which occur through contact with an ill person or their secretions, or objects touched by them, are especially infective, and are sometimes referred to as contagious diseases. Infectious (communicable) diseases, which usually require a more specialized route of infection, such as vector transmission, or blood or needle transmission, are usually not regarded as contagious.

The term infectivity describes the ability of an organism to enter, survive and multiply in the host, while the infectiousness of a disease indicates the comparative ease with which the disease is transmitted to other hosts. An infection however, is not synonymous with an infectious disease, as an infection may not cause important clinical symptoms or impair host function.

Examples of communicable or infectious diseases include plague, malaria, tuberculosis, syphilis, hepatitis B, influenza, HIV, and measles.[4]

A pandemic is an epidemic of infectious disease that is spreading through human populations across a large region; for instance a continent, or even worldwide. A widespread endemic disease that is stable in terms of how many people are getting sick from it is not a pandemic. Further, flu pandemics exclude seasonal flu, unless the flu of the season is a pandemic. Throughout history there have been a number of pandemics, such as smallpox, plague, influenza, and tuberculosis. More recent pandemics include the HIV pandemic and the 2009 flu pandemic.

According to the World Health Organization (WHO), a pandemic is happening when the following three conditions are met:

1. Emergence of a disease to a new population;
2. Agents infect humans, causing serious illness; and
3. Agents spread easily and sustainably among humans.[5]

Note that this hazard describes those diseases and pandemics which occur naturally, and does not address any intentional use or weaponization of biologic agents for a purpose.

Location of the Communicable Disease/Pandemic Hazard
The entire planning area is subject to experiencing the communicable disease / pandemic hazard, as the entire planning area is populated by humans.

Extent/Severity of the Communicable Disease / Pandemic Hazard
The extent of the communicable disease/pandemic hazard depends almost entirely on the nature of the particular illness or outbreak, the population that is exposed, and the means by which the illness is spread. Other factors that may influence the extent of the hazard are the speed on onset of the illness (e.g, how quickly it is able to spread from person to person), the morbility rate of the illness (e.g., how many people are infected or become carriers/transmitters of the illness), and the mortality rate of the illness (e.g, the number of people who die from the illness before they can infect others). Because these factors vary significantly from illness to illness, there is no standard scale for extent of communicable disease/pandemic. Rather, illnesses are grouped by levels, based on their rate of infection and the precautions required to prevent further spread.

The US Centers for Disease Control and Prevention (CDC) categorizes various diseases in levels of biohazard. In this scale, Level 1 equates to a minimal risk, and Level 4 describes extreme risk. Table 3 (below and following) illustrates these levels, and provides examples of communicable diseases that would typically fall in to these classifications.

Biohazard Classification Levels		
Level	**Examples**	**Typical Protection**
Biohazard Level I (BSL-I)	*E. Coli* Canine Hepatitis Chicken Pox	Precautions are minimal, most likely involving gloves and some sort of facial protection. Usually, contaminated materials are left in open (but separately indicated) waste receptacles. Decontamination procedures for this level are similar in most respects to modern precautions against everyday viruses (i.e.: washing one's hands with anti-bacterial soap, washing all exposed surfaces of the lab with disinfectants, etc). In a lab environment, all materials used for cell and/or bacteria cultures are decontaminated via autoclave.
Biohazard Level II (BSL-2)	Hepatitis A, B, C Lyme disease Salmonella Mumps Measles Scrapie Dengue Fever HIV	These bacteria and viruses cause mild disease in humans, or are difficult to contract via aerosol. Routine diagnostic work with clinical specimens can be done safely at BSL-2, using BSL- 2 practices and procedures. Research work (including co-cultivation, virus replication studies, or manipulations involving concentrated virus) can be done in a BSL-2 facility, using BSL-3 practices and procedures. Virus production activities, including virus concentrations, require a BSL-3 facility and use of BSL-3 practices and procedures.

Biohazard Classification Levels		
Level	**Examples**	**Typical Protection**
Biohazard Level III (BSL-3)	Anthrax West Nile Virus SARS Virus Smallpox Tuberculosis Typhus Yellow Fever Malaria	These bacteria and viruses cause severe to fatal disease in human, but vaccines or other treatments do exist to combat them. Laboratory personnel have specific training in handling pathogenic and potentially lethal agents, and are supervised by competent scientists who are experienced in working with these agents. This is considered a neutral or warm zone.
Biohazard Level IV (BSL-4)	Bolivian Hemorrhagic Fever H5N1 (Bird Flu) Dengue Hemorrhagic Fever Marburg Virus Ebola Virus Hantaviruses Lassa Fever Crimean-Congo Hemorrhagic Fever Other Hemorrhagic Diseases	These viruses and bacteria cause severe to fatal disease in humans, for which vaccines or other treatments are *not* available. When dealing with biological hazards at this level the use of a Hazmat suit and a self-contained oxygen supply is mandatory. The entrance and exit of a BSL-4 lab will contain multiple showers, a vacuum room, an ultraviolet light room, autonomous detection system, and other safety precautions designed to destroy all traces of the biohazard. Multiple airlocks are employed and are electronically secured to prevent both doors opening at the same time. All air and water service going to and coming from a BSL- 4 lab will undergo similar decontamination procedures to eliminate the possibility of an accidental release. The facility is either in a separate building or in a controlled area within a building, which is completely isolated from all other areas of the building. A specific facility operations manual is prepared or adopted. Building protocols for preventing contamination often use negatively pressurized facilities, which, if compromised, would severely inhibit the containment of an outbreak of aerosol pathogens.

Table 3

The CDC determines the severity of pandemics and communicable disease outbreaks based on a measurement system is known as the Pandemic Severity Index. The index focuses less on how likely a disease will spread worldwide - that is, become a pandemic - and more upon how severe the epidemic actually is. The main criterion used to measure pandemic severity will be case-fatality ratio (CFR), the percentage of deaths out of the total reported cases of the disease.

The analogy of "category" levels was introduced to provide an understandable connection to hurricane classification schemes, with specific reference to the recent aftermath of Hurricane Katrina. Like the Saffir-Simpson Hurricane Scale, the PSI ranges from 1 to 5, with Category 1 pandemics being most mild (equivalent to seasonal flu) and level 5 being reserved for the most

severe "worst-case" scenario pandemics (such as the 1918 Spanish flu). Figures 1 through 4 (below and following) illustrate this severity scale from the CDC.[6]

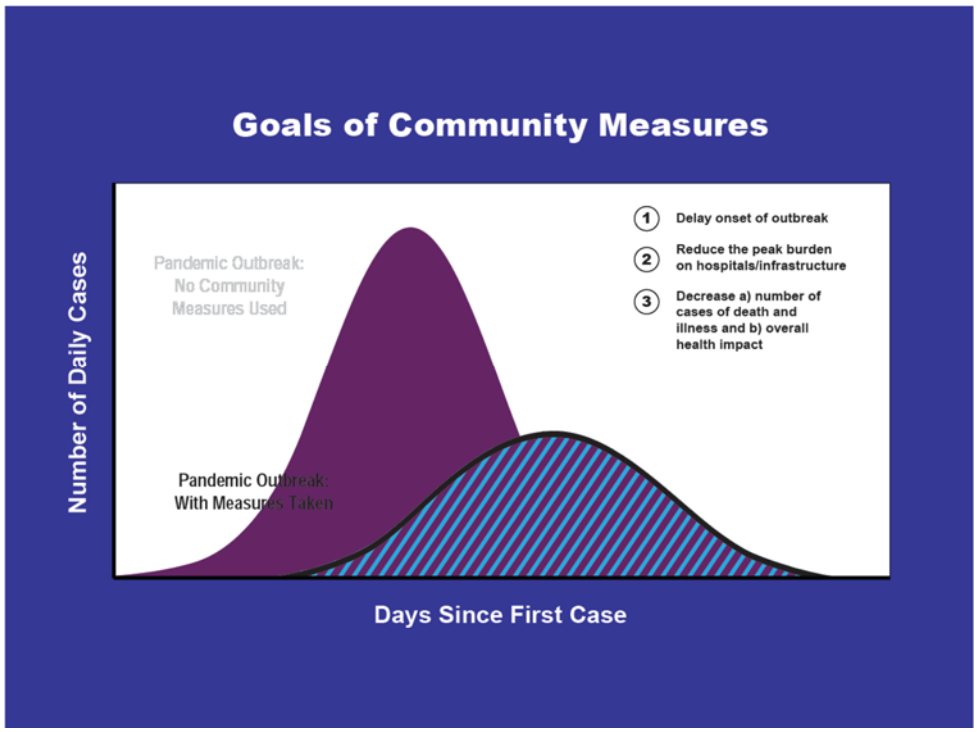


Figure 1

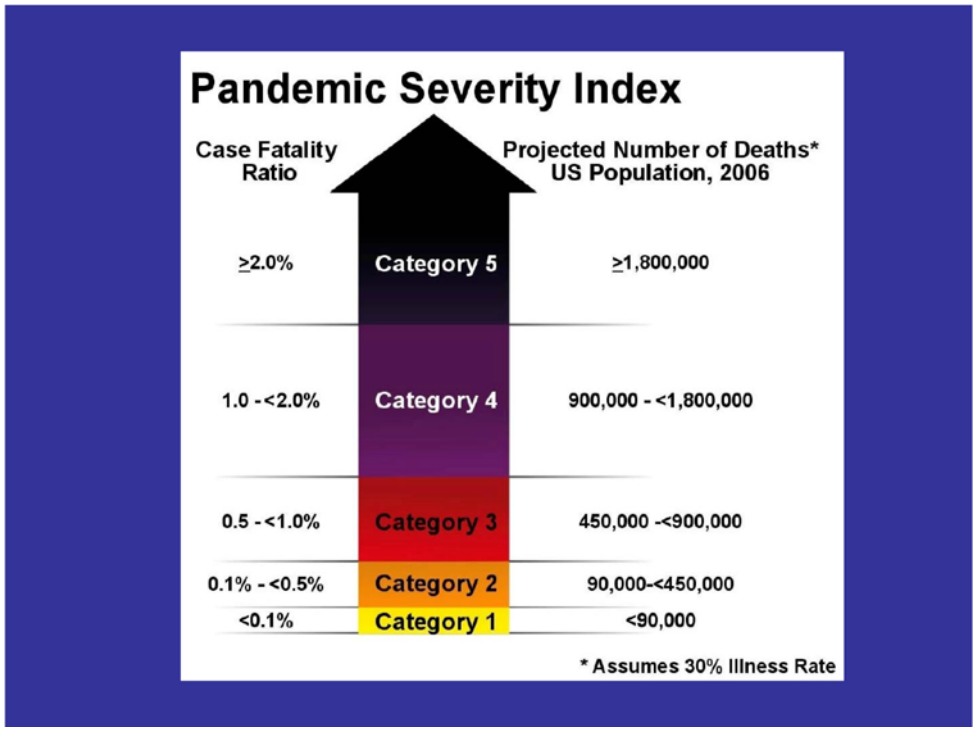
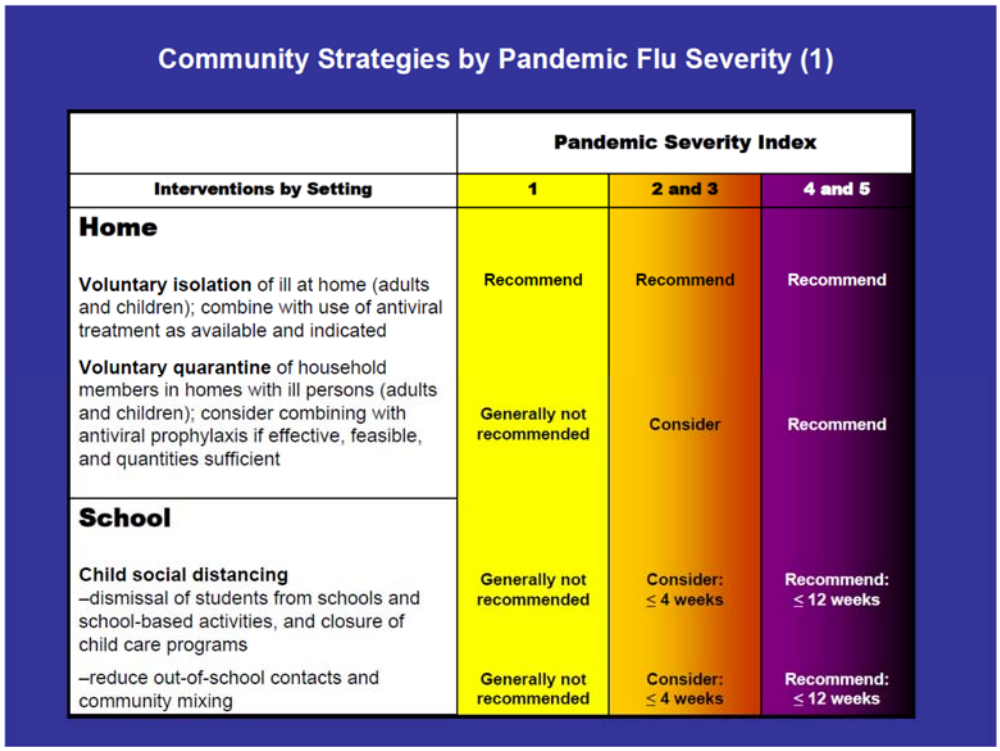


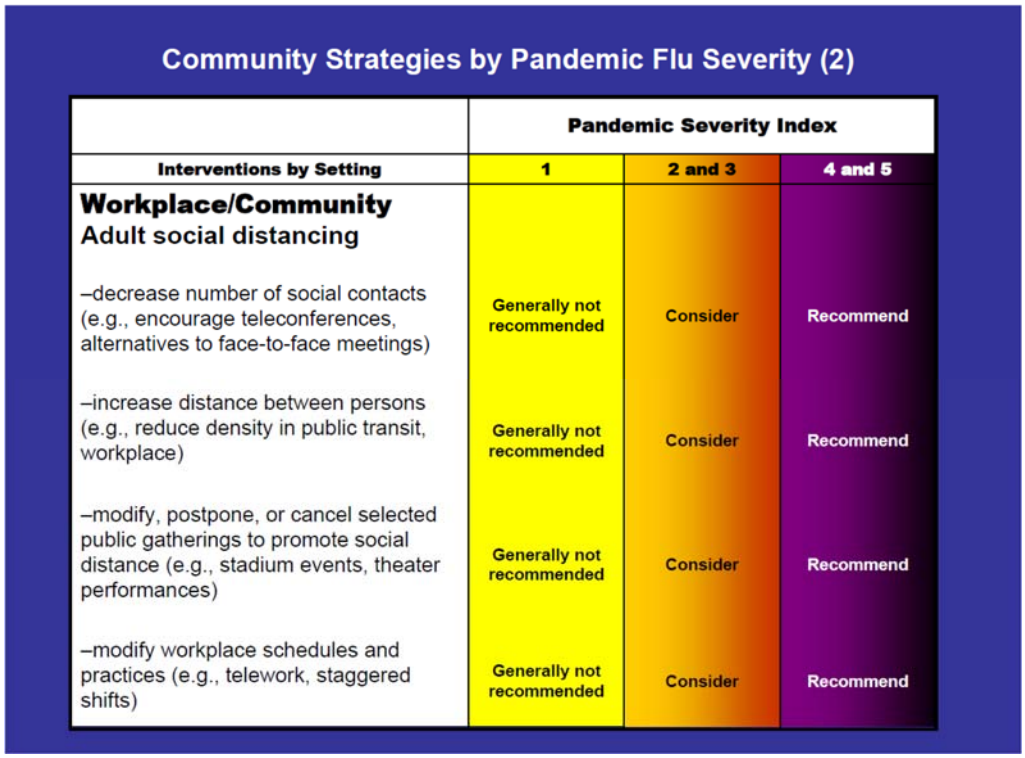
Figure 2



Community Strategies by Pandemic Flu Severity (1)

	Pandemic Severity Index		
Interventions by Setting	**1**	**2 and 3**	**4 and 5**
Home			
Voluntary isolation of ill at home (adults and children); combine with use of antiviral treatment as available and indicated	Recommend	Recommend	Recommend
Voluntary quarantine of household members in homes with ill persons (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient	Generally not recommended	Consider	Recommend
School			
Child social distancing –dismissal of students from schools and school-based activities, and closure of child care programs	Generally not recommended	Consider: ≤ 4 weeks	Recommend: ≤ 12 weeks
–reduce out-of-school contacts and community mixing	Generally not recommended	Consider: ≤ 4 weeks	Recommend: ≤ 12 weeks

Figure 3



Community Strategies by Pandemic Flu Severity (2)

	Pandemic Severity Index		
Interventions by Setting	**1**	**2 and 3**	**4 and 5**
Workplace/Community **Adult social distancing**			
–decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings)	Generally not recommended	Consider	Recommend
–increase distance between persons (e.g., reduce density in public transit, workplace)	Generally not recommended	Consider	Recommend
–modify, postpone, or cancel selected public gatherings to promote social distance (e.g., stadium events, theater performances)	Generally not recommended	Consider	Recommend
–modify workplace schedules and practices (e.g., telework, staggered shifts)	Generally not recommended	Consider	Recommend

Figure 4

Impact on Life, Property, and Operations from the Communicable Disease/Pandemic Hazard
Communicable disease outbreaks and pandemics will have the most immediate impact on life and health safety. The extent of the impact will be contingent on the type of infection or contagion, the severity of the outbreak, and the speed at which it is transmitted. Property and infrastructure could be affected if large portions of the population were affected and unable to perform maintenance and operational tasks, or if the population affected resided in University housing or a residence hall and required quarantine or other mobility restriction. The University's mission could suffer from the communicable disease/pandemic hazard, if, for example, a significant percentage of employees are taken ill, negatively impacting the ability of the University to fulfill its teaching and educational obligations.

Occurrences of the Communicable Disease/Pandemic Hazard
Occurrences of the communicable disease/pandemic hazard are fairly common. In recent history, there have been a number of *E. coli* and S*almonella* outbreaks traced to issues or deficiencies in the nation's food supply, or to particular restaurants or chains. Recent mutations in the influenza virus resulted in the World Health Organization (WHO) declaring H1N1 to be a global pandemic.

The Alabama Department of Public Health (ADPH) is the state agency responsible for tracking and reporting of communicable diseases. The ADPH accomplishes this mission by working with local health districts, including the Lee County Health Department. The ADPH publishes an annual report for the health statistics for each county in the state, including Lee County.

Due to confidentiality requirements, no specific information is available for instances of the communicable disease/pandemic hazard on the main campus of Auburn University. However, some occurrences were reported in the media, and some conclusions can be drawn from larger reporting datasets.

In April and May of 1989, a measles outbreak occurred on the campus, and was reported in *The Free-Lance Star.* Twenty-six (26) people were confirmed to have the illness, out of a population of approximately 19,000. The outbreak was significant enough to cause the ADPH to consider quarantining the campus, though that action never actually occurred. What did occur was the cancellation of classes and the vaccination of approximately 13,000 students.[7] Figure 5 (following) is a photo of some of these students, waiting outside of the Student Health Center, waiting to be vaccinated.[8]

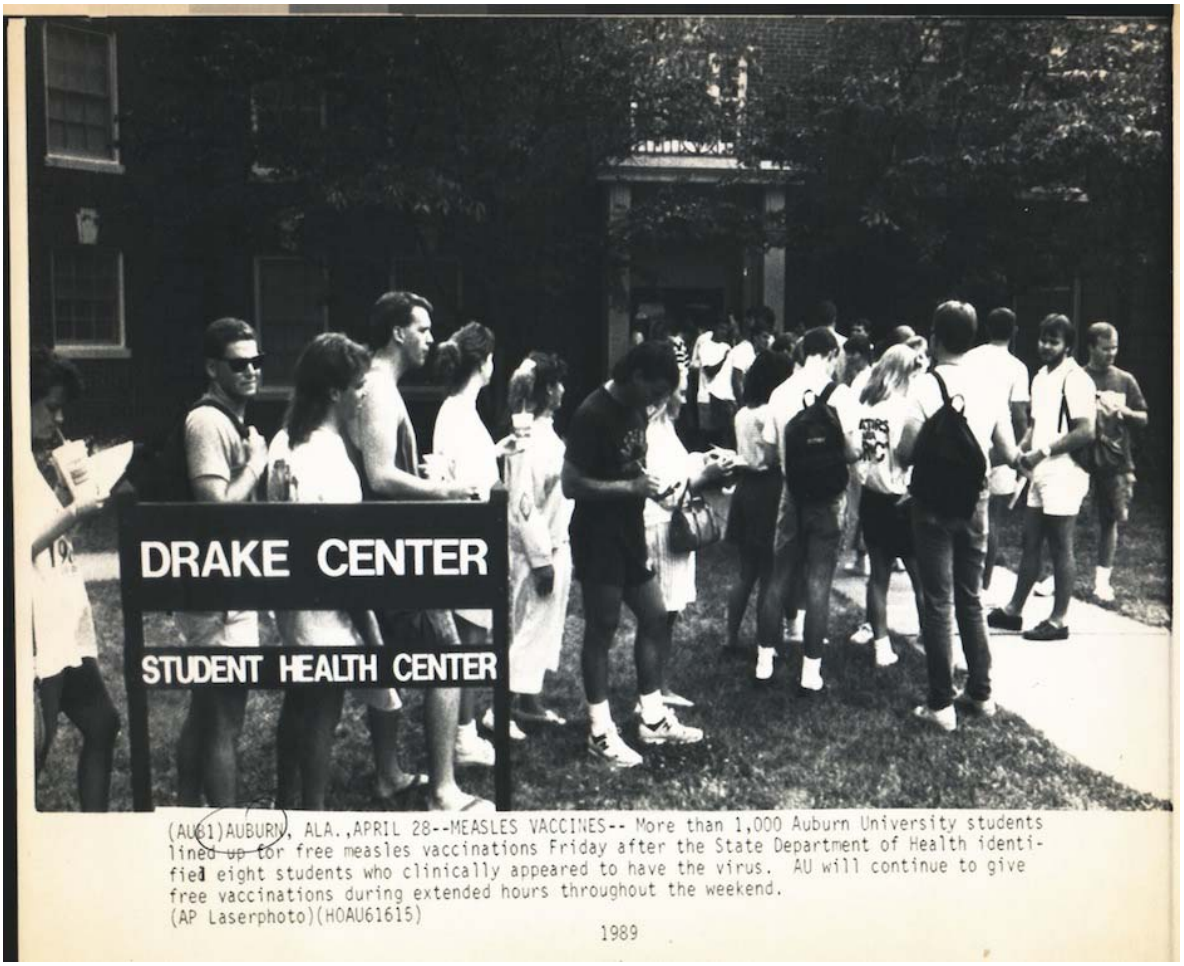


Figure 5

More recently, during the 2009-2010 academic year, the Auburn Medical Clinic treated significant numbers of students for H1N1. From late August to mid-September 2009, the Clinic reported treating an average of 15-20 students per day for H1N1.[9]

Finally, there are some communicable illnesses which require reporting to the Lee County Health Department, who then reports them to the ADPH. While it is not possible to determine how many – if any – of those cases originated on Auburn University's campus, it can be reasonably assumed that it is at least possible that some cases did originate on the campus. Table 4 (following) provides an overview of these reportable illness and the number of new cases reported in Lee County from 2009 through 2013, the most recent year for which data is available.[10] [11] [12] [13] [14]

Note that as of 2012, the way AIDS cases are reported was changed; those cases are included in the count for HIV as of 2012.

Lee County – New Cases of Selected Notifiable Diseases					
Disease	**2009**	**2010**	**2011**	**2012**	**2013**
HIV	10	13	14	18	9
AIDS	7	11	3	--	--
Syphilis	10	13	7	9	12
Gonorrhea	139	111	207	215	182
Chlamydia	558	717	823	721	769
Tuberculosis	4	3	2	1	1

Table 4

Probability of Future Occurrences of the Communicable Disease/Pandemic Hazard
At least some data regarding communicable disease occurrences is available covering the time period from 1989 to 2015, a period of 26 years. In that timeframe, there were two documented occurrences of the hazard, though there were likely others that are undocumented. Two occurrences in 26 years equates to a 13 year recurrence period, based on the data available. Therefore, using the scale provided earlier in this chapter, the probability of a future occurrence in low.

Risk Assessment for the Communicable Disease/Pandemic Hazard
As a large, public university with significant residential facilities, Auburn could be impacted by this hazard at any point, with little to no warning. While the expected impacts of this hazard would be centered on the people on the campus, a prolonged outbreak or epidemic could have operational impacts, should enough specialized staff become ill with limited options for outside support. A prolonged outbreak could also impact the ability of the University to meet the mission of the institution, as a loss of class and research time would negatively impact the delivery of educational services.

Methodology
After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 5 (following).

Communicable Disease/Pandemic – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Moderate	Low	Low	Moderate	Low-Moderate

Table 5

The details of this assessment can be found in Appendix D, *Tabular Data.*

Risk Assessment Conclusions
Auburn University has a low to moderate risk from the communicable disease/pandemic hazard; this conclusion is supported by both the available data and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus, but also includes all other areas within the county. Data that could be collected to improve this assessment prior to the next update includes:

- Data regarding student and employee illness and infection rates;
- Data regarding increased operating costs due to employee illness/time lost from work; and
- Documentation of the impact to the University's mission and operations from employee illness/time lost from work.

Drought

Description of the Drought Hazard
Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the consequence of anticipated natural precipitation reduction over an extended period of time, usually a season or more in length. Drought is one of the most complex of all natural hazards, as it is difficult to determine a precise beginning or end. In addition, drought can lead to or be exacerbated by other hazards, such as extreme heat or wildfires.

Droughts are a slow-onset hazard. Over time, however, they can result in damage to agriculture, municipal water supply, recreation, and wildlife. Prolonged droughts can produce significant economic impacts, both directly and indirectly.[15]

Droughts are classified as meteorological, hydrologic, agricultural and socioeconomic. The following bullets illustrate how the classifications of drought are defined:

- **Meteorological drought** is defined by a period of substantially diminished precipitation duration and/or intensity. The commonly used definition of

meteorological drought is an interval of time, generally on the order of months or years, during which the actual moisture supply at a given place consistently falls below the climatically appropriate moisture supply.

- **Agricultural drought** occurs when there is inadequate soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought usually occurs after or during meteorological drought, but before hydrological drought and can affect livestock and other dry-land agricultural operations.
- **Hydrological drought** refers to deficiencies in surface and subsurface water supplies. It is measured as stream flow, snow pack, and as lake, reservoir, and groundwater levels. There is usually a delay between lack of rain or snow and less measurable water in streams, lakes, and reservoirs. Therefore, hydrological measurements tend to lag behind other drought indicators.
- **Socio-economic drought** occurs when physical water shortages start to affect the health, well-being, and quality of life of the people, or when the drought starts to affect the supply and demand of an economic product.[16]

Location of the Drought Hazard

Droughts can affect areas as small as a few counties to entire regions of the country. Droughts are not defined by a specific geographic boundary or location. The entire planning area is subject to the drought hazard. The University could also be severely impacted by droughts elsewhere in the state, as all potable water for all campuses originates from external sources.

Extent/Severity of the Drought Hazard

Droughts are slow developing hazards that are rarely recognized as occurring until after they are well begun. Though forecasters may be able to predict that conditions are likely to develop – such as that rainfall is expected to be below average for a given period of time – until those conditions actually exist, it is not possible to determine whether or not an area is experiencing a drought. Drought conditions must exist for an extended period of time – typically at least a month – before the conditions can be classified as drought. This is to distinguish between true drought conditions and simple periods of lower-than-average rainfall. The extent of a drought is often defined by its duration.

Droughts are measured using the Palmer Drought Severity Index (PDSI), also known as the Palmer Index. The Palmer Index was developed by Wayne Palmer in the 1960s and uses temperature and rainfall information in a formula to determine dryness. It has become the semi-official drought index.

The Palmer Index is most effective in determining long term drought—a matter of several months—and is not as good with short-term forecasts (a matter of weeks). It uses a 0 as normal, and drought is shown in terms of minus numbers; for example, -2 is moderate drought, -3 is severe

drought, and -4 is extreme drought. The Palmer Index is also useful for reflecting excess rain using a corresponding level reflected by plus figures; i.e., 0 is normal, +2 is moderate rainfall, etc.

The advantage of the Palmer Index is that it is standardized to local climate, so it can be applied to any part of the country to demonstrate relative drought or rainfall conditions. The negative is that it is not as good for short term forecasts, and is not particularly useful in calculating supplies of water locked up in snow, so it works best east of the Continental Divide. Despite these shortcomings, it remains a useful tool for easily explaining the severity of a drought. Table 6 (below and following) illustrates the PDSI classifications.[17]

Palmer Drought Severity Index		
Classification	**Description**	**Range of Possible Impacts**
4.00 or more	Extremely wet	
3.00 to 3.99	Very wet	
2.00 to 2.99	Moderately wet	
1.00 to 1.99	Slightly wet	
0.50 to 0.99	Incipient wet spell	
0.49 to -0.49	Near normal	
-0.50 to -0.99	Incipient dry spell	
-1.00 to -1.99	Mild drought	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average Coming out of drought: some lingering water deficits; pastures or crops not fully recovered
-2.00 to -2.99	Moderate drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested
-3.00 to -3.99	Severe drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed
-4.00 to -4.99	Extreme drought	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions

Palmer Drought Severity Index		
Classification	**Description**	**Range of Possible Impacts**
-5.0 or less	Exceptional drought	Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies

Table 6

Drought is monitored nation-wide by the National Drought Mitigation Center (NDMC). Indicators are used to describe broad scale drought conditions across the country. Indicators correspond to the intensity of the drought. As of the drafting of this Plan, no areas in Alabama are currently experiencing drought conditions, including the areas occupied by Auburn University. This current status is demonstrated by Figure 6 (below).[18]

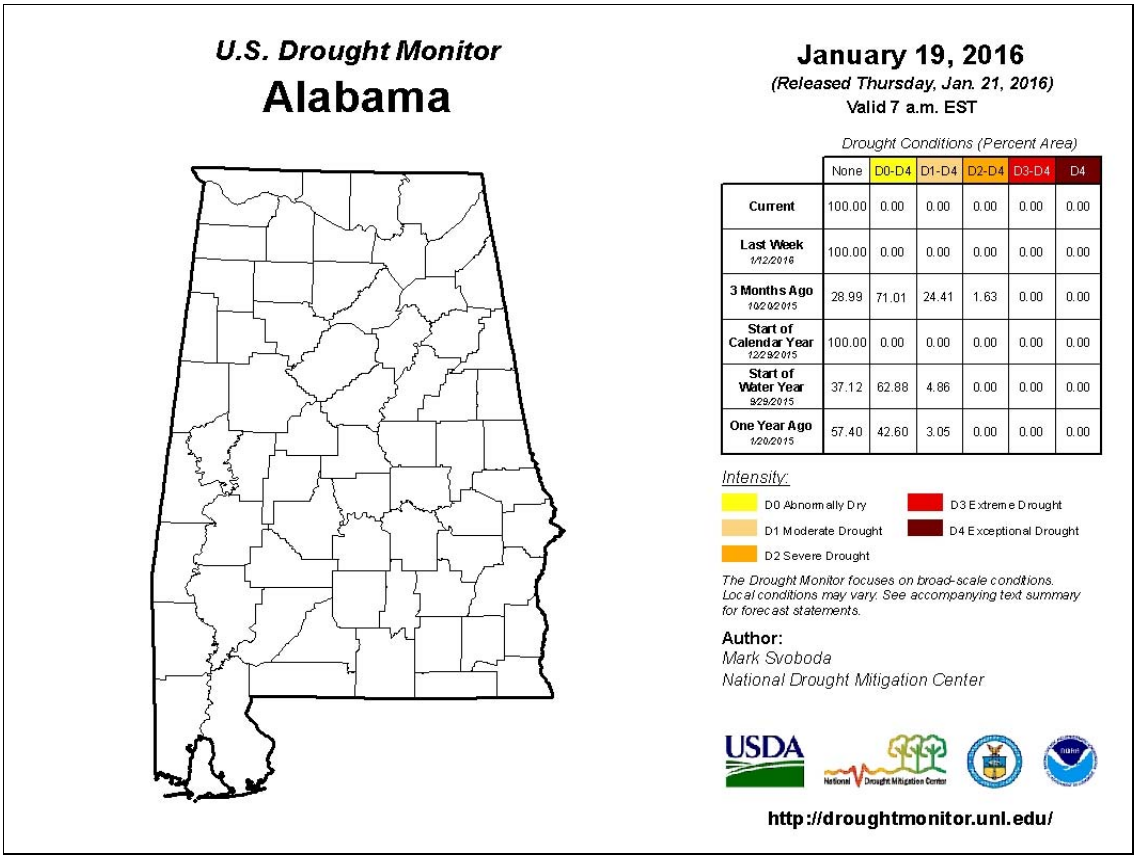


Figure 6

Impact on Life, Property, and Operations from the Drought Hazard

Droughts can affect a large geographic area, and can range in size from a few counties to a few states. Their potential to impact wildlife and agricultural concerns can be enormous. Droughts can kill

crops, edible plants and wildlife habitat, and destroy grazing lands and trees. Dead or dying vegetation, a normal result of drought, can then serve as a prime ignition source for wildfires or urban fires.

Perhaps the best known example of the impacts on life and property from drought is the Dust Bowl. The phenomenon was caused by severe drought coupled with decades of poor farming and land management practices. Deep plowing of the virgin topsoil of the Great Plains killed the natural grasses that normally kept the soil in place and trapped moisture even during periods of drought and high winds.

During the (naturally occurring) drought of the 1930s, with no natural anchors to keep the soil in place, it dried, turned to dust, and blew away eastward and southward in large dark clouds. At times the clouds blackened the sky reaching all the way to East Coast cities such as New York and Washington, D.C. Much of the soil ended up deposited in the Atlantic Ocean, carried by prevailing winds which were in part created by the dry and bare soil conditions. These immense dust storms—given names such as "Black Blizzards" and "Black Rollers"—often reduced visibility to a few feet and produced deadly electrical storms. The Dust Bowl affected an estimated 100,000,000 acres, centered on the panhandles of Texas and Oklahoma, and adjacent parts of New Mexico, Colorado, and Kansas.[19]

The worst drought in the last 50 years affected at least 35 states during the summer of 1988. In some areas the lack of rainfall dated back to 1984. In 1988, rainfall totals over the Midwest, Northern Plains, and the Rockies were 50-85% below normal. Crops and livestock died and some areas became desert. Forest fires began over the Northwest, and by autumn 4,100,000 acres had burned. A government policy called "Let Burn" was in effect for Yellowstone National Park, with disastrous results. Half of the National Park - 2,100,000 acres - was charred when a huge forest fire developed.[20]

For Auburn University, the impact of a drought could be enormous. As a university, the campus has no internal source of potable water; all potable water must be purchased from external suppliers and transported via pipeline. In the event of a prolonged drought, it is possible that there would not be enough water available to vendors and suppliers to maintain its current pressure levels (and therefore to maintain both the safety of the potable water system and sufficient pressure for fire suppression), or to support the University and its mission.

Auburn University has a substantial human population, a significant animal population, and significant numbers of field crops and other agricultural resources – all of which require water for survival. A loss of water to the campus, for any reason, would negatively impact each of these groups. Providing water from other sources would be fairly straightforward for humans, as water could be purchased and brought in from other sources. Providing water to animals and field crops would require more logistical consideration.

Occurrences of the Drought Hazard

According to the National Climate Data Center (NCDC), Lee County, AL has experienced drought in seven of the previous 10 years. From 2006 through 2015, drought conditions were recorded in the county in each year except 2009, 2014, and 2015.[21] While the Advisory Committee reported no significant concerns or impacts to the main campus from these drought incidents, the situation was constantly monitored by the University, in the event that conditions worsened and action was required.

Probability of Future Occurrences of the Drought Hazard

The SHMP rates the probability of a future occurrence of drought as medium, meaning that the hazard either has little probability of affecting the state, limited data is available for analysis, or it is difficult to mitigate the effects of the hazard; for hazards ranked medium, the SHMP includes a qualitative assessment only.[22]

The National Weather Service's Climate Prediction Center publishes a seasonal drought outlook. In the most recent seasonal drought outlook, the expectation is that drought conditions are not expected to occur anywhere in the State of Alabama (including the planning area) through the spring of 2016. Figure 7 (below) illustrates this prediction.[23]

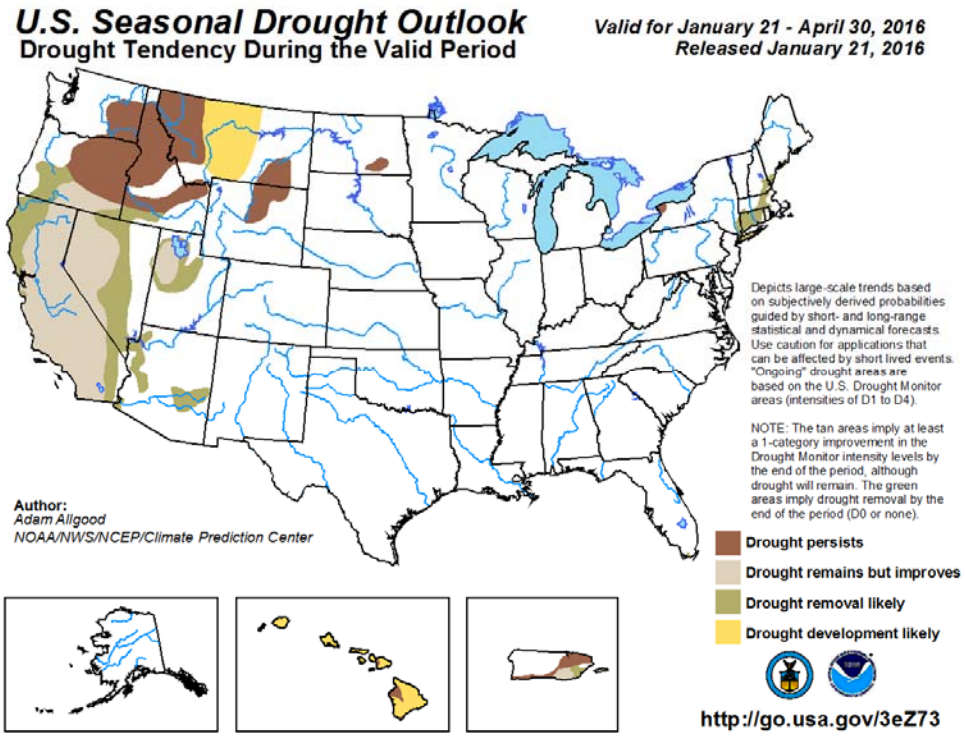


Figure 7

Though seven of the previous 10 years have included drought conditions, those conditions have improved in the planning area. No drought conditions are expected in the planning area in the near

future. Using the scale provided earlier in this section, the probability of a future occurrence of the drought hazard is high. Using information obtained from technical experts and the SHMP, the probability of a future occurrence is low.

Risk Assessment for the Drought Hazard

As a university, Auburn has limited ability to provide their own water. The majority of the water the main campus uses – be it for human, animal, or agricultural purposes – is provided by external vendors and suppliers. Nearly every facet of operations on the campus requires water in some capacity – control and conditioning of space, drinking, bathing, fire suppression, etc.

Methodology

After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 7 (below).

Drought – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low	Low	Low	Low	Low

Table 7

The details of this assessment can be found in Appendix D, *Tabular Data.*

Risk Assessment Conclusions

Auburn University has a low risk from the drought hazard; this conclusion is supported by the available data, the SHMP, and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, and at the state level. Data that could be collected to improve this assessment prior to the next update includes:

- Plans for alternate water supplies or sources for the campus;
- Data regarding increased operating costs due to the unavailability of water or water of sufficient quality for human/animal consumption; and

- Documentation of the impact to the University – including the mission – from extended loss of water.

Earthquake

Description of the Earthquake Hazard

An earthquake is caused by a slip on a fault. When tectonic plates become stressed, there is an earthquake that releases energy in waves, which causes the earth to shake. Earthquakes are recorded by a seismographic network. Each seismic station in the network measures the movement of the ground at the site. The slip of one block of rock over another in an earthquake releases energy that makes the ground vibrate. That vibration pushes the adjoining piece of ground and causes it to vibrate, and thus the energy travels out from the earthquake in a wave.[24]

Location of the Earthquake Hazard

There are a number of fault lines in the State of Alabama; some of them are fairly close to Auburn University. However, none of the fault lines near Auburn are significant, as seen in Figure 8 (below).[25]

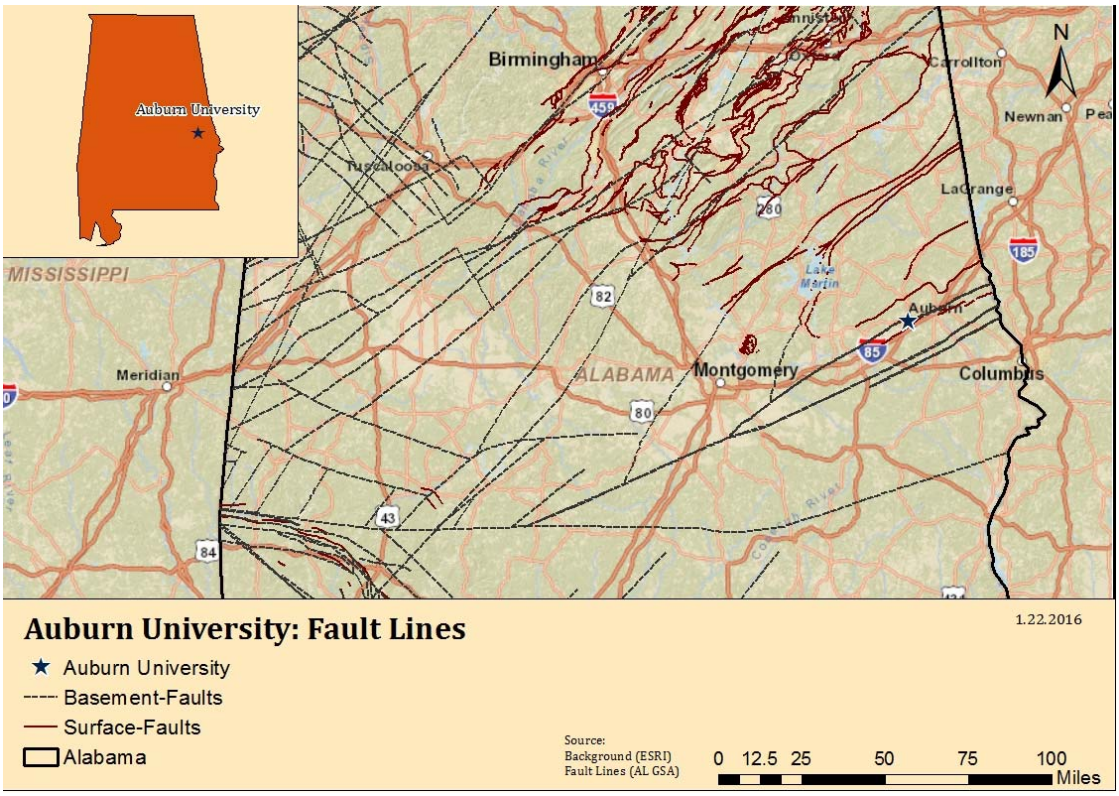


Figure 8

Extent/Severity of the Earthquake Hazard

Earthquakes are quick-onset events that occur with no warning. While some earthquakes are brief events, lasting only a few seconds, others are longer in duration, lasting upwards of a minute or more. The extent of an earthquake can be measured by the Richter Magnitude Scale, which measures the 'feel' of a shallow earthquake occurring with no warning in a populated area.

The Richter magnitude scale was developed in 1935 by Charles F. Richter of the California Institute of Technology as a mathematical device to compare the size of earthquakes. The Richter Scale is the best known scale for measuring the magnitude of earthquakes. The magnitude value is proportional to the logarithm of the amplitude of the strongest wave during an earthquake. A recording of 7, for example, indicates a disturbance with ground motion 10 times as large as a recording of 6. The energy released by an earthquake increases by a factor of 31 for every unit increase in the Richter scale. Table 8 (following) gives the frequency of earthquakes and the effects of the earthquakes based on this scale.[26]

The Richter Magnitude Scale		
Richter scale number	**Number of earthquakes globally per year**	**Typical effects of this magnitude**
< 3.4	800,000	Detected only by seismometers
3.5 - 4.2	30,000	Just about noticeable indoors
4.3 - 4.8	4,800	Most people notice them, windows rattle.
4.9 - 5.4	1,400	Everyone notices them, dishes may break, open doors swing.
5.5 - 6.1	500	Slight damage to buildings, plaster cracks, bricks fall.
6.2 6.9	100	Much damage to buildings: chimneys fall, houses move on foundations.
7.0 - 7.3	15	Serious damage: bridges twist, walls fracture, buildings may collapse.
7.4 - 7.9	4	Great damage, most buildings collapse.
> 8.0	One every 5 to 10 years	Total damage, surface waves seen, objects thrown in the air.

Table 8

Note: These effects assume a shallow earthquake in a populated area. Earthquakes of large magnitude do not necessarily cause the most intense surface effects. The effect in a given region depends to a large degree on local surface and subsurface geologic conditions. An area of unstable ground (sand, clay, or other

unconsolidated materials), for example, is likely to experience much more noticeable effects than an area equally distant from an earthquake's epicenter but underlain by firm ground such as granite.

Potential Impact of the Earthquake Hazard
All assets and people on the main campus of Auburn University are generally at risk from the effects of the earthquake hazard, and can expect to experience some minimal effects from the hazard. Depending on the severity, there could be damages to buildings, which compromise operations, and injury to people. In extreme cases, injuries may occur.

Past Occurrences of the Earthquake Hazard
According to the Geological Survey of Alabama (GSA), earthquakes are a fairly common occurrence in the State of Alabama. More than 330 earthquakes have been recorded in the state since 1886, though none were recorded in Lee County. In fact, the majority of earthquakes have been recorded in northern Alabama, and are associated with the Southern Appalachian Seismic Zone that runs along the Appalachian Mountains, and in southern Alabama, which is associated with the Bahamas Fracture Seismic Zone.

Some of the more significant earthquakes that have been recorded in the State of Alabama are as follows:

- Fort Payne Earthquake, 2003 – magnitude 4.9
- Escambia County Earthquake, 1997 – magnitude 4.9
- Irondale Earthquake, 1916 – magnitude 5.1
- Pensacola Area Earthquake, 1781 – magnitude 6-7[27]

None of these were noted to have impacted or affected either Lee County or Auburn University.

Probability of a Future Occurrence of the Earthquake Hazard
The SHMP rates the probability of a future occurrence of earthquake as medium, meaning that the hazard either has little probability of affecting the state, limited data is available for analysis, or it is difficult to mitigate the effects of the hazard; for hazards ranked medium, the SHMP includes a qualitative assessment only.[28]

The Geological Survey of Alabama produces data regarding the probability of a future occurrence of an earthquake (>magnitude 5.1) in the next fifty years. This data indicates the probability is low. Figure 9 (following) illustrates this prediction.[29]

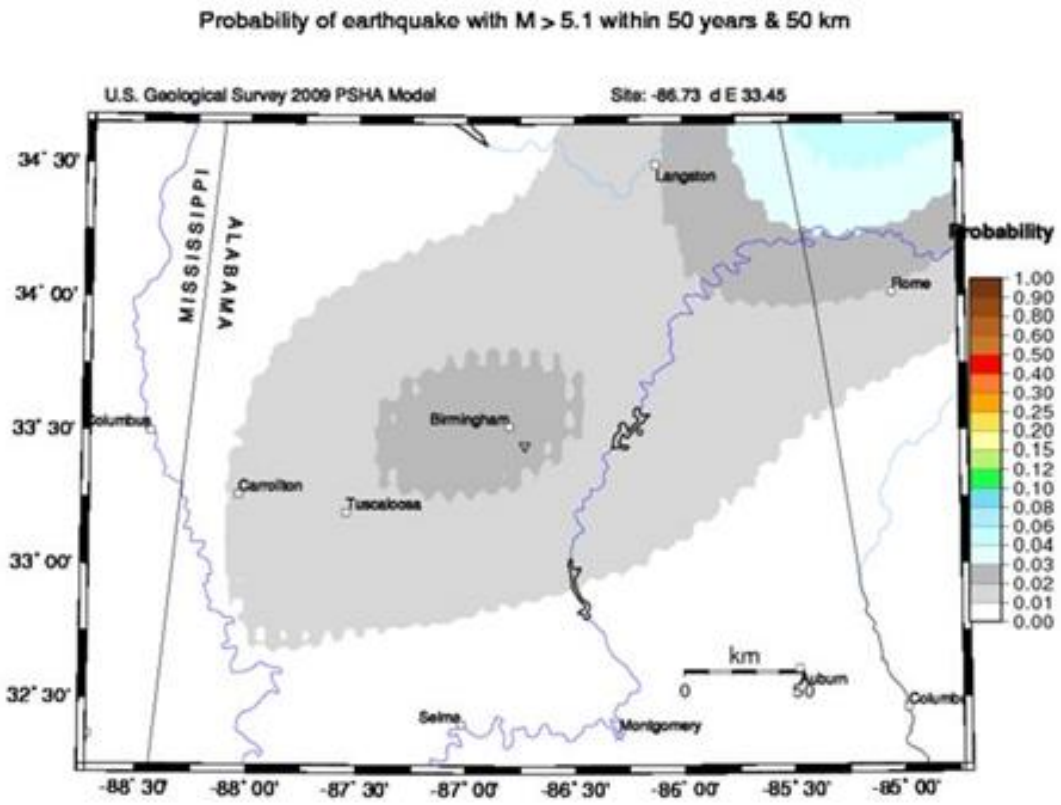


Figure 9

No occurrences of the earthquake hazard have been recorded as impacting Auburn University. According to the scale provided earlier in this chapter, and in consideration of data found in the SHMP and from the Geological Survey of Alabama, the probability of a future occurrence is low.

Risk Assessment for the Earthquake Hazard

While not a hazard with a history of occurrence or a significant probability of a future occurrence, it is a hazard that could possibly occur and impact Auburn University. There is at least some small risk to Auburn's people, assets, infrastructure, and mission from this hazard.

Methodology

After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 9 (following).

Earthquake – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low	Low	Low	Low	Low

Table 9

The details of this assessment can be found in Appendix D, *Tabular Data.*

Risk Assessment Conclusions
Auburn University has a low risk from the earthquake hazard; this conclusion is supported by the available data, the SHMP, and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, and at the state level. Data that could be collected to improve this assessment prior to the next update includes:

- Data regarding seismic design factors for each asset on the main campus, and
- Data regarding specific vulnerabilities to shaking/shifting for each utility provider's assets.

Extreme Temperature

Description of the Extreme Temperature Hazard
Extreme heat is defined as summertime weather that is substantially hotter and/or more humid than average for a location at that time of year. Extreme heat conditions can increase the incidence of mortality and morbidity in affected populations. People suffer heat-related illness when the body is unable to compensate for the extreme heat and properly cool itself. Very high body temperatures may cause damage to the brain and other vital organs.[30]

What is considered an excessively cold temperature varies according to the normal climate for that region. Whenever temperatures drop decidedly below normal and wind speed increases, heat leaves the human body more rapidly, increasing the possibility of negative effects of these extreme temperatures.[31]

The greatest danger from extreme cold is to people, as prolonged exposure can cause frostbite or hypothermia, and can become life threatening. Body temperatures that are too low affect the brain, making it difficult for the victim to think clearly or move well. This makes hypothermia particularly dangerous for those suffering from it, as they may not understand what is happening to them or what to do about it.[32]

Location of the Extreme Temperature Hazard
Extreme temperature is not a hazard with a defined geographic boundary. All areas of the main campus of Auburn University are subject to experience the hazard.

Extent/Severity of the Extreme Temperature Hazard
Extreme temperatures have highly variable speeds of onset. Dramatic changes in temperature – both to the extreme of hot or cold – may accompany a fast-moving front, or they may occur more slowly, as weather conditions build over days or weeks. The duration of extreme temperatures is also highly variable. Some periods may last no more than a few hours, which others may last for days or even – in rare cases – weeks. If extreme temperatures are forecast, people have time to prepare for the onset. They can plan to avoid outdoor activities. Utility providers can ensure that they are prepared for above-average strains to grids and distribution lines. Fuel distributors and purveyors can ensure they have sufficient supplies on hand to meet expected demand. To describe the extent of the extreme temperature hazard, a number of products exist and are routinely used by meteorologists, emergency management professionals, utility providers/operators, and others responsible for informing and preparing the public.

The National Weather Service (NWS) issues a range of watches and warnings associated with extreme heat, as illustrated below:

- **Excessive Heat Outlook**: when the potential exists for an excessive heat event in the next 3 to 7 days. An outlook is used to indicate that a heat event may develop. It is intended to provide information to those who need considerable lead time to prepare for the event, such as public utilities, emergency management and public health officials.
- **Excessive Heat Watch**: when conditions are favorable for an excessive heat event in the next 12 to 48 hours. A watch is used when the risk of a heat wave has increased, but its occurrence and timing is still uncertain. It is intended to provide enough lead time so those who need to set their plans in motion can do so, such as established individual city excessive heat event mitigation plans.
- **Excessive Heat Warning/Advisory**: when an excessive heat event is expected in the next 36 hours. These products are issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurrence. The warning is used for conditions posing a threat to life or property. An advisory is for less serious conditions that cause significant discomfort or inconvenience and, if caution is not taken, could lead to a threat to life and/or property.[33]

The NWS also developed the Heat Index (HI). The HI is sometimes referred to as the "apparent temperature". The HI, given in degrees F, is a measure of how hot it really feels when relative humidity (RH) is added to the actual air temperature. To find the HI, NWS uses the Heat Index Chart, found following in Figure 10. As an example, if the air temperature is 96°F (found on the top of the table) and the RH is 65% (found on the left of the table), the HI - or how hot it really feels - is 121°F. This is at the intersection of the 96° column and the 65% row.

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 the shaded zone above 105°F on the Heat Index Chart. This corresponds to a level of HI that may cause increasingly severe heat disorders with continued exposure and/or physical activity.

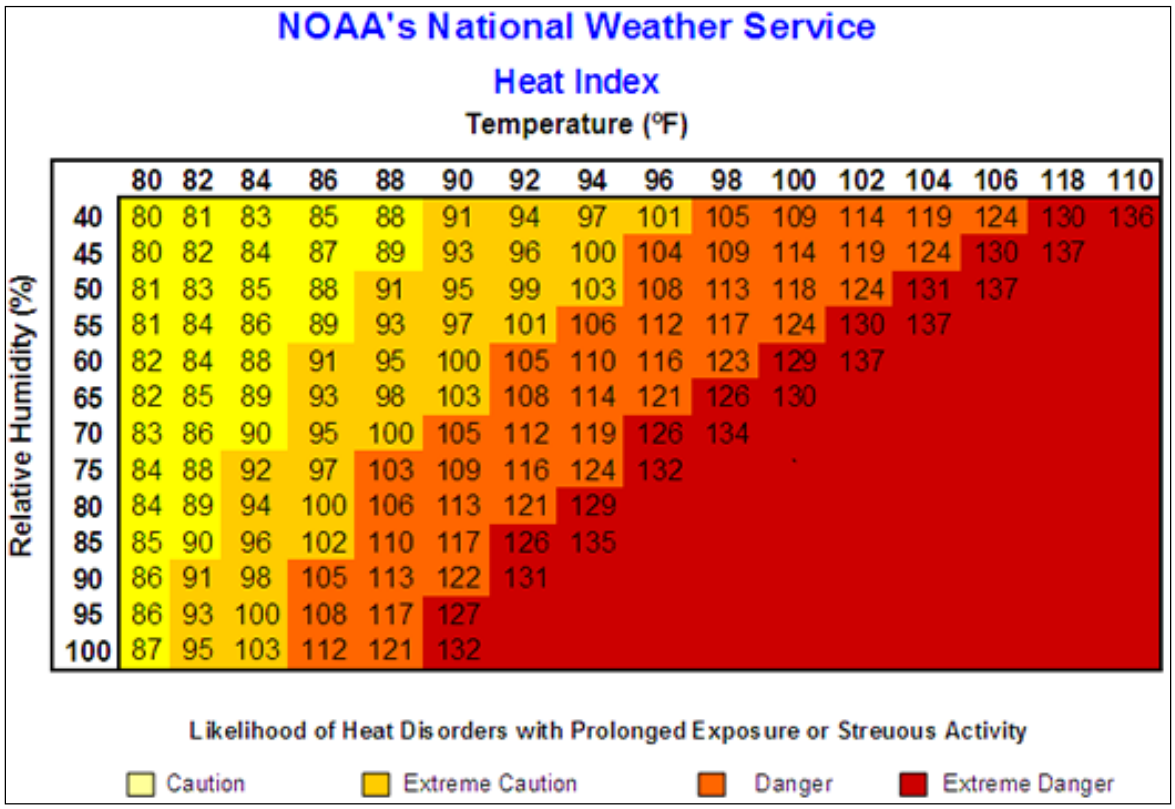


Figure 10

When extreme heat occurs or is forecast to occur, the NWS issues heat advisories based on heat indices; these advisories are issued through the media and the Emergency Alert System. The NWS provides assistance to state and local health officials in preparing civil emergency messages for severe heat waves, in addition to preparing special weather statements that define who is most at risk, safety rules, and the expected severity of the situation. The NWS also aids state and local authorities with issuing warnings and survival tips.

Extreme cold has a wide range of extent and severity markers and characteristics. The National Weather Service issues Extreme Cold Warnings when the temperature feels like it is -30°F or colder across a wide area for a period of at least several hours. When possible, these advisories are issued a day or two in advance of the onset of the conditions.[34]

Perhaps the most common extent/severity marker for extreme cold is the Wind Chill scale. Figure 11 (below) depicts the National Weather Service's methodology for determining wind chill, using wind speed and actual temperature. While wind chill is not necessarily related to extreme cold as a single cause, the advisory system that the NWS currently uses relies on wind chill to relay warning and advisory information to the public. Extreme cold severity is a function of wind chill and other factors, such as precipitation amount (rain, sleet, ice, and/or snow).[35]

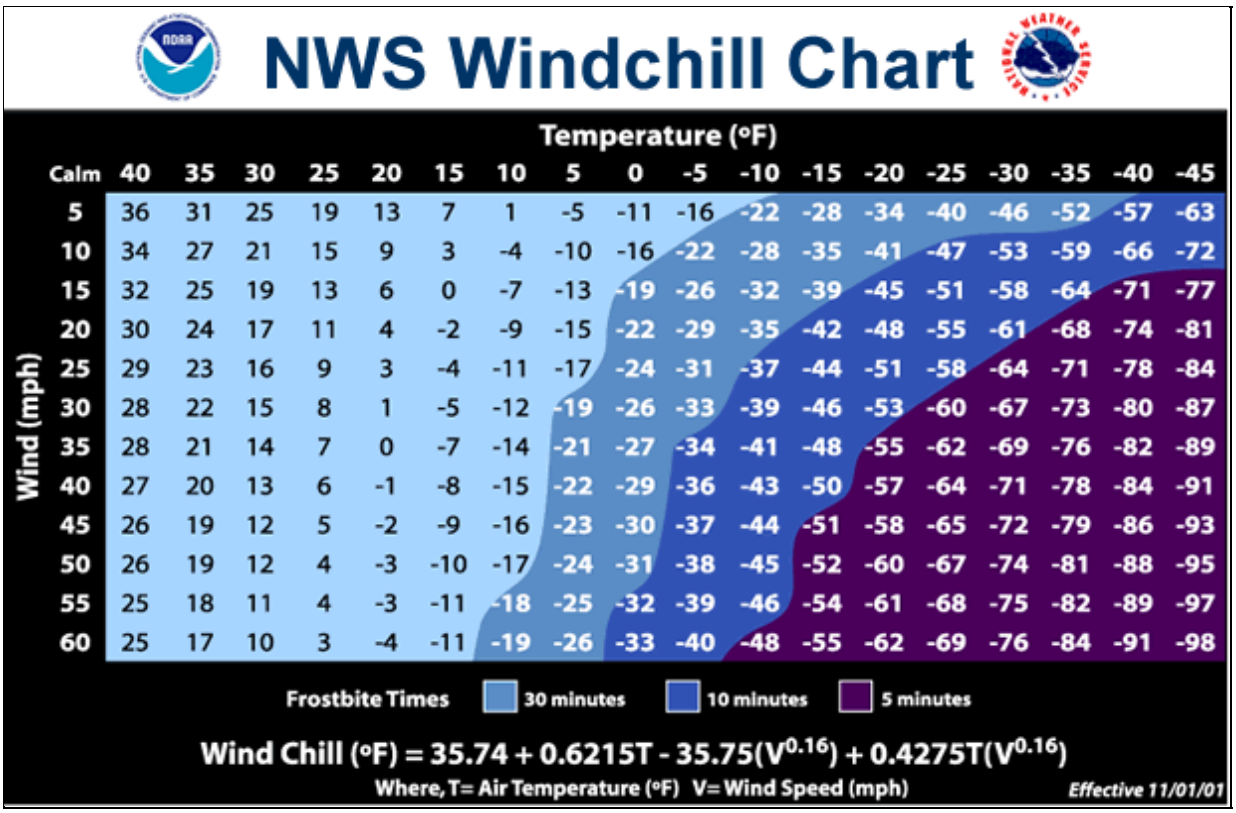


Figure 11

Potential Impact of the Extreme Temperature Hazard

Health risks from extreme heat include sunburn, dehydration, heat cramps, heat exhaustion, and heat stroke. Heat disorders generally result from a reduction or collapse of the body's ability to cool itself by circulatory changes and sweating, or a chemical (salt) imbalance caused by too much sweating. When the body cannot cool itself, or when it cannot compensate for fluids and salt lost through perspiration, the temperature of the body's inner core begins to rise, and heat-related illness may develop. All other factors being equal, the severity of heat disorders tends to increase with age. Heat cramps in a 17-year-old may be heat exhaustion in someone who is 40, and heat stroke in a person over 60. Table 10 (below) provides the potential health hazards associated with heat, by category.[36]

Health Hazards Associated with Heat		
Category	**Heat Index**	**Health Hazards**
Extreme Danger	130°F- Higher	Heat stroke/ sunstroke is likely with continued exposure.
Danger	105°F- 129°F	Sunstroke, muscle cramps, and/or heat exhaustion with prolonged exposure and/or physical activity.
Extreme Caution	90°F- 105°F	Sunstroke, muscle cramps, and/or heat exhaustion with prolonged exposure and/or physical activity.
Caution	80°F- 90°F	Fatigue possible with prolonged exposure and/or physical activity.

Table 10

In addition to the effects that extreme heat can have on people, there are also potential effects to assets from extreme heat. Auburn University is home to significant quantities of people, animals, and assets. All of these require constant temperature control, and that all interior spaces be controlled and conditioned to a regulated temperature. Increases in the exterior temperature mean that the utilities and processes by which interior spaces are controlled and conditioned must work harder to regulate those interior temperatures. This places an additional strain on existing utility systems, which can fail under the increased workload. Failure of cooling mechanisms places research, patients, and people at risk from prolonged exposure to extreme heat.

Extreme cold can also have significant impacts on people. Hypothermia is most likely at very cold temperatures, but can occur at higher temperatures (above 40°F) if the person exposed is also wet from rain, sweat, or submersion. Warning signs of hypothermia include shivering, exhaustion, confusion, fumbling hands, memory loss, slurred speech, or drowsiness. In infants, symptoms include bright red and cold skin and very low energy. A person with hypothermia should receive medical attention as soon as possible, as delays in medical treatment may result in death.[37]

In addition to the threat posed to humans, extreme cold weather poses a significant threat to utility production, which in turn threatens facilities and operations that rely on utilities, specifically climate stabilization. As temperatures drop and stay low, increased demand for heating places a strain on the electrical grid, which can lead to temporary outages. These outages can impact operations throughout the campus, which can result in interruptions and delays in services. These outages may also negatively impact research efforts throughout the campus, as the inability to maintain a steady, constant temperature may result in problems or even ruination of research specimens.

Occurrences of the Extreme Temperature Hazard
Since 1996, the NCDC has recorded at least four instances of extreme heat, and at least six instances of extreme cold in Lee County, AL.[38] It can be reasonably assumed that these occurrences had at least some impact on the Auburn University campus.

Auburn University has documented evidence of at least three occasions where extreme cold temperatures resulted in losses to the campus. In January 2010 and January 2014, three buildings were damaged as a result of burst pipes; the pipes burst as a result of extremely cold temperatures.[39]

Probability of Future Occurrences of the Extreme Temperature Hazard
Data provided by Auburn indicates three occurrences of extreme temperatures in the previous 20 years. Using the scale provided at the beginning of this chapter, this equates to a low probability of a future occurrence.

The SHMP rates the probability of a future occurrence of extreme temperature as medium/low, meaning that the hazard either has little probability of affecting the state, limited data is available for analysis, or it is difficult to mitigate the effects of the hazard; for hazards ranked medium or low, the SHMP includes a qualitative assessment only.[40]

Risk Assessment for the Extreme Temperature Hazard
While this hazard occurs with some regularity, it is not one with a significant history of causing damages or losses to Auburn University, through there is at least some small risk to Auburn's people, assets, infrastructure, and mission from this hazard. The risk of exposure and negative health impacts to people, animal, and agriculture are perhaps the greatest risk, with the risk to the loss of utility (particularly electrical) production and distribution also a consideration. Though some assets on the main campus have emergency power generation capability, most facilities do not. In the event of a power failure resulting from an extreme temperature incident, contingency plans would have to be implemented to protect people, animals, and other sensitive assets and equipment.

Methodology
After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory

Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 11 (below).

Extreme Temperature – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low	Low	Low	Low-Moderate	Low

Table 11

The details of this assessment can be found in Appendix D, *Tabular Data.*

Risk Assessment Conclusions
Auburn University has a low risk from the extreme temperature hazard; this conclusion is supported by both the available data, the SHMP, and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, and at the state level. Data that could be collected to improve this assessment prior to the next update includes:

- Data regarding definite temperature thresholds to maintain optimal operations in each facility on campus;
- Estimated losses as a result of utility failures, by facility; and
- Facilities, assets, infrastructure, and research specifically at risk from extreme temperatures.

Flood

Description of the Flood Hazard
Floods are naturally occurring events. Excess water from rainfall or storm surge accumulates and either overflows onto banks or backs up into adjacent floodplains. Flooding in coastal environments can be exacerbated by tidal influence in low lying areas.[41]

The National Flood Insurance Program (NFIP) defines flood in the following way:

> A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of inland or tidal

waters, from unusual and rapid accumulation or runoff of surface waters from any source, or from mudflow.[42]

In support of the NFIP, FEMA identifies those areas that are more vulnerable to flooding by producing Flood Hazard Boundary Maps (FHBM), Flood Insurance Rate Maps (FIRM), and Flood Boundary and Floodway Maps (FBFM). Several areas of flood hazards are commonly identified on these maps. One of the areas identified in the Special Flood Hazard Area (SFHA), which is a high-risk area defined as any land that would be inundated by a flood having a 1% chance of occurring in any given year (also known as the base flood). The flood zone designations are defined and described in Table 12 (below and following).[43]

Flood Zone Designations and Descriptions		
Zone Designation	**Percent Annual Chance of Flood**	**Description**
Zone V	1%	Areas along coasts subject to inundation by the 1% annual chance of flooding with additional hazards associated with storm-induced waves. Because hydraulic analyses have not been performed, no BFEs or flood depths are shown.
Zones VE and V1-30	1%	Areas along coasts subject to inundation by the 1% annual chance of flooding with additional hazards associated with storm-induced waves. BFEs derived from detailed hydraulic analyses are shown within these zones. (Zone VE is used on new and revised maps in place on Zones V1-30.)
Zone A	1%	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these areas.
Zone AE	1%	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. In most instances, base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
Zone AH	1%	Areas with a 1% annual chance of flooding where shallow flooding (usually areas of ponding) can occur with average depths between one and three feet.
Zone AO	1%	Areas with a 1% annual chance of flooding, where shallow flooding average depths are between one and three feet.

Flood Zone Designations and Descriptions		
Zone Designation	**Percent Annual Chance of Flood**	**Description**
Zone X (shaded)	0.2%	Represents areas between the limits of the 1% annual chance flooding and 0.2% chance flooding.
Zone X (unshaded)	Undetermined	Areas outside of the 1% annual chance floodplain and 0.2% annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than one (1) foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than one (1) square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevation or depths are shown within this zone.

Table 12

Location of the Flood Hazard

As Auburn University is an entity rather than a municipality or county, no specific flood hazard map is created for it. Rather, Auburn's identified flood hazard risk areas are identified within the applicable county/municipal Flood Insurance Rate Maps (FIRMs). Figure 12 (following) illustrates these areas.

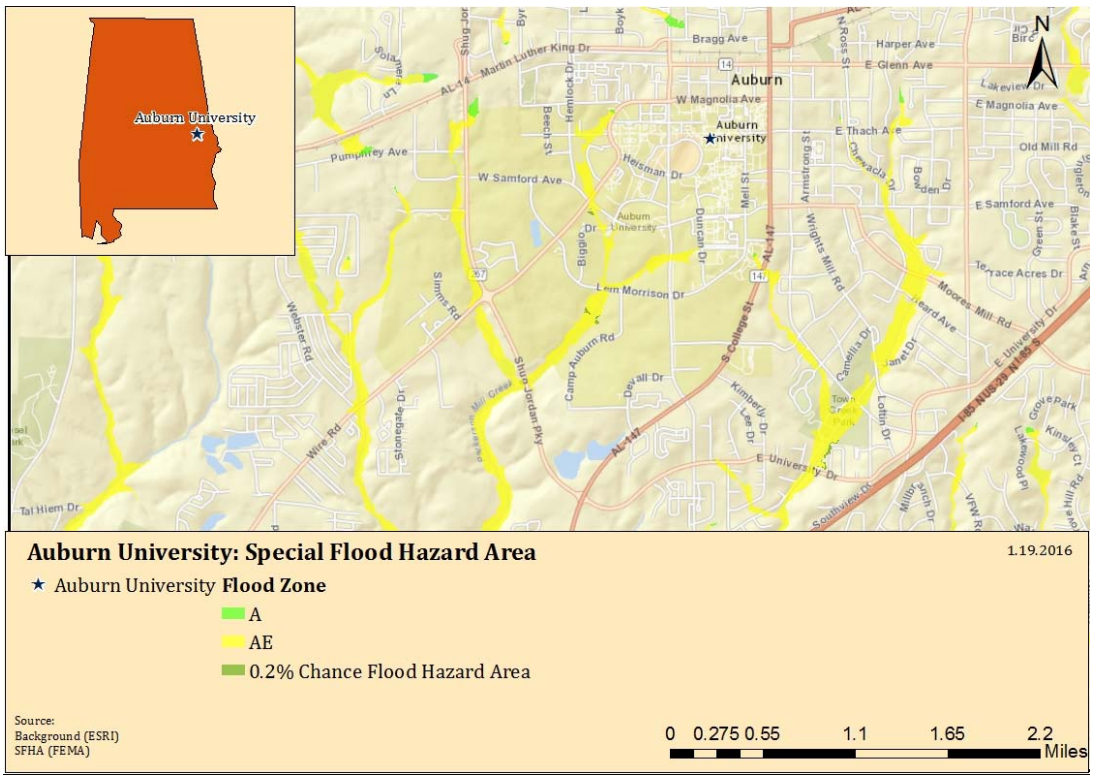


Figure 12

As is evident from the preceding figure, very little of the main campus of Auburn University lies within an identified SFHA or within the 0.2% annual chance floodplain. The primary areas of likely flooding on the campus are highly localized, and are almost entirely dependent on rainfall and ground saturations to become a hazard.

Extent/Severity of the Flood Hazard
Floods may occur quickly, such as in the case of flash flooding caused by unusually heavy rainfall for an extended period, or may be slow to arrive, such as when heavy rainfall occurs upstream and rivers and streams downstream overflow their banks as a result. For the period of record of available data, the majority of flood events that occurred in the vicinity of the planning area were flash flood events, meaning there was little warning time before the onset of flood conditions. Flash flood events, though they typically have less warning time, typically cause less damage than slower onset events where the water level stays at or near peak levels for longer periods of time.

Of the 18 incidents of flooding or flash flooding recorded by NCDC in Lee County from 1998 to 2015, at least eight incidents were caused by rainfall of between two and six inches, typically falling in a short period or in intervals, thereby creating saturation of the ground and peak capacity of stream, rivers, and ditches. Two incidents recoreded depths of flooding. In 2004, a flash flood event was recorded with depths of approximately four feet. In 2011, flooding was recorded as 'to the roofs of several cars.'[44] While Auburn did not report any damages from these events, they do illustrate the extent of flooding that the campus could experience, as illustrated by real-word events in the surrounding area.

The National Weather Service has established definitions of flood stages and accompanying watches and warnings, used in warnings and notifications to all users of their products, including the public and emergency managers. Table 13 (below) provides these terms and their definitions.[45]

Flood Categories	
Term	**Definition**
Flood stage	An established gage height for a given location at which a rise in water surface level begins to impact lives, property, or commerce. The issuance of flood (and in some case flash flood) warnings is linked to flood stage. Not necessarily the same as bankfull stage.

Flood Categories	
Term	**Definition**
Flood categories	Terms defined for each forecast point which describe or categorize the severity of flood impacts in the corresponding river/stream reach. The severity of flooding at a given stage is not necessarily the same at all locations along a river reach due to varying channel/bank characteristics or presence of levees on portions of the reach. Therefore, the upper and lower stages for any given flood category are usually associated with water levels corresponding to the most significant flood impacts somewhere in the reach.
Minor flooding	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads)
Moderate flooding	Some inundation of structures and roads near stream. Some evacuations of people and /or transfer of property to higher elevations.
Major flooding	Extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.
Record flooding	Flooding which equals or exceeds the highest stage or discharge observed at a given site during the period of record. The highest stage on record is not necessarily above the other three flood categories – it may be within any of them or even less than the lowest, particularly if the period of record is short (e.g., a few years).

Table 13

Impact on Life, Property, and Operations from the Flood Hazard

Flooding is the most common natural disaster in the US. In the past five years, all 50 states have experienced floods or flash floods. From 2010 to 2014, flood insurance claims across the country averaged more than $3.5B each year. Since 1978, the National Flood Insurance Program has paid out nearly $50B in flood insurance claims.[46]

Flooding has the potential to impact all aspects of Auburn's main campus. Flooding of roads and transportation routes places people at risk, as emergency service vehicles may be unable to reach those who need assistance on the campus if the roads are impassable due to water. Animals exposed to flooding may be injured, fall ill, or be killed as a result of flooding or exposure to flood waters.

Localized flooding around buildings is the most common type of flooding that occurs on the campus. This localized flooding, while not extensive, has the potential to damage buildings and contents, and to cause long-term damage to buildings by repeated damage to the founding and support elements of the building. Basements can be flooded, resulting it damages to buildings, infrastructure, and contents, and by disrupting utilities.

Occurrences of the Flood Hazard
From 1998 to 2015, the NCDC recorded 18 incidents of flooding in Lee County. Of these occurrences, 14 were recorded as flash flooding. According to the NCDC, these occurrences of flooding resulting in almost $4M in property and crop damages; no injuries or fatalities were recorded.[47]

The SHMP describes a significant history of flooding throughout the State of Alabama; the *Lee County Alabama Natural Hazard Mitigation Plan* describes a thorough history of flooding in Lee County. However, none of these descriptions include any specific description of flooding that occurred on or otherwise impacted Auburn University's main campus.

No specific incidents of flooding that resulted in impacts to the campus were reported by the Advisory Committee, though a few anecdotal accounts were discussed among the members during meetings.

Probability of Future Occurrences of the Flood Hazard
Data provided by Auburn indicates very little flood occurrences to the campus in recent years. Using the scale provided at the beginning of this chapter, this equates to a low probability of a future occurrence.

Data from the NCDC documents 18 flood occurrences in the previous 17 years in Lee County, but none of these occurrences were recorded for the main campus of Auburn University.

The SHMP rates the probability of a future occurrence of flood in the State of Alabama as high; the SHMP includes a qualitative and a quantitative assessment for this hazard.[48]

Risk Assessment for the Flood Hazard
While this hazard occurs with some regularity, it is not one with a significant history of causing damages or losses to Auburn University, through there is at least some small risk to Auburn's people, assets, infrastructure, and mission from this hazard. Despite this lack of history, the Advisory Committee, in recognition of the potential impacts of flooding and the occurrences of flooding in the area surrounding the main campus, determined that this hazard should receive a more in-depth, quantitative risk assessment, in addition to a qualitative risk assessment.

Methodology
After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 14 (below).

Flood – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low-Moderate	Low-Moderate	Low-Moderate	Low-Moderate	Low-Moderate

Table 14

The details of this assessment can be found in Appendix D, *Tabular Data.*

A quantitative assessment of the flood risks on the main campus of Auburn University revealed that one asset falls within an identified SFHA. That asset, the Draughon Village Utilities Plant, has an estimated value of $857,660. This equates to .00036% of the estimated value of all assets on the main campus of Auburn that can be shown to be at risk from flooding. There would be some additional losses that would result from the failure to function of this particular asset, but it is not possible at this time to provide an estimate of the costs associated with those potential damages.

Auburn University, as a state university, is not a member of the National Flood Insurance Program (NFIP), does not hold any NFIP policies, and does not have any assets that have been designed as Repetitive Loss or Severe Repetitive Loss by the NFIP.

Risk Assessment Conclusions
Auburn University has a low risk from the flood hazard; this conclusion is supported by both the available data, the SHMP, and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, at the state level, and for flooding damages and risks insured and determined by the NFIP. Data regarding damages from localized flood events on the campus is virtually non-existent, as no insurance claims data exists for these events. Data that could be collected to improve this assessment prior to the next update includes:

- Data regarding the first floor elevation of each building on the campus;

- Data regarding flood losses as a result of utility failures, by facility; and
- Documentation of flood damages for each asset that experiences flood losses, for both the structure and the contents, as well as any lost time or use of the facility.

Hail

Description of the Hail Hazard

Hail is defined as falling ice, roughly round in shape and at least 0.2' in diameter. Hail develops in the upper atmosphere as ice crystals that are bounced about by high velocity updraft winds; the ice crystals accumulate frozen droplets and fall after developing enough weight. The size of hailstones varies and is a direct consequence of the severity and size of the storm that produces them – the higher the temperatures at the Earth's surface, the greater the strength of the updrafts and the amount of time hailstones are suspended, the greater the size of the hailstone.[49]

Location of the Hail Hazard

Hail is a non-spatial hazard. All locations in the planning area at risk from the hail hazard.

Extent/Severity of the Hail Hazard

Though sometimes predicted as part of larger weather events or fronts, the actual arrival of hail to an area is a sudden event, with little or no warning to those on the ground and in the path. For the period of record (1965-2015), Lee County experienced a recorded 104 hail events., which equates to an annualized probability of at least two hail events per year. Of these 104 events, 46 produced hailstone one inch in diameter or greater, meaning that 44% of hail events in Lee County produced severe hail events (based on the following scale). Five events produced hail two inches in diameter or greater, meaning that .04% of hail events in Lee County produced destructive hail (based on the following scale). Lee County's worst hail event occurred in 2013, and produced hail three inches in diameter, which is classified as very destructive (based on the following scale).[50] This serves as the extent of magnitude/severity that can be expected to occur in the planning area.

The National Oceanic and Atmospheric Administration (the parent agency for the NWS) and the Tornado and Storm Research Organization (TORRO) both created Hailstorm Intensity Scales. Table 15 (below) provides details of these scales.[51]

TORRO Hailstorm Intensity Scale				
Size Code	**Intensity Category**	**Typical Hail Diameter**	**Approximate Size**	**Typical Damage Impacts**
H0	Hard Hail	Up to 0.33"	Pea	No damage
H1	Potentially Damaging	0.33" – 0.60"	Marble or mothball	Slight damage to plants and crops
H2	Potentially Damaging	0.60" – 0.80"	Dime or grape	Significant damage to fruit, crops and vegetation

TORRO Hailstorm Intensity Scale				
Size Code	**Intensity Category**	**Typical Hail Diameter**	**Approximate Size**	**Typical Damage Impacts**
H3	Severe	0.80" – 1.20"	Nickel to quarter	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	1.20" – 1.60"	Half dollar to ping pong ball	Widespread glass damage, vehicle body damage
H5	Destructive	1.60" – 2.0"	Silver dollar to golf ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	2.0" – 2.4"	Lime or egg	Aircraft body dented, brick walls pitted
H7	Very Destructive	2.4" – 3.0"	Tennis ball	Severe roof damage, risk of serious injuries
H8	Very Destructive	3.0" – 3.5"	Baseball to orange	Severe damage to aircraft body
H9	Super Hailstorms	3.5" – 4.0"	Grapefruit	Extensive structural damage, risk of severe or fatal injuries to persons caught in the open

Table 15

Impact on Life, Property, and Operations from the Hail Hazard
In general, the impacts to Auburn's assets and operations from the hail hazard are expected to be moderate to low. The more modern structures meet stringent construction standards, which should provide residual protection from hail events, which are often short-lived. Also more likely to be damaged are assets on exposed rooftops, such as satellite and communications equipment, solar panels and emergency lighting.

Auburn University owns a fleet of more than 900 vehicles, valued at more than $15M.[52] This figure does not include any personal vehicles, owned by students, employees, and visitors to the campus that may be parked on the campus on any given day. Though there are a number of parking garages on the campus, the majority of parking on the campus leaves vehicles unprotected from the elements. Each vehicle parked in the open is vulnerable to hail damage.

Occurrences of the Hail Hazard
From 1950 to 2015, 104 occurrences of the hail hazard were recorded by the NCDC as occurring in Lee County.[53] The more significant of these occurrences – those where the hailstones were recorded as being in excess of 1" in diameter – are shown in Figure 13 (following).

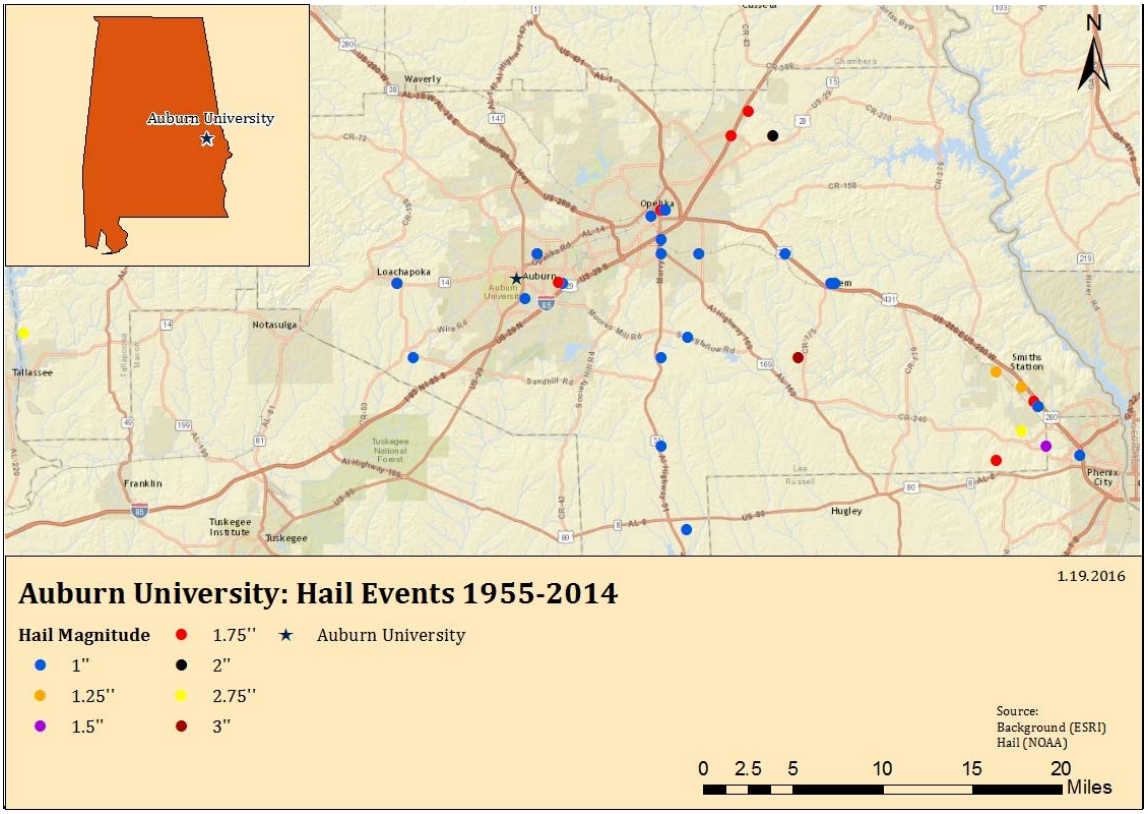


Figure 13

Hail has impacted Auburn University assets on several previous occasions. Insurance claim data provided by Auburn's Risk Management Department verifies that there have been at least three occurrences of the hail hazard that have impacted campus assets, as detailed below[54]:

- April 2009: Hail damage to the Athletic Facilities Building resulted in an insurance claim of $12,142;
- April 2011: Hail damage to the Haley Center and three Facilities assets resulted in insurance claims of $1,389,191; and
- November 2011: Hail damage to Chilled Water Plant #3 resulted in an insurance claim of $53,919.

Probability of Future Occurrences of the Hail Hazard

Data provided by Auburn indicates there have been at least three occurrences of the hail hazard on the Auburn main campus since 2001. This averages to one occurrence every five years. Using the scale provided at the beginning of this chapter, this equates to a low probability of a future occurrence.

Data from the NCDC documents 104 occurrences in the previous 65 years in Lee County, which equates to a high probability of a future occurrence of the hazard in the area, but none of these occurrences were recorded for the main campus of Auburn University.

The SHMP rates the probability of a future occurrence of hail in the State of Alabama as medium/low, meaning that the hazard either has little probability of affecting the state, limited data is available for analysis, or it is difficult to mitigate the effects of the hazard; for hazards ranked medium or low, the SHMP includes a qualitative assessment only.[55]

Risk Assessment for the Hail Hazard
While this hazard occurs with some regularity, it is not one with a significant history of causing damages or losses to Auburn University, through there is at least some risk to Auburn's people, assets, infrastructure, and mission from this hazard. The most vulnerable University assets are fleet vehicles and rooftop mounted equipment (solar panels, satellite dishes, communications antenna, etc.). It is possible that modern buildings could sustain roof damage, or that windows could be broken, but – based on the historical record of occurrence – this is unlikely in all but the most severe hail events. Older buildings are more likely to sustain damage from hail events.

Methodology
After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 16 (below).

Hail – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low	Low	Low	Low	Low

Table 16

The details of this assessment can be found in Appendix D, *Tabular Data.*

Risk Assessment Conclusions
Auburn University has a low risk from the hail hazard; this conclusion is supported by the available data, the SHMP, and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus

but also includes all other areas within the county and at the state level. Data that could be collected to improve this assessment prior to the next update includes:

- Value of all assets potentially exposed to hail, including equipment, vehicles, and utilities;
- Specific damages to non-structural assets damaged by hail; and
- Specific damages to equipment and infrastructure damaged by hail.

High wind

This hazard includes hurricanes and other windstorms. It does not address thunderstorm wind or tornadoes, which are both profiled separately.

Description of the High Wind Hazard
As defined by the National Weather Service, wind is

> The horizontal motion of the air past a given point. Winds begin with differences in air pressures. Pressure that's higher at one place than another sets up a force pushing from the high toward the low pressure. The greater the difference in pressures, the stronger the force. The distance between the area of high pressure and the area of low pressure also determines how fast the moving air is accelerated. Meteorologists refer to the force that starts the wind flowing as the "pressure gradient force." High and low pressures are relative. There's no set number that divides high and low pressure. Wind is used to describe the prevailing direction from which the wind is blowing with the speed given usually in miles per hour or knots.[56]

According to NOAA, a hurricane is an intense tropical weather system of strong thunderstorms with well-defined surface circulation and sustained winds of 74 MPH or higher. Hurricanes begin as a tropical disturbance in the open ocean. Table 17 (below and following) defines the various categories of tropical weather.[57]

Tropical Weather Definitions	
Term	**Definition**
Tropical Disturbance	A discrete tropical weather system of apparently organized convection originating in the tropics or subtropics, having a non-frontal migratory character, and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.
Tropical Cyclone	A warm-core non-frontal synoptic-scale cyclone, originating over tropical or subtropical waters, with organized deep convection and a closed surface wind circulation about a well-defined center. Once formed, a tropical cyclone is maintained by the extraction of heat energy from the ocean at high temperature and heat export at the low temperatures of the upper troposphere.

Tropical Weather Definitions	
Term	**Definition**
Tropical Depression	A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) is 33 KT (38 MPH or 62 KM/HR) or less.
Tropical Storm	A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) ranges from 34 KT (39 MPH or 63 KM/HR) to 63 KT (73 MPH or 118 KM/HR).
Hurricane / Typhoon	A tropical cyclone in which the maximum sustained surface wind (using the U.S. 1-minute average) is 64 KT (74 MPH or 119 KM/HR) or more. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline.

Table 17

A hazard associated with hurricanes is extreme wind. As wind speeds increase, pressure against objects is added at a disproportionate rate. Pressure against a wall rises with the square of the wind speed, which means that a threefold increase in wind speed gives a nine-fold increase in pressure. Thus, a 25 MPH wind causes approximately 1.6 pounds of pressure per foot. A 4"x8" sheet of plywood will be pushed by a weight of 50 pounds. In 75 MPH winds, that force becomes 450 pounds, and in 125 MPH winds, it becomes 1,250 pounds. For some structures, this force is enough to cause failure. These winds will weaken after landfall due to loss of warm-water energy source, and the encountering of great friction over land.[58]

Another type of high wind is a derecho, which is a widespread, long-lived wind storm, associated with bands of rapidly moving showers or thunderstorms, known as bow echoes, squall lines, or quasi-linear convective systems. Derecho winds produce damages in a straight line, and are often referred to as straight-line winds. By definition, they meet the National Weather Service's criteria for severe wind (greater than 57MPH), and can exceed 100MPH.[59]

Location of the High Wind Hazard
High wind is a non-spatial hazard. High wind can and does impact the entirety of the planning area.

Extent/Severity of the High Wind Hazard
High wind is usually a forecast hazard, though the actual onset of the wind may be sudden. Of the seven occurrences of non-thunderstorm, non-tornadic wind recorded in the planning area since 2004, the highest recorded windspeed was 60 knots, while the average windspeed was slightly more than 42 knots.[60]

The severity and extent of high winds will vary, depending on the type of event that produces the wind. Table 18 (below) demonstrates the Beaufort Wind Force Scale, used to describe primarily maritime wind conditions.[61]

Beaufort Wind Scale			
Beaufort Number	**Wind Speed in MPH**	**Seaman's Term**	**Visible Effects on Land**
0	> 1	Calm	Calm; smoke rises vertically
1	1-3	Light Air	Smoke drift indicates wind direction; vanes do not move
2	4-7	Light Breeze	Wind felt on face; leaves rustle; vanes begin to move
3	8-12	Gentle Breeze	Leaves, small twigs in constant motion; light flags extended
4	13-18	Moderate Breeze	Dust, leaves and loose paper raised up; small branches move
5	19-24	Fresh Breeze	Small trees begin to sway
6	25-31	Strong Breeze	Large branches of trees in motion; whistling heard in wires
7	32-28	Moderate Gale	Whole trees in motion; resistance felt in walking against the wind
8	39-46	Fresh Gale	Twigs and small branches broken off trees
9	47-54	Strong Gale	Slight structural damage occurs; slate blown from roofs
10	55-63	Whole Gale	Seldom experienced on land; trees broken; structural damage occurs
11	64-72	Storm	Very rarely experienced on land; usually with widespread damage
12	73<	Hurricane Force	Violence and destruction

Table 18

Hurricanes are categorized according to the strength of their winds using the Saffir-Simpson Wind Scale. This scale ranks only wind speed, and increases in scale. It is important to note that lower category storms can inflict greater damage than higher category storms, depending on where they strike, other weather they interact with, and how slow their forward speed.

Table 19 (following) illustrates the wind speed classification and expected wind effects on land from various coastal storm categories, as provided by the National Hurricane Center. These descriptions of land effects are general and are for explanatory purposes only. The actual damage to

land from a given storm will be reliant on a variety of factors, including construction, placement, age, and condition of the structure.[62]

Saffir-Simpson Hurricane Wind Scale			
Category	**Expected Wind Speed (mph)**	**Example Storm(s)**	**Effects on Land**
Category 1 Hurricane	74 – 95	Hurricane Dolly (2008) is an example of a hurricane that brought Category 1 winds and impacts to South Padre Island, Texas.	Older mobile homes could be destroyed, especially if they are not anchored properly, as they tend to shift or roll off their foundations. Newer mobile homes that are anchored properly can sustain damage involving the removal of shingle or metal roof coverings, and loss of vinyl siding. Some poorly constructed frame homes can experience major damage, involving loss of the roof covering and damage to gable ends as well as the removal of porch coverings and awnings. Unprotected windows may break if struck by flying debris. Falling and broken glass will pose a significant danger even after the storm. Large branches of trees will snap and shallow rooted trees can be toppled. Extensive damage to power lines and poles will likely result in power outages that could last a few to several days.
Category 2 Hurricane	96 – 110	Hurricane Frances (2004) is an example of a hurricane that brought Category 2 winds and impacts to coastal portions of Port St. Lucie, Florida with Category 1 conditions experienced elsewhere in the city.	There is a substantial risk of injury or death to people, livestock, and pets due to flying and falling debris. Older mobile homes have a very high chance of being destroyed and the flying debris generated can shred nearby mobile homes. Newer mobile homes can also be destroyed. Poorly constructed frame homes have a high chance of having their roof structures removed especially if they are not anchored properly. Unprotected windows will have a high probability of being broken by flying debris. Well-constructed frame homes could sustain major roof and siding damage.

Saffir-Simpson Hurricane Wind Scale			
Category	**Expected Wind Speed (mph)**	**Example Storm(s)**	**Effects on Land**
Category 3 Hurricane	111 – 130	Hurricane Ivan (2004) is an example of a hurricane that brought Category 3 winds and impacts to coastal portions of Gulf Shores, Alabama with Category 2 conditions experienced elsewhere in the city.	There is a high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older mobile homes will be destroyed. Most newer mobile homes will sustain severe damage with potential for complete roof failure and wall collapse. Poorly constructed frame homes can be destroyed by the removal of the roof and exterior walls. Unprotected windows will be broken by flying debris. Well-built frame homes can experience major damage involving the removal of roof decking and gable ends. There will be a high percentage of roof covering and siding damage to apartment buildings and industrial buildings. Isolated structural damage to wood or steel framing can occur. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to a few weeks after the storm passes.
Category 4 Hurricane	131 – 155	Hurricane Charley (2004) is an example of a hurricane that brought Category 4 winds and impacts to coastal portions of Punta Gorda, Florida with Category 3 conditions experienced elsewhere in the city.	There is a very high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older mobile homes will be destroyed. A high percentage of newer mobile homes also will be destroyed. Poorly constructed homes can sustain complete collapse of all walls as well as the loss of the roof structure. Well-built homes also can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Extensive damage to roof coverings, windows, and doors will occur. Large amounts of windborne debris will be lofted into the air. Windborne debris damage will break most unprotected windows and penetrate some protected windows. There will be a high percentage of structural damage to the top floors of apartment buildings. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months.

Saffir-Simpson Hurricane Wind Scale			
Category	**Expected Wind Speed (mph)**	**Example Storm(s)**	**Effects on Land**
Category 5 Hurricane	>156	Hurricane Andrew (1992) is an example of a hurricane that brought Category 5 winds and impacts to coastal portions of Cutler Ridge, Florida with Category 4 conditions experienced elsewhere in south Miami-Dade County.	People, livestock, and pets are at very high risk of injury or death from flying or falling debris, even if indoors in mobile homes or framed homes. Almost complete destruction of all mobile homes will occur, regardless of age or construction. A high percentage of frame homes will be destroyed, with total roof failure and wall collapse. Extensive damage to roof covers, windows, and doors will occur. Complete collapse of many older metal buildings can occur. Most unreinforced masonry walls will fail which can lead to the collapse of the buildings. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Long-term water shortages will increase human suffering.

Table 19

Impact on Life, Property, and Operations from the High Wind Hazard
Extreme winds have the potential to devastate the Auburn University main campus. High wind can damage buildings, building components, infrastructure, exposed equipment, vehicles, exposed utilities, trees, livestock, crops, and people. Flying debris is a primary concern with high wind, as is the structural integrity of buildings. Trees may be uprooted, which may result in downed power lines, vehicle damages, and building damages when they fall.

Occurrences of the High Wind Hazard
The NCDC storm database reports seven non-thunderstorm, non-tornado high wind events in Lee County since 2004. There is no indication from the data available that any of these events directly impacted Auburn's main campus.[63]

Insurance records provided by Auburn University's Risk Management Department indicates that high wind has impacted the campus a few times in the recent past. A windstorm in April of 2011 damaged more than 20 buildings, and resulted in insurance claims of more than $2.5M.[64]

In October 1995, Auburn University sustained damages from Hurricane Opal. Opal made landfall at Pensacola Beach, FL as a Category 3 hurricane, with maximum sustained winds of 115MPH. Opal retained hurricane force winds until it was north of Lee County and Auburn's main campus, where it weakened to a tropical storm. As is passed by Auburn, windspeeds remained in the 80-100MPH range.[65]

Approximately 30 buildings on Auburn's campus sustained wind damage, largely in the form of damaged or missing shingles and other roof damage. In all, Auburn received almost $75k from their insurance company for this damage, in addition to FEMA Public Assistance funding received for eligible damages.[66]

Opal is not the only hurricane that has come close to Auburn's main campus. As seen in Figure 14 (below), the campus has experienced the effects of many hurricane in the last 150 years.

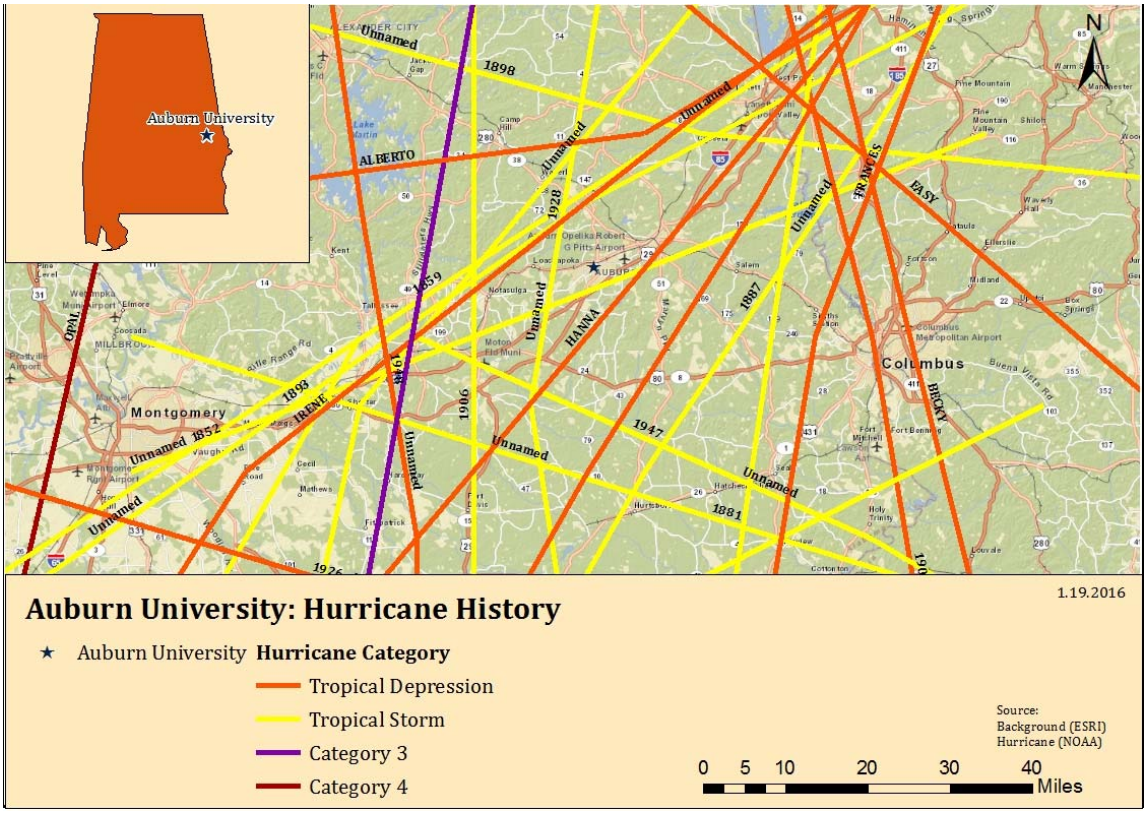


Figure 14

Probability of Future Occurrences of the High Wind Hazard
Data provided by Auburn indicates at least four occurrences of the high wind hazard that have impacted the main campus in the previous 20 years. This equates to an average of one occurrence every five years. In accordance with the scale presented at the beginning of this chapter, this means that the probability of a future occurrence is low.

Data from the NCDC documents seven high wind occurrences since 2004 in Lee County, but none of these occurrences were recorded for the main campus of Auburn University. This equates to approximately one occurrence every 18 months.

The SHMP rates the probability of a future occurrence of high wind in the State of Alabama as high; the SHMP includes a qualitative and a quantitative assessment for this hazard.[67]

Risk Assessment for the High Wind Hazard
While this hazard occurs with some regularity, it is not one with a significant history of causing damages or losses to Auburn University, though there is documented risk to Auburn's people, assets, infrastructure, and mission from this hazard. Despite this lack of history, the Advisory Committee, in recognition of the potential impacts of high wind and the occurrences of high wind in the area surrounding the main campus, determined that this hazard should receive a more in-depth, quantitative risk assessment, in addition to a qualitative risk assessment.

Methodology
After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 20 (below).

High Wind – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low-Moderate	Moderate	Moderate	Moderate	Moderate

Table 20

The details of this assessment can be found in Appendix D, *Tabular Data.*

Auburn University has 227 assets worth an estimated $2,320,021,141. In the event of a significant high wind event, such as a derecho or a hurricane, any one of these assets are vulnerable to damage. If a storm similar to Hurricane Opal were to impact the campus again, it is reasonable to assume that a similar number of assets – approximately 30 – could be damaged by high wind. This would mean that 14% of the assets at Auburn would be damaged, an estimated exposure of approximately $324,802,960. While at least part of this loss would be insured, the loss of function for the damaged assets would result in significant operational impacts to the University, including impacts to the mission of the University. In addition, it is possible that some injuries could be experienced, depending on the timing of the event.

Risk Assessment Conclusions
Auburn University has a moderate risk from the high wind hazard; this conclusion is supported by the available data, the SHMP, and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, as well as state-wide information. Though some campus-specific data does exist, it is largely limited to insurance claim information. Data that could be collected to improve this assessment prior to the next update includes:

- Data regarding the estimated wind load for each building;
- Data regarding incidents of historic wind damage to each asset; and
- Data regarding other damage claims, including FEMA PW claims, to each asset.

Lightning

Description of the Lightning Hazard
Lightning is an electrical discharge produced by a thunderstorm. The discharge may occur between clouds, between a cloud and the ground, between the ground and a cloud, or between clouds and the air. Lightning rapidly heats the air in its immediate vicinity to about 50,000°F - about five times the temperature of the surface of the sun. This compresses the surrounding air and creates a supersonic shock wave, which decays to an acoustic wave that is heard as thunder.[68]

Location of the Lightning Hazard
Lightning is a non-spatial hazard. All locations in the planning area at risk from the lightning hazard.

Extent/Severity of the Lightning Hazard
Though it may be forecast, lightning is a hazard that occurs with little warning to those in the vicinity. Each strike is brief in duration, but the period of lightning occurring in a given storm event can be lengthy, depending on the amount of energy the storm contains and that is available to be expended. For the period of record (10 years) , 12 occurrences of lightning were recorded in the planning area. This equates to 1.2 events per year, on average. For these events, property damages of more than $333,000 were recorded, resulting in annualized damages of more than $33,000 per year.[69] This serves as the extent of magnitude/severity that can be expected to occur in the planning area.

The National Weather Service (NWS) uses a Lightning Activity Level scale to indicate the frequency and character of cloud-to-ground (C/G) lightning, the most common form of lightning on Earth. The scale uses a range of 1 – 6, with 6 being the high end of the scale.[70]

Table 21 (following) provides the details of this scale.

Lightning Activity Level Scale					
Rank	**Cloud and Storm Development**	**Areal Coverage**	**Counts C/G per 5 Minutes**	**Counts C/G per 15 Minutes**	**Average C/G per Minute**
1	No Thunderstorms	None	None	None	None
2	Cumulus clouds are common but only a few reach the towering stage. A single thunderstorm must be confirmed in the rating area. The clouds mostly produce virga but light rain will occasionally reach ground. Lightning is very infrequent.	<15%	1-5	1-8	<1
3	Cumulus clouds are common. Swelling and towering cumulus cover less than 2/10 of the sky. Thunderstorms are few, but 2 to 3 occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	15% to 24%	6-10	9-15	1-2
4	Swelling cumulus and towering cumulus cover 2-3/10 of the sky. Thunderstorms are scattered but more than three must occur within the observation area. Moderate rain is commonly produced, and lightning is frequent.	25% to 50%	11-15	16-25	2-3
5	Towering cumulus and thunderstorms are numerous. They cover more than 3/10 and occasionally obscure the sky. Rain is moderate to heavy, and lightning is frequent and intense.	>50%	>15	>25	>3
6	Dry lightning outbreak. (LAL of 3 or greater with majority of storms producing little or no rainfall.)	>15%	None	None	None

Table 21

Impact on Life, Property, and Operations from the Lightning Hazard

Lightning is the most dangerous and frequently encountered weather hazard that most people in the US experience annually. Lightning creates significant electrical charges, which can result in injuries or fatalities when people come into contact with lightning. Lightning is responsible for an average of 55-60 fatalities each year, and approximately 400 injuries each year. The majority of

lightning victims are people who waited too long to seek shelter; 80% of these victims are males between 15 and 40 years of age.[71]

In addition, lightning can negatively impact structures and utility systems upon contact. The introduction of that significant of an electrical charge can destroy an electrical system that supplies power to a building, damaging or destroying anything connected to the electrical system of that building. For the vast majority of assets owned and operated by Auburn University, electricity is a critical utility, without which the asset is compromised or unable to properly function.

Finally, lightning can result in structure fires or wildfires, which can create further damages, both at the point of contact and in the surrounding area.

Occurrences of the Lightning Hazard
Data obtained from the NCDC indicates that there have been at least 12 occurrences of the lightning hazard in Lee County since 1996. Prior to 1996, lightning was not necessarily recorded as a separate hazard by the NCDC, and so records from before then cannot be assumed to be accurate regarding lightning occurrences.[72]

According to the SHMP, a lightning strike occurs somewhere in the State of Alabama every 6 six days, or 57 times per year. The SHMP provided no details of occurrences in Lee County or that impacted the main campus of Auburn University.[73]

Finally, insurance claim records provided by Auburn's Risk Management Department indicate that there have been at least 11 insurance claims filed by the University for lightning damages, for a total of $117,539 in claims.[74]

Probability of Future Occurrences of the Lightning Hazard
Data provided by Auburn indicates at least 11 occurrences of the lightning hazard that have impacted the main campus in the previous 15 years. This equates to an average slightly below annual for recurrence. In accordance with the scale presented at the beginning of this chapter, this means that the probability of a future occurrence is high. However, the Advisory Committee determined that this hazard has low probability to impact people, assets, infrastructure, and the University's mission, and thus ranked the hazard as low.

The SHMP rates the probability of a future occurrence of lightning in the State of Alabama as medium/low, meaning that the hazard either has little probability of affecting the state, limited data is available for analysis, or it is difficult to mitigate the effects of the hazard; for hazards ranked medium or low, the SHMP includes a qualitative assessment only.[75]

Risk Assessment for the Lightning Hazard
While this hazard occurs with some regularity, it is not one with a significant history of causing damages or losses to Auburn University, though there is at least some risk to Auburn's people,

assets, infrastructure, and mission from this hazard. The most vulnerable University assets are those connected to electrical systems, many of which have additional protection in terms of lightning guards and surge protection. Communications, computer networks, and other electricity-dependent systems have at least some residual risk, however, and the loss of any of these systems could have significant negative impacts on the University, as most data and information management systems are electrical in nature and can be damaged by electrical surges, including those caused by lightning.

Methodology

After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 22 (below).

Lightning – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low	Low	Low	Low	Low

Table 22

The details of this assessment can be found in Appendix D, *Tabular Data.*

Risk Assessment Conclusions

Auburn University has a low risk from the lightning hazard; this conclusion is supported by the available data, the SHMP, and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, at the state level. Data that could be collected to improve this assessment prior to the next update includes:

- Specific assets that have lightning protection in place, and
- Specific assets that have no lightning protection.
-

Severe Thunderstorm

Description of the Severe Thunderstorm Hazard
As defined by the National Weather Service, a severe thunderstorm is a thunderstorm that produces a tornado, winds of at least 58 MPH (50 knots), and/or hail at least ¾" in diameter. Structural wind damage may imply the occurrence of a severe thunderstorm. A thunderstorm wind equal to or greater than 40 MPH (35 knots) and/or hail of at least ½" is defined as approaching severe. Lightning is not required for a severe thunderstorm, regardless of the frequency of occurrence.[76]

Hail, high wind, lightning, and tornadoes are profiled separately in this Plan. This hazard considers severe thunderstorms, which indicates that all or some of these hazards occur simultaneously.

Location of the Severe Thunderstorm Hazard
Severe thunderstorms are a non-spatial hazard, and can impact any part of the planning area.

Extent/Severity of the Severe Thunderstorm Hazard
In the fifty year period from 1966 to 2015, Lee County experienced at least 152 occurrences of the severe thunderstorm hazard. This equates to three severe thunderstorms per year, on average. These recorded storms resulted in at least $819,000 in property and corp damages, which equates to annualized damages of $16,380 per year. Of these recorded events, the most severe occurred in 1996, with windspeeds of 70 knots. This same storm resulted in the highest amount of recorded damages, with $90,000 for this single event. Finally, this storm was responsible for one of two recorded fatalities for the period of record.[77] This storm serves ars the event that resulted in the highest winds, the highest damages, and a fatality for the period, and serves as the extent of magnitude and severity that could be experienced by the planning area from a severe thunderstorm.

For the various extent/severity scales and discussions, please refer to the hail, high wind, lightning, and tornado profiles.

Impact on Life, Property, and Operations from the Severe Thunderstorm Hazard
Severe thunderstorms present a myriad of hazards to the people and assets of the campus. For discussion on the hazards posed by the individual elements of the severe thunderstorm hazard, please refer to the hail, high wind, lightning, and tornado profiles.

Occurrences of the Severe Thunderstorm Hazard
According to the NCDC, there have been many occurrences of the components of the severe thunderstorm hazard in Lee County:

- Hail: 104 occurrences since 1965;
- Lightning: 12 occurrences since 1996;

- Tornado: 30 occurrences since 1953;
- Thunderstorm wind: 152 occurrences since 1966; and
- Wind: seven occurrences since 2004.[78]

Data provided by Auburn's Risk Management Department indicates that there have been at least 46 insurance claims related to severe thunderstorm damage – from wind, lightning, hail, or tornados – since 2001. Many of these claims – 27 of them – were filed in April 2011, following a significant round of severe thunderstorms in the area. In all, these claims amounted in more than $4M in payments to Auburn, to compensate for damages from severe thunderstorm to insured assets.

Probability of Future Occurrences of the Severe Thunderstorm Hazard
Data obtained from the NCDC indicates that there have been at least 151 occurrences of the thunderstorm wind hazard in Lee County since 1966. For the 49 year period for which these records are available, this equals an average of 3 thunderstorms per year. Using the scale provided at the beginning of this chapter, this equals a high probability of a future occurrence.[79]

Risk Assessment for the Severe Thunderstorm Hazard
The severe thunderstorm hazard presents a myriad of risks to Auburn University. Though high in frequency of occurrence, the majority of occurrences are relatively low impact events. Though Auburn has a great deal of exposure to hail, lightning, and wind, most occurrences of the hazard are not severe enough to cause significant damages to the University, its people, or its assets.

Methodology
After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 23 (below).

Severe Thunderstorm – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low	Low	Low	Low	Low

Table 23

The details of this assessment can be found in Appendix D, *Tabular Data.*

Risk Assessment Conclusions
Auburn University has a low risk from the severe thunderstorm hazard; this conclusion is supported by both the available data and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, at the state level.

Sinkhole/Land Subsidence

Description of the Sinkhole/Land Subsidence Hazard
Sinkholes are depressions in the ground that result from the collapse of an underground void. Areas that have sinkholes are known as karst terrain or topography. Typically, the bedrock underneath an area with sinkholes is comprised of limestone. When rainwater, which is naturally slightly acidic, moves through the ground and into cracks and crevices in the limestone, the rainwater dissolves the rock, increasing the size of the cracks and crevices, eventually forming caves or caverns. Eventually, the roof of the cave or cavern becomes too weak to support the weight of the ground above, the roof will collapse, creating a sinkhole.[80]

Land subsidence typically occurs when large amounts of groundwater are withdrawn from certain types of rocks, such a fine-grained sediments. The rock compacts as a result of the removal of the water, which was partly responsible for holding up the ground. When the water is withdrawn, the rock collapses in on itself. A primary cause of land subsidence in the US is groundwater pumping.[81]

Location of the Sinkhole/Land Subsidence Hazard
According to the Geological Survey of Alabama, sinkholes are fairly common in both northern and southern Alabama. In central Alabama – specifically in the area around Lee County – they are less common. Figure 15 (following) illustrates the location of sinkholes within 100 miles of the Auburn University campus.

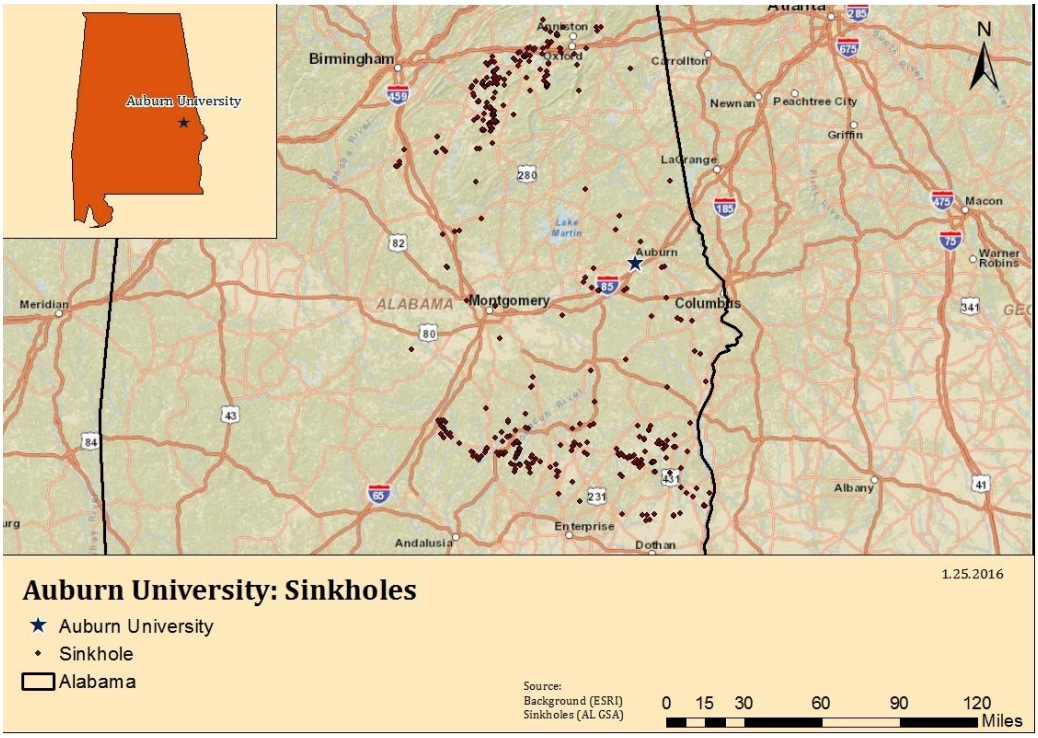


Figure 15

Figure 16 (following) illustrates the location of sinkholes in the State of Alabama. According to this figure, which includes data through 2010, there is one sinkhole in Lee County, located in the northern part of the county. This sinkhole is not located on the main campus of Auburn University.[82]

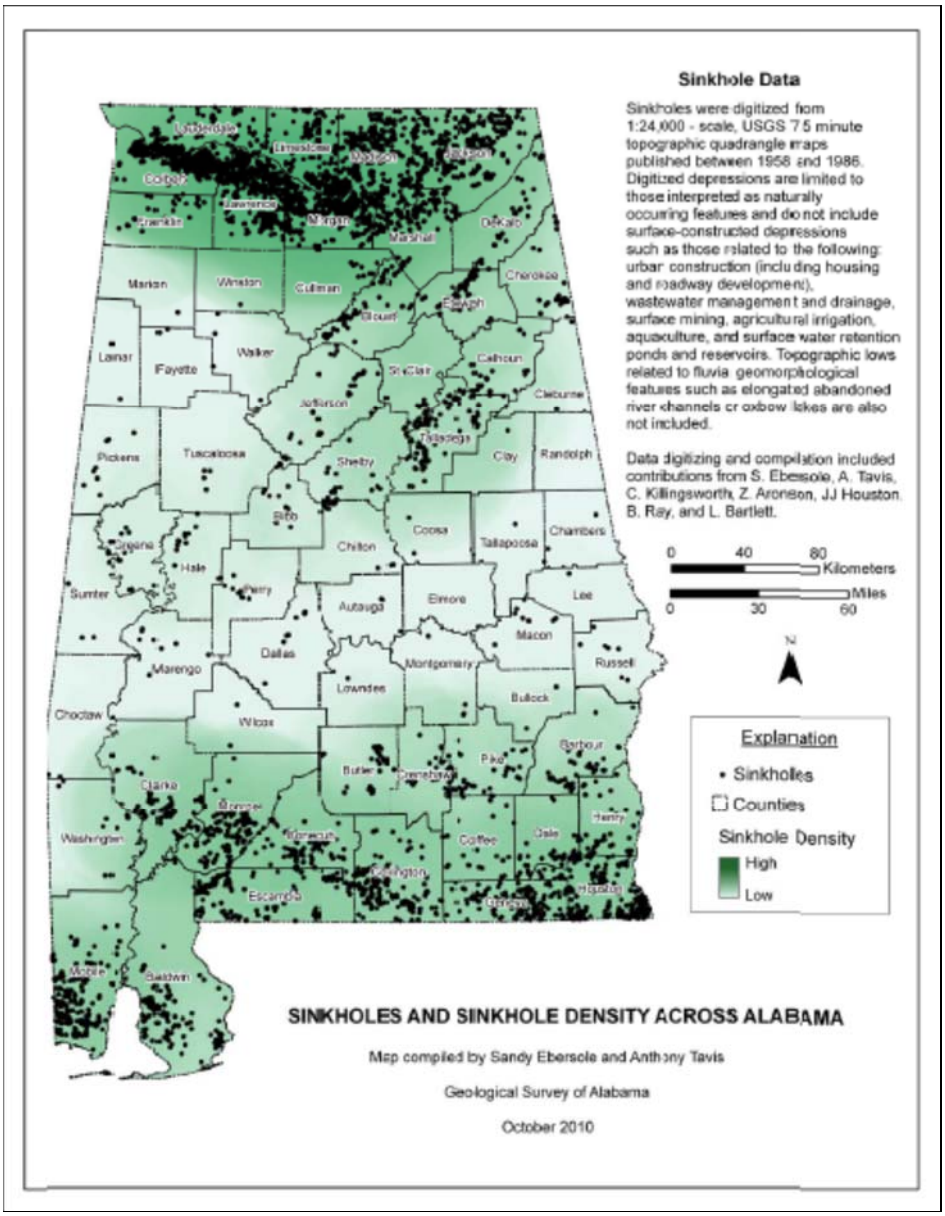


Figure 16

Extent/Severity of the Sinkhole/Land Subsidence Hazard

There is no published or standard scale for this geologic hazard. Rather there are some identified triggering mechanisms that can be discussed and noted.

Changes in the local environment that cause subsidence or sinkholes are called triggering mechanisms. Water is the primary factor that affects the local environment and causes subsidence. Water level decline, changes in groundwater flow, increased loading, and deterioration (such as abandoned mines) are all triggering mechanisms. Water level decline may occur naturally, or it may be the result of human action. Factors that lead to water decline are pumping (from wells), localized drainage (for construction activities), dewatering, or drought.

Changes in groundwater flow can result from an increase in the velocity of groundwater movement, and increase in the frequency of water table fluctuations, and changes in discharge (either increase or decrease). Increased loading can cause pressure in the soil, leading to the failure of underground cavities and space, such as caves. Vibrations from earthquakes, heavy machinery, and blasting may result in structural collapse, followed by surface resettlement.[83]

There are no previous instances of sinkholes/land subsidence at Auburn Univeristy; however, it is possible for Auburn University's assets to experience the full extent of a sinkhole/land subsidence. Lee County has experienced sinkholes in the area; however, the sizes of the sinkholes were not readily available during plan development. There is a sinkhole in nearby Calera, in Shelby County, which opened in 1972. The sinkhole measures approximately 350 feet wide by 425 feet long and 150 feet deep, is one of the largest on record in the US.[84]

Impact on Life, Property, and Operations from the Sinkhole/Land Subsidence Hazard
Sinkholes and subsidence both result in a loss of land, and instability in the land that surrounds the area. This renders the area unsafe, and unusable for construction or agriculture. In the event of a sudden collapse, any built environment in the area may be damaged or destroyed, including underground utilities. People or animals in the area may be injured or killed by the sudden collapse of the ground.

Occurrences of the Sinkhole/Land Subsidence Hazard
According to the *Lee County Natural Hazard Mitigation Plan,* Lee County has experienced more than 100 sinkholes since 2002. These sinkholes have occurred largely in the area of Lee Road 166 and Lee Road 148.[85] These areas are not in the area of Auburn University.

The SHMP reveals that sinkholes have become a more common problem in areas that have been affected by drought – including Lee County – in recent years, including the City of Auburn, but provides no indication of any sinkholes that have impacted Auburn University or its assets. The SHMP also details a sinkhole near Calera in Shelby County, which opened in 1972. This sinkhole, which measures approximately 350 feet wide by 425 feet long and 150 feet deep, is one of the largest on record in the US.[86]

While the Advisory Committee considers this hazard to be one that is possible to impact Auburn University, they reported no occurrences of this hazard occurring on Auburn property or impacting the campus.

Probability of Future Occurrences of the Sinkhole/Land Subsidence Hazard
There is no documented history of the sinkhole/land subsidence hazard impacting Auburn University. Using the scale provided at the beginning of this section, the probability of a future occurrence of the hazard is low.

The SHMP rates the probability of a future occurrence of sinkhole/land subsidence in the State of Alabama as low/low, meaning that the hazard either has little probability of affecting the state, limited data is available for analysis, or it is difficult to mitigate the effects of the hazard; for hazards ranked medium or low, the SHMP includes a qualitative assessment only.[87]

Risk Assessment for the Sinkhole/Land Subsidence Hazard

While there is no documented history of this hazard impacting Auburn University, the possibility remains that it could, either directly or indirectly. It is possible that a sinkhole could occur on Auburn's campus. It is also possible that a sinkhole in another area could impact groundwater supplies that eventually are used by Auburn, either for human/animal consumption or for irrigation. When the ground opens, contaminants can enter the opened area and enter any groundwater that is present. These contaminants can include agricultural products and runoff, fertilizers, and substances stored in underground tanks, such as fuels. This contamination can pollute wells and other sources of water.

Methodology

After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 24 (below).

Sinkhole/Land Subsidence – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low	Low	Low	Low	Low

Table 24

The details of this assessment can be found in Appendix D, *Tabular Data.*

Risk Assessment Conclusions

Auburn University has a low risk from the sinkhole/land subsidence hazard; this conclusion is supported by both the available data and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, at the state level. Data that could be collected to improve this risk assessment includes:

- Data regarding exact distances from known sinkholes to Auburn assets, and
- Data regarding known sinkholes that have been contaminated, and any possible groundwater or well contamination that resulted.

Tornado

Description of the Tornado Hazard

Tornadoes are extreme wind events. The most destructive of all atmospheric phenomena, tornadoes are violently rotating columns of air. These columns extend between and in contact with a cloud and the Earth's surface. The most violent tornadoes have rotational wind speeds of 250 MPH; in extreme cases, rotational wind speeds may approach 300 MPH. Tornadoes are often produced by severe thunderstorms.[88]

Location of the Tornado Hazard

Tornadoes are a non-spatial hazard. The entire planning area can be affected by a tornado. Figure 17 (below) illustrates the path of historical tornadoes in relation to Auburn's main campus.

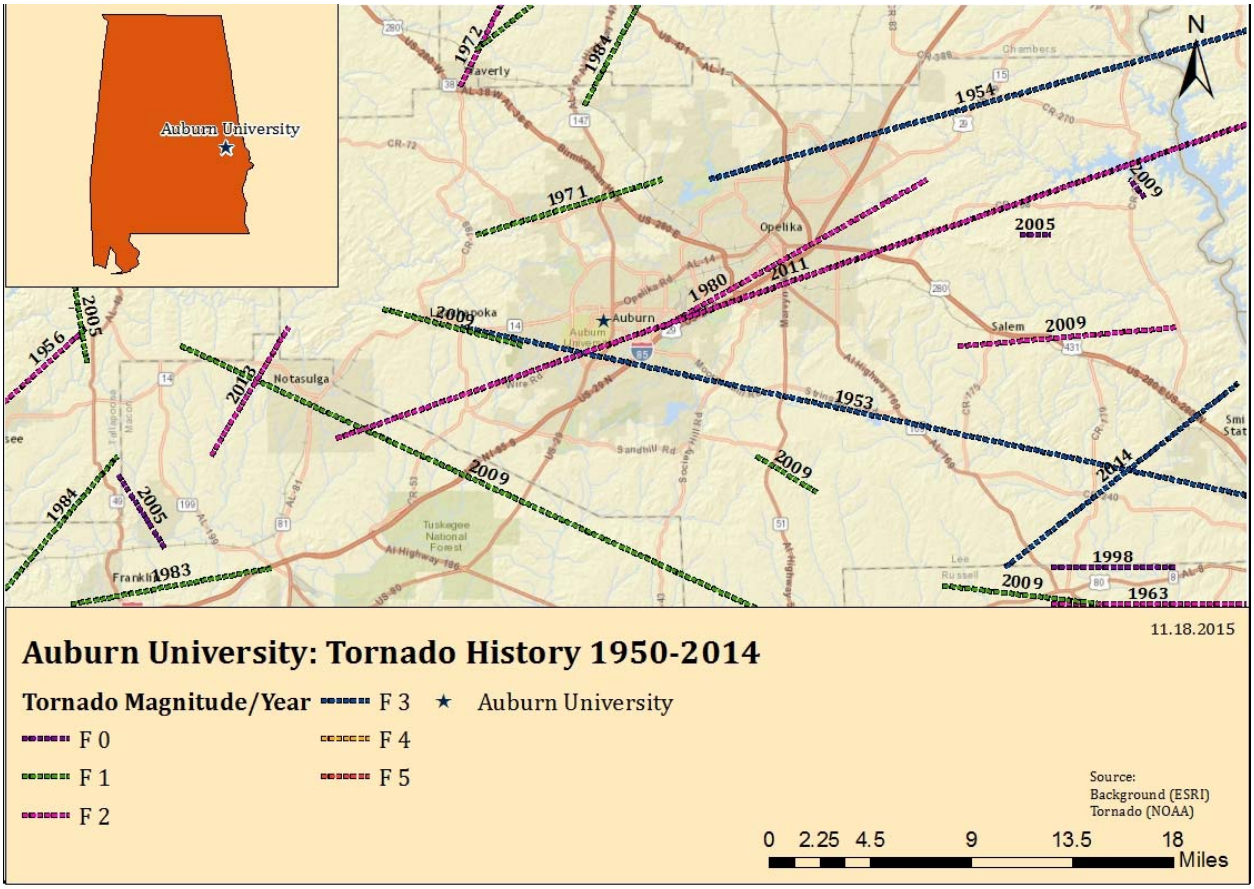


Figure 17

Extent/Severity of the Tornado Hazard

In April 2011, an F4 torando touched down very near the Auburn campus, though not in Lee County. In December 2011, an EF1 torando touched down on and damaged assets on the Auburn campus. The campus has sustained at least $13,000 in direct damages from tornadoes. Since 1953, at least 30 funnel clouds/tornados have been recorded in Lee County, resulting in more than $13.7 million in property damage, six fatalities, and 231 injuries.[89] Annualized, this amounts to .47 tornadoes, $217,523 in property damage, .11 fatalities, and 3.6 injuries per year. This represents the extent of the tornado hazard that can be expected in the planning area.

Tornado wind forces are measured and described according to the Fujita Scale. The Fujita Scale is largely a residential structure damage scale, which tends to have much more standardized construction than commercial structures. The Fujita Scale is intended to describe the expected damage to well-built residential structures. This makes its use often misleading, as poorly built structures can suffer significant structural damage under lesser winds than the Scale would suggest. The Storm Prediction Center, a NOAA office, states the following regarding the use of the Fujita Scale:

> Do not use F-scale winds literally. These precise wind speed numbers are actually guesses and have never been scientifically verified. Different wind speeds may cause similar-looking damage from place to place -- even from building to building. *Without a thorough engineering analysis of tornado damage in any event, the actual wind speeds needed to cause that damage are unknown.*

In February 2007, use of the Fujita Scale was discontinued. In its place, the Enhanced Fujita Scale is used. The Enhanced Fujita Scale retains the same basic design as its predecessor, but reflects a more refined assessment of tornado damage surveys, standardization and damage consideration to a wider range of structure types. The new scale takes into account how most structures are designed, and is thought to be a much more accurate representation of the surface wind speeds in the most violent tornadoes. It is important to note the date a tornado occurred, as tornadoes which occurred prior to February 2007 are classified by the old scale and will not be converted to the Enhanced Fujita Scale.[90]

Table 25 (below and following) provides details of the Fujita Scale.[91]

The Fujita Scale (pre-2007)			
F-Scale Number	**Intensity Phrase**	**Wind Speed**	**Type of Damage**
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

The Fujita Scale (pre-2007)			
F-Scale Number	**Intensity Phrase**	**Wind Speed**	**Type of Damage**
			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.
F6	Inconceivable tornado	319-379 mph	These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 wind that would surround the F6 winds. Missiles, such as cars and refrigerators would do serious secondary damage that could not be directly identified as F6 damage. If this level is ever achieved, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies

Table 25

Table 26 (below and following) illustrates the Enhanced Fujita Scale, currently in use.[92]

Enhanced Fujita Scale (2007-present)		
Enhanced Fujita Category	**Wind Speed (mph)**	**Potential Damage**
EF0	65-85	**Light damage.** Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.

Enhanced Fujita Scale (2007-present)		
Enhanced Fujita Category	**Wind Speed (mph)**	**Potential Damage**
EF1	86-110	**Moderate damage.** Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135	**Considerable damage.** Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136-165	**Severe damage.** Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	166-200	**Devastating damage.** Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	>200	**Incredible damage.** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd); high-rise buildings have significant structural deformation; incredible phenomena will occur.

Table 26

Impact on Life, Property, and Operations from the Tornado Hazard
Tornado damage typically happens in one of two ways – either from direct exposure to the extreme winds of the vortex, or from the impact of flying debris. In developed areas, such as the main campus of Auburn University, tornadoes essentially act as giant blenders full of projectiles – boards, glass, bricks, metal, shingles, trees, appliances, chemicals, utility lines. All materials in the path – both those that comprise the structure and those that comprise the contents of the structure – can be pulled into the winds of a tornado, resulting in damages to other buildings, people, livestock, and the environment.

Occurrences of the Tornado Hazard
According to the NCDC, at least 30 occurrences of the tornado hazard have occurred in Lee County since 1953.[93] At least one of these occurrences was documented to impact Auburn's main campus.

In April of 2011, severe storms, including tornadoes, swept through the southeast. 68 tornadoes were reported throughout the southeast, as were 90 occurrences of hail and more than 1300

reports of wind.[94] Auburn University suffered significant damage, resulting in a number of insurance claims, including at least one for tornado damage to the Dairy Barn. Later that same year, another tornado damaged a livestock shelter, resulting in an insurance claim of more than $13,000 for damages.[95]

Probability of Future Occurrences of the Tornado Hazard
In the 62 year period for which records have been kept, the NCDC has recorded 30 tornadoes in Lee County. This equates to approximately one tornado every other year. Using the scale at the beginning of this section, this equates to a moderate probability of a future occurrence.

The SHMP rates the probability of a future occurrence of tornado in the State of Alabama as high; the SHMP includes a qualitative and a quantitative assessment for this hazard.[96]

Risk Assessment for the Tornado Hazard
While this hazard occurs with some regularity, it is not one with a significant history of causing damages or losses to Auburn University, though there is documented risk to Auburn's people, assets, infrastructure, and mission from this hazard. Despite this lack of history, the Advisory Committee, in recognition of the potential impacts of high wind and the occurrences of tornado in the area surrounding the main campus, determined that this hazard should receive a more in-depth, quantitative risk assessment, in addition to a qualitative risk assessment.

Methodology
After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 27 (below).

Tornado – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Moderate	Moderate	Moderate	Moderate	Moderate

Table 27

The details of this assessment can be found in Appendix D, *Tabular Data.*

To assess the potential risk of tornadoes to Auburn University, a scenario was created. Using data on a historic EF2 tornado, the track of this historic tornado was shifted to directly impact the

Auburn campus. A .25 mile wide buffer zone was created, indicating a track of one-half mile wide. The assets in the path of this scenario were calculated.

Figure 18 (below) illustrates this scenario.

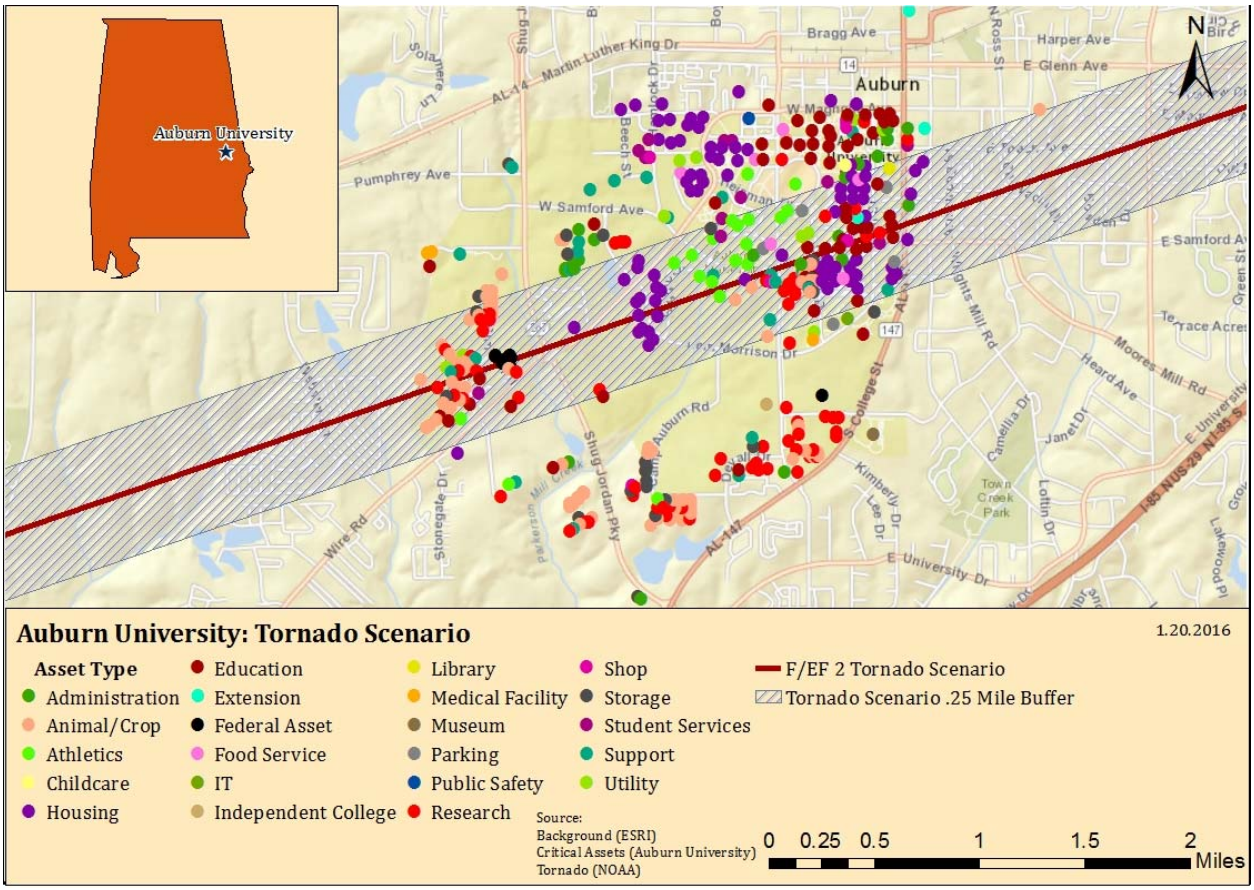


Figure 18

In the scenario depicted above, 112 Auburn University assets, with an estimated value of $1,121,743,600, would be at risk from this tornado. If even 10% of these exposed assets were damaged, that would still result in more than $112M dollars in damages and repairs.

Hundreds if not thousands of people would be exposed to extreme winds and debris, each one of them at risk from injury or fatality. Auburn takes this exposure seriously, and publishes a variety of maps indicating the location of emergency shelter-in-place locations throughout the campus. Figure 19 (following) illustrates one of these maps; this one provides safe place locations for Gamedays.

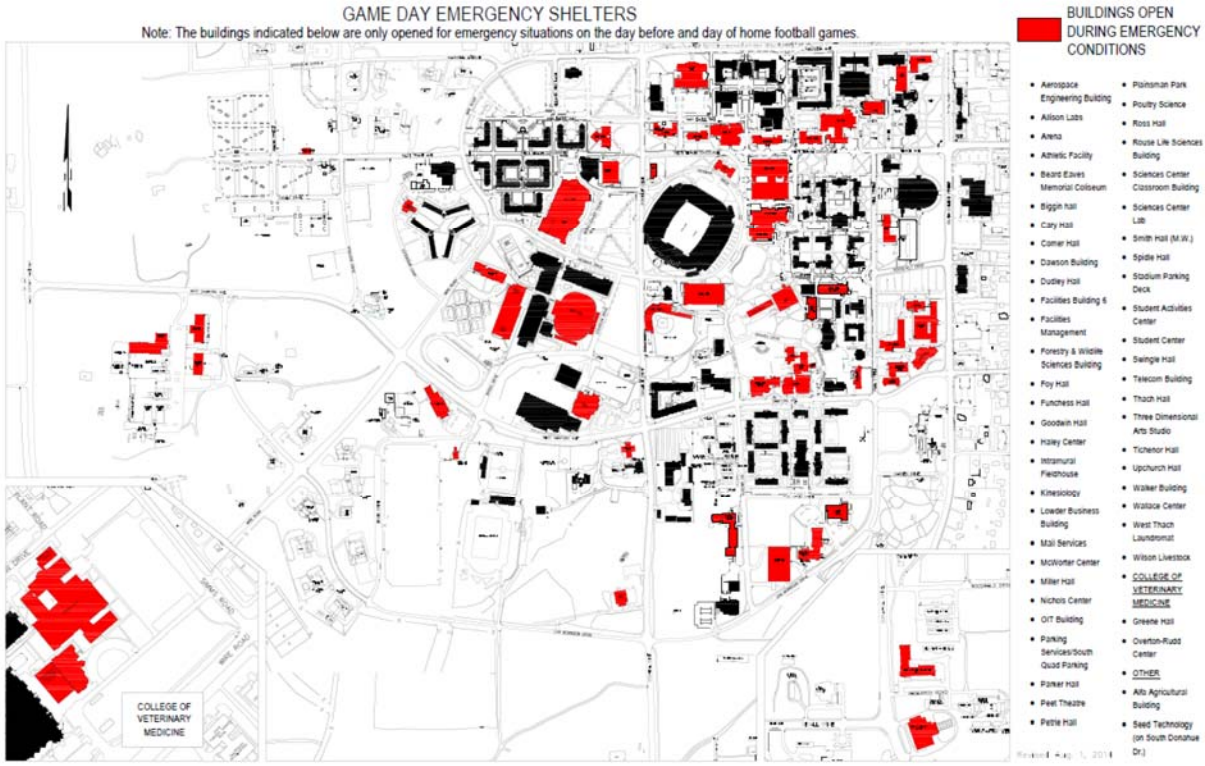


Figure 19

Risk Assessment Conclusions

Auburn University has a moderate risk from the tornado hazard; this conclusion is supported by the available data, the SHMP, and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, as well as state-wide information. Though some campus-specific data does exist, it is largely limited to insurance claim information. Data that could be collected to improve this assessment prior to the next update includes:

- Data regarding the estimated wind load for each building;
- Data regarding incidents of historic wind damage to each asset; and
- Data regarding other damage claims, including FEMA PW claims, to each asset.

Wildfire

Description of the Hazard

Fire is the rapid oxidation of a material in the chemical process of combustion, releasing heat, light, and various reaction products.[97] The flame is the visible portion of the fire and consists of glowing hot gases. If hot enough, the gases may become ionized to produce plasma. Depending on the substances alight, and any impurities outside, the color of the flame and the fire's intensity might vary.

Wildfires are any fire that occurs on grassland, forest or prairie, regardless of ignition source, damages, or benefits. Wildfires are usually a naturally occurring phenomenon, though they can be caused by human action, namely arson. A wildfire differs from other fires by its extensive size, the speed at which it can spread out from its original source, its potential to change direction unexpectedly, and its ability to jump gaps such as roads, rivers and firebreaks. Wildfires are characterized in terms of the cause of ignition, their physical properties such as speed of propagation, the combustible material present, and the effect of weather on the fire.[98]

Location of the Wildfire Hazard

While fire is a hazard that can occur anywhere, some areas are more prone to fire than others. Wildfires can occur anywhere that burnable vegetation exists. Figure 20 (below) illustrates the land cover on and around the Auburn University main campus.

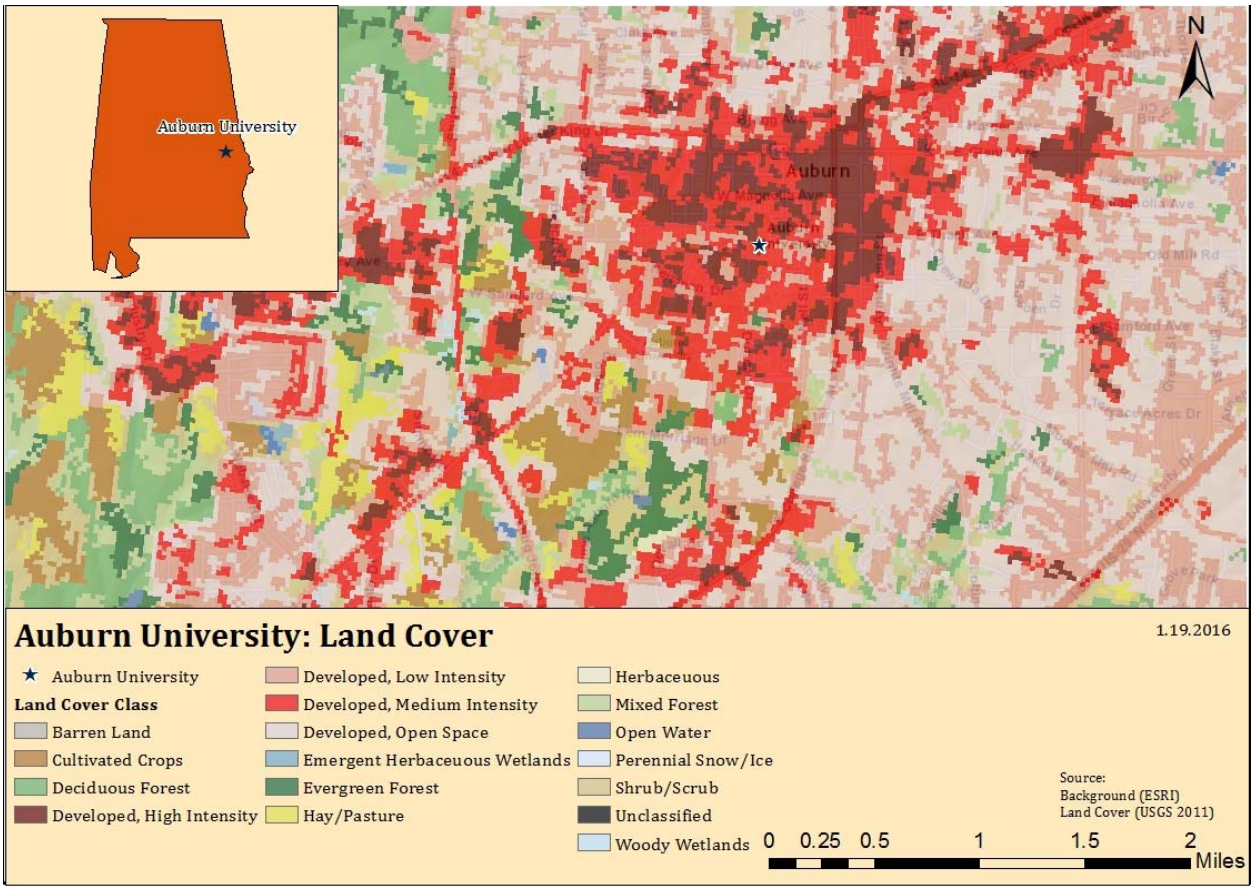


Figure 20

As seen in the figure above, the majority of the campus itself is comprised of low and medium density development, making it unlikely that a wildfire would begin on the campus itself. However, the area around the campus has quite a bit of hay/pasture, forest, and crop lands, all of which are good candidates for wildfires.

The US Forest Service has a product called the Wildland Fire Potential assessment tool. This product provides an overview assessment of the areas within a defined area that have the potential to experience wildfire. Figure 21 (following) illustrates the wildland fire potential for Auburn University main campus, as estimated by the US Forest Service.

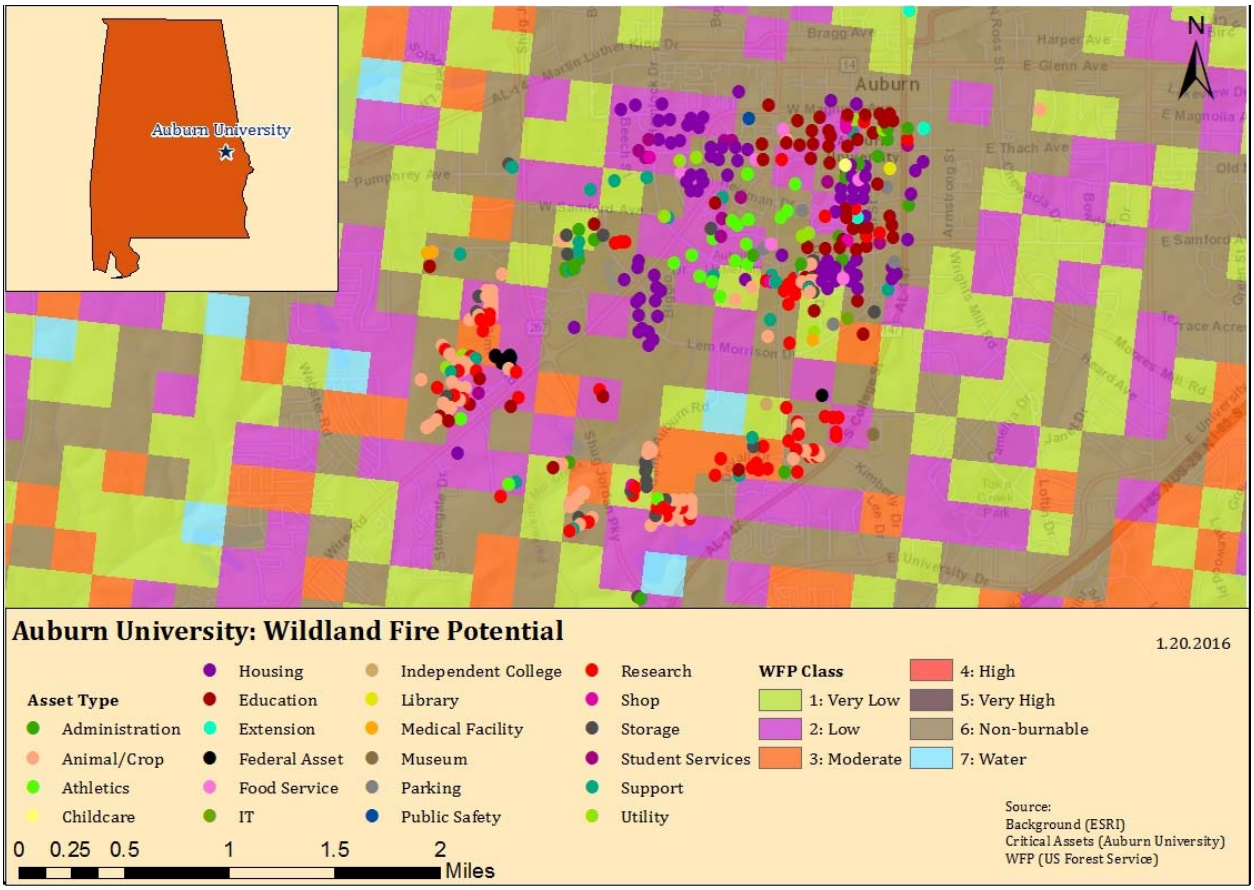


Figure 21

Note that the areas designated as "non-burnable" in the figure above are predominantly either developed or agricultural land, and that they are subject to other types of fire. By definition of the US Forest Service, however, they are outside of the wildland fire potential area.

Extent/Severity of the Wildfire Hazard

Since 2009, 112 fires have burned an estimated 1,900 acres in Lee County, for an average fire size of approximately 17 acres burned for fire.[99] This represents the likely extent of the wildfire hazard that could impact the planning area.

The National Fire Danger Rating System (NFDRS) is the current system in use for rating and classifying the potential danger of fire. The NFDRS tracks the effects of previous weather events on both dead and live fuel loads, and adjusts accordingly based on future or predicted weather conditions. These complex relationships and equations are computed, and the outputs are expressed in terms that users can quickly and easily understand. The current NFDRS is used by all federal and most state agencies to assess fire danger conditions.[100]

Table 28 (below) depicts the US Forest Service's Wildland Fire Assessment System, which is a method of normalizing rating classes across different fuel models, indexes, and station locations. It is based on the primary fuel model cataloged for the station, and reflects current staffing levels and climate conditions.[101]

Wildland Fire Assessment System		
Rating	**Basic Description**	**Detailed Description**
CLASS 1: Low Danger (L) COLOR CODE: **Green**	Fires not easily started	Fuels do not ignite readily from small firebrands. Fires in open or cured grassland may burn freely a few hours after rain, but wood fires spread slowly by creeping or smoldering and burn in irregular fingers. There is little danger of spotting.
CLASS 2: Moderate Danger (M) COLOR CODE: **Blue**	Fires start easily and spread at a moderate rate	Fires can start from most accidental causes. Fires in open cured grassland will burn briskly and spread rapidly on windy days. Wood fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel – especially draped fuel - may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.
CLASS 3: High Danger (H) COLOR CODE: **Yellow**	Fires start easily and spread at a rapid rate	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High intensity burning may develop on slopes or in concentrations of fine fuel. Fires may become serious and their control difficult, unless they are hit hard and fast while small.
CLASS 4: Very High Danger (VH) COLOR CODE: **Orange**	Fires start very easily and spread at a very fast rate	Fires start easily from all causes and immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high-intensity characteristics - such as long-distance spotting - and fire whirlwinds, when they burn into heavier fuels. Direct attack at the head of such fires is rarely possible after they have been burning more than a few minutes.
CLASS 5: Extreme (E) COLOR CODE: **Red**	Fire situation is explosive and can result in extensive property damage	Fires under extreme conditions start quickly, spread furiously and burn intensely. All fires are potentially serious. Development into high-intensity burning will usually be faster and occur from smaller fires than in the Very High Danger class (4). Direct attack is rarely possible and may be dangerous, except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions, the only effective and safe control action is on the flanks, until the weather changes or the fuel supply lessens.

Table 28

Wildfire is a hazard with a somewhat unpredictable nature. While it is at least somewhat possible to determine the areas that may be subject to experiencing wildfire, it is not possible to determine in advance how or where a wildfire will begin. Only the conditions for a wildfire can be predicted with any accuracy.

Potential Impact of the Wildfire Hazard
As a land grant university, Auburn has significant holdings of crop, agriculture, and forest lands. These lands are prime candidates for wildfires, under the proper set of conditions. The loss or damage of these lands by wildfire would be detrimental in the short-term, though there is likely some long-term benefit to the land itself from fire, which is a natural phenomenon. Though this benefit likely exists, the fire itself poses a risk to Auburn and its people and assets, as the assets and people may be damaged or harmed by the fire. Infrastructure is also at risk, as the supply and delivery lines may be damaged, resulting in a loss of function for the utility.

Past Occurrences of the Wildfire Hazard
Information obtained from the Alabama Forestry Commission (AFC) confirms that there have been 13,659 wildfires in the State of Alabama since January 1, 2009. These fires burned as estimated 217,651.65 acres of land. Of these 13,659 wildfires, 112 of them were in Lee County. Those 112 fires burned an estimated 1,913.45 acres of land in Lee County, for an average fire size of 17.08 acres.[102] The AFC had no additional information as to if any of these fires impacted the main campus of Auburn University.

The Advisory Committee reported some small, anecdotal incidents of small wildfires, but nothing of any size or note, and no damages were reported.

Probability of a Future Occurrence of the Wildfire Hazard
There is no documented history of the wildfire hazard impacting Auburn University. Using the scale provided at the beginning of this section, the probability of a future occurrence of the hazard is low.

The SHMP rates the probability of a future occurrence of wildfire in the State of Alabama as medium/low, meaning that the hazard either has little probability of affecting the state, limited data is available for analysis, or it is difficult to mitigate the effects of the hazard; for hazards ranked medium or low, the SHMP includes a qualitative assessment only.[103]

Risk Assessment for the Wildfire Hazard
While there is no documented history of this hazard impacting Auburn University, the possibility remains that it could, either directly or indirectly. It is possible that a wildfire could ignite around Auburn's campus, and spread to the campus or its supporting infrastructure. This would present the risk of negatively impacting the assets, people, infrastructure, and function of the campus, resulting in negative impacts to the mission of Auburn University.

Methodology
After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 29 (below).

Wildfire – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low	Low	Low	Low	Low

Table 29

The details of this assessment can be found in Appendix D, *Tabular Data.*

Risk Assessment Conclusions
Auburn University has a low risk from the wildfire hazard; this conclusion is supported by both the available data and the assessment of the Advisory Committee.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, at the state level. Data that could be collected to improve this risk assessment includes:

- Data regarding estimated burn loads in the areas around Auburn's campus, and
- Data regarding previous occurrences of wildfires in the areas around the campus, no matter how small or seemingly insignificant.

Winter Storm

Description of the Winter Storm Hazard
Winter storms are uncommon in the planning area, but they do happen. In some cases, these winter storms can and have caused serious damage in areas where they occur. Winter storms can encompass a variety of hazards that can produce life threatening situations and damage to property, as detailed following.

Snow

The National Weather Service defines snow as "precipitation is the form of ice crystals, mainly of intricately branched, hexagonal form and often agglomerated into snowflakes, formed directly from the freezing [disposition] of the water vapor in the air."[104]

Heavy snow accumulations, generally more than 6" of snow in less than 24 hours or more than 4" in less than 12 hours[105], can immobilize a community by bringing transportation to a halt. Until the snow can be removed, transportation routes are slowed or closed completely, limiting or halting the transportation of goods, services, and people. These closures also disrupt emergency services. In addition, accumulations of snow on roofs can cause collapse, and can cause trees and power lines to fall. A quick thaw after a significant snowfall can lead to substantial flooding, particularly in urban areas where there is more impermeable surface. Injuries and fatalities related to heavy snow are often associated with physical exertion (from shoveling) and from hypothermia.

Ice

Ice is the solid form of water, produced by freezing temperatures.[106] The National Weather Service defines an ice storm as "occasions when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication. These accumulations of ice make walking and driving extremely dangerous. Significant ice accumulations are usually accumulations of ¼" or greater."

The term "ice storm" is used to describe occasions when damaging accumulations of ice are expected during freezing rain situations. Ice storms can be the most damaging of winter phenomena, and are often the cause of automobile accidents, utility failures, personal injury, and death.[107] Moreover, they significantly impact the delivery of emergency services.

Location of the Winter Storm Hazard

Winter storms are a non-spatial hazards. All locations in the planning area at risk from winter storms.

Extent/Severity of the Winter Storm Hazard

Since 1996, at least 13 occurrences of winter storms have been recorded in the planning area. Of these, three produced significant snowfall. In 2002, between four and seven inches fell over the planning area in two events in less than 24 hours. In 2009, three to five inches fell in a single event. In 2010, three to four inches fell in a short period of time in a single day.[108]

Winter storms have a wide range of extent and severity markers and characteristics.

Snow
Various intensities of snowfall are defined differently:

- **Blizzard** describes winds of 35 mph or more with considerable falling and/or blowing snow that reduces visibility to less than one-quarter mile for at least three hours.[109]
- **Blowing snow** describes wind-driven snow that reduces surface visibility. Blowing snow may be falling snow and/or snow on the ground that is picked up by the wind. Blowing snow is typically accompanied by drifting snow.[110]
- **Snow squall** describes a brief, intense snow shower accompanied by strong, gusty winds. Accumulation from snow squalls can be significant.[111]
- **Snow shower** describes snow that falls at varying intensities for short durations. Accumulations are possible, but not required.[112]

Blizzard warnings are issued for winter storms that are predicted to meet the definition of a blizzard. Blowing snow advisories are issued when such conditions are expected.[113] Snow advisories are issued when a low pressure system produces snow that may cause significant inconveniences, but do not meet warning criteria, and – if caution is not exercised – could lead to life threatening situations. The threshold criteria caries from area to area. Such an advisory may be issued if the forecaster feels the situation warrants one, even if the minimum criteria is not expected to be met. For example, a snow advisory may be issued for the first snow of the season, or if snow has not fallen in some time.[114]

Ice
Ice presents a hazard in a variety of forms:

- **Ice storm** is an occasion when damaging accumulations of ice during freezing rain situations. Significant amounts of ice typically damage trees and utility lines, and accumulations can make walking and driving exceptionally hazardous. Significant accumulations are typically one-quarter inch or greater.[115]
- **Sleet** is rain that freezes into ice pellets before it reaches the ground. Sleet usually bounces when hitting a surface and does not stick to objects; however, it can accumulate like snow and cause roads and walkways to become hazardous.[116]
- **Freezing drizzle** is a drizzle that falls as a liquid but freezes into a glaze upon contact with the cold ground or surface structures.[117]
- **Freezing rain** is rain that falls onto a surface that has a temperature below freezing. The cold surface causes the rain to freeze so the surfaces—trees, utility wires, vehicles, and roads—become glazed with ice.[118]

An ice storm warning is issued by the National Weather Service when freezing rain produces a significant and possibly damaging accumulation of ice. The criteria for this

warning varies from place to place, but will typically be issued any time more than one-quarter inch of ice is expected to accumulate in a given area.[119]

A sleet warning is issued when an accumulation of more than one-half inch of sleet is expected. This is a relatively rare scenario; most warnings are issued as winter storm warnings for heavy sleet.[120]

A freezing drizzle advisory or a freezing rain advisory is issued when freezing rain or freezing drizzle is forecast but significant accumulation is not expected. However, even small amounts of freezing rain or freezing drizzle can cause significant travel disruptions.[121]

Finally, the National Weather Service may issue a winter weather advisory when a low pressure system produces a combination of winter weather (snow, freezing rain, etc.) that present a hazard but does not meet established warning criteria. A winter storm watch is issued when there is a potential for heavy snow or significant ice accumulations, usually at least 24-36 hours in advance; the criteria for what defines a winter storm varies from place to place. A winter storm warning is issued when a winter storm is actively producing or is forecast to produce heavy snow or significant ice accumulations; the criteria for what defines a winter storm varies from place to place.[122]

Impact on Life, Property, and Operations from the Severe Winter Storm Hazard
According to the National Severe Storms Laboratory (NSSL), most deaths from winter storms are not related to the storm itself. Rather, they are related to traffic accidents, heart attacks (from shoveling snow), and hypothermia (from prolonged exposure to cold). Of the injuries that are related to winter storms:

- 70% occur in automobiles;
- 25% are people caught in the storm; and
- 49% are male and over 40.[123]

Heavy accumulations of ice can bring down trees and topple utility poles and communication towers. Ice can disrupt communications and power for days while utility companies repair damage. Even small accumulations of ice can be severely dangerous to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces.

Severe winter weather can bring the Auburn campus to a standstill by inhibiting transportation, knocking down trees and utility lines, and making walkways treacherous or impassable. Ingress and egress to the campus may be impacted, resulting in students and employees being unable to get to or leave the campus. Animals may be endangered if staff cannot reach them, for feeding or medical care.

In addition to the threat posed to humans, severe winter storms pose a significant threat to utility production, which in turn threatens facilities and operations that rely on utilities, specifically climate stabilization. As temperature drop and stay low, increased demand for heating places a strain on the electrical grid, which can lead to temporary outages.

Occurrences of the Winter Storm Hazard
The NCDC has recorded a total of 11 winter weather events in Lee County since 1996. Of these, three were winter storms, two were winter weather, four were heavy snow, and two were ice storms.[124] This averages to one occurrence of the hazard approximately every other year. Because of the widespread nature of winter storms, it can be assumed that each of these winter storm events impacted the Auburn campus in at least some way.

The SHMP provides descriptions of notable occurrences of the winter storm hazard, including:

- In March 2009, a storm system began with thunderstorms and ended with heavy snow in central Alabama. The heaviest snow, an estimated 3-5 inches, fell in a swath from Tuscaloosa to Auburn. Thundersnow, which is a snowstorm in which thunder and lightning also occur,[125] was reported in several eastern counties, including Lee County. The majority of the snow melted quickly, leaving no lasting impacts.
- An ice storm occurred in January 2011 resulted in snowfall of 4-7 inches of snow across northern central Alabama. Ice and sleet were reported further south, with accumulations of 1-3 inches in the area. Precipitation was heavy at times, with estimated rates of over one inch per hour. The accumulation resulted in hazardous travel conditions throughout central Alabama, including Lee County.[126]

Probability of Future Occurrences of the Winter Storm Hazard
Based on historic occurrences recorded by the NCDC, winter weather occurs every other year in the planning area. Using the scale provided at the beginning of this section, this equals a moderate probability of a future occurrence.

The SHMP rates the probability of a future occurrence of winter weather in the State of Alabama as high/medium, meaning that the hazard either has little probability of affected the state, limited data is available for analysis, or it is difficult to mitigate the effects of the hazard; for hazards ranked medium or low, the SHMP includes a qualitative assessment only.[127]

Risk Assessment for the Winter Storm Hazard
Winter storms have impacted the Auburn University campus, and will do so again in the future. The Advisory Committee expressed particular concerns regarding snow and ice accumulation, damaged or fallen trees, and ingress/egress to the campus. They reported that campus closings, which are fairly rare, are coordinated with the City of Auburn and the school district, and that the residence halls have approximately a four day supply of essential provisions on site.

Methodology
After discussion and review of the best available data regarding this hazard, and in consideration of the potential impacts to the University and its community from this hazard, the Advisory Committee determined that this hazard should receive a qualitative risk assessment. The Committee was asked to provide qualitative damage, loss, and impact rankings, based on their knowledge of the University. Committee members considered the potential risk to people (loss of life or injury), the risk to assets, the risk to infrastructure, and the risk to the University's mission. (Refer to page 4-6 of this section for details.) The results of this assessment appear in Table 30 (below).

Winter Storm – Qualitative Risk Assessment				
People/Life Safety Impact	**Assets/Buildings Impact**	**Infrastructure Impact**	**University Mission Impact**	**Average Risk Ranking**
Low	Low	Low-Moderate	Moderate	Low-Moderate

Table 30

The details of this assessment can be found in Appendix D, *Tabular Data.*

Perhaps the largest concern during winter storm events is for electrical infrastructure. Auburn in dependent on external providers for service, and many of the lines that provide this service are above ground, and therefore exposed to winter storms. Of the more than 400 total buildings on the Auburn University main campus, 132 have emergency power generators or hook ups.[128] This leaves more than 250 assets without access to emergency power in the event of a failure.

Trees on the campus and along ingress/egress routes to the campus are another concern in winter storm events. Ice accumulation in the trees can result in fallen limbs and branches; in some situations, ice can topple the entire tree, causing it to fall into roadways and onto buildings. Blocked ingress/egress routes can be problematic for the movement of people and emergency services to, from, and on the campus.

When it comes to winter weather, another primary concern for the University are those living in residence halls who may be unable to leave the campus in the event of significant accumulations or road closures. Auburn has 32 residential halls and one hotel on the campus (see Figure 22).

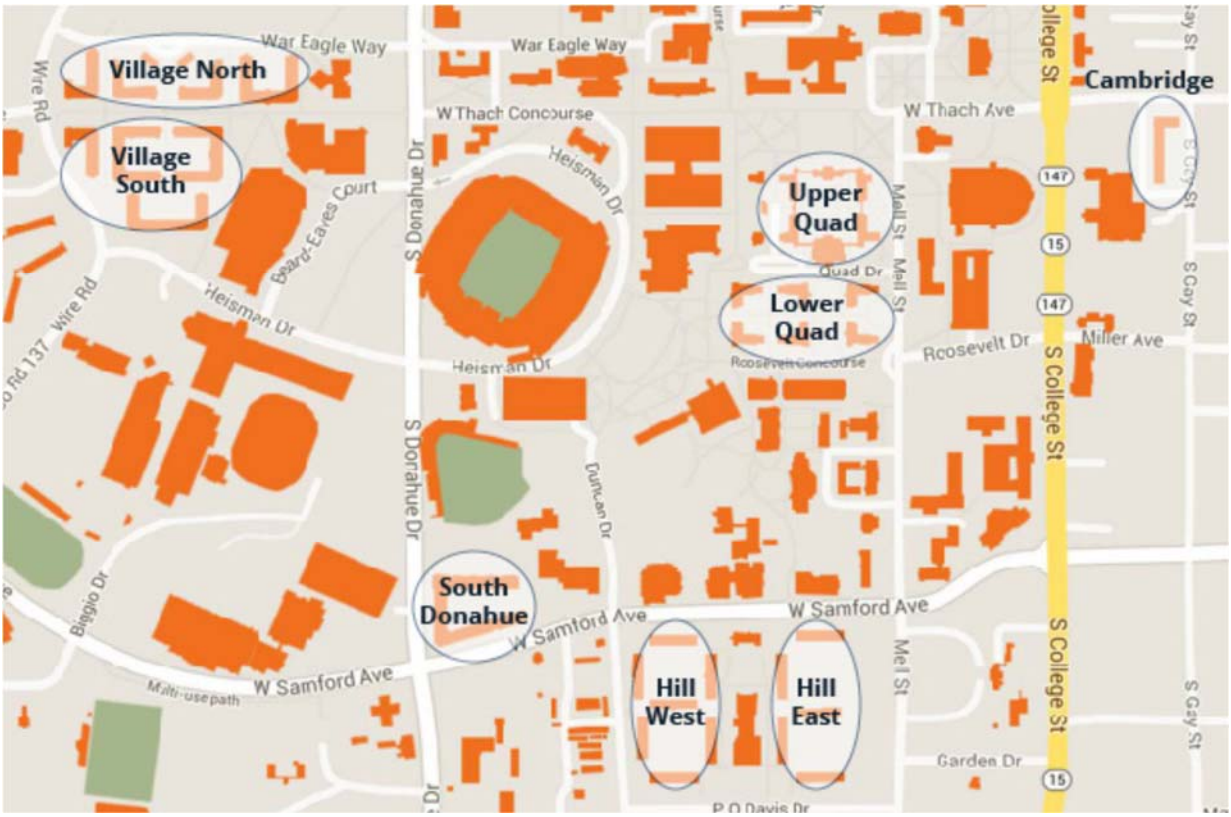


Figure 22

As of the 2015-2016 academic year, there are 4,755 people residing in these 32 residence halls. Each of these people is vulnerable to a winter storm event. This is especially true in the event of an interruption in utility service, such as a failure of electrical service. 11 of these residence halls have emergency power generators, in the event of a failure of electrical power:

1. Aubie Residence Hall
2. Boyd Residence Hall (Dorm J)
3. Boyd Residence Hall (Dorm K)
4. Eagle Residence Hall
5. Leischuck Residence Hall (Dorm L)
6. Magnolia Residence Hall
7. Oak Residence Hall
8. Plainsman Residence Hall
9. South Donahue Residential Hall
10. Tiger Residence Hall
11. Willow Residence Hall[129]

While those people living in the residence halls with emergency power generators would continue to have electrical power in the event of a failure from winter weather, the majority of the 4,755

people living in residence halls on the Auburn campus would not have access to this emergency power.

Risk Assessment Conclusions
Auburn University has a moderate risk from the winter storm hazard; this conclusion is supported by both the available data and the assessment of the Advisory Committee. Mitigation projects should address this risk, and projects should be implemented to address these vulnerabilities.

This risk assessment is limited by a lack of accessible data specific to the planning area. At this point in time, the most complete data available is at the county level, which includes the Auburn campus but also includes all other areas within the county, at the state level. Data that could be collected to improve this risk assessment includes:

- Priority listing of assets to receive emergency power generators or connections.

Risk Assessment Summary

Table 31 (below and following) provides a summation of the rankings completed by the Advisory Committee for all hazards included in this Plan.

Risk Assessment Ranking, by Hazard					
Hazard	**Risk to People**	**Risk to Assets**	**Risk to Infrastructure**	**Risk to the Mission of the University**	**Average Risk Ranking**
Communicable disease/ pandemic	2.18 Moderate	1.00 Low	1.32 Low	2.06 Moderate	1.64 Low-Moderate
Drought	1.00 Low	1.21 Low	1.32 Low	1.28 Low	1.20 Low
Earthquake	1.13 Low	1.38 Low	1.38 Low	1.47 Low	1.34 Low
Extreme temperature	1.26 Low	1.25 Low	1.28 Low	1.50 Low-Moderate	1.32 Low
Flood	1.50 Low-Moderate	1.88 Low-Moderate	1.72 Low-Moderate	1.85 Low-Moderate	1.74 Low-Moderate

Risk Assessment Ranking, by Hazard					
Hazard	**Risk to People**	**Risk to Assets**	**Risk to Infrastructure**	**Risk to the Mission of the University**	**Average Risk Ranking**
Hail	1.24 Low	1.31 Low	1.23 Low	1.24 Low	1.25 Low
High wind	1.82 Low-Moderate	2.19 Moderate	2.00 Moderate	2.21 Moderate	2.05 Moderate
Lightning	1.47 Low	1.38 Low	1.47 Low	1.28 Low	1.40 Low
Severe thunderstorm	1.25 Low	1.46 Low	1.30 Low	1.34 Low	1.34 Low
Sinkhole/land subsidence	1.00 Low	1.20 Low	1.20 Low	1.31 Low	1.18 Low
Tornado	2.09 Moderate	2.41 Moderate	2.31 Moderate	2.38 Moderate	2.30 Moderate
Wildfire	1.03 Low	1.22 Low	1.22 Low	1.37 Low	1.21 Low
Winter storm	1.21 Low	1.47 Low	1.63 Low-Moderate	2.00 Moderate	1.57 Low-Moderate

Table 31

4.3 Business Impact Analysis

A business impact analysis (BIA) identifies operational and financial impacts that may result from the disruption of business functions and processes. Impacts that are typically considered include:

- Lost or delayed income;
- Increased expenses;
- Regulatory fines;
- Contractual penalties;
- Customer dissatisfaction; or
- Delay of new business plan implementation.

BIAs are typically conducted using potential loss scenarios; these scenarios often include the interruption of business through the failure of supplier goods or services, or delayed deliveries, and include the timing and duration of the disruption.

Data for the analysis is collected through the use of interviews and questionnaires, conducted with those knowledgeable of the business. They are asked to identify potential impacts, critical staffing and equipment, and other pertinent details to analyze the potential impact to the function of the business. This data is collected and analyzed, and a summary report is produced. This report may be used in a variety of other documents, including Business Continuity Plans, Recovery Plans, and other applicable mechanisms.[130]

As part of the HIRA for this Plan, a baseline BIA was conducted. Eight internal departments and two external partners were chosen for interviews and data collection; knowledgeable people were asked to provide specific information and insight as to the necessary resources required to maintain functional operations for the department, in the event of a disrupting event. The table below and following (Table 32) provides the departments included in this BIA, the date of the interviews, and other relevant details.

Auburn University Business Impact Analysis Interviews			
Department	**Date of Interview**	**Person Interviewed**	**Title**
Alumni Affairs	November 11, 2014	Dwayne Brown	Assistant Vice President
Athletics	October 28, 2015	Jeff Steele	Associate Athletic Director, Facilities
College of Agriculture	October 20, 2015	Robert Hensarling	Director, Ag Land & Resource Management
College of Veterinary Medicine	November 05, 2015	Joe Lewis	Facilities Program Manager II
Jule Collins Smith Museum of Fine Art	October 27, 2015	Marilyn Laufer Andy Tennant	Director Assistant Director
Office of Communications and Marketing	November 06, 2015	Mike Clardy	Director, University Communications Services
Office of Information Technology	November 10, 2015	John Helms	Director, Information Technology
University Housing & Residence Life	November 25, 2015	Dr. Kevin Hoult	Director, University Housing & Residential Life
Auburn Fire Division	October 20, 2015	Matt Jordan	Battalion Chief

Auburn University Business Impact Analysis Interviews			
Department	**Date of Interview**	**Person Interviewed**	**Title**
Medical Clinic	November 03, 2015	Dr. Fred Kam	Medical Director, East Alabama Medical Center

Table 32

This analysis provides a baseline, on which Auburn University can build future business continuity and continuity of operations planning efforts. In addition, this analysis provided insight to the Advisory Committee in developing the mitigation strategy for this hazard mitigation plan.

A summary of the interview and data provided by each department/agency, as it relates to this hazard mitigation plan, is included in this section. Full details of the information collected can be found in Appendix E, *Business Impact Analysis Documents.*

Alumni Affairs
Alumni Affairs is responsible for connecting with alumni, promoting University events and fundraisers annually, and the publication of *Auburn Monthly*. Alumni Affairs events generate an average of $10M annually; the current campaign goal is $9.83M.

In the event of a short-term interruption, this department would not be significantly impacted. All day-to-day functions can be done remotely, and are not tied to a particular office or building. Events would be a different matter, and may be negatively impacted, as large-scale functions are typically held at the Alumni Center.

This department has identified the following resources as critical:

- seven staff members (of 24 FT and 3 PT)
- 38 computers/laptops, with attached servers (most are leased)
- donor and financial records (hard copies being converted to electronic)
- various small pieces of equipment, including cell phones
- courier van/golf cart (transportation)

It is estimated that the department could be inoperable for up to two days before the loss of operations would begin to impact other University operations.

Other notes:

- there would be a substantial fundraising impact to the University if this department was inoperable for an extended period of time, particularly if the magazine could not be produced; and

- the Alumni Center could the used as a shelter; it has a defibrillator, two shows, room for 200 cots, ten restrooms, and a large parking lot (1.6 acres), but has no emergency power generator at this time.

Athletics
The Athletics Department provides competition for the University and represents student athletes with the NCAA/SEC. A large number of students participate in university athletics; the department serves as the 'front porch' of the University's public image. The department generates a significant amount of income for the University (amount unspecified); without this income, operations would be impacted University-wide.

The department has its own business office, and its own academic unity. The department is responsible for 15 University buildings, and a residence hall designated for approximately 200 student athletes and 200 employees. Some Athletics buildings are used by external groups for specific functions, and most facilities admit the public at specific times, such as to Jordan-Hare Stadium during home football games.

Interruptions that would result in the loss of use of Athletics facilities would have significant impacts on the operation of the department, as most of these facilities are highly specialized for particular use. While there are other similar types of facilities available, they would all require negotiated use and transportation. In addition, the movement of sporting events would result in addition loss of revenue through the loss of concession sales; there would be larger community impacts through the loss of visitor revenues, such as hotels and restaurants.

This department has identified the following systems as critical:

- Business/finance, including student athlete scholarship processing and management;
- Housing and dining programs;
- Specialized equipment and uniforms; and
- NCAA/SEC compliance reporting.

College of Agriculture
The College of Agriculture provides academics and research only; it does not generate income for the University. The college is not mission-critical for the University; however, it has critical elements.

In the event of a short-term interruption (less than 72 hours), this department would not be immediately significantly impacted. All day-to-day academic functions can be done remotely, and are not tied to a particular office or building. Animal care would have to be done on site, as it is not practical to move the animals, generally speaking.

A longer-term interruption would have more significant impacts. Animals must be cared for; in the event of a long disruption, some animals may require euthanasia and disposal. Federal grants may also be at risk from long-term interruptions, if research were disrupted for a long period, or grant applications could not be filed, or data were lost. Long-term disruptions could result in the loss of grant funding, which would have a significant impact on both the college and the University as a whole.

This college has identified the following resources as critical:

- computers (backed up to University servers);
- small equipment, including cell phones;
- research data;
- refrigeration for critical specimens/data;
- research animals; and
- heating/cooling (greenhouses, indoor fishery, aquatics, etc.)

It is estimated that the college could be inoperable for up to three days before the loss of operations would begin to impact other University operations.

Other notes:

- the loss of potential grant funding, or the interruption of grant funding, is a significant concern for the department;
- the loss of research data, including animals and specimens, would be potentially devastating to the college, and by extension to the University; and
- the college has limited experience with dealing with long-term losses or interruptions in operations.

College of Veterinary Medicine
The College of Veterinary Medicine is a large and small animal hospital, comprised of 41 buildings on the main campus. Including barns and sheds, the college has a total of 76 assets, including bird centers, K-9 training center, labs, animal isolation areas, and a teaching hospital. The college has significant holdings in equipment, most of which is highly specialized for veterinary care.

The college generates income through the collection of fees for treatment of animals. In the event of a shutdown, the loss of income would have ramifications for both the college and the University (specific amounts were not available).

A longer-term interruption would have more significant impacts. Animals must be cared for; in the event of a long disruption, some animals may require euthanasia and disposal. Federal grants may also be at risk from long-term interruptions, if research were disrupted for a long period. Long-

term disruptions could result in the loss of grant funding, which would have a significant impact on both the college and the University as a whole. Animals in isolation cannot be moved to other locations.

Other notes:

- the loss of potential grant funding, or the interruption of grant funding, is a concern for the department;
- the loss of research data, including animals and specimens, would be potentially devastating to the college, and by extension to the University;
- most buildings in the college have generators; and
- many files are paper files, and have not been transferred to electronic files.

Jule Collins Smith Museum of Fine Art
The museum houses the University's art collection, hosts several exhibits each year of art on loan to the University, and provides educational programs to students and the public. The museum is charged with the care and safekeeping of approximately 2,000 objects owned by the State of Alabama and the University.

The museum is not mission-critical to the University. However, if the museum were unable to operate for an extended period of time, there would be financial impacts to both the museum and to the University as a whole. Donations to the museum and the University could be impacted; the museum receives $50-60M in donations from individuals. In addition, the museum generates approximately $100,000 annually for the University in rentals, usually for weddings and other events. In addition, the museum has a café which also provides revenue.

The museum building is critical to the operation of the museum, as it provides climate controlled protection for the art it houses. Any damages to the building, or to the building's climate system, would require immediate mediation or repair to prevent damage to of loss of art. Any art that was damaged, from any cause, would require professional restoration. Any undamaged art would have to be moved to an alternate location, one that would require the same climate controls as the museum.

This department has identified the following resources as critical:

- five staff members
- storage/recovery space
- communication equipment
- data on computers and servers (all electronic, and backed up), including art records
- small equipment, including cell phones

Other notes:

- the museum's computers are all leased, and the museum has excellent records of the equipment they have;
- in the event that art must be moved, it can only be moved by trained staff, as it requires special handling, which means it cannot be moved quickly; and
- the museum has their own secure server, with a cloud backup.

Office of Communications and Marketing
The office is responsible for the integrity, implementation, and management of the Auburn University brand. The office supports the University's mission and strategic goals, and is committed to creatively aligning functions to provide additional resources for colleges and schools, with an over-arching goal of establishing a central, full-service, in-house, professional agency resources model and integrated, unified messaging.

The office does not generate income for the University; it is a service department. The office is the official voice of the University, and provides all external communications on behalf of the University, including the official website.

The office operates currently out of Samford Hall, but could easily relocate to almost any other facility that had electricity and internet access. Contingency plans call for the office's relocation to a hotel conference center; operations can also be handled remotely if the staff is separated, such as from each staff member's home.

In the event of a loss of operations, the University would feel the impact almost immediately. The loss of communications would hinder response and recovery operations, as would any limitations on the office's ability to provide communications services.

This department has identified the following resources as critical:

- 27 staff members (creative group, media relations, and news)
- computers with wifi connections and reliable power
- small equipment, specifically cell phones

Other notes:

- the office's computers are all leased, and the office has excellent records of the equipment they have;
- relocation of operations would be relatively easy, at least for short-term disruptions; and
- operations are critical on a daily basis, with special important placed during large events, such as graduation.

Office of Information Technology
OIT provides critical services for the University as a whole, specifically:

- computing infrastructure and resources in support of enterprise resource planning systems (financial, HR, student systems, etc.)
- learning management system
- email
- web development
- software products
- computer leases
- data networks (internet, wireless)
- telecommunications infrastructure, including phones, cell phones, cable tv, and audio/video solutions (classroom/teaching technology)
- computing labs
- identity and account management
- information security
- virus protection
- test scoring
- computer backup
- print services

The office does not generate income for the University; it is a service department. Without OIT in operation, the University would be unable to function.

This department has identified the following resources as critical:

- Critical staff:
    - 2 desktop support IT specialists
    - 6 security IT specialists
    - 1 identity management staff
    - 4 financial specialists
    - 3 telephone IT specialists
    - 7 data network IT specialists
    - 6 sysadmin IT specialists (ERP systems)
    - 5 computer lap support IT specialists
    - 7 systems support IT specialists
    - 6 virtualization & storage IT specialists
    - 5 audio/video IT specialists
    - 3 IT project managers
- Data center equipment (racks, servers, UPS)

- Computers, desks, chairs
- High-speed network connectivity
- Remote support software and phones
- Spare hardware, servers, appliances, cabling, backup (software, config files, etc.), UPS, internet connectivity, disaster recovery plans for each critical service and server
- IDM Office – ID Cards, Yubikeys, camera system, card printers
- Access to AU shared drives, including access to billing to ensure revenue flow
- Telephone sets and wiring supplies
- Fiber and associated parts and materials
- Network electronics and other related network hardware
- Emergency power generators
- Access to:
    - SharePoint
    - Active Directory
    - AU Network
    - AU Fiber Channel
    - VMWare Host cluster
    - PHD Backups of key servers
    - AU VPN
- DNS
- Active Directory
- Server infrastructure or DRS facility to run instance of virtual environment

Other notes:

- The loss of OIT would also mean the loss of Touchnet, a credit card payment gateway system. The loss of Touchnet would mean that the University could not process credit card payments, including admissions and registration fees, tuition payments, and fundraising efforts;
- The loss of OIT would also mean the University would have limited or no capacity to communicate with students or employees, both on and off campus; and
- Connectivity is the key to OIT's ability to operate.

University Housing & Residence Life
UHRL is responsible for the fiscally-sound operation of 32 on-campus residence halls, providing housing to approximately 4,800 undergraduate students. UHRL and their campus partners ensure that the facilities are clean, well-maintained, secure, and have access to technology, that residents are safe, secure, and fed, that developmental needs are met, and that the student's academic focus is supported. These activities occur year-round, as residence halls are in operation for athletic camps, academic programs, and new student orientations during the summer months.

Unlike other departments, UHRL's most critical activities do not take place at its office; rather, critical locations for UHRL and the 32 residence halls operated by the department. All administrative activities could reasonably take place at alternate locations, with relative ease. The loss of a residence hall, or multiple residence halls, would displace residents, which would require alternate housing arrangements, either short or long-term.

If an interruption occurred during the summer months, UHRL would suffer a loss of revenue, from the loss of ability to provide nightly lodging for fees. This would have at least some implications for the University as a whole.

This department has identified the following resources as critical:

- seven staff members (of nine FT)
- cellphones and land lines
- computers and printers
- internet access
- cleaning supplies
- critical/essential data:
    - floor plans
    - rosters
    - student emergency contact information
    - budget information
    - remote access to University systems
    - STG/CBord Housing Management System
    - Student Conduct records

Other notes:

- if ADA-compliant housing is damaged, the placement of students could be more problematic; and
- key card access to residence halls can be controlled from off-site. However, in the event of a power failure there is currently no backup power source to the building, and the swipe card access would not work. The battery system on the exterior door card reader only lasts for 5 minutes.

Auburn Fire Division
The City of Auburn's Fire Division provides emergency fire response and first response medical services to the main campus of Auburn University. The Fire Division works with the University's Risk Management and Public Safety Departments to ensure fire and medical emergencies are handled appropriately. The Fire Chief is included in the decision-making process in many campus events, from large public events to infrastructure, though the primary role is response.

In the event of a significant response event, the Fire Division would invoke existing mutual aid agreements.

This agency has identified the following resources as critical:

- Daily operating staff of 21-30
- Response vehicles:
    - 6 apparatus trucks
    - 2 ladder trucks
    - 4 pumper trucks
    - 1 command vehicle
    - 4-6 staff vehicles

Other notes:

- The Fire Division works with the University to complete required Clery Act reporting;
- The Fire Division does not have any University-owned equipment; and
- All Division data is backed up on City of Auburn servers, and stored in a secure location.

Medical Clinic
The Clinic is an outside entity – part of the Lee County Hospital – that has a contractual agreement with the University to provide medical clinic services, including counseling, medical treatment, chiropractic services, pharmaceutical services, women's health services, and massage therapy services. The Clinic is closely connected to and integrated with the University; the Clinic acts as a department of the University.

In the event of a significant event, the Clinic would rely upon the University to provide an alternate location for operations. All financial and patient records are stored on hospital servers.

This agency has identified the following resources as critical:

- 10 clinicians
- 2-3 physicians
- Sports staff
- Trainer

Other notes:

- The Clinic's current location has emergency power;

- Loss of equipment is a potential problem for recovery, including vaccines and specialized equipment; and
- The hospital has a medical trailer which could be deployed if the situation warranted such.

Endnotes

[1] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[2] Federal Emergency Management Agency. *Disaster Declarations - Alabama.* Retrieved 01.21.16 from http://www.fema.gov/disasters?field_state_tid_selective=28&field_disaster_type_term_tid=All&field_disaster_declaration_type_value=All&items_per_page=20
[3] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[4] Dantic, Dennis. *Foundations of Public Health.* Retrieved 01.21.16 from http://www.peoi.org/Courses/Coursesen/phfoundation/contents/frame3.html
[5] Coastal Caroline Research Center. *Pandemic – What is a Pandemic?* Retrieved 01.21.16 from http://coastalcarolinaresearch.com/?p=675
[6] US Centers for Disease Control and Prevention. Retrieved 01.21.16 from http://www.cdc.gov/media/pdf/MitigationSlides.pdf
[7] Nossiter, Adam. *The Free-Lance Star.* 'Auburn cancels classes after measles outbreak.' May 17, 1989. Retrieved 01.21.16 from https://news.google.com/newspapers?nid=1298&dat=19890517&id=IOVLAAAAIBAJ&sjid=NYsDAAAAIBAJ&pg=5235,3438952&hl=en
[8] The War Eagle Reader. *Photos of the Mass Vaccinations Ordered During the Great Auburn Measles Outbreak of 1989.* Retrieved 01.21.16 from http://www.thewareaglereader.com/2013/05/photos-of-the-mass-vaccinations-ordered-during-the-great-auburn-measles-outbreak-of-1989/
[9] Auburn University, Department of Public Safety & Security. *H1N1 Influenza (Flu; Swine Flu).* Retrieved 01.21.16 from http://www.auburn.edu/administration/public_safety/emergency/flu.html
[10] Alabama Department of Public Health. *County Health Profiles 2009.* Retrieved 01.21.16 from http://www.adph.org/healthstats/index.asp?id=1573
[11] Alabama Department of Public Health. *County Health Profiles 2010.* Retrieved 01.21.16 from http://www.adph.org/healthstats/index.asp?id=1573
[12] Alabama Department of Public Health. *County Health Profiles 2011.* Retrieved 01.21.16 from http://www.adph.org/healthstats/index.asp?id=1573
[13] Alabama Department of Public Health. *County Health Profiles 2012.* Retrieved 01.21.16 from http://www.adph.org/healthstats/index.asp?id=1573
[14] Alabama Department of Public Health. *County Health Profiles 2013.* Retrieved 01.21.16 from http://www.adph.org/healthstats/index.asp?id=1573
[15] San Diego State University. *Three Issues of Sustainable Management in the Ojos Negros Valley, Baja California, Mexico.* Retrieved 01.22.16 from http://threeissues.sdsu.edu/three_issues_droughtfacts01.html
[16] National Drought Mitigation Center. *Types of Drought.* Retrieved 01.22.16 from http://drought.unl.edu/DroughtBasics/TypesofDrought.aspx
[17] United States Drought Monitor. *US Drought Monitor Classification Scheme.* Retrieved 01.22.16 from http://droughtmonitor.unl.edu/aboutus/classificationscheme.aspx
[18] United States Drought Monitor. *US Drought Monitor – Alabama.* Retrieved 01.22.16 from http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?AL
[19] The Encyclopedia of Earth. *The Dust Bowl.* Retrieved 01.22.16 from http://www.eoearth.org/view/article/151818/

[20] National Weather Service. *What is meant by the term drought?* Retrieved 01.22.16 from http://www.srh.noaa.gov/bmx/?n=kidscorner_drought
[21] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[22] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[23] National Weather Service. *US Seasonal Drought Outlook.* Retrieved 01.33.16 from http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php
[24] US Geological Survey. *Earthquakes, Plate Tectonics, Earth Structure FAQs.* Retrieved 01.22.16 from http://www.usgs.gov/faq/categories/9827/3343
[25] Geological Survey of Alabama. *Earthquakes in Alabama.* Retrieved 01.22.16 from http://gsa.state.al.us/gsa/geologichazards/quakes_al.htm
[26] US Geological Survey. *The Severity of an Earthquake.* Retrieved 01.22.16 from http://pubs.usgs.gov/gip/earthq4/severitygip.html
[27] Geological Survey of Alabama. *Earthquakes in Alabama.* Retrieved 01.22.16 from http://gsa.state.al.us/gsa/geologichazards/quakes_al.htm
[28] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[29] Geological Survey of Alabama. *Earthquakes in Alabama.* Retrieved 01.22.16 from http://gsa.state.al.us/gsa/geologichazards/quakes_al.htm
[30] US Centers for Disease Control and Prevention. *Extreme Heat Prevention Guide.* Retrieved 01.22.16 from http://emergency.cdc.gov/disasters/extremeheat/heat_guide.asp
[31] US Centers for Disease Control and Prevention. *Extreme Cold: A Prevention Guide to Promote Your Personal Health and Safety.* Retrieved 01.22.16 from: http://www.bt.cdc.gov/disasters/winter/pdf/extreme-cold-guide.pdf
[32] US Centers for Disease Control and Prevention. *Hypothermia.* Retrieved 01.22.16 from: http://www.bt.cdc.gov/disasters/winter/staysafe/hypothermia.asp
[33] National Weather Service. *Heat Watch vs. Warning.* Retrieved 01.22.16 from http://www.nws.noaa.gov/om/heat/ww.shtml
[34] National Weather Service. *Experimental Extreme Cold Warning Products.* Retrieved 01.22.16 from http://www.nws.noaa.gov/infoservicechanges/Exp_Extreme_Cold_u1.pdf
[35] National Weather Service. *NWS Windchill Chart.* Retrieved 01.22.16 from http://www.nws.noaa.gov/om/winter/windchill.shtml
[36] National Weather Service. *Heat Safety.* Retrieved 01.22.16 from http://www.nws.noaa.gov/os/heat/index.shtml
[37] US Centers for Disease Control and Prevention. *Hypothermia.* Retrieved 01.22.16 from http://www.bt.cdc.gov/disasters/winter/staysafe/hypothermia.asp
[38] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[39] Auburn University. *Property Damage Natural Events Claim Report 042815.* Print.
[40] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[41] Federal Emergency Management Agency. *Floods and Floodplain Management.* Retrieved 01.22.16 from https://www.fema.gov/pdf/floodplain/nfip_sg_unit_1.pdf
[42] Floodsmart.gov. *Glossary.* Retrieved 01.22.16 from https://www.floodsmart.gov/floodsmart/pages/glossary_A-I.jsp
[43] Federal Emergency Management Agency. *Flood Zones.* Retrieved 01.22.16 from http://www.fema.gov/flood-zones
[44] National Climatic Data Center. *Storm Events Database*, *1950-2015*. Retrieved 05.05.16 from: http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Flash+Flood&eventType=%28Z%29+Flood&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2015&county=LEE%3A81&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=1%2CALABAMA

[45] National Weather Service. *National Weather Service Manual 10-950.* Retrieved 01.22.16 from http://www.nws.noaa.gov/directives/sym/pd01009050curr.pdf
[46] Floodsmart.gov. Retrieved 01.22.16 from https://www.floodsmart.gov/floodsmart/pages/flood_facts.jsp
[47] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[48] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[49] National Weather Service. *Glossary.* Retrieved 01.22.16 from http://w1.weather.gov/glossary/index.php?letter=h
[50] National Climatic Data Center. *Storm Events Database*, *1950-2015.* Retrieved 05.05.16 from: http://www.ncdc.noaa.gov/stormevents/listevents.jsp?hailfilter=0.00&sort=DT&statefips=1%2CALABAMA&county=LEE%3A81&eventType=%28C%29+Hail&beginDate_yyyy=1950&beginDate_mm=01&beginDate_dd=01&endDate_yyyy=2015&endDate_mm=12&endDate_dd=31
[51] The Tornado and Storm Research Orgnisation. *Hail Scale.* Retrieved 01.22.16 from http://www.torro.org.uk/hscale.php
[52] Auburn University. *Vehicle Schedule 10.30.2015.* Print.
[53] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[54] Auburn University. *Property Damage Natural Events Claim Report 042815.* Print.
[55] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[56] National Weather Service. *Glossary.* Retrieved 01.22.16 from http://forecast.weather.gov/glossary.php?letter=w
[57] National Weather Service. *Tropical Definitions.* Retrieved 10.20.15 from http://www.erh.noaa.gov/box/hurricane/tropicalDefinitions.shtml
[58] American Institute of Architects. *Buildings at Risk: Wind Design Basics for Practicing Architects.* Retrieved 01.22.16 from http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aiap016809.pdf
[59] Storm Prediction Center. *Derecho Facts Page.* Retrieved 01.22.16 from http://www.spc.noaa.gov/misc/AbtDerechos/derechofacts.htm
[60] National Climatic Data Center. *Storm Events Database*, *1950-2015.* Retrieved 05.05.16 from: http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+High+Wind&eventType=%28Z%29+Strong+Wind&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2015&county=LEE%3A81&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=1%2CALABAMA
[61] Storm Prediction Center. *Beaufort Wind Scale.* Retrieved 01.22.16 from http://www.spc.noaa.gov/faq/tornado/beaufort.html
[62] National Weather Service, National Hurricane Center. *Saffir-Simpson Hurricane Wind Scale.* Retrieved 01.22.16 from http://www.nhc.noaa.gov/aboutsshws.php
[63] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[64] Auburn University. *Property Damage Natural Events Claim Report 042815.* Print.
[65] National Weather Service. *Hurricane Opal.* Retrieved 01.22.16 from http://www.srh.noaa.gov/mob/?n=opal
[66] Auburn University. *Hurricane Opal Damages.* Print.
[67] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[68] The National Severe Storms Laboratory. *Severe Weather 101: Frequently Asked Questions About Lightning.* Retrieved 01.25.16 from http://www.nssl.noaa.gov/education/svrwx101/lightning/faq/
[69] National Climatic Data Center. *Storm Events Database*, *1950-2015.* Retrieved 05.05.16 from: http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Lightning&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2015&county=LEE%3A81&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=1%2CALABAMA

[70] National Park Service. *Understanding Fire Danger.* Retrieved 01.25.16 from http://www.nps.gov/fire/wildland-fire/learning-center/fire-in-depth/understanding-fire-danger.cfm
[71] National Weather Service. *Thunderstorms, Tornadoes, Lightning… Nature's Most Violent Storms.* Retrieved 01.25.16 from http://www.nws.noaa.gov/om/severeweather/resources/ttl6-10.pdf
[72] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[73] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[74] Auburn University. *Property Damage Natural Events Claim Report 042815.* Print.
[75] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[76] Storm Prediction Center, *Frequently Asked Questions.* Retrieved 01.25.16 from http://www.spc.noaa.gov/faq/#4.2
[77] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 05.06.16 from http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Thunderstorm+Wind&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2015&county=LEE%3A81&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=1%2CALABAMA
[78] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[79] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[80] Geological Survey of Alabama. *Science of Sinkholes. Retrieved 01.25.16 from http://gsa.state.al.us/gsa/geologichazards/Sinkholes.htm*
[81] US Geological Survey. *Land Subsidence.* Retrieved 01.25.16 from http://water.usgs.gov/edu/earthgwlandsubside.html
[82] Geological Survey of Alabama. *Sinkholes and Sinkhole Density Across Alabama.* Retrieved 01.25.16 from http://gsa.state.al.us/gsa/geologichazards/sinkholes-04-15-2013-small.jpg
[83] National Academy Press. *Mitigating Losses from Land Subsidence in the United States.* 1991. Retrieved 01.25.16 from https://books.google.com/books?id=Lo0rAAAAYAAJ&pg=PA29&lpg=PA29&dq=triggering+mechanisms+subsidence&source=bl&ots=duvU94N_dP&sig=Gy2YyUhg9XOWw613cxRdFbELAMU&hl=en&sa=X&ved=0ahUKEwiqq6eP48XKAhVKyGMKHSGbDQsQ6AEIMjAD#v=onepage&q=triggering%20mechanisms%20subsidence&f=false
[84] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[85] Lee County, AL. *Lee County, Alabama Hazard Mitigation Plan.* Print.
[86] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[87] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[88] Storm Prediction Center. *The Online Tornado FAQ.* Retrieved 01.25.16 from http://www.spc.noaa.gov/faq/tornado/
[89] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 05.06.16 from http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Funnel+Cloud&eventType=%28C%29+Tornado&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2015&county=LEE%3A81&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=1%2CALABAMA
[90] Storm Prediction Center. *The Online Tornado FAQ.* Retrieved 01.25.16 from http://www.spc.noaa.gov/faq/tornado/
[91] Storm Prediction Center. *Fujita Tornado Damage Scale.* Retrieved 01.25.16 from http://www.spc.noaa.gov/faq/tornado/f-scale.html

[92] Storm Prediction Center. *Enhanced F Scale for Tornado Damage.* Retrieved 01.25.16 from http://www.spc.noaa.gov/faq/tornado/ef-scale.html
[93] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[94] Storm Prediction Center. *SPC Storm Reports for 04/04/11.* Retrieved 01.25.16 from http://www.spc.noaa.gov/climo/reports/110404_rpts.html
[95] Auburn University. *Property Damage Natural Events Claim Report 042815.* Print.
[96] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[97] Oxford Dictionary. *Fire*. Retrieved 01.26.165 from http://www.oxforddictionaries.com/us/definition/american_english/fire
[98] National Geographic. *Wildfires.* Retrieved 01.26.15 from http://environment.nationalgeographic.com/environment/natural-disasters/wildfires/
[99] Alabama Forestry Commission. *Wildfire Information by Date Range.* Retrieved 01.26.16 from http://www.forestry.alabama.gov/fire_totals_date_range.aspx?bv=1&s=4&p=t
[100] National Wildfire Coordinating Group. *Gaining an Understanding of the National Fire Danger Rating System. 2*002. Print.
[101] US Forest Service. *Wildland Fire Assessment System.* Retrieved 01.26.16 from http://www.wfas.net/index.php/fire-danger-rating-fire-potential--danger-32/class-rating-fire-potential-danger-51?task=view
[102] Alabama Forestry Commission. *Wildfire Information by Date Range.* Retrieved 01.26.16 from http://www.forestry.alabama.gov/fire_totals_date_range.aspx?bv=1&s=4&p=t
[103] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[104] National Weather Service. Glossary. Retrieved 01.26.16 from: http://w1.weather.gov/glossary/index.php?letter=s
[105] National Weather Service. Glossary. Retrieved 01.26.16 from: http://w1.weather.gov/glossary/index.php?letter=h
[106] Dictionary.com. "Ice." Retrieved 01.26.16 from http://dictionary.reference.com/browse/ice
[107] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=i
[108] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 05.06.16 from http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Avalanche&eventType=%28Z%29+Blizzard&eventType=%28Z%29+Frost%2FFreeze&eventType=%28Z%29+Heavy+Snow&eventType=%28Z%29+Ice+Storm&eventType=%28Z%29+Sleet&eventType=%28Z%29+Winter+Storm&eventType=%28Z%29+Winter+Weather&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2015&county=LEE%3A81&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=1%2CALABAMA
[109] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=b
[110] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=b
[111] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=s
[112] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=s
[113] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=b
[114] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=s
[115] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=i

[116] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=s
[117] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=f
[118] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=f
[119] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=i
[120] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=s
[121] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=f
[122] National Weather Service. Glossary. Retrieved 01.26.16 from http://w1.weather.gov/glossary/index.php?letter=w
[123] National Severe Storms Laboratory. *Severe Weather 101: Winter Weather Basics.* Retrieved 01.26.16 from https://www.nssl.noaa.gov/education/svrwx101/winter/
[124] National Climatic Data Center. *Storm Events Database, 1950-2015.* Retrieved 11.17.15 from http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=1%2CALABAMA
[125] Weather.com. *What is Thundersnow and Why Does It Happen?* Retrieved 01.26.16 from http://www.weather.com/science/news/what-thundersnow-and-why-does-it-happen-20140218
[126] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[127] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[128] Auburn University. *On Campus Buildings with Generators.* Print.
[129] Auburn University. *On Campus Buildings with Generators.* Print.
[130] Federal Emergency Management Agency. *Business Impact Analysis.* Retrieved 01.26.16 from http://www.ready.gov/business-impact-analysis

Section 05
Capability Assessment & Future Development

Contents of this Section

5.1 Overview and Purpose of Capability Assessment

A capability assessment adds context to a mitigation plan by providing an inventory of a University's programs and policies, and an analysis of its capacity to carry them out. These are essential for developing reasonable, implementable mitigation strategies and actions.

The capability assessment is a review of Auburn University's resources in order to identify, review, and analyze what the University is currently doing to reduce losses, and to identify the framework that is in place for the implementation of new mitigation activities.

This local capability is important, because many of the most critical and effective hazard mitigation strategies and programs require a strong local role to achieve effective implementation.

5.2 Federal and State Regulations, Plans, and Funding Sources

Inventory of Regulations, Plans and Funding Sources

This section, including Table 1 (following), provides summary information regarding selected federal and state regulations, plans, and sources of funding that are relevant to mitigation projects and activities.

Summary of Selected State & Federal Regulations, Plans, & Funding Sources					
Title	Program Type	Administered By	Eligible Recipient		
			County	Municipality	University
FEMA Public Assistance (PA) Program	Funding (Federal)	Alabama Emergency Management Agency	X	X	X (as State Agency)
FEMA Hazard Mitigation Assistance: Hazard Mitigation Assistance Grant Program (HMGP)	Funding (Federal)	Alabama Emergency Management Agency	X	X	X (as State Agency)
FEMA Hazard Mitigation Assistance: Pre-Disaster Mitigation (PDM)	Funding (Federal)	Alabama Emergency Management Agency	X	X	X (as State Agency)
FEMA/NFIP Hazard Mitigation Assistance: Flood Mitigation Assistance (FMA)	Funding (Federal)	Alabama Emergency Management Agency	X	X	X (as State Agency)
Housing and Urban Development Community Development Block Grants (CDBG)	Funding (Federal)	Alabama Department of Economic and Community Affairs	X	X	X (as State Agency)
Housing and Urban Development Community Development Block Grant – Disaster Recovery (CDBG-DR)	Funding (Federal)	Alabama Department of Economic and Community Affairs	X	X	X (as State Agency)

Table 1

For many federal grants, the non-federal share can be borne by the state as the *Recipient*, the recipient community as *Sub-recipient* or in some cases, the individual or entity who most benefits from the project.

Implications of AEMA Capabilities on Local Hazard Mitigation Efforts

State capabilities for hazard mitigation have an impact on the efficacy of local planning and implementation. In accordance with the *State of Alabama State Hazard Mitigation Plan* (SHMP), the focus of Alabama's statewide hazard mitigation effort is centered with AEMA.

The State Hazard Mitigation Team (SHMT) is led by AEMA, and is comprised of representatives from a variety of state agencies. Table 2 (below and following) lists the participating agencies and their responsibilities, as applicable to hazard mitigation and identified in the SHMP.[1]

SHMT Membership and Responsibilities	
Agency	**Hazard Mitigation Responsibilities**
Office of the Governor	By issuing Executive Order No. 19, the Governor initiated development of the State Hazard Mitigation Team, designated members of the SHMT, outlined their tasks, and directed the Director of AEMA to lead the planning effort.
Alabama Emergency Management Agency	AEMA is the lead agency for development of the plan. Although the SHMT is the group responsible for the actual development and production of the plan, AEMA served as a coordinating entity throughout its development. The Agency facilitated most interactions among various Federal, State and local governments, and provided important oversight and quality control to ensure that the plan and associated process met Federal requirements. AEMA coordinated the update of all aspects of the plan and facilitated coordination among agencies at all levels of government. Further, AEMA helped to establish meeting times and locations. The AEMA Director is also responsible for final approval and adoption of the Plan on behalf of the Governor.
Department of Agriculture and Industries	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Attorney General	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.

SHMT Membership and Responsibilities	
Agency	**Hazard Mitigation Responsibilities**
Department of Conservation and Natural Resources	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Department of Economic and Community Affairs	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Department of Environmental Management	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Alabama Forestry Commission	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
State Geologist	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
State Historic Preservation Office	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.

SHMT Membership and Responsibilities	
Agency	**Hazard Mitigation Responsibilities**
Insurance Department	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Governor's Legal Council Office	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Department of Public Health	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Governor's Public Information Office	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Department of Public Safety	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Public Service Commission	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.

SHMT Membership and Responsibilities	
Agency	**Hazard Mitigation Responsibilities**
Secretary of State	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Department of Transportation	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Association of Regional Councils	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
League of Municipalities	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Association of County Commissioners	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Indian Affairs	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.

SHMT Membership and Responsibilities	
Agency	**Hazard Mitigation Responsibilities**
US Army Corps of Engineers	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.
Choctoawatchee, Pea, and Yellow Rivers Watershed Management Authority	The SHMT made all final decisions regarding the plan, reviewed drafts, provided comments, and made recommendations to the AEMA Director. Individual representatives of agencies on the SHMT were also asked to provide feedback for their respective agencies, data for development of the risk assessment, and input for the mitigation strategy.

Table 2

The SHMP also details the hazard mitigation goals and objectives of the State of Alabama, which are provided in Table 3 (below and following).[2]

State of Alabama Hazard Mitigation Goals and Objectives	
Goal/Objective Number	**Goal/Objective Description**
Goal 1	Enhance the comprehensive statewide hazard mitigation system.
Objective 1.1	Improve local and state capability to study natural hazards
Objective 1.2	Improve the statewide availability of risk information, particularly in GIS format
Objective 1.3	Reduce the impact of hazard events (i.e., loss of service) for state departmental functions
Objective 1.4	Enhance flood mitigation efforts
Objective 1.5	Enhance hurricane mitigation efforts
Objective 1.6	Enhance earthquake mitigation efforts
Objective 1.7	Enhance landslide mitigation efforts
Objective 1.8	Enhance sinkhole mitigation efforts
Objective1.9	Ensure that State, county and local officials have most current data regarding RL and SRL properties
Goal 2	Reduce the State of Alabama's vulnerability to natural hazards.
Objective 2.1	Reduce the threat of injury and loss of life from natural hazards
Objective 2.2	Reduce natural hazard impact on individual properties, businesses and public facilities
Objective 2.3	Reduce natural hazard impact on natural resources
Objective 2.5	Improve the state's ability to prepare for a natural or man-made disaster

State of Alabama Hazard Mitigation Goals and Objectives	
Goal/Objective Number	**Goal/Objective Description**
Objective 2.6	Improve the state's ability to respond to a natural or man-made disaster
Goal 3:	Reduce vulnerability of new and future development.
Objective 3.1	Improve the State's ability to protect new and future residential and commercial structural Assets
Objective 3.2	Reduce the probability that new or future residential and commercial structural assets will be affected by hazards
Goal 4:	Foster public support and acceptance of hazard mitigation
Objective 4.1	Increase stakeholder awareness about the hazards identified in the State Plan
Objective 4.2	Increase stakeholder awareness about the hazard identified in the State Plan [sic]
Goal 5:	Expand and Promote interagency hazard mitigation cooperation.
Objective 5.1	Integrate hazard mitigation into all state and local response / recovery activities
Objective 56.2 [sic]	Long-term recovery following a disaster

Table 3

5.3 Assessment

This capability assessment was conducted by the consultants hired to facilitate the development process and to draft the Plan. This assessment was performed through interactions with the Advisory Committee, discussion with various departments and staff, and a review of existing plans and documents produced by Auburn University.

General awareness of mitigation
The majority of Advisory Committee members have strong awareness of the general concept of mitigation. Many indicated that they are more aware of hazard mitigation in recent years, through various efforts of the AU Public Safety & Security Department.

Communications
As noted in the OIT BIA (Section 04), the loss of communications on the Auburn Campus would bring operations on the campus to a halt. The ability to communicate quickly and effectively between departments, buildings, and people is critical to both day-to-day operations and to the successful implementation of the University's mission. While it was noted that there are a variety of means of communication on the campus, it was also noted that all communications infrastructure goes through a single point, which is problematic in the event of provider or service failure.

Observations indicated that inter-personal communications among employees were positive and generally clear, with good cooperation and understanding between employees.

Administrative capability
As a major research center and land/sea/space-grant university, Auburn has significant administrative capability. The University has significant administrative infrastructure, and significant experience with administrative matters and management.

Fiscal capability
As a state agency, Auburn receives significant funding through Alabama Legislative appropriations. In addition, the University receives a significant amount of grant funding, primarily from federal sources, as well a funding from private and non-profit sources. Auburn carefully plans and manages financial commitments, and seeks to continually improve their robust financial capacity and capability.

Exercises and drills
The University conducts exercises dealing with emergency management events, and regularly participates in exercises and drills with other agencies and entities.

Continuity of Operations
Various departments have or are in the process of developing COOP or BCP plans. In addition, this Plan contains the beginning of a BIA, which Auburn can use to build additional COOP/BCP data and plans. The COOP development process is an ongoing action for the University.

Master Facilities Plan
Auburn University has a robust Campus Master Plan, which was recently updated. Though the focus of this plan is space management and future development, it does address hazards and security considerations on a basic level.

A focus of the Master Plan is building a sustainable campus. This focus places an emphasis on the protection and sustainability of the natural and water systems, the landscape and land use, and the quality of life of the campus as a whole, while tying every action proposed in the plan to sustainability. This focus, by default, ties the livability and future development of the campus to a hazard mitigation stance, ensuring that the campus will consider hazard mitigation in future development planning.

Stormwater management
The University maintains all legal requirements for stormwater management. In addition, the University seeks to promote safe stormwater conveyance and flood protection and to improve runoff water quality and reduced runoff volume through the implementation of best management practices for all projects implemented on the campus.

Regional planning
Auburn routinely participates in regional planning efforts, including transportation planning, response planning, and a variety of drills and exercises.

Floodplain management
As a State Agency, Auburn is generally exempt from local floodplain ordinances, and is not a member of the National Flood Insurance Program. Despite this exemption, Auburn University prohibits the development of new facilities in floodplains and in areas of the campus that are prone to flooding, regardless of official designation.

Summary of Findings

Overall, there is a good understanding of mitigation, demonstrated by the plans and actions that have been in place for a considerable time period. The staff is well-informed and well-versed in hazard mitigation and project management, and clearly understands the importance of implementing hazard mitigation considerations in their day-to-day activities. The University is a good community partner, and works well with external stakeholders and outside entities at all levels of government and community.

Auburn University is well served by their commitment to emergency management, hazard mitigation, planning, and community participation, and should be encouraged to continue these efforts.

5.4 Future Development & Conditions

Like many universities, Auburn University maintains a *Comprehensive Campus Master Plan,* last updated in 2013. This plan, known as the Master Plan, is routinely updated through an extensive, multi-year process, and involves students, staff, visitors, external stakeholders, outside agencies and departments, and others with an interest in the future of the campus. The Master Plan 'sets out recommendations for aligning improvements to the campus environment with the mission, vision, values and strategic priorities of the University. It establishes a framework for the stewardship of campus land and facility resources as well as a framework for coordinating incremental decisions relative to the physical environment.'[3]

One of the primary purposes of the Master Plan is to establish a framework for campus development and the management of orderly campus change. Another is to promote the wise

stewardship of land, space, and building assets. The Master Plan provides direction for the development of the campus, and is divided into the following elements[4]:

- Space Needs
- Academic Buildings
- Land Use
- Campus Landscape
- Health Science Sector
- Student Housing
- Campus Quality of Life
- Transportation
- Campus Security
- Athletics
- Sustainability
- Research

Figure 1 (following) shows the existing development of the campus, as of 2013.[5]

Figure 1

Figure 2 (following) illustrates the new facilities (shown in orange) that could be completed within a decade. Table 1 (following) provides details of these proposed facilities.[6]

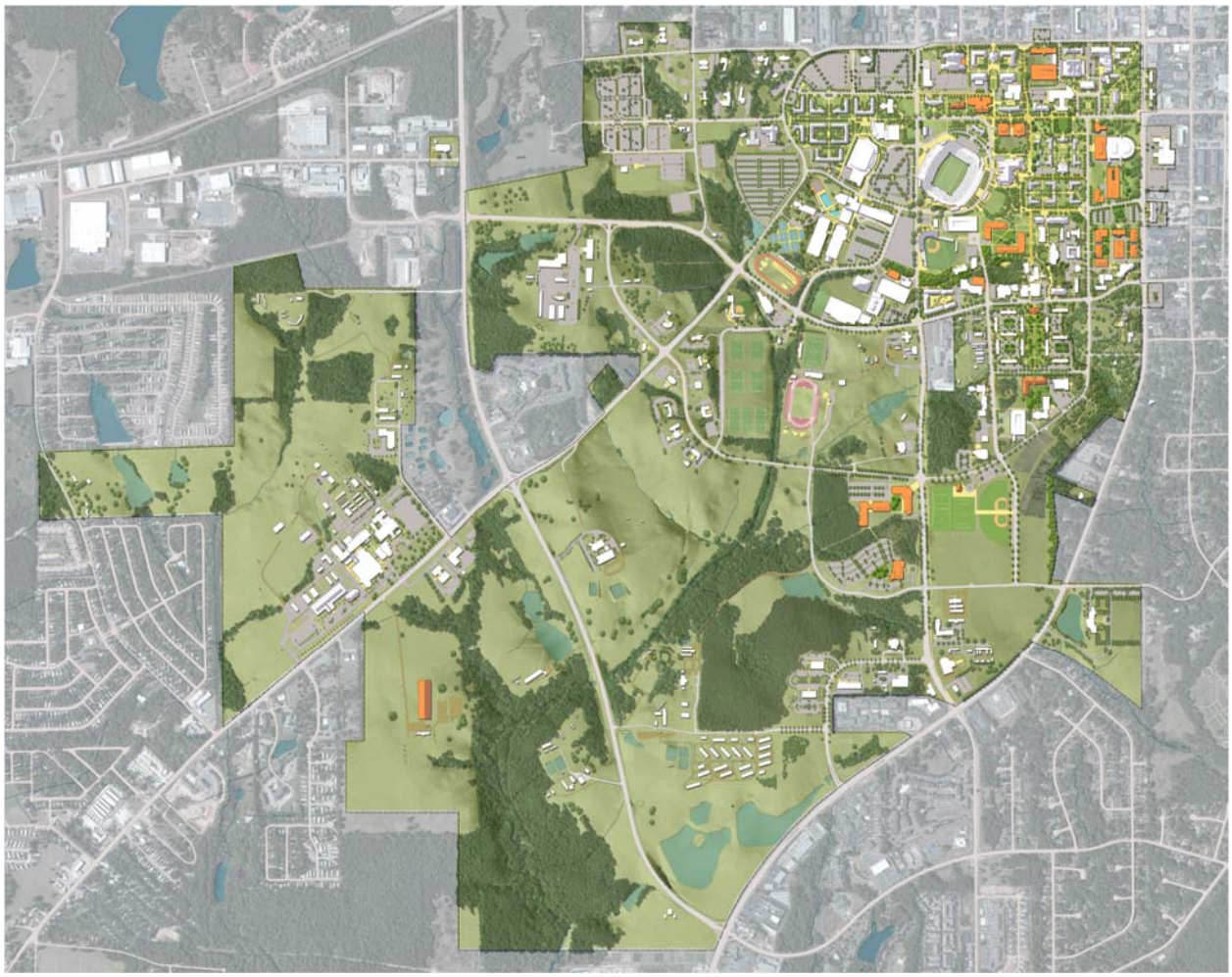


Figure 2.

Proposed Facilities (10 years)	
Number	**Name**
A1	Academic Success Complex Mell Commons
A2	Academic Success Complex Roosevelt Commons
A3	STEM Lab Facility
A4	School of Nursing Facility
A5	School of Pharmacy Facility
A6	Via College of Osteopathic Medicine Facility
A7	College of Education Facility
A8	College of Agriculture Facilities
A9	College of Sciences and Mathematics Facilities
A10	College of Human Sciences Facility
A11	College of Liberal Arts Facility (Renovation)
A12	Equestrian Science Facility
A13	Haley Center Renovation or Replacement
N1	Performing Arts Center Site
N2	Visitor Center Site
N3	Lowder Lounge
N4	Terrell Dining Hall Replacement
N5	North East Quadrant Parking Deck
N6	Library Parking Deck Replacement
N7	Ag Hill Parking Deck
N8	Athletic Expansion Facility
N9	Recreation Field Expansion
N10	Replace CDV Resident Hall Facility with Interim Surface Parking/Future Building Site
N11	Replace Coliseum with Interim Surface Parking/Future Building Site

Table 1

Each of these proposed projects, and all proposed land use options proposed in the Master Plan, are planned in consideration of the core goals and values of the Master Plan. Wherever possible and technically feasible, the Master Plan also considers hazard mitigation in the planning of future development; hazard mitigation is also considered during the project planning and implementation stages of individual projects.

Endnotes

---

[1] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[2] Alabama Emergency Management Agency. *Alabama State Hazard Mitigation Plan.*2013. Retrieved 10.01.15 from http://ema.alabama.gov/filelibrary/AL%20Standard%20State%20Mitigation%20Plan.pdf
[3] Auburn University. *Auburn University Comprehensive Campus Master Plan Update 2013.* Print.
[4] Auburn University. *Auburn University Comprehensive Campus Master Plan Update 2013.* Print.
[5] Auburn University. *Auburn University Comprehensive Campus Master Plan Update 2013.* Print.
[6] Auburn University. *Auburn University Comprehensive Campus Master Plan Update 2013.* Print.

Section 06
Mitigation Strategy

Contents of this Section

6.1 IFR Requirement for the Mitigation Strategy

44 CFR, §201.6(c) Plan content. The plan shall include the following:

(3) A *mitigation strategy* that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:

(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008 must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

(iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

6.2 Hazard Mitigation Goals

This section contains goals, objectives and action items for the Auburn University Disaster Resistant University Hazard Mitigation Plan. For the purposes of this Plan, the following definitions were used:

- **Goals** are general guidelines that explain what the University wants to achieve. Goals are expressed as broad policy statements representing desired long-term results.
- **Objectives** describe strategies to attain an identified Goal. Objectives are more specific statements than goals; objectives are also usually measurable and can have a defined completion date.
- **Mitigation Actions** are the specific steps (projects, policies, and programs) that advance a given Objective. They are highly focused, specific, and measurable.

The hazard identification and risk assessment in Section 04 consisted of identifying the hazards that affect Auburn University and the potential for damage to University assets that are vulnerable to the hazards. Section 05 identified the strengths and weaknesses of state, county, and local capabilities. The goals and objectives described in this section were confirmed and validated by the Advisory Committee in response to these assessment results.

The goals of this Auburn University Disaster Resistant University Plan are as follows:

- Goal 1: Improve education and outreach efforts regarding potential impacts of hazards and the identification of specific measures that can be taken to reduce their impact.
    - Objective 1.1: Increase awareness of risks and understanding of the advantages of mitigation by students and employees.
    - Objective 1.2: Increase departmental awareness regarding funding opportunities for mitigation.

- Goal 2: Improve data collection, use, and sharing to reduce the impact of hazards. Types of data that could be collected include documentation of all damages and losses from hazard occurrences, anecdotal reports of losses, impacts, or interruptions, and tracking of all damage costs that are not funded through insurance or loss reimbursement.
    - Objective 2.1: Improve availability to the University of data related to all relevant hazards for use in future planning efforts.
    - Objective 2.2: Continue to acquire and maintain detailed data regarding critical facilities, such that the sites can be prioritized and risk-assessed for possible mitigation actions.

- Goal 3: Improve capabilities, coordination, and opportunities to plan and implement hazard mitigation projects, programs, and activities.
    - Objective 3.1: Continue support of hazard mitigation planning, project identification, and implementation opportunities.
    - Objective 3.2: Provide for user-friendly hazard data accessibility for mitigation and other planning efforts.

- Goal 4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.
    - Objective 4.1: Facilitate development and timely submittal of project applications meeting state and federal guidelines for funding for hardening, retrofitting, and other types of mitigation of infrastructure and critical facilities with highest vulnerability ratings.
    - Objective 4.2: Protect students, staff, and visitors from all hazards.

- Goal 5: Maintain continuity of operations during and after all natural hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.
    - Objective 5.1: Ensure continuity of IT services.
    - Objective 5.2: Ensure continuity of administrative and support services.
    - Objective 5.3: Ensure continuity of research activities.
    - Objective 5.4: Facilitate and improve transition to an online/off-site environment in the event of a long-term campus shutdown/
    - Objective 5.5: Ensure continuity of operations in the event of a temporary power loss.
    - Objective 5.6: Ensure continuity of utility service to campus facilities.

6.3 Hazard Mitigation Strategy

Comprehensive Range of Mitigation Actions

Community education and outreach
Insurance industry and emergency management research has demonstrated that awareness of hazards is not enough. People must know how to prepare for, respond to, and take preventive measures against threats from natural hazards. This research has also shown that a properly run local information program is more effective than national advertising or public campaigns.

Although concerted local, county, and statewide efforts to inform the public exist, lives and property continue to be threatened when segments of the population remain uninformed or chose to ignore the information available. Public education serves to assist the communities with problems experienced from floods, extreme winds, extreme temperatures, drought, severe storms, and communicable diseases as well as other lower priority hazards. Educating the public of these life and property saving techniques must remain a high priority item at the local, state, and federal level.

National Flood Insurance Program, floodplain management, and building codes
Consideration of floodplain management, including land use planning, can reduce flood related damages for both existing buildings and new. The use of wise floodplain management principles is critical to the reduction of future flood damage costs. Within floodplain management as a whole, the education process must play an important role. As noted above, an effective education program should be implemented to show citizens the importance of building codes and ordinances and how cost effective they could be in reducing future damages.

Floodplain management and building codes serve to assist the communities with problems experienced from floods, high winds, severe storms, and earthquakes as other lower priority hazards.

Flood mitigation actions
Retrofitting structures prone to periodic flooding is an effective mitigation technique to reduce the flood loss of property. Techniques include the elevation of structures, mitigation reconstruction, dry flood proofing, wet flood proofing, and drainage improvements and installation of generators.

Elevation involves raising a structure on a new foundation so that the lowest floor is above the Base Flood Elevation (BFE). Almost any type and size of structure can be elevated. In addition, specific elements of a structure – such as support utilities – may also be elevated.

Dry flood proofing is completely sealing the exterior of a building to prevent the entry of flood waters. Techniques include the building of floodwalls adjacent to existing walls, the installation of special doors to seal out floodwaters, and special backflow valves for water and sewer lines. Unlike wet flood proofing, which allows water to enter the house through wall openings, dry flood proofing seals all openings below the flood level and relies on the walls of the house to hold water out.

Wet flood proofing includes measures applied to a structure that prevent or provide resistance to damage from flooding while allowing floodwaters (this includes flooding of interior spaces with clean water from city water or wells, instead of flood water) to enter the structure or area. Generally, this includes properly anchoring the structure, using flood resistant materials below the determined flood elevation, protection of mechanical and utility equipment, and use of openings or breakaway walls. Wet flood proofing includes low-cost mitigation measures such as raising air conditioners, heat pumps, and hot water heaters on platforms above the determined flood elevation.

Generators are another cost-effective retrofitting technique includes the installation of generators. By providing power with generators during and after severe storms many critical facilities may continue to provide necessary services to the community. The

installation of generators serves to assist the communities with problems experienced from floods, hurricanes, tornadoes, and high winds.

Wind retrofitting mitigation actions
Structures can be retrofitted to withstand high winds by installing hurricane shutters, roof tie-downs and other storm protection features. The exterior integrity (i.e. building envelope) is maintained by protecting the interior of the structure and providing stability against wind hazards associated with hurricanes. This also improves the ability to achieve a continuous load path. These types of measures can be relatively inexpensive and simple to put in place.

Early warning systems
With sufficient warning of a hazard event, a community and its residents can take protective measures such as moving personal property, cars, and people out of harm's way. When a threat recognition system is combined with an emergency response plan that addresses the community's hazard vulnerabilities, considerable damage can be prevented. This system must be coupled to warning the public, carrying out appropriate tasks, and coordinating the hazard response plan with operators of critical facilities. A comprehensive education and outreach program is critical to the success of early warning systems so that the public, operators of critical facilities, and emergency response personnel will know what actions to take when warning is disseminated.

Early warning systems include siren systems, reverse 911 systems, and other technologies used to warn faculty and students of impending events. Early warning systems serve to assist the communities with problems experienced from floods, hurricanes, tornadoes, and thunderstorms, and can also be used to notify people regarding announced evacuations.

Drought
In general, communities can have little influence or impact on mitigating the impact of droughts except through ensuring adequate water supplies for normal circumstances and through implementation of water conservation measures when drought conditions are imminent. Undertaking drought impact studies, as well as searching for alternative water supplies can both set the foundation for future mitigation measures.

Extreme temperatures
As with most natural hazards, public education about the effects of extreme temperatures, as well as how to mitigate those effects is useful. Alerts and advising high-risk people to reduce physical activity and stay in air-conditioned and or heated buildings help to reduce fatalities and injuries.

Sinkholes and land subsidence mitigation actions
With a clear understanding of the erosion and subsidence hazards, communities can work towards preventing future damages. Some mitigating measures are:

Communicable disease/pandemic mitigation actions
Public education and outreach campaigns have proven to be highly effective in mitigating the effects of communicable disease. Information regarding symptoms, hand washing, treatment and vaccinations, when made available to the public in an easy-to-understand format, can do much to reduce infection rates. Also effective is the installation and use of hand sanitizing stations in public facilities.

Wildfire mitigation actions
The following mitigation measures can be applied to those areas of the community which are designated as fire risk zones.

Educational outreach develops and conducts educational outreach programs for fire prevention including training on fire safe building for contractors.

Retrofitting involves existing buildings that can be retrofitted to reduce their vulnerability to fires. Potential measures include covering roof vents with wire mesh to prevent entry of embers or flaming debris, and replacing flammable roof materials such as wood or certain types of shingles. Fire resistant roofing materials include various tiles, fiberglass shingles, and single ply membranes.

Safety zones can be created around structures by reducing or eliminating brush, trees, and vegetation around facility. FEMA recommends using a 30' safety zone, including keeping grass below 2″ tall and clearing all fallen leaves and branches promptly.

Fire breaks, such as roads, paths, and trails, can be planned so as to serve a dual function as firebreaks. Firebreaks are areas of inflammable materials which create a fuel break and do not allow fires to spread.

Hail and severe storm mitigation actions
The following actions can be implemented to mitigate the damage often caused by hail and severe storms:

- Storing and parking cars, golf carts, and other vehicles in protected areas
- Hardening of roof-mounted equipment, including communications equipment and solar panels

Mitigation Strategy

The Advisory Committee developed and confirmed the following program of mitigation actions in response to the HIRA in Section 04 the Plan. All actions proposed would be completed in the next five years, funding and resource allocation permitting.

Goal #1: Improve education and outreach efforts regarding the potential impacts of hazards and the identification of specific measures that can be taken to reduce the impacts.	
Objective #1.1: Increase awareness of risks and understanding of the advantages of mitigation by staff, faculty, and students.	
Action number:	1.1.1
Action description:	Develop and implement all hazards public education and outreach program for hazard mitigation and preparedness for all students, faculty, and staff.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Low
Notes/update:	

Goal #1: Improve education and outreach efforts regarding the potential impacts of hazards and the identification of specific measures that can be taken to reduce the impacts.	
Objective #1.1: Increase awareness of risks and understanding of the advantages of mitigation by staff, faculty, and students.	
Action number:	1.1.2
Action description:	Initiate a student awareness program on website and /or social media for hazard safety.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Low
Notes/update:	

Goal #1: Improve education and outreach efforts regarding the potential impacts of hazards and the identification of specific measures that can be taken to reduce the impacts.	
Objective #1.1: Increase awareness of risks and understanding of the advantages of mitigation by staff, faculty, and students.	
Action number:	1.1.3
Action description:	Design and initiate an employee training initiative using a web-based platform.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Low
Notes/update:	

Goal #1: Improve education and outreach efforts regarding the potential impacts of hazards and the identification of specific measures that can be taken to reduce the impacts.	
Objective #1.2: Increase departmental awareness regarding funding opportunities for mitigation.	
Action number:	1.2.1
Action description:	Conduct scheduled or periodic outreach to interested parties related to FEMA hazard mitigation grant programs, including all applicable HMA programs.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Low
Notes/update:	

Goal #1: Improve education and outreach efforts regarding the potential impacts of hazards and the identification of specific measures that can be taken to reduce the impacts.	
Objective #1.2: Increase departmental awareness regarding funding opportunities for mitigation.	
Action number:	1.2.2
Action description:	Collaborate with University executive leadership organizations on programs, projects, and opportunities designed to increase hazard mitigation opportunities.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Low
Notes/update:	

Goal #2: Improve data collection, use, and sharing to reduce the impact of hazards. Types of data that could be collected include documentation of all damages and losses from hazard occurrences, anecdotal reports of losses, impacts, or interruptions, and tracking of damages costs that are not funded through insurance or loss reimbursement.	
Objective 2.1: Improve availability to the University of data related to all relevant hazards for use in future planning efforts.	
Action number:	2.1.1
Action description:	Develop and maintain relationships with organizations that can provide technical information and/or assistance in the areas of hazard identification and risk assessment.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Low
Notes/update:	

Goal #2: Improve data collection, use, and sharing to reduce the impact of hazards. Types of data that could be collected include documentation of all damages and losses from hazard occurrences, anecdotal reports of losses, impacts, or interruptions, and tracking of damages costs that are not funded through insurance or loss reimbursement.	
Objective 2.1: Improve availability to the University of data related to all relevant hazards for use in future planning efforts.	
Action number:	2.1.2
Action description:	Create a prioritized list of University assets and develop detailed hazard, risk, & vulnerability information for each asset.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Low
Notes/update:	

Goal #2: Improve data collection, use, and sharing to reduce the impact of hazards. Types of data that could be collected include documentation of all damages and losses from hazard occurrences, anecdotal reports of losses, impacts, or interruptions, and tracking of damages costs that are not funded through insurance or loss reimbursement.	
Objective 2.1: Improve availability to the University of data related to all relevant hazards for use in future planning efforts.	
Action number:	2.1.3
Action description:	Develop a repository for storage and access of hazard, risk, and vulnerability data for University assets, equipment, and populations.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Low
Notes/update:	

Goal #2: Improve data collection, use, and sharing to reduce the impact of hazards. Types of data that could be collected include documentation of all damages and losses from hazard occurrences, anecdotal reports of losses, impacts, or interruptions, and tracking of damages costs that are not funded through insurance or loss reimbursement.	
Objective #2.2: Continue to acquire and maintain detailed data regarding critical facilities, such that these sites can be prioritized and risk-assessed for possible mitigation actions.	
Action number:	2.2.1
Action description:	Conduct wind risk assessments on high-priority facilities that are determined to be vulnerable to high winds.
Hazard(s) to be mitigated:	High winds; Tornado
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #2: Improve data collection, use, and sharing to reduce the impact of hazards. Types of data that could be collected include documentation of all damages and losses from hazard occurrences, anecdotal reports of losses, impacts, or interruptions, and tracking of damages costs that are not funded through insurance or loss reimbursement.	
Objective #2.2: Continue to acquire and maintain detailed data regarding critical facilities, such that these sites can be prioritized and risk-assessed for possible mitigation actions.	
Action number:	2.2.2
Action description:	Work with appropriate agencies, departments, and organizations to identify specific areas of campus that are vulnerable to storm effects, then inventory specific equipment, assets, infrastructure, and populations in those areas for use in project development.
Hazard(s) to be mitigated:	Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #2: Improve data collection, use, and sharing to reduce the impact of hazards. Types of data that could be collected include documentation of all damages and losses from hazard occurrences, anecdotal reports of losses, impacts, or interruptions, and tracking of damages costs that are not funded through insurance or loss reimbursement.	
Objective #2.2: Continue to acquire and maintain detailed data regarding critical facilities, such that these sites can be prioritized and risk-assessed for possible mitigation actions.	
Action number:	2.2.3
Action description:	Conduct a campus-wide assessment of assets, infrastructure, equipment, and populations to determine specific vulnerabilities to non-spatial hazards.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #3: Improve capabilities, coordination, and opportunities to plan and implement hazard mitigation projects, programs, and activities.	
Objective #3.1: Continue support of hazard mitigation planning, project identification, and implementation opportunities.	
Action number:	3.1.1
Action description:	Provide grant information, planning tools, training, and technical assistance to increase the number of hazard mitigation projects and/or projects with a mitigation element incorporated.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #3: Improve capabilities, coordination, and opportunities to plan and implement hazard mitigation projects, programs, and activities.	
Objective #3.1: Continue support of hazard mitigation planning, project identification, and implementation opportunities.	
Action number:	3.1.2
Action description:	Participate in all relevant city, county, regional, and state planning efforts, including hazard mitigation, emergency operations, and master planning, as it pertains to the University.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #3: Improve capabilities, coordination, and opportunities to plan and implement hazard mitigation projects, programs, and activities.	
Objective #3.1: Continue support of hazard mitigation planning, project identification, and implementation opportunities.	
Action number:	3.1.3
Action description:	Consider the findings of this plan's HIRA in future updates to Master Plans, Capital Project Plans, and other relevant internal planning mechanisms.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #3: Improve capabilities, coordination, and opportunities to plan and implement hazard mitigation projects, programs, and activities.	
Objective #3.1: Continue support of hazard mitigation planning, project identification, and implementation opportunities.	
Action number:	3.1.4
Action description:	Participate in all relevant city, county, regional, and state exercises and training efforts, including hazard mitigation, emergency operations, and situational exercises, as it pertains to the University.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #3: Improve capabilities, coordination, and opportunities to plan and implement hazard mitigation projects, programs, and activities.	
Objective #3.2: Provide for user-friendly hazard data accessibility for mitigation and other planning efforts.	
Action number:	3.2.1
Action description:	Integrate hazard data (e.g., wind load, FFE, safe room location, etc.) into campus maps as buildings are added.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #3: Improve capabilities, coordination, and opportunities to plan and implement hazard mitigation projects, programs, and activities.	
Objective #3.2: Provide for user-friendly hazard data accessibility for mitigation and other planning efforts.	
Action number:	3.2.2
Action description:	Conduct periodic training related to existing emergency alert/notification systems.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #3: Improve capabilities, coordination, and opportunities to plan and implement hazard mitigation projects, programs, and activities.	
Objective #3.2: Provide for user-friendly hazard data accessibility for mitigation and other planning efforts.	
Action number:	3.2.3
Action description:	Provide for public signage to indicate areas of safety from hazards.
Hazard(s) to be mitigated:	Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.1: Facilitate development and timely submittal of project applications meeting state and federal guidelines for funding for hardening, retrofitting, and other types of mitigation of infrastructure and critical facilities with highest vulnerability ratings.	
Action number:	4.1.1
Action description:	Implement mitigation projects and programs intended to reduce existing vulnerabilities to critical facilities, assets, equipment, infrastructure, and populations.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.1: Facilitate development and timely submittal of project applications meeting state and federal guidelines for funding for hardening, retrofitting, and other types of mitigation of infrastructure and critical facilities with highest vulnerability ratings.	
Action number:	4.1.2
Action description:	Implement mitigation projects and programs intended to reduce existing vulnerabilities to all other facilities, assets, equipment, infrastructure, and populations.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.1: Facilitate development and timely submittal of project applications meeting state and federal guidelines for funding for hardening, retrofitting, and other types of mitigation of infrastructure and critical facilities with highest vulnerability ratings.	
Action number:	4.1.3
Action description:	Determine feasibility/need to repaint or otherwise protect all assets, buildings, and infrastructure from fire, particularly buildings used for dormitories, classrooms, research, animal care, or hazardous materials storage.
Hazard(s) to be mitigated:	Wildfire
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	Moderate
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.2: Protect faculty, staff, students, and visitors from all hazards.	
Action number:	4.2.1
Action description:	Harden, strengthen, protect, or otherwise mitigate communications systems within and without the campus.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Office of Information Technology and Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$5,000+
Priority:	High
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.2: Protect faculty, staff, students, and visitors from all hazards.	
Action number:	4.2.2
Action description:	Conduct, update, maintain, and publish assessment of appropriate sites for sheltering-in-place during severe weather events.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.2: Protect faculty, staff, students, and visitors from all hazards.	
Action number:	4.2.3
Action description:	Maintain and enhance emergency notification systems to notify students, faculty, staff, and visitors of hazard events.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$5,000+
Priority:	High
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.2: Protect faculty, staff, students, and visitors from all hazards.	
Action number:	4.2.4
Action description:	Consider the inclusion of safe rooms, hardening, emergency power, and other hazard mitigation measures in new or renovated residential/housing assets.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities and Auxiliary Enterprises
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$5,000+
Priority:	High
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.2: Protect faculty, staff, students, and visitors from all hazards.	
Action number:	4.2.5
Action description:	Identify and develop mitigation measures to address vulnerabilities of historic and significant structures that fit within the structure's character and period.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities and Auxiliary Enterprises
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$5,000+
Priority:	High
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.2: Protect faculty, staff, students, and visitors from all hazards.	
Action number:	4.2.6
Action description:	Protect and maintain existing tree canopy.
Hazard(s) to be mitigated:	Drought; Extreme temperatures
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$5,000+
Priority:	High
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.2: Protect faculty, staff, students, and visitors from all hazards.	
Action number:	4.2.7
Action description:	Identify locations for safe room placement; develop projects to design and construct safe rooms.
Hazard(s) to be mitigated:	High winds; Severe thunderstorm; Tornado
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$5,000+
Priority:	High
Notes/update:	

Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs, and activities.	
Objective #4.2: Protect faculty, staff, students, and visitors from all hazards.	
Action number:	4.2.8
Action description:	Place and maintain hand sanitizer dispensers at entrances to buildings.
Hazard(s) to be mitigated:	Communicable disease/pandemic
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.1: Ensure continuity of IT services.	
Action number:	5.1.1
Action description:	Maintain and improve critical area/function Business Continuity Plans.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Auburn University Office of Information Technology
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.1: Ensure continuity of IT services.	
Action number:	5.1.2
Action description:	Determine and periodically review prioritization of servers and other IT equipment needs to ensure critical data remains available during and after hazard events.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Auburn University Office of Information Technology
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.1: Ensure continuity of IT services.	
Action number:	5.1.3
Action description:	Determine and implement projects to allow redundancy of IT and communication equipment to allow for continued operations following single point failure.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Auburn University Office of Information Technology
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.2: Ensure continuity of administrative and support services.	
Action number:	5.2.1
Action description:	Maintain and improve critical area/function Business Continuity Plans.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and other applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.2: Ensure continuity of administrative and support services.	
Action number:	5.2.2
Action description:	Conduct a telework exercise to identify emergent or existing challenges to operations from off-site staff work, in the event of campus inaccessibility.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management, Office of Information Technology, and other applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.2: Ensure continuity of administrative and support services.	
Action number:	5.2.3
Action description:	Determine and periodically review necessary equipment/hardening to maintain critical administrative and support functions during and after a hazard event.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Office of Information Technology
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.3: Ensure continuity of research activities.	
Action number:	5.3.1
Action description:	Maintain and improve critical area/function Business Continuity Plans.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.3: Ensure continuity of research activities.	
Action number:	5.3.2
Action description:	Conduct a telework exercise to identify emergent or existing challenges to operations from off-site staff work, in the event of campus inaccessibility.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management, Office of Information Technology, and applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.3: Ensure continuity of research activities.	
Action number:	5.3.3
Action description:	Ensure access to software, tools, equipment, licenses, etc. necessary for maintain integrity of research in the event that off-site access is necessary.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Office of Information Technology, and applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.3: Ensure continuity of research activities.	
Action number:	5.3.4
Action description:	Develop and maintain plans for off-site storage of samples and/or moving of research specimens (including live animals) for continuity, access, and care during and after hazard events.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.4: Facilitate and improve transition to an online/off-site environment in the event of a long-term campus shutdown.	
Action number:	5.4.1
Action description:	Maintain and improve critical area/function Business Continuity Plans.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.4: Facilitate and improve transition to an online/off-site environment in the event of a long-term campus shutdown.	
Action number:	5.4.2
Action description:	Conduct a telework exercise to identify emergent or existing challenges to operations from off-site staff work, in the event of campus inaccessibility.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management, Office of Information Technology, and applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.4: Facilitate and improve transition to an online/off-site environment in the event of a long-term campus shutdown.	
Action number:	5.4.3
Action description:	Encourage the use of online systems in the implementation of traditional courses in order to increase and maintain familiarity with programs and processes.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.5: Ensure continuity of operations in the event of a temporary power loss.	
Action number:	5.5.1
Action description:	Maintain and improve critical area/function Business Continuity Plans.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.5: Ensure continuity of operations in the event of a temporary power loss.	
Action number:	5.5.2
Action description:	Identify critical facilities and assets that require emergency power generators, quick connects, or other related equipment, and develop/request projects to address the identified need.
Hazard(s) to be mitigated:	Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.5: Ensure continuity of operations in the event of a temporary power loss.	
Action number:	5.5.3
Action description:	Identify all other facilities and assets that require emergency power generators, quick connects, or other related equipment, and develop/request projects to address the identified need.
Hazard(s) to be mitigated:	Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.5: Ensure continuity of operations in the event of a temporary power loss.	
Action number:	5.5.4
Action description:	Identify all facilities housing sensitive equipment which can be damaged by temperature fluctuations, and develop/request projects to address the identified need.
Hazard(s) to be mitigated:	Extreme temperatures
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.6: Ensure continuity of operations of utility service to campus facilities.	
Action number:	5.6.1
Action description:	Maintain and improve critical area/function Business Continuity Plans.
Hazard(s) to be mitigated:	Communicable disease/pandemic; Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and applicable department
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.6: Ensure continuity of operations of utility service to campus facilities.	
Action number:	5.6.2
Action description:	Research alternative water sources for the campus, in the event of primary source failure, exhaustion, or contamination.
Hazard(s) to be mitigated:	Drought
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.6: Ensure continuity of operations of utility service to campus facilities.	
Action number:	5.6.3
Action description:	Investigate feasibility of alternate water supplies for fire suppression activities, including the possibility of roof-mounted, gravity-fed collection system, to ensure ability to suppress fire in the event of hydrant damage or water loss, or other hazard event which compromises ability to access water.
Hazard(s) to be mitigated:	Drought; Wildfire
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.6: Ensure continuity of operations of utility service to campus facilities.	
Action number:	5.6.4
Action description:	Work with utility/service providers to determine and address vulnerabilities in utility service to campus; develop/request projects to address documented vulnerabilities.
Hazard(s) to be mitigated:	Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management and Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.6: Ensure continuity of operations of utility service to campus facilities.	
Action number:	5.6.5
Action description:	Work with partners and suppliers to ensure supply reliability and distribution of fuel during emergency generator use or other times when increased fuel is required for campus operations.
Hazard(s) to be mitigated:	Drought; Earthquake; Extreme temperatures; Flood; Hail; High winds; Lightning; Thunderstorm; Tornado; Sinkhole & land subsidence; Wildfire; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Public Safety & Security/Emergency Management, Auxiliary Enterprises, Airport, NCAT, and other applicable departments
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

Goal #5: Maintain business and operational continuity during and after all hazard events, including transition to an online, electronic, or other type of virtual environment when facilities are inaccessible.	
Objective #5.6: Ensure continuity of operations of utility service to campus facilities.	
Action number:	5.6.6
Action description:	Review building and infrastructure wind load and debris impact capacity; develop and request projects to retrofit, harden, or mitigate the identified vulnerability.
Hazard(s) to be mitigated:	Hail; High winds; Thunderstorm; Tornado; Winter storm
New action or carryover:	New action
Development protected:	New and future
Responsible department(s):	Auburn University Facilities
Financial resources:	University funding, grant funding, in-kind
Estimated cost:	$500+
Priority:	High
Notes/update:	

The preceding tables identify specific actions to achieve identified goals, a responsible party for each action, suggested funding sources, and an approximate estimated cost. These tables also indicate the prioritization of the actions.

Priorities were initially determined on a qualitative basis by a working group of the Advisory Committee. The considerations were criticality of service or function, general feasibility, and anticipated effectiveness in reducing risk. Detailed benefit-cost analyses were not performed (see notes below) but general cost effectiveness of the types of actions being considered was taken into account. The prioritization of the actions was validated by the Advisory Committee during review of the draft Plan.

Staffing, resources, and coordination of effort are at a premium with little chance of significant change to these issues in the foreseeable future. Therefore, the inclusion of any specific action item in this document does not commit the University to implementation. Each item will be considered for implementation in terms of the available staff and funding resources on a periodic basis. In addition, certain items may require regulatory changes or other decisions that must be implemented through standard processes, such as changing regulations.

It is anticipated that the majority of the actions in the Plan will be implemented as funds become available through various federal mitigation grant programs and through campus resources.

Benefit-Cost Analysis
Per the IFR, communities are required to use benefit cost analysis to prioritize projects for implementation. At this stage, the analysis of costs and benefits has been done at a general level. However, as project funding becomes available, Auburn University will undertake a more extensive process.

Benefit-cost analysis (BCA) compares the benefits of mitigation measures to the costs, and is a technique used for evaluating the cost-effectiveness of mitigation measures. FEMA requires a BCA for all mitigation projects that receive FEMA funding.

The Advisory Committee discussed the potential costs associated with each type of mitigation measure and decided that any project could be cost effective if its scope were properly tailored to the situation. After discussing the possible costs of the various mitigation measures, the Advisory Committee decided that instead of working on developing a very generic BCA at this time for projects that may not ever be authorized, they would wait until specific funding sources are identified and available. However, at the time that grants become available [Hazard Mitigation Grant Program (HMGP) after disasters or Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) grants annually], the University will collect detailed information on each structure that is interested in participating in the grant program and perform a BCA to help rank the structures as part of the process to determine which should receive funding first.

Appendix A
Approval Documentation

Contents of this Section

A.1 Overview

This sub-section will contain the documentation related to the approval of this hazard mitigation plan. This documentation, while not available during the drafting of the plan, will be added to this appendix after the approvals take place.

A.2 Plan Review Tool

This sub-section will contain the final Plan Review Tool for this Plan. This documentation, while not available during the drafting of the plan, will be added to this appendix after the approvals take place.

A.3 Adoption by Auburn University

This sub-section will contain a copy of the formal approval of this hazard mitigation plan by the President of Auburn University. This documentation, while not available during the drafting of the plan, will be added to this appendix after the approvals take place.

A.4 Approval by AEMA and FEMA

This sub-section will contain a copy of the formal approval of this hazard mitigation plan by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA). This documentation, while not available during the drafting of the plan, will be added to this appendix after the approvals take place.

Appendix B
Meeting Documentation

Contents of this Section

B.1 Overview

This appendix houses the documentation associated with meetings of the Auburn University Disaster Resistant University Hazard Mitigation Plan. This appendix contains documentation for meetings that occurred during the development of this Plan.

B.2 Advisory Committee Membership

This sub-section provides the membership of the Advisory Committee, displayed in Table 1 (below and following).

Auburn University Disaster Resistant University Advisory Committee Membership			
Name	**Department / Organization**	**Phone Number**	**Email**
Acker, David	Auburn University, Risk Management & Safety	334.332.5353	daa0002@auburn.edu
Adams, John	Auburn University, Medical Clinic	334.844.6157	john.adams@eamc.org
Brown, Dwayne	Auburn University, Alumni Affairs	334.844.1144	dwaynebrown@auburn.edu
Carpenter, Bennett	East Alabama EMS	334.444.6595	bennett.carpenter@eamc.org
Carroll, Jim	Auburn University, Campus Planning & Space Management	334.703.9607	jcarroll@auburn.edu
Carson, Kathy	Lee County, Emergency Management Agency	334.749.8161	kcarson@leecoema.com

Auburn University Disaster Resistant University Advisory Committee Membership			
Name	**Department / Organization**	**Phone Number**	**Email**
Clardy, Mike	Auburn University, Communications & Marketing	334.844.9999	clardch@auburn.edu
Colswell, Tommy	City of Auburn, Police Division	334.501.3121	tcolswell@auburnalabama.org
Cooper, Cathy	Auburn University, Risk Management & Safety	334.844.4533	coopeca@auburn.edu
Corbett, Chance	Auburn University, Department of Public Safety & Security	334.844.4808	cdc0009@auburn.edu
Eick, Christine	Auburn University, Risk Management & Safety	334.844.4755	eickchr@auburn.edu
Frazier, Kenny	City of Auburn, Police Division	334.501.3131	kfrazier@auburnalabama.org
George, Kelly	Witt O'Brien's, LLC	813.810.5429	kgeorge@wittobriens.com
Helms, John	Auburn University, Office of Information Technology	334.844.9357	helmsjm@auburn.edu
Hensarling, Robert	Auburn University, College of Agriculture	334.844.3596	hensara@auburn.edu
Holley, Jessica	Auburn University, International Programs	334.740.5123	jlh002@auburn.edu
Hoult, Kevin	Auburn University, University Housing & Residence Life	334.844.7705	kjhoo29@auburn.edu
Jordan, Matt	City of Auburn, Fire Division	334.501.3165	mjordan@auburnalabama.org
Kam, Frederick	Auburn University, Medical Clinic	334.740.6575	fred.kam@eamc.org
Kirkus, Asa	Alabama Department of Transportation	334.241.8590	kirkusa@dot.state.al.us
Koch, Virginia	Auburn University, Residence Life	334.844.3460	virginia.koch@auburn.edu
Langley, Johnny	Lee County, Emergency Management Agency	334.749.8161	jlangley@leecoema.com
Lankford, John	City of Auburn, Fire Division	334.501.3163	jlankford@auburnalabama.org
Littlejohn, Lyn	Auburn University, Department of Public Safety & Security	334.844.8888	ljl2223@auburn.edu
Majors, James	Lee County Sheriff's Office	334.737.7101	jmajors@leecountysheriff.org
Mann, Robert	Auburn University, Department of Public Safety & Security	334.844.2239	ram0012@auburn.edu
Maxwell, Sandra	Witt O'Brien's, LLC	404.964.2935	smaxwell@wittobriens.com
McAllister, Susan	Auburn University, Department of Public Safety & Security	334.703.7255	mccalsm@auburn.edu

Auburn University Disaster Resistant University Advisory Committee Membership			
Name	**Department / Organization**	**Phone Number**	**Email**
McCormick, Karla	Auburn University, Human Resources	334.844.4183	ksm0010@auburn.edu
Ostrowski, Stephanie	Auburn University, College of Veterinary Medicine	334.844.2722	sro0002@auburn.edu
Ramsey, Jeff	City of Auburn, Public Works	334.501.3000	jramsey@auburnalabama.org
Smith, Margaret	Auburn University, Facilities Management	334.703.2359	smithmm@auburn.edu
Steele, Jeff	Auburn University, Athletics	334.750.3129	steelmj@auburn.edu
Tennant, Andy	Auburn University, JCS Museum	334.844.3081	tennawa@auburn.edu
Wallace, Chris	Lee County Sheriff's Office	334.737.7182	cwallace@leecountysheriff.org
Weiss, Deborah	Auburn University, International Programs	334.748.8731	weissds@auburn.edu

Table 1

B.3 Meeting Documentation

This sub-section contains the documentation from the Advisory Committee meetings held during the development of this Plan.

Meeting #1 (October 08, 2015)

Kelly George

From:	Chance Corbett <cdc0009@auburn.edu>
Sent:	Tuesday, September 15, 2015 12:15 PM
To:	Andrew Gillespie; Bliss Bailey; Bob Ritenbaugh; Bobby Woodard; Bryan Cotney; Calvin Johnson; Carpenter, Bennett; Chance Corbett; Christine Eick; Daniel King; Emmett Winn; Fred Kam; Gretchen VanValkenburg; IV, John C. Lankford; Jeff Ramsey; Jeff Steele; Jim Carroll; jjones@leecountysheriff.org (jjones@leecountysheriff.org); Karla McCormick; kcarson@leecoema.com; Kelly George; Marcie Smith; Marilyn Laufer; Melvin Owens; Mike Clardy; Register, Paul; Robert Hensarling; Robert Mann; Susan McCallister; Vance Beck; Virginia Koch; Zhanjiang Liu
Subject:	AU Hazard Mitigation Planning Committee - Invitation and Meeting
Attachments:	Hazard Mitigation Planning Committee (Invitation).docx

Date: September 15, 2015

To: Hazard Mitigation Planning Committee Member

From: Chance Corbett, Associate Director, Emergency Management

Re: Auburn University Hazard Mitigation Plan Kickoff Meeting

We are in the early stages of developing a Hazard Mitigation Plan for the University, and we need your help to complete the process. This plan is required to establish Auburn's eligibility for federal mitigation grant funding. This plan is funded by a grant from the Alabama Emergency Management Agency and the Federal Emergency Management Agency, and will examine data to specifically identify and address the hazards, risks, and vulnerabilities that are specific to our campus, students, faculty, staff, and critical assets.

This plan will document potential mitigation opportunities for Auburn, focusing on the reduction of risks of loss of life, injury, and property damage from natural hazards and disaster events. This plan will also validate our foundation for identifying and prioritizing mitigation projects suitable for future federal funding.

We invite you (or your designee) to participate in this update process by accepting a seat on our Hazard Mitigation Planning Committee. You have received this invitation to participate because we have identified your agency/office/department as one that has information that will be beneficial to the planning process. I ask that you or your designee plan to participate in the development of this plan by attending and participating in the Planning Committee meetings. We hope to move forward with a high level of attendance and participation in the plan update process. We anticipate the need for 3-4 Planning Committee meetings, and that each meeting will last approximately 2 hours.

The Planning Committee Kickoff Meeting details are as follows:

Date: **Thursday, October 8th, 2015**
Time: **9:00am to 11:00am.**
Location: **Auburn University Public Safety Building/Emergency Operations Center**
543 W. Magnolia Avenue
Auburn, Alabama 36830

Please plan to attend this meeting if at all possible.

If you have questions regarding this process or this meeting, please let me know.

1

Hazard Mitigation Planning Meeting #1
SIGN IN SHEET

Sign-in Sheet:

(PLEASE PRINT CLEARLY)

Name	Agency/Department	Phone Number	E-Mail
Tommy Cogswell	Auburn Police	334.501.3121	tcogswell@auburnalabama.org
David Acker	Risk Management & Safety	334-332-5353	daa0002@auburn.edu
Matt Jordan	Auburn Fire	334-501-3165	mjordan@auburnalabama.org
John Lankford	Auburn Fire	334 501 3163	jlankford@auburnalabama.org
Bennett Carpenter	East Al. EMS	334.444.6595	bennett.carpenter@eaemc.org
Jessica Holley	AU International Programs	334-740-5123	jlh0002@auburn.edu
Deborah Weiss	AU International Programs 334-524-4921 (AU Emergency #) DIR. - Auburn Abroad 334-748-8731		weissds@auburn.edu
FREDERICK KAM	AU MEDICAL CLINIC	334-740-6575	FRED.KAM@EAMC.ORG.
Susan McCallister	AU Public Safety	334-703-7255	mccalsm@auburn.edu
John Helms	AU OIT	334-844-9357	helmsjm@auburn.edu

Hazard Mitigation Planning Meeting #1
SIGN IN SHEET

Sign-in Sheet:

(PLEASE PRINT CLEARLY)

Name	Agency/Department	Phone Number	E-Mail
KATHY CARSON	Lee County EMA	334-749-8161	kcarson@leecoema.com
Asa Kirkus	ALDOT	334-241-8590	kirkusa@dot.state.al.us
Chance Corbett	AU Dept. of Public Safety	334-844-4808	cdc0009@auburn.edu
Mike Clardy	AU Comm + Mktg	844-9999	clardch@auburn.edu
Robert Hersacling	College of Ag	844-3596	hersora@auburn.edu
JIM CARROLL	AU FACILITIES MGT.	(334) 703-9607	JCARROL@AUBURN.EDU.
ANDY TENNANT	JCS MUSEUM	844-3081	tennawa@auburn.edu
DWAYNE BROWN	ALUMNI AFFAIRS	(334) 844-1144	DWAYNEBROWN@AUBURN.EDU
Jeff Ramsey	City of Auburn Public Works	501-3000	jramsey@auburnalabama.org
JEFF STEELE	AUBURN ATHLETICS	334.750.3127	STEELMJ@AUBURN.EDU

Hazard Mitigation Planning Meeting #1
SIGN IN SHEET

Sign-in Sheet:

(PLEASE PRINT CLEARLY)

Name	Agency/Department	Phone Number	E-Mail
Virginia Koch	Residence Life	334-844-3460	virginia.koch@auburn.edu
Kevin Hart	University Housing & Res. Life	334.844.7705	kjh0029@auburn.edu
Robert Mann	AU Emergency Planner	334-844-2237	RAM0012@auburn.edu
Sandra Maxwell	Witt O'Brien's	404.964.2935	smaxwell@wittobrien's.com
Lyn Littlejohn	Auburn Public Safety	334 844-8888	ljl2225@auburn.edu
Kelly George	Witt - O'Brien's	8138105429	k.George@wittobriens.com

AUBURN UNIVERSITY HAZARD MITIGATION PLAN
KICKOFF MEETING
OCTOBER 8, 2015, 9:00 AM
MINUTES OF MEETING

Meeting was held on Auburn University's campus at the Public Safety/Emergency Operations Center, 543 W. Magnolia Avenue, Auburn, Alabama. A sign-in sheet with list of attendees was provided to Bob A. Mann, Auburn University and Kelly George, Witt-O'Brien's.

Chance D. Corbett, Associate Director, Emergency Management, Auburn University led off the meeting with introductions and opening remarks. Chance stated that Auburn University was applying for a planning grant from FEMA for a Hazard Mitigation Plan and requested everyone's presence at the next two scheduled meetings: Thursday, October 29, 2015 at 9:00am and Tuesday, December 1, 2015 at 9:00am. He stressed the importance of staff/faculty participation in this grant planning process and requested that they provide Witt-O'Brien's with any requested information. Chance stated that everyone attending planning meeting was to sign-in on the sign-in sheets because these sign-in sheets are a requirement and will be included in the final hazard mitigation plan.

Kelly George, Witt-O'Brien's, presented a slide presentation to explain to the attendees

- what the mitigation plan consists of
- its purpose/need
- the reason Auburn is having a plan developed
- plan development process
- plan development timeline
- what is expected of attendees
-

Kelly also stated that Auburn University's Hazard Mitigation Plan will only consist of natural hazards; not man-made hazards. She stated that Witt-O'Brien's will be conducting a Business Impact Analysis (BIA) as part of the hazard mitigation plan, and participation from 20-30 departments is needed to complete this portion of the plan. Sandra Maxwell will be conducting one-on-one interviews with each department specified by Chance D. Corbett. Interviews will be scheduled in coordination with Chance D. Corbett, Auburn University.

Kelly George conducted a Hazard ID Exercise where she stated natural hazards and asked for the attendees to decide if they wanted to include them in their plan or not. The attendees decided to include the following natural hazards:

- Communicable Disease Pandemic: influenza, meningitis, food-borne illnesses (norovirus);
- Drought;
- Earthquake (will be limited in qualitative analysis)
- Extreme heat
- Extreme cold
- Flooding (Kelly asked for a listing of vulnerable areas)

- Hail
- Lightning
- High winds (include hurricanes and windstorms)
- Tornadoes
- Sinkholes and land subsistence
- Thunderstorms
- Wildfire
- Winter storms

Next meeting, committee will participate in qualitative ranking of hazards. Bob Mann asked Kelly George to provide the committee with a listing of mitigation projects.
Meeting adjourned at noon.

Meeting #2 (October 29, 2015)

Date: October 20, 2015

To: Hazard Mitigation Planning Committee Member

From: Chance Corbett, Associate Director, Emergency Management

Re: Auburn University Hazard Mitigation Plan Committee Meeting

As we discussed at our last meeting, the next meeting of the Hazard Mitigation Plan Committee will be at the end of October. At this meeting, we will complete two exercises related to the risk assessment, as well as determine the goals for the University's mitigation strategy. All of these activities are required for the development of our mitigation plan; your participation and attendance is both necessary and appreciated.

The Planning Committee Meeting details are as follows:

Date: **Thursday, October 29th, 2015**
Time: **9:00am to 11:00am.**
Location: **543 W. Magnolia Avenue**
Auburn, Alabama 36830

Please plan to attend this meeting if at all possible.

If you have questions regarding this process or this meeting, please contact our planning consultant, Kelly George, at kgeorge@wittobriens.com

Thank you for your assistance, and for your commitment to making Auburn University a more disaster resistant community.

Hazard Mitigation Planning Meeting #2 10/29/2015
SIGN IN SHEET

Sign-in Sheet:

(PLEASE PRINT CLEARLY)

Name	Agency/Department	Phone Number	E-Mail
John Adams	Medical Clinic	x6157	john.adams@eamc.org
FREDERICK KAM	MEDICAL CLINIC	x5197	FRED.KAM@EAMC.ORG.
Matt Jordan	Auburn Fire Div.	334-501-3165	mjordan@auburnalabama.org
Virginia Koch	University Housing & Residence Life	x4580	virginia.koch@auburn.edu
JIM CARROLL	UNIVERSITY ARCHITECT FACILITIES MANAGEMENT	(334) 703-9607	JCARROLL@AUBURN.EDU
Bennett Carpenter	East AL EMS	334 528 5826	bennett carpenter@eamc.org
James Majors	Lee Co. Sheriff's Office	334-737-7101	jmajors@leecountysheriff.org
Sandra Maxwell	Witt O'Brien's	404 964 2935	SMaxwell@wittobriens.com
Karla McCormick	AU Human Resources	334-844-4183	ksm0010@auburn.edu Added after the meeting See email attached.

Hazard Mitigation Planning Meeting #2 10/29/2015
SIGN IN SHEET

Sign-in Sheet:

(PLEASE PRINT CLEARLY)

Name	Agency/Department	Phone Number	E-Mail
CHRIS WALLACE	LEE CO SHERIFF'S OFFICE	334.737.7182	cwallace@leecountysheriff.org
Mike Clardy	AU Communications/Mktg	334-844-9999	clardch@auburn.edu
Kenny Frazier	Auburn P.D	334 501-3131	kfrazier@auburnalabama.org
DWAYNE BROWN	ALUMNI AFFAIRS	334-844-1144	DWAYNE.BROWN@AUBURN.EDU
Jeff Ramsey	City of Auburn Public Works	334-501-301	jramsey@auburnalabama.org
Stephanie Ostrowski	College of Vet Medicine	334-844-2722	sro0002@auburn.edu
Cathy Cooper	Risk Mgmt & Safety	334-844-4533	cooperca@auburn.edu
Robert Hensarling	College of Ag	334 844 3596	hensarc@auburn.edu
ANDY TENNANT	JCS MUSEUM	334-844-3081	tennawa@auburn.edu
KATHY CARSON	Lee County EMA	334-275-6326	kcarson@leecoema.com

AUBURN UNIVERSITY HAZARD MITIGATION PLAN
KICKOFF MEETING
OCTOBER 29, 2015, 9:00 AM
MINUTES OF MEETING

Meeting was held on Auburn University's campus at the Public Safety/Emergency Operations Center, 543 W. Magnolia Avenue, Auburn, Alabama. A sign-in sheet with list of attendees was provided to Bob A. Mann, Auburn University and Kelly George, Witt-O'Brien's.

Kelly George, Witt-O'Brien's, started the meeting with an introduction and a recap as to "why" Auburn is working on a Hazard Mitigation Plan. The meeting continued with the committee conducting two exercises: 1) Ranking hazard impacts; 2) Determining goals for mitigation strategies.

Kelly George, Witt-O'Brien's, presented a slide presentation to the attendees

- Meeting Agenda
- Review of Kickoff Meeting
- Hazard Identification (Hazards to be Profiled)
- Questions to the Committee
- Components of Hazard Profiles
- Risk Assessment
- Risk Assessment Methodology
- Quantitative vs Qualitative
- Qualitative Impact Terminology
- Qualitative Risk Assessment Exercise
- HIRA Data
- Mitigation Strategy Goals
- Business Impact Analysis Update

EXERCISE #1:
Kelly George facilitated two risk assessment exercises where she stated natural hazards and asked for the attendees to decide if they wanted to include them in their plan as Qualitative or Quantitate Risk Assessment. The attendees completed the qualitative determination portion via individual worksheets. The attendees the discussed and decided to perform the following assessments:

- Communicable Disease Pandemic: Committee decided on Qualitative (Kelly to add verbiage as to impacts of loss of key personnel due to illness (housing/residential), limited staffing and how it affects work.

- Drought: Committee decided on Qualitative. Kelly to add information on fire suppression and reliance on external providers for potable water.

- Earthquake: Committee decided: Qualitative

- Extreme cold: Committee decided: Qualitative. (Pipe concerns, animal concerns – however, needs to be 32 degrees or lower for a number of days before animals are affected. Vet Med concerns)

- Extreme heat: Committee decided: Qualitative. (Mentioned additional taxing on utilities)

- Flood: Committee decided: Quantitative Risk Assessment> (Localized flooding. Kelly requested listing of specific building to review which Bob Mann will provide. This campus does not have flood insurance policies.

- Hail: Committee decided: Qualitative. (Vulnerable areas: greenhouses, animals, fleet vehicles). Kelly requested a listing of claims data for hail facilities on fleet vehicles to include dollar values. Robert Mann will provide.

- High winds (include hurricanes and windstorms): Committee decided Quantitative Risk Assessment. Kelly requested historic data for Hurricane Opal 1995.

- Lightning: Committee decided Qualitative. SEC ruling is that when lightning strikes within an 8 mile radius, stadium evacuations must go into effect.

- Sinkholes and land subsistence: Committee decided: Qualitative

- Thunderstorms: Committee decided: Qualitative

- Tornadoes: Committee decided Quantitative Risk Assessment

- Wildfire: Committee decided: Qualitative. Kelly requested brush fire response logs for last 5 years. Robert Mann will provide.

- Winter storms: Committee decided: Quantitative Risk Assessment. (Focus on snow/ice, trees, ingress/egress campus. Campus closings are coordinated with City of Auburn school closings, they work together. Residence Halls are good for about 4 days.

EXERCISE #3:
Kelly conducted the Mitigation Strategy Goals exercise by showing each goal and asking for committee input.
Goal #1 – Committee accepted.
Goal #2 – Committee accepted, however, they asked that the "data" wording be more specific. Kelly George will work on wording.
Goal #3 – Committee accepted.
Goal #4 – Committee accepted.

Goal #5 – Committee accepted.

Kelly George will build suggestive mitigation strategy around these goals.
Sandra Maxwell, Witt-O'Brien's provided a schedule of open time slots for BIA Interviews and asked committee members to sign-up before leaving the meeting.

Next meeting, is scheduled at 9:00 am on December 1, 2015 where the committee will discuss list and finalize. Meeting adjourned at 10:30am.

Meeting #3 (December 01, 2015)

Date: November 01, 2015

To: Hazard Mitigation Planning Committee Member

From: Chance Corbett, Associate Director, Emergency Management

Re: Auburn University Hazard Mitigation Plan Committee Meeting

As we discussed at our last meeting, the next meeting of the Hazard Mitigation Plan Committee will be at the beginning of December. At this meeting, we review the proposed University mitigation strategy. This activity is required for the development of our mitigation plan; your participation and attendance is both necessary and appreciated.

The Planning Committee Meeting details are as follows:

Date: **Tuesday, December 1st, 2015**
Time: **9:00am to 11:00am.**
Location: **543 W. Magnolia Avenue**
Auburn, Alabama 36830

Please plan to attend this meeting if at all possible.

If you have questions regarding this process or this meeting, please contact our planning consultant, Kelly George, at kgeorge@wittobriens.com

Thank you for your assistance, and for your commitment to making Auburn University a more disaster resistant community.

Hazard Mitigation Planning Meeting # 3 12/01/2015
SIGN IN SHEET

Sign-in Sheet:

(PLEASE PRINT CLEARLY)

Name	Agency/Department	Phone Number	E-Mail
Robert Mann	All ASFS Emergency Management	334 844 2237	MANN0012@Auburn.edu
Johnny Langley	LCEMA	334-749-8161	jlangley@lcecoema.com
Sandra Maxwell	Witt O'Brien's	404 464 2975	smaxwell@wittobriens.com
Kelly Gerse	Witt O'brien's	8338105429	kgerse@wittobriens.com
Christine Eick	Risk Mgmt Safety	4755	eickchr@auburn
Shawn McAllister	Public Safety	334-703-7255	mccalsm@auburn.edu
CHRIS WALLACE	LEE COUNTY SHERIFF'S OFFICE	334 737 7182	cwallace@leecountysheriff.org
BENNETT CARPENTER	EAST AL. EMC	334 444-6595	bennett.carpenter@eamc.org
John Adams	Med Clinic	844-6157	john.adams@eamc.org
Virginia Koch	Auburn University Housing & Residence Life	334-703-9252	virginia.koch@gmail.com

Hazard Mitigation Planning Meeting # 3 12/01/2015
SIGN IN SHEET

Sign-in Sheet:

(PLEASE PRINT CLEARLY)

Name	Agency/Department	Phone Number	E-Mail
JM CARROLL	~~FACILITIES MANAGEMENT~~	~~(334)~~ 703-9607	~~JCARROLL@AUBURN.EDU~~
John Helms	OIT	334-844-9357	helmsjm@auburn.edu
Matt Jordan	Auburn Fire	334-501-3165	mjordan@auburnalabama.org
Kenny Frazier	APD	334-501-3131	kfrazier@auburnalabama.org
Jessica Holley	OIP	334-740-5123	jlh0002@auburn.edu
Jeff Ramsey	City of Auburn	334-524-3001	jramsey@auburnalabama.org
Robert Kercarley	COA	334-7503970	kencarl@auburn.edu

Hazard Mitigation Planning Meeting # 3 12/01/2015
SIGN IN SHEET

Sign-in Sheet:

(PLEASE PRINT CLEARLY)

Name	Agency/Department	Phone Number	E-Mail
MARGARET SMITH	ALL FACILITIES	703-2359	smithmm@auburn.edu
Chance Corbett	Auburn Public Safety	334-750-1839	cdc0009@auburn.edu

AUBURN UNIVERSITY HAZARD MITIGATION PLAN
COMMITTEE MEETING
DECEMBER 1, 2015, 9:00 AM
MINUTES OF MEETING

Meeting was held on Auburn University's campus at the Public Safety/Emergency Operations Center, 543 W. Magnolia Avenue, Auburn, Alabama. A sign-in sheet with list of attendees was provided to Bob A. Mann, Auburn University and Kelly George, Witt-O'Brien's.

Kelly George, Witt-O'Brien's, started the meeting with an introduction and an explanation of today's meeting agreeing on wording for Action Descriptions for Goals and Objectives. She also started the slide presentation discussing planning regulatory requirements, 44 CFR 201.6(c)(3). After a discussion on regulatory requirements, she presented a slide presentation to the attendees going over each Goal and Objective and the Action Descriptions currently written. All committee members were asked if they agreed with the Action Descriptions as presented or if changes needed to be made. The Committee members were in agreement with all Action Descriptions except for the following:

- Goal #1: Improve education and outreach efforts regarding the potential impacts of hazards and the identification of specific measures that can be taken to reduce the impacts.
  - **Objective #1.2: Increase departmental awareness regarding funding opportunities for mitigation.**
    - **Action Description:** Collaborate with the Board of Trustees and other executive leadership organizations on programs, projects, and opportunities designed to increase hazard mitigation opportunities.
    - **Change:** "Board of Trustees" to "University Executive Leadership Committee"
- Goal #3: Improve capabilities, coordination, and opportunities to plan and implement hazard mitigation projects, programs, and activities.
  - **Objective 3.2: Provide for user-friendly hazard data accessibility for mitigation and other planning efforts.**
    - **Action Description:** Provide for public signage to indicate areas of safety from all hazards.
    - **Change:** Delete the word "all".
- Goal #4: Pursue opportunities to mitigate campus facilities and other appropriate hazard mitigation projects, programs and activities.
  - **Objective #4.2: Protect faculty, staff, students and visitors from all hazards.**
    - **Action Description:** Maintain and enhance emergency notification systems to notify students, faculty, staff, and visitors of hazard events.
    - **Change:** Replace "faculty, staff" with "employees". **Please note: this change should also be made in Objective #4.2.**
- During the meeting, Chance Corbett explained to the committee that funding is not currently available for projects, and he also explained how and when funding becomes available for projects.

- Chance Corbett stated that Auburn University has some in-ground shelters, however, they do not have and FEMA 361 shelters.
- Kelly discussed the upcoming timeline for completing the hazard mitigation plan to include university community and stakeholder review/comment period, submitting to the State/FEMA.

Committee Meeting adjourned at 11:45 am.

After the meeting, Kelly George and Sandra Maxwell met with Robert Manning. Kelly and Bob agreed that the University Community and Stakeholder review/comment period would be for 14 calendar days. Sandra Maxwell provided Bob with a listing of outstanding information requested from departments for the Business Interview Analysis. Bob will email each department listed and request the information be submitted.

B.4 Meeting Presentations

If requested, copies of the presentations used to facilitate the Advisory Committee meetings can be provided. Copies of each presentation were provided to the Advisory Committee after each meeting.

Appendix C
Public and Community Participation

Contents of this Section

C.1 Overview

This sub-section contain discussion and documentation of the processes by which the public was involved in the development of this Plan. This documentation, while not available during the drafting of the plan, will be added to this appendix after the approvals take place.

C.2 Public Participation

In accordance with the requirements of 44 CFR, part 201, the Advisory Committee made the draft plan available to the public and the University community for review and comment. The draft was made available through the University's website, and the email address of the plan development consultant was made available in the same posting.

All comments and suggestions received were considered and discussed by the Advisory Committee prior to approval of the final plan document.

Once the draft was reviewed by AEMA and FEMA, and prior to the Advisory Committee recommending that the final draft be approved by the University President, the final draft was made available, to the same group via the same method. All comments and suggestions received were considered and discussed, prior to submission of the final plan document to the University President for review and approval.

The draft Plan was available from the following location from March 03, 2016 through April 15, 2016:

http://www.auburn.edu/administration/public_safety/emergency/policies.html

No comments were received during this 45 day posting period.

Emergency Management Department of Public Safety & Security

Auburn Home > Administration > Public Safety and Security > Emergency Management > Policies and Procedures

Policies and Procedures

Public Comment Period Announcement for the Auburn University DRAFT Hazard Mitigation Plan

Auburn University has completed the first draft of the university's natural hazard mitigation plan, which assesses the natural hazards that can affect our campus and our vulnerabilities to those hazards. The plan focuses on reducing the risk of loss of life, injury, and property damage due to natural hazards such as high winds and severe storms. This plan also identifies specific actions that can be undertaken to minimize or eliminate these vulnerabilities. These projects can be implemented as funding becomes available. This plan is a requirement for Auburn's eligibility for federal mitigation grant programs.

Each year, millions of federal hazard mitigation grant dollars are made available to eligible applicants via programs such as the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation Program (PDM). With an approved hazard mitigation plan, Auburn will become eligible for these competitive grant funds.

As part of the development process, and in compliance with 44 CFR, part 201, we are requesting that the Auburn University community review the final draft of this plan, and submit any comments or suggestions on the document.

Should you wish to comment on the draft, please use the form provided? All comments must be received no later than Friday, April 1, and should be emailed to kgeorge@wittobriens.com.

Robert Mann
(334) 844-2237

Auburn University Hazard Mitigation Plan Public Comment Draft

Public Comment Form

{Documentation and details of the final public comment period will be added once that action occurs.}

C.3 External Stakeholder Participation

In accordance with the requirements of 44 CFR, part 201, not all members of the Advisory Committee were University faculty and staff. Representatives from the following organizations and entities were invited to participate in the update process, or to review and comment upon the drafts of the plan:

- Alabama Department of Transportation
- East Alabama Emergency Medical Service
- Lee County Emergency Management Agency
- Lee County Sheriff's Office
- City of Auburn, Police Division
- City of Auburn, Fire Division

Appendix D
Tabular Data

Contents of this Section

D.1 Asset Data

This asset data was provided by Auburn University, and was used in the development of the hazard identification and risk assessment and the mitigation strategy found in this Plan.

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
0	M1101	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
1	N1101	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
2	M1104	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
3	M1002	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
4	M1001	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
5	N1002	<Null>	Housing	No	No	Yes	Non-burnable	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
6	N0902	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
7	N1001	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
8	J0804	Facilities Division Trailer 4	Administration	No	No	No	Non-burnable	$100,161
9	J0805	Facilities Division Trailer 5	Administration	No	No	No	Non-burnable	$100,161
10	J0904	<Null>	Support	No	No	No	Non-burnable	<Null>
11	J0902	Facilities Division Trailer 2	Administration	No	No	No	Non-burnable	$530,126
12	J0803	Facilities Division 5	Administration	No	No	No	Non-burnable	$3,897,710
13	J0806	Facilities Division 7	Administration	No	No	No	Non-burnable	$2,574,384
14	J0801	Facilities Division 4	Support	No	No	No	Non-burnable	$1,650,808
15	J0807	<Null>	Storage	No	No	No	Non-burnable	<Null>
16	J0703	Greenhouse (Facilities Division)	Animal/Crop	No	No	No	Very Low	$749,991
17	J0706	Greenhouse (Facilities Division)	Animal/Crop	No	No	No	Very Low	$158,474
18	J0705	<Null>	Storage	No	No	No	Very Low	<Null>
19	J0802	Facilities Division 3	Support	No	No	No	Very Low	$1,454,243

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
20	J0701	Facilities Division 1	Administration	No	No	No	Very Low	$10,179,024
21	K0701	3-D Arts Studio Building	Education	No	No	No	Very Low	$8,021,431
22	K0702	Facilities Division 6	Administration	No	No	No	Very Low	$2,821,395
23	K0703	Gas Tank Storage	Storage	No	No	No	Non-burnable	$28,997
24	L0801	Bee Laboratory	Research	No	No	No	Non-burnable	$942,737
25	L0804	Aviary Research Laboratory 1	Research	No	No	No	Non-burnable	$783,812
26	N0901	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
27	M0901	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
28	M0902	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
29	N0801	Moore Softball Complex &Pressbox	Athletics	No	No	Yes	Non-burnable	$3,907,288
30	P0801	McWhorter Center	Athletics	No	No	Yes	Low	$10,781,920
31	Q0902	<Null>	Support	No	No	Yes	Low	<Null>
32	P0901	Intramural Field House	Athletics	No	No	Yes	Low	$891,542
33	Q0901	<Null>	Athletics	No	No	Yes	Low	<Null>
34	Q1002	<Null>	Athletics	No	No	Yes	Very Low	<Null>
35	R1001	Ag Heritage Rark: Lowder Red Barn	Animal/Crop	No	No	Yes	Very Low	$2,080,347

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
36	R0901	Ag Heritage Park: Herdsman House	Housing	No	No	Yes	Very Low	$333,862
37	S0905	Ag Heritage Park: Dairy	Animal/Crop	No	No	Yes	Very Low	$1,593,171
38	S0907	Athletics Video Services Bldg	Support	No	No	Yes	Non-burnable	$2,108,218
39	S0903	<Null>	Research	No	No	Yes	Non-burnable	<Null>
40	S0904	<Null>	Shop	No	No	Yes	Non-burnable	<Null>
41	T0902	<Null>	Support	No	No	Yes	Non-burnable	<Null>
42	U0911	<Null>	Research	No	No	Yes	Non-burnable	<Null>
43	T0903	<Null>	Research	No	No	Yes	Non-burnable	<Null>
44	T0904	<Null>	Research	No	No	Yes	Non-burnable	<Null>
45	U0915	<Null>	Support	No	No	Yes	Non-burnable	<Null>
46	U0918	Paterson Greenhouse 5	Animal/Crop	No	No	Yes	Non-burnable	$623,501
47	U0919	Paterson Greenhouse 6	Animal/Crop	No	No	Yes	Non-burnable	$606,873
48	U0904	Header House #2	Education	No	No	Yes	Non-burnable	$498,829
49	U0901	Paterson Greenhouse 8	Animal/Crop	No	No	Yes	Very Low	$603,168
50	U0917	Paterson Environmental Chamber	Education	No	No	Yes	Very Low	$130,473

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
51	U0906	Paterson Storage & Refrigeration	Storage	No	No	Yes	Very Low	$1,032,822
52	U0921	Paterson Retractable Greenhouse	Animal/Crop	No	No	Yes	Very Low	$582,285
53	U0907	<Null>	Animal/Crop	No	No	Yes	Very Low	<Null>
54	U0908	Paterson Greenhouse 4	Animal/Crop	No	No	Yes	Very Low	$247,680
55	U0909	Paterson Greenhouse Boiler	Animal/Crop	No	No	Yes	Very Low	$101,051
56	U0912	Paterson Greenhouse 3	Animal/Crop	No	No	Yes	Very Low	$632,616
57	U0913	Paterson Greenhouse 2	Animal/Crop	No	No	Yes	Very Low	$911,599
58	U0914	Paterson Greenhouse 1	Animal/Crop	No	No	Yes	Very Low	$875,136
59	U0916	Paterson Pesticide Storage Bldg	Storage	No	No	Yes	Very Low	$99,069
60	U0920	Paterson Hammer Mill	Support	No	No	Yes	Very Low	$44,028
61	U1006	Paterson Storage Building	Storage	No	No	Yes	Very Low	$673,388
62	U1004	Paterson Potting / Mixing Shed	Animal/Crop	No	No	Yes	Very Low	$355,181
63	T0905	<Null>	Research	No	No	Yes	Non-burnable	<Null>
64	T1002	<Null>	Research	No	No	Yes	Non-burnable	<Null>
65	T1001	<Null>	Research	Yes	No	Yes	Non-burnable	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
66	U1005	Forestry and Wildlife Sciences	Education	No	No	Yes	Very Low	$36,299,270
67	T1202	<Null>	Research	No	No	No	Non-burnable	<Null>
68	U1101	Hot Water Plant 1	Utility	No	No	No	Very Low	$3,199,670
69	U1203	Medical Clinic	Medical Facility	No	No	No	Very Low	$13,512,501
70	W1101	<Null>	Education	No	No	No	Moderate	<Null>
71	V1105	Parking Deck, South Quad	Parking	No	No	No	Very Low	$14,438,433
72	W1102	Information Technology Building	IT	No	No	No	Non-burnable	$16,288,111
73	X1001	Davis Arboretum Storage	Storage	No	No	No	Non-burnable	$12,392
74	W1009	<Null>	Education	No	No	Yes	Non-burnable	<Null>
75	X0901	Davis Arboretum Pavilion	Support	No	No	Yes	Low	$436,809
76	Y0901	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
77	Y0902	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
78	Y0802	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
79	Y0801	<Null>	Parking	No	No	Yes	Non-burnable	<Null>
80	V0905	Leischuck Residence Hall	Housing	No	No	Yes	Very Low	$9,575,466
81	V0904	<Null>	Housing	No	No	Yes	Very Low	<Null>
82	W0902	Boyd Residence Hall	Housing	No	No	Yes	Non-burnable	$19,132,078

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
83	W0901	Knapp Residence Hall	Housing	No	No	Yes	Non-burnable	$11,121,135
84	V0903	Dowell Residence Hall	Housing	No	No	Yes	Very Low	$11,081,335
85	V0902	<Null>	Food Service	No	No	Yes	Very Low	<Null>
86	W0903	M Residence Hall	Housing	No	No	Yes	Non-burnable	$9,627,705
87	W0803	Hollifield Residence Hall	Housing	No	No	Yes	Non-burnable	$9,231,399
88	W0804	Duncan Residence Hall	Housing	No	No	Yes	Non-burnable	$9,317,383
89	W0802	Burton Hall	Administration	No	No	Yes	Non-burnable	$5,395,931
90	V0805	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
91	V0901	Graves Residence Hall	Housing	No	No	Yes	Non-burnable	$10,957,055
92	V0804	Dunn Residence Hall	Housing	No	No	Yes	Non-burnable	$9,418,820
93	V0803	Dobbs Residence Hall	Housing	No	No	Yes	Non-burnable	$9,320,463
94	W0805	Gorrie Center	Education	No	No	Yes	Non-burnable	$12,309,281
95	W0801	<Null>	Education	No	No	Yes	Non-burnable	<Null>
96	X0705	<Null>	Student Services	No	No	Yes	Non-burnable	<Null>
97	X0708	Biological Research Facility	Research	No	No	Yes	Non-burnable	$5,096,924
98	Y0709	<Null>	Education	No	No	Yes	Non-burnable	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
99	X0702	<Null>	Research	No	No	Yes	Non-burnable	<Null>
100	Y0701	Funchess Hall	Education	No	No	Yes	Non-burnable	$51,364,983
101	X0601	Comer Hall	Education	No	No	Yes	Non-burnable	$13,869,360
102	X0701	Corley Building	Education	No	No	Yes	Non-burnable	$7,720,495
103	W0702	BERL - Biological Eng Rsrch Lab	Education	No	No	Yes	Non-burnable	$7,488,414
104	W0708	Chemistry Building	Education	No	No	Yes	Non-burnable	$24,989,989
105	W0602	Glenn Residence Hall	Housing	No	No	Yes	Non-burnable	$7,819,402
106	W0604	Extension Hall	Extension	No	No	Yes	Non-burnable	$5,570,382
107	W0610	<Null>	Research	No	No	Yes	Non-burnable	<Null>
108	W0608	<Null>	Education	No	No	Yes	Low	<Null>
109	W0609	<Null>	Education	No	No	Yes	Low	<Null>
110	V0602	Parker Hall	Housing	No	No	Yes	Low	$29,517,452
111	V0603	Allison Laboratory	Research	No	No	Yes	Low	$11,370,339
112	V0704	Dudley Commons	Administration	No	No	Yes	Non-burnable	$7,495,443
113	V0702	Dudley Hall	Education	No	No	Yes	Non-burnable	$19,168,327
114	W0707	Dudley Shop	Shop	No	No	Yes	Non-burnable	$697,908
115	V0802	Goodwin Hall	Education	No	No	Yes	Non-burnable	$17,030,718

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
116	V0801	Peet Theatre	Education	No	No	Yes	Non-burnable	$21,132,734
117	U0802	<Null>	Storage	No	No	Yes	Non-burnable	<Null>
118	U0804	Paterson Greenhouse 7	Animal/Crop	No	No	Yes	Non-burnable	$610,216
119	U0803	Graves Cottage	Administration	No	No	Yes	Non-burnable	$379,219
120	U0801	Leach Science Center	Education	No	No	Yes	Non-burnable	$22,555,420
121	U0702	<Null>	Utility	No	No	Yes	Non-burnable	<Null>
122	U0701	Chilled Water Plant 2	Utility	No	No	Yes	Non-burnable	$3,504,505
123	U0603	Parking Deck, Campus Green	Parking	No	No	Yes	Non-burnable	$15,345,705
124	T0604	Plainsman Park: Rehab Center	Athletics	No	No	Yes	Non-burnable	$3,941,441
125	T0603	Plainsman Park: Samford Stadium	Athletics	No	No	Yes	Non-burnable	$12,383,867
126	T0804	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
127	S0802	Lowder Student Athlete Dev Cent.	Athletics	No	No	Yes	Low	$15,607,173
128	R0804	Indoor Practice Facility	Athletics	No	No	Yes	Low	$27,588,064
129	S0801	Athletics Complex	Administration	No	No	Yes	Low	$30,157,901
130	R0803	<Null>	Athletics	No	No	Yes	Low	<Null>
131	S0701	Parking Deck, South Donahue	Parking	No	No	Yes	Low	$12,638,461

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
132	T0701	<Null>	Food Service	No	No	Yes	Non-burnable	<Null>
133	Q0701	Hutsell Field House (OLD)	Athletics	No	No	Yes	Low	$316,632
134	Q0704	<Null>	Student Service	No	No	Yes	Low	<Null>
135	Q0702	<Null>	Storage	No	No	Yes	Low	<Null>
136	N0601	<Null>	Support	No	No	No	Low	<Null>
137	N0602	<Null>	Utility	No	No	No	Non-burnable	<Null>
138	Q0610	<Null>	Support	No	No	No	Low	<Null>
139	R0601	<Null>	Student Service	No	No	No	Low	<Null>
140	R0602	Martin Aquatics Center	Athletics	No	No	Yes	Non-burnable	$23,198,700
141	R0701	Beard Courts	Athletics	No	No	Yes	Low	$3,543,403
142	S0601	Beard-Eaves Memorial Coliseum	Athletics	No	No	Yes	Non-burnable	$108,830,174
143	T0501	Jordan-Hare Stadium	Athletics	No	No	No	Low	$289,558,857
144	R0101	<Null>	Housing	No	No	No	Non-burnable	<Null>
145	M0503	Impound Lot Guard Shack	Support	No	No	No	Non-burnable	$19,507
146	F0401	<Null>	Storage	Yes	No	No	Non-burnable	<Null>
147	G0401	<Null>	Support	No	No	No	Non-burnable	<Null>
148	K0501	Field Lab Trailer	Support	No	No	No	Low	$441,845
149	L0502	Band Field Pavilion	Support	No	No	No	Very Low	$1,419,459
150	M0403	Draughon Village Office	Student Service	No	No	No	Low	$815,352

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
151	M0404	Draughon Village Shop	Shop	No	No	No	Low	$642,149
152	M0401	Draughon Village Laundry	Student Service	No	No	No	Low	$500,863
153	P0302	<Null>	Housing	No	No	No	Low	<Null>
154	N0301	<Null>	Housing	No	No	No	Low	<Null>
155	N0302	<Null>	Housing	No	No	No	Low	<Null>
156	M0304	Draughon Village Hemlock Dr 103	Student Service	No	No	No	Low	$1,864,715
157	L0201	<Null>	Housing	No	No	No	Low	<Null>
158	M0205	<Null>	Housing	No	No	No	Low	<Null>
159	N0203	<Null>	Housing	No	No	No	Low	<Null>
160	N0201	<Null>	Housing	No	No	No	Low	<Null>
161	N0202	<Null>	Housing	No	No	No	Low	<Null>
162	P0304	<Null>	Housing	No	No	No	Low	<Null>
163	P0303	<Null>	Housing	No	No	No	Low	<Null>
164	P0201	<Null>	Housing	No	No	No	Low	<Null>
165	P0202	<Null>	Housing	No	No	No	Low	<Null>
166	R0201	<Null>	Public Safety	No	No	No	Non-burnable	<Null>
167	S0201	<Null>	Education	No	No	No	Non-burnable	<Null>
168	T0401	Dawson Building	Research	No	No	No	Low	$1,811,616
169	T0303	Greenhouse (Cary Hall)	Animal/Crop	No	No	No	Non-burnable	$146,624
170	T0302	Cary Hall	Education	No	No	No	Non-burnable	$8,463,360
171	T0301	Food Service Building	Food Service	No	No	No	Non-burnable	$5,442,564
172	T0202	Lowder Hall	Education	No	No	No	Non-burnable	$52,087,989

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
173	U0302	Miller Hall	Education	No	No	No	Non-burnable	$8,087,587
174	U0303	<Null>	Education	No	No	No	Non-burnable	<Null>
175	U0401	Petrie Hall	Education	No	No	No	Low	$7,256,271
176	V0504	<Null>	Student Service	No	No	No	Non-burnable	<Null>
177	V0601	Owen Residence Hall	Housing	No	No	Yes	Low	$7,405,830
178	V0501	Keller Residence Hall	Housing	No	No	Yes	Non-burnable	$7,439,287
179	W0505	Lane Residence Hall	Housing	No	No	Yes	Non-burnable	$7,584,528
180	W0601	Lupton Residence Hall	Housing	No	No	Yes	Low	$7,555,698
182	W0506	Dowdell Residence Hall	Housing	No	No	Yes	Non-burnable	$9,396,655
183	X0504	Parking Deck, Draughon Library	Parking	No	No	Yes	Non-burnable	$9,153,784
184	X0501	<Null>	Education	No	No	Yes	Non-burnable	<Null>
185	X0402	Draughon Library	Library	No	No	Yes	Non-burnable	$118,034,789
186	W0405	Marriage & Family Therapy Center	Student Services	No	No	No	Non-burnable	$1,020,585
187	W0501	Children Youth & Families Center	Administration	No	No	No	Non-burnable	$1,573,629
188	W0502	<Null>	Housing	No	No	No	Non-burnable	<Null>
189	W0504	<Null>	Food Service	No	No	Yes	Non-burnable	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
190	W0503	Broun Residence Hall	Housing	No	No	Yes	Non-burnable	$8,175,515
191	W0404	Harper Residence Hall	Housing	No	No	No	Non-burnable	$6,665,974
192	W0403	Cater Hall	Administration	No	No	No	Non-burnable	$2,417,539
193	X0401	Martin Hall	Administration	No	No	No	Non-burnable	$11,849,986
194	W0402	Little Residence Hall	Housing	No	No	No	Non-burnable	$8,176,305
195	W0401	Early Learning Center	Childcare	No	No	No	Non-burnable	$2,041,719
196	V0401	Haley Center	Education	No	No	No	Non-burnable	$130,939,838
197	V0303	<Null>	Education	No	No	No	Low	<Null>
198	W0302	<Null>	Education	No	No	No	Low	<Null>
199	U0304	<Null>	Education	No	No	No	Non-burnable	<Null>
200	U0202	<Null>	Education	No	No	No	Non-burnable	<Null>
201	V0302	Broun Hall	Education	No	No	No	Low	$32,830,654
202	V0305	<Null>	Education	No	No	No	Low	<Null>
203	W0303	L Building	Support	No	No	No	Low	$11,652,365
204	W0304	Engineering Shop 3	Shop	No	No	No	Low	$4,789,727
205	W0206	Engineering Shop 2	Shop	No	No	No	Low	$5,553,697
206	W0203	Chilled Water Plant 1	Utility	No	No	No	Low	$1,900,568
207	W0204	Engineering Shop 1	Shop	No	No	No	Low	$5,280,592
208	W0201	<Null>	Education	No	No	No	Low	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
209	V0101	<Null>	Housing	No	No	No	Non-burnable	<Null>
210	W0207	<Null>	Housing	No	No	No	Non-burnable	<Null>
211	W0301	Foy Hall	Education	No	No	No	Low	$39,622,541
212	W0205	<Null>	Research	No	No	No	Non-burnable	<Null>
213	W0202	<Null>	Education	No	No	No	Non-burnable	<Null>
214	X0304	<Null>	Administration	No	No	No	Non-burnable	<Null>
215	X0303	<Null>	Education	No	No	No	Non-burnable	<Null>
216	X0302	Langdon Annex	Administration	No	No	No	Non-burnable	$3,078,982
217	X0305	Langdon Steam Plant	Utility	No	No	No	Non-burnable	$734,482
218	X0301	Langdon Hall	Administration	No	No	No	Non-burnable	$3,972,108
219	X0203	Harbert Center	Education	No	No	No	Non-burnable	$15,669,702
220	X0204	Davis Hall	Education	No	No	No	Non-burnable	$24,049,485
221	Y0202	Hargis Hall	Education	No	No	No	Non-burnable	$3,234,468
222	Y0201	Biggin Hall	Education	No	No	No	Non-burnable	$18,422,008
223	A0015	<Null>	Extension	No	No	No	Non-burnable	<Null>
224	Y0710	<Null>	Housing	No	No	Yes	Non-burnable	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
225	Y0602	Alumni Center	Administration	No	No	Yes	Non-burnable	$16,001,608
226	Y0501	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
227	Y0401	Hotel/Dixon Conference Center	Housing	No	No	Yes	Non-burnable	$49,994,241
228	Z0401	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
229	Y0304	Chapel	Student Services	No	No	No	Non-burnable	$1,044,857
230	Y0302	<Null>	Research	No	No	No	Non-burnable	<Null>
231	Y0301	Ingram Hall	Administration	No	No	No	Non-burnable	$7,160,415
232	R0603	<Null>	Student Service	No	No	No	Non-burnable	<Null>
233	Q0609	Kinesiology Building	Education	No	No	No	Low	$22,006,407
234	P0505	Draughon Village Ext - Bldg E	Housing	No	No	No	Low	$7,024,178
235	P0506	Draughon Village Ext - Bldg D	Housing	No	No	No	Low	$7,986,055
236	P0501	Draughon Village Ext - Serv Bldg	Food Service	No	No	No	Low	$1,641,613
237	P0504	Draughon Village Ext - Bldg F	Housing	No	No	No	Non-burnable	$7,104,749
238	P0507	Draughon Village Ext - Bldg C	Housing	No	No	No	Low	$7,024,181
239	P0502	Draughon Village Ext - Bldg A	Housing	No	No	No	Non-burnable	$6,148,977
240	P0503	Draughon Village Ext - Bldg B	Housing	No	No	No	Non-burnable	$7,989,103

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
241	P0401	Draughon Village Utilities Plant	Utility	Yes	No	No	Low	$857,660
242	P0402	District Energy Plant	Utility	No	No	No	Non-burnable	$13,765,349
243	R0404	Auburn Arena	Athletics	No	No	No	Non-burnable	$82,081,018
244	R0502	Magnolia Residence Hall	Housing	No	No	No	Non-burnable	$33,380,559
245	R0401	Oak Residence Hall	Housing	No	No	No	Non-burnable	$34,112,655
246	Q0404	<Null>	Housing	No	No	No	Non-burnable	<Null>
247	Q0405	Plainsman Residence Hall	Housing	No	No	No	Non-burnable	$19,130,564
248	Q0406	<Null>	Housing	No	No	No	Non-burnable	<Null>
249	R0302	Community Room Building	Student Services	No	No	No	Non-burnable	$620,159
250	Q0301	Mailroom Building	Student Services	No	No	No	Non-burnable	$649,774
251	Q0407	<Null>	Housing	No	No	No	Non-burnable	<Null>
252	R0402	Eagle Residence Hall	Housing	No	No	No	Non-burnable	$18,175,892
253	R0403	Aubie Residence Hall	Housing	No	No	No	Non-burnable	$33,878,891
254	S0304	Nichols Center	Education	No	No	No	Non-burnable	$10,055,901
255	S0409	<Null>	Food Service	No	No	No	Non-burnable	<Null>
256	S0407	<Null>	Education	No	No	No	Non-burnable	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
257	L0805	Aviary Research Laboratory 2	Research	No	No	No	Non-burnable	$412,896
258	L0901	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
259	A0012	<Null>	Extension	No	No	No	Very Low	<Null>
260	A0008	<Null>	Animal/Crop	No	No	No	Very Low	<Null>
261	M2201	<Null>	Storage	No	No	No	Very Low	<Null>
262	M2302	Office, Turf Gras	Administration	No	No	No	Low	$178,203
263	J1101	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
264	C0803	<Null>	Education	No	No	No	Non-burnable	<Null>
265	C0802	<Null>	Medical Facility	No	No	No	Non-burnable	<Null>
266	C0801	<Null>	Medical Facility	No	No	No	Non-burnable	<Null>
267	D0801	<Null>	Support	No	No	No	Non-burnable	<Null>
268	F0901	<Null>	Animal/Crop	No	No	No	Non-burnable	<Null>
269	F1006	<Null>	Animal/Crop	No	No	No	Low	<Null>
270	E1001	<Null>	Animal/Crop	No	No	No	Low	<Null>
271	E1004	<Null>	Storage	No	No	No	Low	<Null>
272	E1002	<Null>	Animal/Crop	No	No	No	Low	<Null>
273	F1005	<Null>	Animal/Crop	No	No	No	Low	<Null>
274	F1001	<Null>	Animal/Crop	No	No	Yes	Low	<Null>
275	F1002	<Null>	Animal/Crop	No	No	Yes	Low	<Null>
276	F1004	Barn, Assisted Reproductive Tech	Animal/Crop	No	No	Yes	Low	$557,280
277	E1105	<Null>	Animal/Crop	No	No	Yes	Low	<Null>
278	F1101	<Null>	Animal/Crop	No	No	Yes	Low	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
279	F1103	<Null>	Animal/Crop	No	No	Yes	Low	<Null>
280	F1104	<Null>	Research	No	No	Yes	Low	<Null>
281	F1102	<Null>	Research	No	No	Yes	Low	<Null>
282	E1102	<Null>	Research	No	No	Yes	Low	<Null>
283	E1104	<Null>	Storage	No	No	Yes	Low	<Null>
284	E1101	Isolation Bldg 2 (Veterinary)	Animal/Crop	No	No	Yes	Low	$1,282,777
285	E1103	<Null>	Research	No	No	Yes	Low	<Null>
286	F1204	<Null>	Federal Asset	No	No	Yes	Moderate	<Null>
287	F1205	<Null>	Federal Asset	No	No	Yes	Moderate	<Null>
288	F1306	<Null>	Federal Asset	No	No	Yes	Low	<Null>
289	F1305	<Null>	Federal Asset	No	No	Yes	Low	<Null>
290	F1304	<Null>	Federal Asset	No	No	Yes	Low	<Null>
291	F1203	<Null>	Federal Asset	No	No	Yes	Low	<Null>
292	F1202	<Null>	Federal Asset	No	No	Yes	Low	<Null>
293	F1201	<Null>	Federal Asset	No	No	Yes	Low	<Null>
294	G1201	<Null>	Federal Asset	No	No	Yes	Low	<Null>
295	F1301	<Null>	Federal Asset	No	No	Yes	Low	<Null>
296	F1302	<Null>	Federal Asset	No	No	Yes	Low	<Null>
297	F1303	<Null>	Federal Asset	No	No	Yes	Low	<Null>
298	G1302	<Null>	Federal Asset	No	No	Yes	Low	<Null>
299	F1308	<Null>	Animal/Crop	No	No	Yes	Low	<Null>
300	G1301	<Null>	Research	Yes	No	Yes	Low	<Null>
301	E1108	<Null>	Research	No	No	Yes	Moderate	<Null>
302	D1204	Equine Reproduction Center	Animal/Crop	No	No	Yes	Non-burnable	$1,152,626
303	D1201	Goodwin-Adams Equine Veterinary	Research	No	No	Yes	Non-burnable	$1,270,968

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
304	D1202	Hardaway Broodmare Facility	Animal/Crop	No	No	Yes	Non-burnable	$1,571,751
305	E1203	Chilled Water Plant 3	Utility	No	No	Yes	Moderate	$1,758,604
306	E1201	<Null>	Research	No	No	Yes	Moderate	<Null>
307	E1309	Bone Prep Building	Support	No	No	Yes	Moderate	$30,780
308	E1308	CVM Building B2	Animal/Crop	No	No	Yes	Moderate	$1,113,900
309	E1307	CVM Building B1	Animal/Crop	No	No	Yes	Low	$1,113,900
310	E1304	CVM Building A	Animal/Crop	No	No	Yes	Low	$1,205,103
311	D1308	CVM Building G	Animal/Crop	No	No	Yes	Low	$1,601,012
312	D1304	CVM Building F	Animal/Crop	No	No	Yes	Low	$1,241,842
313	D1307	CVM Building E	Animal/Crop	No	No	Yes	Low	$1,540,632
314	D1306	CVM Building D	Animal/Crop	No	No	Yes	Low	$773,770
315	D1305	CVM Building C	Animal/Crop	No	No	Yes	Low	$773,770
316	D1303	CVM Multipurpose Building	Research	No	No	Yes	Low	$1,789,739
317	D1310	Hot Water Plant 2	Utility	No	No	Yes	Non-burnable	$2,400,455
318	D1309	Incinerator	Support	No	No	Yes	Non-burnable	$702,071
319	E1306	Greene Hall Annex	Research	No	No	Yes	Low	$1,750,453
320	E1402	Greene Hall	Education	No	No	Yes	Low	$41,586,748
321	E1401	Hoerlein Hall	Animal/Crop	No	No	Yes	Low	$14,552,080
322	D1406	Kennel	Animal/Crop	No	No	Yes	Low	$2,551,872
323	E1405	<Null>	Student Services	No	No	Yes	Low	<Null>
324	E1506	Bailey Small Animal Teaching Hos	Education	No	No	Yes	Low	$68,187,302

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
325	E1406	Linear Accelerator Laboratory	Research	No	No	Yes	Low	$655,349
326	D1402	<Null>	Animal/Crop	No	No	Yes	Low	<Null>
327	D1401	<Null>	Research	No	No	Yes	Low	<Null>
328	D1407	<Null>	Animal/Crop	No	No	Yes	Non-burnable	<Null>
329	D1414	Equine Research Lab Building	Research	No	No	Yes	Non-burnable	$1,982,989
330	C1302	Hay Barn	Animal/Crop	No	No	Yes	Non-burnable	$1,965,604
331	D1410	Farm Maintenance Shop	Storage	No	No	Yes	Non-burnable	$993,805
332	D1413	Large Animal Isolation Facility	Animal/Crop	No	No	Yes	Non-burnable	$916,873
333	D1512	Griffin Barn - Equine	Animal/Crop	No	No	Yes	Low	$1,232,200
334	D1513	Kentucky VMA Barn - Equine	Animal/Crop	No	No	Yes	Non-burnable	$1,552,147
335	K1410	Lambert-Powell Meats Laboratory	Research	No	No	Yes	Low	$6,429,524
336	K1411	<Null>	Education	No	No	No	Low	<Null>
337	G1401	<Null>	Research	No	No	Yes	Low	<Null>
338	F1401	<Null>	Education	No	No	Yes	Low	<Null>
339	D1510	Bartlett Lameness Arena	Athletics	No	No	Yes	Low	$5,113,242
340	D1514	<Null>	Education	No	No	Yes	Non-burnable	<Null>
341	C1501	Carson Barn - Beef Receiving	Animal/Crop	No	No	Yes	Non-burnable	$3,121,135

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
342	D1511	<Null>	Education	No	No	Yes	Low	<Null>
343	C1502	McClary Barn - Dairy Hospital	Animal/Crop	No	No	Yes	Non-burnable	$1,482,248
344	C1503	<Null>	Animal/Crop	No	No	Yes	Non-burnable	<Null>
345	D1601	<Null>	Housing	No	No	No	Low	<Null>
346	J1702	Office, (ADS)/ Main Feed Bldg	Administration	No	No	No	Very Low	$359,949
347	J1701	Bull Testing Facility	Animal/Crop	No	No	No	Very Low	$2,932,278
348	H1701	<Null>	Education	No	No	No	Very Low	<Null>
349	G1801	Announcer's Box, Arena	Support	No	No	No	Low	$33,496
350	F1802	<Null>	Athletics	No	No	No	Low	<Null>
351	F1801	Barn, Horse & Sheep	Research	No	No	No	Non-burnable	$2,085,265
352	K1802	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
353	K1801	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
354	J1801	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
355	J1802	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
356	J1902	Gestation House 2	Animal/Crop	No	No	No	Non-burnable	$398,677
357	J1901	Gestation House 1	Animal/Crop	No	No	No	Non-burnable	$200,208
358	J1905	<Null>	Animal/Crop	No	No	No	Non-burnable	<Null>
359	J1904	<Null>	Storage	No	No	No	Non-burnable	<Null>
360	K1909	<Null>	Animal/Crop	No	No	No	Non-burnable	<Null>
361	K1907	<Null>	Research	No	No	No	Non-burnable	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
362	K1908	<Null>	Research	No	No	No	Non-burnable	<Null>
363	K1906	<Null>	Animal/Crop	No	No	No	Non-burnable	<Null>
364	J2002	<Null>	Support	No	No	No	Non-burnable	<Null>
365	J2003	Bioresource Lab	Research	No	No	No	Non-burnable	$557,273
366	N1904	<Null>	Animal/Crop	No	No	No	Low	<Null>
367	N1909	<Null>	Animal/Crop	No	No	No	Low	<Null>
368	N1907	<Null>	Research	No	No	No	Low	<Null>
369	N1908	<Null>	Animal/Crop	No	No	No	Low	<Null>
370	N1905	<Null>	Storage	No	No	No	Low	<Null>
371	P1907	<Null>	Animal/Crop	No	No	No	Low	<Null>
372	P1908	<Null>	Animal/Crop	No	No	No	Low	<Null>
373	P1904	<Null>	Research	No	No	No	Low	<Null>
374	P1903	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
375	P1906	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
376	P1902	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
377	P1802	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
378	P1905	<Null>	Research	No	No	No	Moderate	<Null>
379	P1901	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
380	N1903	<Null>	Research	No	No	No	Moderate	<Null>
381	N1901	<Null>	Research	No	No	No	Moderate	<Null>
382	P1801	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
383	N1802	<Null>	Animal/Crop	No	No	No	Moderate	<Null>
384	N1803	<Null>	Storage	No	No	No	Moderate	<Null>
385	N1801	<Null>	Athletics	No	No	No	Moderate	<Null>
386	M1802	<Null>	Research	No	No	No	Very Low	<Null>
387	M1803	<Null>	Storage	No	No	No	Very Low	<Null>
388	M1801	<Null>	Shop	No	No	No	Very Low	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
389	M1806	<Null>	Research	No	No	No	Very Low	<Null>
390	M1812	<Null>	Storage	No	No	No	Very Low	<Null>
391	M1811	ACES Storage Building	Storage	No	No	No	Very Low	$832,925
392	M1706	Environ. Health & Safety Bld 2	Storage	No	No	No	Very Low	$212,800
393	M1702	Environ. Health & Safety Bld 1	Storage	No	No	No	Very Low	$1,267,411
394	M1707	Environ. Health & Safety Bld 3	Storage	No	No	No	Non-burnable	$185,413
395	M1601	Pesticide Storage Main	Animal/Crop	No	No	No	Non-burnable	$244,411
396	M1608	Pesticide Storage 1	Animal/Crop	No	No	No	Non-burnable	$535,092
397	M1609	Pesticide Storage 2	Animal/Crop	No	No	No	Non-burnable	$535,092
398	M1610	Pesticide Storage 3	Animal/Crop	No	No	No	Non-burnable	$535,092
399	U1703	<Null>	Research	No	No	No	Non-burnable	<Null>
400	U1611	<Null>	Research	No	No	No	Non-burnable	<Null>
401	U1613	<Null>	Animal/Crop	No	No	No	Non-burnable	<Null>
402	U1614	<Null>	Research	No	No	No	Non-burnable	<Null>
403	V1602	<Null>	Animal/Crop	No	No	No	Non-burnable	<Null>
404	V1604	Greenhouse	Animal/Crop	No	No	No	Non-burnable	$334,665
405	U1609	Greenhouse	Animal/Crop	No	No	No	Non-burnable	$322,485

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
406	U1608	Greenhouse	Animal/Crop	No	No	No	Non-burnable	$322,485
407	U1607	Greenhouse	Animal/Crop	No	No	No	Non-burnable	$322,485
408	U1612	Greenhouse	Animal/Crop	No	No	No	Non-burnable	$291,540
409	U1606	Pesticide Research Laboratory	Research	No	No	No	Non-burnable	$2,434,443
410	U1616	Greenhouse 1	Animal/Crop	No	No	No	Non-burnable	$464,400
411	U1602	Fahbeatoxic Research Laboratory	Research	No	No	No	Non-burnable	$1,480,228
412	U1701	<Null>	Animal/Crop	No	No	No	Non-burnable	<Null>
413	T1701	Crop Improvement Assoc. Bld.	Administration	No	No	No	Non-burnable	$3,158,357
414	S1704	<Null>	Research	No	No	No	Moderate	<Null>
415	S1705	<Null>	Research	No	No	No	Moderate	<Null>
416	S1707	<Null>	Research	No	No	No	Moderate	<Null>
417	S1706	<Null>	Research	No	No	No	Moderate	<Null>
418	R1702	CASIC Supporting Building	Support	No	No	No	Moderate	$1,202,714
419	Q1701	<Null>	Research	No	No	No	Non-burnable	<Null>
420	R1701	Hubbard CASIC	Education	No	No	No	Moderate	$26,690,608
421	Q1702	MRI Research Facility	Research	No	No	No	Moderate	$13,695,721

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
422	S1602	Forest Products Laboratory	Research	No	No	No	Moderate	$4,772,635
423	S1603	<Null>	Storage	No	No	No	Moderate	<Null>
424	S1601	<Null>	Support	No	No	No	Moderate	<Null>
425	U1502	Plant Science Research Center	Research	No	No	No	Non-burnable	$3,626,215
426	U1503	<Null>	Animal/Crop	No	No	No	Non-burnable	<Null>
427	U1504	<Null>	Animal/Crop	No	No	No	Non-burnable	<Null>
428	U1615	<Null>	Research	No	No	No	Non-burnable	<Null>
429	T1601	Alfa Agricultural Building	Research	No	No	No	Non-burnable	$7,732,005
430	T1401	<Null>	Research	No	No	No	Very Low	<Null>
431	S1401	<Null>	Independent College	No	No	No	Very Low	<Null>
432	V1601	Laboratory, Incubation	Research	No	No	No	Low	$377,879
433	V1503	Laboratory, Coccidiosis	Research	No	No	No	Low	$245,941
434	X1501	<Null>	Museum	No	No	No	Non-burnable	<Null>
435	V1504	Isolets (Poultry)	Research	No	No	No	Non-burnable	$227,899
436	V1502	<Null>	Research	No	No	No	Low	<Null>
437	V1403	<Null>	Federal Asset	No	No	No	Low	<Null>
438	S1103	Ag Heritage Park Pavilion	Support	No	No	Yes	Non-burnable	$1,166,186
439	S1102	<Null>	Animal/Crop	No	No	Yes	Non-burnable	<Null>

Asset Data								
FID	**Description**	**Auburn University Critical Asset**	**Asset Type**	**SFHA 100 Year**	**SFHA 500 Year**	**Tornado Scenario**	**WFP Class**	**Asset Values**
440	M1202	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
441	N1201	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
442	M1103	<Null>	Housing	No	No	Yes	Non-burnable	<Null>
443	V1501	Laboratory, Avian	Research	No	No	No	Low	$1,769,125
444	N1902	<Null>	Research	No	No	No	Moderate	<Null>
445	M1102	<Null>	Housing	No	No	Yes	Non-burnable	<Null>

Appendix E
Business Impact Analysis

Contents of this Section

E.1 Overview

This sub-section contains the raw documentation gathered and developed during the interview and development process for the BIA. The point of contact for each department interviewed, as well as the date of the interview, is listed in Table 1 (below).

Auburn University Business Impact Analysis Interviews			
Department	**Date of Interview**	**Person Interviewed**	**Title**
Alumni Affairs	November 11, 2014	Dwayne Brown	Assistant Vice President
Athletics	October 28, 2015	Jeff Steele	Associate Athletic Director, Facilities
College of Agriculture	October 20, 2015	Robert Hensarling	Director, Ag Land & Resource Management
College of Veterinary Medicine	November 05, 2015	Joe Lewis	Facilities Program Manager II
Jule Collins Smith Museum of Fine Art	October 27, 2015	Marilyn Laufer Andy Tennant	Director Assistant Director
Office of Communications and Marketing	November 06, 2015	Mike Clardy	Director, University Communications Services
Office of Information Technology	November 10, 2015	John Helms	Director, Information Technology
University Housing & Residence Life	November 25, 2015	Dr. Kevin Hoult	Director, University Housing & Residential Life
Auburn Fire Division	October 20, 2015	Matt Jordan	Battalion Chief
Medical Clinic	November 03, 2015	Dr. Fred Kam	Medical Director, East Alabama Medical Center

Table 1

E.2 Documentation Used for Analysis

Alumni Affairs

Alumni Affairs, BIA Interview, 11/4/15 @ 1:00pm

Dwayne Brown

Notes:

1. Alumni Affairs is heavily involved in Auburn University. They are responsible for connecting with Alumni and promoting events/fundraisers on a yearly basis. AA is all encompassing in engaging alumni.
2. Should an event occur and AA was not functional for week/month – there would be no effect on the University because work can continue remotely. If AA building is lost, however, it would be a huge impact on the University.
3. AA houses Eagles statues that are donated artwork. The 2nd floor has old books.
4. There would be a substantial loss if magazine could not be produced.
5. Files: Currently have paper files on first floor. There are no plans to update to electronic files at this time. A mirrored server is also located on the first floor.
6. Campaign goal is $9.83 million dollars. Annual and life membership contributions provide for operating funds and scholarships.
7. Auburn University Office of Development occupies 70% of building of the AA building. (Should speak with Karen McCauley, AVP for Development to see what impacts would be for their area.)
8. First floor contains database/records for entire university: data on alumni, athletics. Records Department is also located on first floor. Most files/records are backed-up. They are currently in the process of scanning paper files. The alumni donor database software program that maintains all donor records is called Advance. There is a separate written disaster recovery plan in place for this program and all hardware that is administered by the Auburn University Office of Alumni and Development Support Services.
9. AA events generates an estimated a minimum of $158,000 per year or $13,000 per month.
10. Contractors/Vendors: Lane Press is contracted to AA for all their printing needs. Lane Press has a secondary location (should a disaster hit), therefore, AA would not lose production times.
11. There is no time that would be worse for a disaster than others – AA is busy year round.
12. Large-scale functions are held at AA building. If disaster event happens, there would not be a back-up facility.
13. AA is part of thread that holds university together. Branding is a big part of the University.
14. AA does not have generator on building. If they lose power, they lose the ability to function – server would go down and they would not be able to communicate with other servers.

15. AA building could be designated as a shelter. It has an AD defibrillator, 2 showers, room for cots (up to 200), has 10 restrooms, and parking lot could be used as staging area (1.6 acres).
16. Most computers are leases (AU leased).

Witt | O'Brien's

AUBURN UNIVERSITY
HAZARD MITIGATION PLAN
BUSINESS IMPACT ANALYSIS QUESTIONNAIRE
October 2016

Department: Alumni Affairs

POC/Title: Dwayne Brown/Assistant Vice President

POC phone and email: 334-844-1144 dwaynebrown@auburn.edu

Building name and location: Auburn Alumni Center 317 S. College Street

No. of staff (full time and part time – List separately): 24 FT and 3 PT

	QUESTIONS	RESPONSES
1.	Please describe in detail your department's function/role.	To connect, engage and cultivate Auburn alumni and friends to establish a lifelong relationship with Auburn University. Provide multiple events, programs, *Auburn Magazine*, social media, Auburn Club activities, career services, and other activities to engage and connect alumni back to Auburn.
2.	Describe in detail the department's process and/or systems that the University depends on to perform normally. Specify if these processes are internally or externally essential to normal operations.	Advance Database System; S: Drive; Alumni records; Scholarship files; Mail delivery; Foundation processes; Server on the first floor.
3.	Describe which processes or systems are the most essential to the University and its operations.	Communication with and engagement of alumni; Support of fundraising arm of AU Foundation/Development; Alumni records; Scholarship records; Mail delivery; Advance Database;
4.	Name processes and/or systems that can be completed on a temporary basis at a named recovery site/location.	Mail delivery; Advance Database Systems (A separate disaster recovery plan has been established and tested for the Advance Database);

5.	List key staff members/positions that are essential during temporary relocation of disaster event and to keep operations running.	Gretchen VanValkenburg – VP; John Raiford – Facilities Coordinator; Dwayne Brown – AVP; Jessica King – Director of Marketing and Communications; Danielle Fields – Manager of Special Events and Programs; Taylor Logan – Club's Coordinator; Steve Inabinet – Scholarships Coordinator;
6.	Name key materials needed for processes and/or systems to continue operation during temporary relocation of disaster event.	Courier Van; Computer server; Computer Equipment; Cell phones; Internet access.
7.	Identify your suppliers/contractors. • List any pre-event contractors. • List any standby contracts. • List any other vendors.	The Event Group; Sodexho; The Hotel at Auburn University and Dixon Conference Center; Total Sports Travel; Auburn Bus Trips; LANE PRESS – FOR MAGAZINE
8.	Describe where and how essential records are maintained for the department.	Financial records are maintained in a secured file room @ the East Glenn facility and other files are imaged in the Advance Donor Database;
9.	Provide the number of computers in the department. Laptops and desktops. (In addition, complete attached Hardware Inventory List).	38 computers and laptops
10.	Describe systems and processes used for computer/file back-ups. If this is done on a regular schedule, please provide that schedule.	Desktop computers are not backed up. All servers are backed up on a nightly basis. In addition to the nightly backup, file shares (networked drives) are backed up via shadow copies once during the day.

11.	For each day of down time, estimate the number of hours for each day it will take to process backlog of work?	Data entry – 4 hours for each day down; Special Events and Programming -- 5 hours per day; Communications and Marketing – 4 hours.
12.	Specify critical business records by name, type of document, and location of document(s).	All on S: Drive; Multiple hard copy files throughout the building.
13.	List any internal/external reporting requirements needed. Provide report name, authors, recipients, frequency, and delivery requirements.	990 and 990T annually, 1099 annually, sales and use tax returns monthly to IRS, state, city and county taxing authorities;
14.	List any items/materials that require refrigeration or special handling or equipment needs.	US Mail;
15.	Define any potential recovery issues to operations, time needed to recovery and any resources needed to recover from any disaster event.	
16.	Describe any potential restoration issues to restore operations as normal.	
17.	Explain how long (hours/days) that the department could be unusable before its loss would impact the University.	2 days
18.	Describe in weeks or months how loss of the department would have an impact at certain times throughout the year.	Impact would be weeks no matter the time of year for events and membership contributions.

19.	Describe any operational impacts a disaster event or loss of department would have on the University, i.e., student enrollment, student tuition processing or cash flow, housing, etc.	Scholarship donations; membership contributions; Lack of alumni engagement;
20.	Describe any estimated financial impact the loss of department would have on the University by days, weeks, months.	AU financial impact would be minimal, but Auburn Alumni Association impact would be significant due to lost membership revenue; a halt in the *Auburn Magazine* production could cost over $100,000.
21.	Identify any required equipment to continue operations during an event, i.e, servers, computers, phones, copiers, etc.	Servers; Computer equipment (laptops, printers, monitors, etc.); Cell and office phones; Courier van; golf carts; storage sheds;
22.	On average, provide the number of students/visitors that utilize your department on a daily/weekly basis.	60-70 daily; 300-350 weekly

Athletics

Athletics BIA Interview - 10/28/2015 @ 1:00
Jeff Steele, Athletics
Notes:

1. Auburn University Athletics generates a large amount of income for the University. If a disaster was to occur and the Athletics Department could not operate, there would be a sizeable financial impact on the University. Basically, the University could not function without Athletics.
2. Department of Athletics provides competition for the University and represents the University in the NCAA/SEC. Athletics are the "front porch" of public image. A large portion of students attend the University for their Athletic Programs: football, tennis, softball, track, bass fishing, golf, basketball, gymnastics – there are a total of 23 sports.
3. Systems of importance: business/finance, student athletes receive scholarships that need to be processed, housing and food/dining programs are also provided for the athletes and the financial processing for housing/dining needs to be processed. Athletics Department has their own business/finance office and processing is part of the day-to-day operations. These operations would have to continue daily.
4. The Athletic Department supports athletic housing and has a state of the art facility, S. Donohue Residence Hall. This is a fairly new housing for athletes only. The dining hall is across the street from the Residence Hall and is operated by the University; however, Athletics foots the bill. There are 200 students at the Athletes residence halls; 20-25 staff at dining hall. The University has a contract with a food vendor. The food is upscale, all you can eat, providing specific menus for athletes, and it is a higher priced meal. Athletics pays the delta out of operating budget for the higher priced meals.
5. Should the Residence Hall be damaged and students needed to be relocated, there are approximately 200 that would be impacted. The University has insurance policies in place in case a home football game cannot be played, the University will be reimbursed for losses.
6. The Athletic Department has its own business office, and its own academic unit. Athletics Department is responsible for 15 University buildings. Only 2 of the 15 buildings are located off campus: golf and tennis facilities. The Golf facility is a university facility; the tennis facility was built in partnership with City of Auburn; the City owns the tennis facility. Golf and tennis facilities are next to a river in floodplain.
7. Possible mitigation projects: dry flood proofing on the Olympic center; it has flooded twice in 11 years; possible dry flood proofing on the Macwharter building as well, it has flooded in the past (houses operations center for softball/gymnastics locker room, offices, training and equipment room).
8. In addition to sporting events, a local dance group also uses our buildings for community programs. Programs run every night of the year. The swim center is also used by the community, multiple ACC championship events are hosted in the Olympic facility.
9. Computer equipment, scanner, ticket-sales transactions all go through the University system.
10. Should an event occur and football operations have to be relocated our financial impacts would be due to: the need to transport the team, lease units, provide parent pass gates;

must transport ticket staff, and transport compliance team, provide hotel rooms, logistics, food and transport medical team (for football). Approximately 350 people would need to be transported for football operations. In addition, we would have a financial loss of revenue for concessions.

11. Physical training and practices would need to continue and there would be a need for space/fields to continue these daily operations.
12. Sports medical would need to be relocated because athletes need pre/post medical attention.
13. There would be a need for equipment in order to compete. The cost is approximately $3500/monthly for offsite equipment.
14. To use other college facilities, students and support staff would have to be transported and there would be financial impacts. If an event occurs and students transferred out of the University, there would be a financial loss to the University.
15. There would be a financial loss of revenue due to any outages/floods on the north side of the stadium where TV crews set-up. Losing this area would create huge financial impacts for the University.
16. If games have to be played somewhere else, there is a financial impact on the community as well. The community would lose out on income from hotels, restaurants, shopping, etc.
17. The stadium has a new jumbo Tron with a cost of $13.5 million. Donors pay for box seats at games which are enclosed with glass; there are 76 glass boxes which also include the press box. The press box dates back to the 1950s. Should an event happen, there is a possibility of losing donations from donors and ticket value sales. The Department of Athletics writes scholarships to the University for the athletes using donations made to the Athletics Department. In addition, there are 16 law enforcement staff and 170 officers that would not be paid if a disaster hits. The stadium and the new jumbo Tron are lightning protected.
18. We are contracted with Under Armor for equipment which is delivered in August. This is specialized equipment which is not available anywhere else (uniforms, helmets, shoes, etc. with Auburn branding).
19. We also are contracted with a Cleaning contractor and a security contractor. Some of our 15 buildings do not close: especially the training facility.
20. We have a contract with a concession vendor for supplying concession foods.
21. If the storage site is hit by disaster, there would be an issue. All equipment would be eliminated – equipment could not be reproduced and branding would be a loss. Equipment is made once a year. Our current storage site is a prefab metal building. This building has the potential of being damaged in a wind/tornado event.
22. Closest stadium for use would probably be Atlanta for football; Columbus state or Troy for basketball; and Biscuit Stadium in Montgomery for baseball.
23. Reporting: NCAA academic/financial and SEC. Government reporting for academic progress. Would require staff to work in a remote location to continue these reporting responsibilities.
24. Athletes have to be enrolled and taking classes either physically or online.

College of Agriculture

AUBURN UNIVERSITY
HAZARD MITIGATION PLAN
BUSINESS IMPACT ANALYSIS QUESTIONNAIRE
October 2016

Department:_____College of Agriculture_____
POC/Title:_____ Robert Hensarling_____
POC phone and email:_____
Building name and location:_____
No. of staff (full time and part time – List separately):_____

	QUESTIONS	RESPONSES
1.	Please describe in detail your department's function/role.	Academics and research only– does not have a money-making unit for Auburn University.
2.	Describe in detail the department's process and/or systems that the University depends on to perform normally. Specify if these processes are internally or externally essential to normal operations.	College of Ag depends on: IT, power, water. Feed for animals, refrigeration, transportation. College of Ag is not mission-critical to university. We have research animals (livestock) that depend on us.
3.	Describe which processes or systems are the most essential to the University and its operations.	Academic and research only.
4.	Name processes and/or systems that can be completed on a temporary basis at a named recovery site/location.	Has own IT unit backed up by university – all university is on same backup. Animals would still need to be fed/watered. Staff can continue to do their research from home on their own laptops.
5.	List key staff members/positions that are essential during temporary relocation of disaster event and to keep operations running.	We primarily do research and all of that can be done from home.

6.	Name key materials needed for processes and/or systems to continue operation during temporary relocation of disaster event.	Computers, phones
7.	Identify your suppliers/contractors. • List any pre-event contractors. • List any standby contracts. • List any other vendors.	None. We work together with local farmers, businesses and other schools. If there was a critical need, we would all work together.
8.	Describe where and how essential records are maintained for the department.	IT back up. Duncan Hall and Comer Hall (paper files)
9.	Provide the number of computers in the department. Laptops and desktops. (In addition, complete attached Hardware Inventory List).	Do not track anything under $5,000 – no serial numbers. Will check to see if there is an inventory listing.
10.	Describe systems and processes used for computer/file back-ups. If this is done on a regular schedule, please provide that schedule.	Daily

11.	For each day of down time, estimate the number of hours for each day it will take to process backlog of work?	Federal funding could be impacted if grant work cannot be reported – this would be at times when deadlines for grants are due which varies. Each grant has a different amount, purpose, deadline. Ag department writes grant info and sends to business office for completion.
12.	Specify critical business records by name, type of document, and location of document(s).	Research data, Funding requirements, grants – will provide us with listing.
13.	List any internal/external reporting requirements needed. Provide report name, authors, recipients, frequency, and delivery requirements.	Grants, potential for long-term loss on grants for research, if grant deadlines are not
14.	List any items/materials that require refrigeration or special handling or equipment needs.	Refrigeration needed for research items
15.	Define any potential recovery issues to operations, time needed to recovery and any resources needed to recover from any disaster event.	Recovery of IT. Research animals would be euthanized. University has backup alarms. 1-2 days would relocate to 67 satellite offices
16.	Describe any potential restoration issues to restore operations as normal.	Getting things back online: water, electricity, research labs, green houses. Depending if something was volatile – does not have anything like that in research.
17.	Explain how long (hours/days) that the department could be unusable before its loss would impact the University.	72 hours

18.	Describe in weeks or months how loss of the department would have an impact at certain times throughout the year.	Potential grant funding depending on timing of the grant.
19.	Describe any operational impacts a disaster event or loss of department would have on the University, i.e., student enrollment, student tuition processing or cash flow, housing, etc.	
20.	Describe any estimated financial impact the loss of department would have on the University by days, weeks, months.	Potential grant funding. Losses could be substantial due to research animals, euthanizing, disposal.
21.	Identify any required equipment to continue operations during an event, i.e, servers, computers, phones, copiers, etc.	Servers, computers, phones, copies, refrigeration, heating/cooling (greenhouse, indoor fishery acquatics)
22.	On average, provide the number of students/visitors that utilize your department on a daily/weekly basis.	Will provide information in a few weeks.

College of Veterinary Medicine

College of Veterinary Medicine BIA Questionnaire Interview 11/05/15 @ 1:00 pm
Joe Lewis
Notes:
Joe Lewis is the Project manager/coordinator between Vet Med and Facilities.

1. Will provide completed BIA Questionnaire later on.
2. Vet med is a large and small animal hospital, center for the birds, K-9 training center, labs that handle pathogens on diseases of animals, breeding (horse) center, isolation center, Scott Ritchey research center (cancer on animals), drug dogs, snake dogs, Clydesdale research center which is currently working with federal government on research (north Auburn location). This north Auburn facility has 4 in-ground storm shelters.
3. The College of Vet operates like a normal hospital – it has an emergency room and regular sick/exam rooms. (They have a FEMA 361 compliant shelter).
4. The college consists of 41 buildings located on the main campus. Including barns and sheds, there is a total of 76 buildings.
5. Both are teaching hospitals (large and small animals). Students have hands-on experience. University has a surgical suite for small and large animals. It can house up to 250 small animals. The vet school has top of the line equipment.
6. Income of the school comes from the public bringing their animals to the vet school for treatment of their animals and they pay a fee.
7. Loss of funding due to shut down would be huge. (Joe Lewis will provide $ amounts for being closed down for a week). The small animal hospital has a lot of glass windows that could potentially be broken during tornadoes and/or straight line winds. Also, Overton Rudd Education Center is a green building that has a lot of thick glass; the glass is not protected by sheathing.
8. Most of the buildings have generators. Horse sperm banks are huge and loss of sperm would be devastating to the University. Currently, the University is working on a project with the US government on horse sperm research.
9. Potential mitigation projects:
    a. quick-connects for the research facilities.
    b. College of Vet Medicine's IT department is moving to the 2nd floor of Horrad Hall – they will need generators to protect servers.
10. Vet Med has its own IT dept. - they back-up through OIT.
11. Vet med is open 24/7 – it never shuts down. School has contractors available for transporting animals.
12. Should an event happen, animals in isolation could not be moved.
13. Unsure about status of paper files, Joe Lewis will check to see if paper copies of files have been scanned in.

Museum

Museum of Fine Art BIA Interview – 10/27/15 @ 8:00 am
Marilyn Laufer, Director and Andy Tennant, Assistant Director
Notes:

1. Classes are not held at museum. The museum hosts tours for K-12 groups. LLOI have lectures on Tuesdays at museum. Students do research in the museum, write papers, and it serves as a place of calm for students to study/relax.
2. The museum serves as quality of life for the university and community.
3. There are 2,000 objects – (Risk Management has listing of inventory and so does museum). Info is backed up into the cloud. Andy will get info for Sandra and Bob as to how often files are backed-up.
4. Building is concrete/travertine veaner, galvanized steel reinforced building.
5. Should an event occur, day-to-day operations could continue by working offsite. However, the museum would not be serving the public. Managing the art could continue.
6. The staff size for the art museum is 17 fulltime; 3 part-time (regular); also, contracted security and maintenance through the University. Student workers 18-20 (off and on – special events)
7. Andy will provide list of vendors needed to continue operations.
8. Files: hardcopy files are scanned and are on the server in addition to paper files. Letters that are delivered with art work needs to be scanned. If documents are scanned and backed up on server, AU backs up and also has a back-up server off campus.
9. AU Lease computers will be covered by the leasing company, so this is not an issue for the museum.
10. Museum computers may not be fully on AU server for back up – Bob will verify. Museum has its own server and backup with an outside source. Andy will provide us with name of contractor used for computer backup.
11. Andy will provide serial numbers for computers.
12. Loss of time would be 4 hours backlog for each 8 hour day. Tracking payroll/accounting into university system would be an essential task.
13. The museum is not an essential department to the University. However, for extended periods, there could be some financial impacts that would create a problem. Alumni and donors have donated a lot of money to the museum. It is a touch stone to the University. Indirect financial impacts from community would also be affected. There is potential for donations to university being affected. The museum receives $50/$60 million donations from single individuals.
14. Fall would be the most vulnerable time for disasters to occur for the museum.
15. Summer is also a very high volume time. The museum rents the building for events: loss of rental for wedding events in June, July, August is over $100,000 per year in rental of building.
16. The museum could shelter a lot of people in building during tornado watch/warning for a short period of time.
17. Building is isolated. If there is an event on the lawn, people would have to move into building for safety.

18. The museum offers formal tours of 5,000 people with 37,000 visitors annually. How much would this impact the operating budget? Café would be out of business – potential loss. Andy will provide information.
19. Should there be damage to the building, there would need to be temporary storage for the artwork. The library may be a possibility as well as other places on University campus. College of Liberal Arts in Montgomery or Columbus, GA are also possibilities. Andy and Bob will research.

AUBURN UNIVERSITY
HAZARD MITIGATION PLAN
BUSINESS IMPACT ANALYSIS QUESTIONNAIRE
October 2016

Department: Jule Collins Smith Museum of Fine Art

POC/Title: Andy Tennant/Assistant Director

POC phone and email: 844-3081, tennawa@auburn.edu

Building name and location: JCS Museum, 901 South College Street, Auburn

No. of staff (full time and part time – List separately): 17 full time, 3 part time regular, 18 TES/students

	QUESTIONS	RESPONSES
1.	Please describe in detail your department's function/role.	The Museum houses the University's art collection which is displayed in exhibits. The Museum also hosts several exhibits each year of art on loan for that purpose. The Museum also provides a number of educational programs to AU students and others
2.	Describe in detail the department's process and/or systems that the University depends on to perform normally. Specify if these processes are internally or externally essential to normal operations.	The Museum is charged with the care and safekeeping of the State/University's art collection housed at Auburn. The Museum is the public showcase for this collection as well as providing visiting exhibits and educational programs.
3.	Describe which processes or systems are the most essential to the University and its operations.	The safekeeping and stewardship of the art collection.
4.	Name processes and/or systems that can be completed on a temporary basis at a named recovery site/location.	Collection storage (at a site to be determined)

5.	List key staff members/positions that are essential during temporary relocation of disaster event and to keep operations running.	Marilyn Laufer/Director Andy Tennant/Assistant Director Dennis Harper/Curator Todd Hall/Preparator Danielle Funderburk/Registrar
6.	Name key materials needed for processes and/or systems to continue operation during temporary relocation of disaster event.	Storage/recovery space Communication w/donors, members, community Climate controlled
7.	Identify your suppliers/contractors. • List any pre-event contractors. • List any standby contracts. • List any other vendors.	Allied Barton Security GCA Services Group (Custodial) S&S Termite and Pest Control
8.	Describe where and how essential records are maintained for the department.	We keep current hardcopy records in locked file cabinets in individual offices. Outdated files are kept in our (locked) catering closet in the (secure) basement. Although records are kept on office computers, we have our own secure server with cloud back-up.
9.	Provide the number of computers in the department. Laptops and desktops. (In addition, complete attached Hardware Inventory List).	IT
10.	Describe systems and processes used for computer/file back-ups. If this is done on a regular schedule, please provide that schedule.	IT

11.	For each day of down time, estimate the number of hours for each day it will take to process backlog of work?	Difficult to estimate, but at least half a day for each day lost
12.	Specify critical business records by name, type of document, and location of document(s).	HR Records- Payroll and personnel Accounting Records- journal, collection reports, vendor files Donor/Membership Files Collections Records Exhibition Contracts Research Records QU M Server
13.	List any internal/external reporting requirements needed. Provide report name, authors, recipients, frequency, and delivery requirements.	Accounting- (daily) Sign off from Director or Asst. Director HR Payroll (biweekly)- Sign off from Director or Asst. Director These approvals are done through online applications
14.	List any items/materials that require refrigeration or special handling or equipment needs.	All of the accessioned artwork require special handling by trained staff. There are also specially created artwork stands, pedestals, and vitrines which should only be moved by staff. Climate Control
15.	Define any potential recovery issues to operations, time needed to recovery and any resources needed to recover from any disaster event.	The building is of utmost concern, when it could be repaired to provide safe display and storage of art would be the critical issue.
16.	Describe any potential restoration issues to restore operations as normal.	Any damaged artwork restoration would have to be performed by trained professionals.
17.	Explain how long (hours/days) that the department could be unusable before its loss would impact the University.	N/A
18.	Describe in weeks or months how loss of the department would have an impact at certain times throughout the year.	N/A

19.	Describe any operational impacts a disaster event or loss of department would have on the University, i.e., student enrollment, student tuition processing or cash flow, housing, etc.	N/A
20.	Describe any estimated financial impact the loss of department would have on the University by days, weeks, months.	The Museum is a vital part of the University and community of Auburn. Last year we welcomed over 37,000 visitors.
21.	Identify any required equipment to continue operations during an event, i.e, servers, computers, phones, copiers, etc.	Climate Controlled storage building for displaced art Art records Staff computers Server Phones Copiers
22.	On average, provide the number of students/visitors that utilize your department on a daily/weekly basis.	Approximately 770 per week.

Museum Leased Computer Inventory				
Marilyn	MacBook Pro 13”	AU Lease	Core i5	C02Q4LXFFVH5
Andy	Dell Latitude 14”	AU Lease	Core i5	FBJPTY1
Kate	Dell Latitude E6320 laptop	JCSM	Core i5	9TXP2R1
Melaine	Dell Latitude E6440 laptop	AU Lease	Core i5	FMVH062
Robbin	Dell Optiplex 745 Desktop	JCSM	Core 2 Duo	6F936F1
Janice	Dell Optiplex 745 Desktop	JCSM	Core 2 Duo	4F936F1
Janice	Dell Latitude E6320 laptop	JCSM	Core i5	W922JA00
Cindy	Dell Latitude E6420 laptop	JCSM	Core i5	33ZMH12
Janet	MacBook Pro 17”	JCSM	Core i7	C02FX0BKDF93
Charlotte	MacBook Pro 15”	AU Lease	Core i7	C02LG0GHFFT0
Haley	Mac Mini	JCSM	Core i5	C07KL3VHDWYL
Debbie	Dell Optiplex 380 Desktop	JCSM	Core 2 Duo	50R8MM1
Andrew	Dell Latitude 14”	AU Lease	Core i7	8NG3XY1
Scott	MacBook Air 13”	JCSM	Core i5	C02JP172DRVC
Dennis	Macbook Pro 15”	AU Lease	Core i7	C07NL271G3QN
Todd	Mac Mini	AU Lease	Core i5	C07NL3BMG151
Mike	Dell Latitude E6540 laptop	AU Lease	Core i7	50XPVZ1
Danielle	Dell Latitude E6420 laptop	JCSM	Core i5	H0MKKV1
Frame Shop	Dell Optiplex 745 Desktop	JCSM	Core 2 Duo	7F936F1
Jessica	HP Pavillion AT489 Desktop	JCSM	Core 2 Quad	2UA0451DY9
Registrar Student	Dell Latitude E6420	JCSM	Core i5	2SKS2R1
Margaret	Dell Latitude E6430 laptop	JCSM	Core i5	CZWKKV1
Security	HP Chromebook 14-SMB	JCSM	Atom	5CD4362TC0
Auditorium	Dell Optiplex Desktop	JCSM	Core 2 Duo	G5XYPL1
Jessica	Toshiba Chromebook CB35	JCSM	Atom	ZE235316C
Lutron	Dell Inspiron 600m laptop	JCSM	Pentium 4	3Q3JY41
Lauren	Dell Latitude 14”	JCSM	Core 2 Duo	2Q4Y5K1
Gift Shop	Dell Optiplex 9020 Desktop	JCSM	Core i5	8JRWDZ1
Gift Shop	Dell Optiplex 9020 Desktop	JCSM	Core i5	8JTXDZ1
Gift Shop	Dell Optiplex 745 Desktop	JCSM	Core 2 Duo	5F93651
Gift Shop	Dell PowerEdge SC420 Server	JCSM	XEON	BZFJ961
Dennis	Dell Latitude E4310 Laptop	JCSM	Core i5	9Z4K5Q1
IT Dept	Dell Latitude E6510 laptop	JCSM	Core i7	5NBQKN1
IT Dept	Dell Inspiron 1501 laptop	JCSM	Core Duo	1Z7CG01
IT Dept	Acer 1700 desktop	JCSM	AMD 64	83701944530
IT Dept	Dell Latitude E6420 laptop	JCSM	Core i5	J1RV5Q1
IT Dept	Dell Inspiron 6000 laptop	JCSM	Pentium 4	802QH71
IT Dept	Asus Windows Server	JCSM	Core i7	No serial custom build

Museum staff listing

updated 09/10/15

		Office	Cell
Allen, Janice	Office Administrator	844-1581	332-0108
Bennett, Melaine	Development Officer	844-7945	334-750-2683
Birmingham, Robbin	Executive Secretary	844-3085	332-6603
Bishop-Wagoner, Scott	Education Curator, Auburn Univ.	844-7014	524-6940
Cortez, Mike	IT Specialist	844-1590	663-0356
Cox, Cindy	Membership Officer	844-3005	703-6752
Funderburk, Danielle	Registrar	844-1507	706-442-1285
Guynn, Janet	Graphic Designer	844-3485	334-398-2870
Hall, Todd	Preparator	844-8771	
Hancock, Kate	Development Coordinator	844-1675	334-703-2023
Harper, Dennis	Curator	844-1419	740-1599
Hendrix, Charlotte	Marketing	844-7075	202-549-2026
Henley, Andrew	Education Curator, K-12	844-8792	419-902-2018
• Hillberg, Hayley	Marketing	844-1571	
Horton, Lauren	Special Events	844-3488	
• Hughes, Jessica	Assistant to the Curator	844-1596	256-797-6767
Laufer, Marilyn	Director	844-1486	706-464-6827
Maurer, Renee	Gift Shop Manager	844-3096	917-843-8383
• Robertson, Delanne	Asst. Preparator	844-8771	
Tennant, Andy	Assistant Director	844-3081	740-8984
	Fax	844-1463	
	tour information	844-3486	
	Café	844-7016	
	Frame Shop	844-1643	
	Security booth	844-5985	
	Front Desk	844-1484	
	Marketing fax machine	844-7015	

• Part Time

Office of Communications and Marketing

BIA Questionnaire Interview Notes – 11/6/15
Mike Clardy, Dept. of Communications & Marketing
Notes:
Did not complete questionnaire – will email to me and Bob.

Department is diversified, it consists of: creative group, media relations and news
Should an event occur, the back-up facility will be a hotel conference center; secondary facility would be anywhere there is WiFi. Department must have WiFi to continue operations.

This department does not generate income for the University. Department of Communications and Marketing is a service outfit. They function as an in-house ad agency: creative services, media relations and news unit, video/photo, events planning (graduations, faculty awards, different events throughout the year). They provide an electronic news digest 2xmonth – servicing 230,000 people thru publications per month.

Should an event occur, the communications section of the department can carry-on operations from home. They handle internal and external communications which is critical. They can communicate and continue to operate using cell phones/laptops.

Our primary choice would be a hotel. We have discussed this with hotels in the past and they are fully onboard in supporting department should an event happen; the hotel has generator capability.

OCM operates out of Samford Hall which is the campus main building, the following operate from this building: president, legal counsel, trademark, vice president of research, and internal auditors. OCM Dept. maintains bottom level of building (below grade) moat around building, very well drained, no chance of flooding. Samford Hall has been rebuilt twice. Currently, upper attic roof is being replaced because of age. Has lightning protection installed.

OCM talks to the press – they are the voice of the university. Loosing OCM would be devastating for the University. External communications is critical - they run University website. Using social media, they can reach up to 800,000 people.

Marketing side could be suspended for a few days; they create 650-700 projects per year. If Marketing was down for one week, they would have to hire freelancers to help with workload. The cost of freelancers would come out of Campus Unit's budget.

Staff size: 25/27 fulltime.

Mike is not sure if work/computers are backed-up. He will find out how they backup documents. Mike will inquire about server backup and will provide answers to Sandra and Bob.

AUBURN UNIVERSITY
HAZARD MITIGATION PLAN
BUSINESS IMPACT ANALYSIS QUESTIONNAIRE
October 2016

Department: Office of Communications and Marketing

POC/Title: Mike Clardy, Interim AVP

POC phone and email: (334)844-9999, clardch@auburn.edu

Building name and location:23 Samford Hall

No. of staff (full time and part time – List separately): 28

	QUESTIONS	RESPONSES
1.	Please describe in detail your department's function/role.	The Office of Communications & Marketing is responsible for the integrity, implementation and management of the Auburn University brand. Our office supports Auburn's mission and strategic goals and is committed to creatively aligning functions to provide more needed resources for colleges and schools, with an overarching goal of establishing a central, full-service, in-house professional agency resource model and integrated, unified messaging.
2.	Describe in detail the department's process and/or systems that the University depends on to perform normally. Specify if these processes are internally or externally essential to normal operations.	Daily communications to constituents, primarily employees and students (internal) and our website audience (external).
3.	Describe which processes or systems are the most essential to the University and its operations.	We manage content for the university's home page and numerous underlying pages. It is critical to have this running as well as ability to email employees and students important information.
4.	Name processes and/or systems that can be completed on a temporary basis at a named recovery site/location.	With Internet access in a remote location, we can maintain our functions in media relations and website management. More than likely our creative team would have to suspend operations because they work on large desktop units, unlike the news team that operates on laptops.

5.	List key staff members/positions that are essential during temporary relocation of disaster event and to keep operations running.	Mike Clardy/Interim AVP, Communications Director Charles Martin, Communications editor Neali Vann, media coordinator Miranda Nobles, internal communications editor Brock Parker and John Walker, multimedia (web) specialists Sarah Phillips, communications editor Amy Weaver, communications editor
6.	Name key materials needed for processes and/or systems to continue operation during temporary relocation of disaster event.	Computers with WiFi connections and power
7.	Identify your suppliers/contractors. • List any pre-event contractors. • List any standby contracts. • List any other vendors.	AU Lease shop
8.	Describe where and how essential records are maintained for the department.	Mainly in filing cabinets locked in Office Manager's office.
9.	Provide the number of computers in the department. Laptops and desktops. (In addition, complete attached Hardware Inventory List).	26
10.	Describe systems and processes used for computer/file back-ups. If this is done on a regular schedule, please provide that	Most of us back up files through OIT by leaving the computer on a couple of nights a week. Some use DVDs, others external hard drives or Dropbox.

	schedule.	
11.	For each day of down time, estimate the number of hours for each day it will take to process backlog of work?	Creative Services, Broadcast Services and Events Management will be impacted the most since they are project driven. Would probably take 8 hours for each day to process the backlog. We would have to consider hiring freelancers to complete certain tasks.
12.	Specify critical business records by name, type of document, and location of document(s).	
13.	List any internal/external reporting requirements needed. Provide report name, authors, recipients, frequency, and delivery requirements.	
14.	List any items/materials that require refrigeration or special handling or equipment needs.	
15.	Define any potential recovery issues to operations, time needed to recovery and any resources needed to recover from any disaster event.	Broadcast Services team has video equipment that would take time to replace if destroyed. Everyone has a computer that would need to be replaced.
16.	Describe any potential restoration issues to restore operations as normal.	Assuming computers are not damaged, most of us could resume working right way. Broadcast area might be delayed.
17.	Explain how long (hours/days) that the department could be unusable before its loss would impact the University.	The university would feel our loss if we were down for even one day.
18.	Describe in weeks or months how loss of the department would have an impact at certain times throughout the year.	There are certain key times, such as graduation and other large events, where our role is critical, but really the impact would not be contained to specific days. Communications are critical on a

		daily basis.
19.	Describe any operational impacts a disaster event or loss of department would have on the University, i.e., student enrollment, student tuition processing or cash flow, housing, etc.	
20.	Describe any estimated financial impact the loss of department would have on the University by days, weeks, months.	Hard to estimate, but we would have to hire outside creative/design help to process the workload if we were out for more than a few days.
21.	Identify any required equipment to continue operations during an event, i.e, servers, computers, phones, copiers, etc.	Computers, servers and cell phones would be a must.
22.	On average, provide the number of students/visitors that utilize your department on a daily/weekly basis.	We don't get many visitors. Most of our work comes from campus clients.

OCM Leased Computer Inventory		
Employee	S/N	Location
Charles Martin	B4L6TZ1	23 E Samford
Barbara Black	73MHFZ1	23 F Samford
Cornelia Vann	HWX9H02	16 B Samford
Mike Clardy	5LD9WZ1	23 G Samford
John Walker	D9YTYZ1	16 C Samford
Pam Brown	76MVP02	23 Samford
Mary Huddleston	D25N10X2F8JC	11 B Samford
Jennie Hill	D25N111BF8JC	11 C Samford
Al Eiland	D25N10X0F8JC	9 A Samford
Tracey Newell	D25N10X3F8JC	11 A Samford
Heather Jackson	D25N10RFF8JC	11 Samford
Sarah Phillips	2Z9PL12	18 B Samford
Brock Parker	9K8JM12	16 A Samford
Pam Kirby	FNGNT12	28 B Samford
Lucy LaMar	1HQ9K32	23 D Samford
Teresa Whitman-McCall	J5Q9K32	7 Samford
Jim Jackson	89Q9K32	29 B Samford
Kevin Fichtner	DVR9K32	29 A Samford
Amy Weaver	FXWHL32	28 A Samford
Teresa Whitman-McCall	BYPYM32	7 Samford
Chris Green	C02KCZX1DNCR	7 Samford
Kevin Loden	H00150164PD	9 Samford
Student	7510YH1	16 Samford
Student	931P052	16 Samford
Student	D25K7DLZDNMM	29 Samford
Student	92QRP52	29 Samford
Student	1N7YB62	7 Samford

OCM Staff Listing	
Employee	Title
Mike Clardy	Interim Assistant VP
Barbara Black	Exec Support Asst II
Danna Bradford	Admin Support Assoc II
Keith Brewer	Supv, Audio Visual-Conf Ctr
Pam Brown	Admin Support Asst II
Al Eiland	Supv, Univ Creative Svcs
Jeff Etheridge	Chief Photographer
Kevin Fichtner	Broadcast Assoc III
Chris Green	Coord II, Campus & Community Events
Mike Hales	Spec II, Comm & Mktg
Jennie Hill	Spec II, Art Design
Mary Huddleston	Spec III, Art Design
Melissa Humble	Photographer II
Heather Jackson	Spec II, Art Design
Jim Jackson	Producer/Director IV
Pam Kirby	Coord II, Univ Creative Svcs
Lucy LaMar	Dir, Univ Mktg & Creative Svcs
Kevin Loden	Sr Editor, Univ Publications
Charles Martin	Communications Editor III
Tracey Newell	Spec III, Art Design
Miranda Nobles	Communications Editor II
Brock Parker	Spec III, Multimedia
Sarah Phillips	Communications Editor I
Neali Vann	Spec II, Comm & Mktg
John Walker	Spec II, Multimedia
Amy Weaver	Spec II, Comm & Mktg
Teresa Whitman-McCall	Dir, Campus & Community Events

Office of Information Technology

BIA Interview @ 2:30-4:30 pm
11/10/15 – OIT (Office of Information Technology)

1. ISD has a generator in place, however, it is to run the data center only; not entire building. OIT is critical to university. Without OIT, University would come to a halt.
2. Records Keeping – Offsite backup with "Banner" data. Banner is a University-wide program. Not all critical facilities of the University are backed-up off site. Bob asked that OIT list the critical facilities that are not backed up.
3. OIT has a back-up generator and a back-up chilled water system.
4. OIT has one substation feed only.
5. OIT has all Internet connectivity: Tower facility, Haley (has a switching station), and all clinics. Haley is critical because of fiber optics; only 2 lines come into campus: off campus connectivity at Haley and Tower. Lightning protection is already on all buildings. Some old buildings get hit by lightning – John Helms will provide list of buildings.
6. What is most vulnerable position at OIT? First obligation is to be able to communicate; Banner is a University Intranet system which is going to the Cloud. Right now, everything is still housed on campus. The ability to maintain communications is extremely important. Canvas is a student network. Students must come to campus to authentic their credentials if they forget their password. They have been thinking of possibly moving this to the Cloud, however, in doing so it creates cyber risks.
7. OIT does not have a designated back-up work area should disaster strike. Could possibly use AUM for offsite storage (however, at current time, facility is not up to par). Have they considered back-ups with other universities? Yes, they have had some discussions about this possibility. Connectivity is an issue, especially for rural areas. Auburn is more advanced than most universities.
8. How many key staff members would be needed to work offsite to keep operations going? There are 130 fulltime staff members under OIT; the majority of them can work from home. Last year when the University was closed for three days, the Help Desk was closed. The Help Desk is a weakness. Currently, the University does not have procedures in place for a virtual Help Desk. This project is being considered for the future.
9. OIT backs up on a regular basis.
10. Teaching would not interrupt income stream. Each month payments come in, invoices are sent out. OIT needs to process financial aid and payroll. Payroll has several cycles (weekly, biweekly, monthly, etc.) and is ongoing. We cannot be down because of payroll and financial aid processing. All of this is on Banner. The Banner system works well; it has been tested several times. Connectivity is critical. OIT must connect with banks for payroll and financial aid processing.
11. One of OIT's struggle is downtime for maintenance. There never seems to be a good window of time.
12. Gulf Connections is a service that OIT is contracted with. They provide professional services for infrastructure/cabling, computer/software.

AUBURN UNIVERSITY
HAZARD MITIGATION PLAN
BUSINESS IMPACT ANALYSIS QUESTIONNAIRE
November 2015

Department: Office of Information Technology (OIT)

POC/Title: John Helms – Director, Networking and Telecommunications

POC phone and email: 334-844-9357, helmsjm@auburn.edu

Building name and location: Main locations of centralized IT equipment on AU campus include: IT Building, Haley Center Switch Room 1424, Tower Building, Medical Clinic IT Room, CVM HWP IT Room. OIT has building specific equipment (networking, computing, AV, telephone) located in every building on the AU campus.

No. of staff (full time and part time – List separately): 132 (see attached list)

	QUESTIONS	RESPONSES
1.	Please describe in detail your department's function/role.	OIT provides the following central IT services for AU: computing infrastructure & resources in support of enterprise resource planning systems (financial, HR, student systems), learning management system, email, web development, software products, computer lease, data network (Internet, wireless), telecommunications infrastructure, phone, cell phone, cable TV, audio/video solutions (classroom/teaching technology), computing labs, identity and account management, information security, virus protection, test scoring, computer backup, and print services.
2.	Describe in detail the department's process and/or systems that the University depends on to perform normally. Specify if these processes are internally or externally essential to normal operations.	All of the processes and systems named in item 1 above – all internally and externally essential to normal operations. Other specific systems/processes that the university depends on for normal operations: Domain Name System (DNS) Active Directory Campus data network
3.	Describe which processes or systems are the most essential to the University and its operations.	ERP systems (financial, HR, student) – Banner Learning Management System – Canvas Data network (Internet, wired & wireless network) Identity/account management Information security Email, phone/cellular, telecommunications infrastructure Audio/Video solutions for classroom instruction Activation/de-activation of AU Affiliate ID (to include card access) Activation of faculty/staff ID SIAINST for faculty/staff/advisor roles Yubikey VPN access

		Monthly Service Centers and Auxiliary financial billing process. Data required from multiple sources to include Verizon, Southern Linc, Student PC Shop, Lab Print, DeltaCom, AU Lease, ID Mgmt, HEAT (construction pass through), and TSM data entered into the Telesoft System (purchased software) where call collection/costing, as well as recurring voice, data, cable, student and tenant charges are also entered (recurring costs) for billing. Student billing information is processed and passed to Bursar for student billing/collection. Tenants receive emailed invoices. On campus departments are direct charged via Banner journal entries. State of Alabama taxes are calculated by Telesoft, entered by Accountant into the State database with invoice set-up and forwarded for payment to PPS monthly. Billing process begins typically around the 3rd of each month and is completed by 15th. Determination to be made by appropriate Central Business Office staff as to payment, payroll, asset and journal processes if electronic systems are down. Scantron Testing (service provided by OIT for student test scoring). Telephone system 24/7/365 Student Registration – First two full weeks of April and November Student Billing and Bill Payment Dates url: http://www.auburn.edu/administration/business_office/pdf/billing_15-16.pdf Student Refunds – 10 days prior to the start of each semester. First Day of class, Last Day to Add, Final Exams – url: https://www.auburn.edu/main/auweb_calendar.html Grading – During the Final Exam Peiord, plus 72 hours after the end of Final Exams Gradation – url: https://www.auburn.edu/main/auweb_calendar.html Admissions Due Date – Undergraduate (Oct 1st and mid January) ur: https://www.auburn.edu/admissions/prospective/freshmen.html Graduate Admissions Deadline – 90 days before the first day of class, Payroll url: http://www.auburn.edu/administration/business_office/payroll/pay-periods.html Month end financial processing is the night of the first business day of the next month, unless that is a Friday, and then they will move it to the following Monday. So November month end will be Tuesday night, December 1. Yearend processing follows this same model and will be in October with the September month end. The finance users can move this slightly.
4.	Name processes and/or systems that can be completed on a temporary basis at a named recovery site/location.	Remote customer support; although there may be no customers to support if a power outage is campus wide. Domain Name Services VPN PCI Infrastructure

		Identity Management processes can take place anywhere as long as Banner, LSI, SharePoint and email are accessible. Most if not all Banner processes could be completed at a named recovery site once hardware is in place. OIT Billing process can be done from remote location if the following are available: access to OIT directory (au05); Telmast drive (oitbillweb), Telesoft access with all drivers, call data from lantronix (datacenter) or call server (Haley Ctr); access to billing files (Verizon, Southern Linc, Student PC Shop, Lab Print, DeltaCom, AU Lease, ID Mgmt, HEAT (construction pass through), and TSM data). Financial and HR processes - manual paper process for later entry into Banner and Kronos or off-site access to systems via VPN. Incoming telephone calls rerouted by AT&T to specified location.
5.	List key staff members/positions that are essential during temporary relocation of disaster event and to keep operations running.	2 desktop support IT specialists. 6 security IT specialists. 1 identity management office person 4 financial specialists 3 telephone IT specialists 7 data network IT specialists 6 sysadmin IT specialists (ERP systems) 5 computer lab support IT specialists 7 systems support IT specialists 6 virtualization & storage IT specialists 5 audio/video IT specialists (if technology enhanced classrooms needed to be relocated) 3 IT project managers (depending on PM need)
6.	Name key materials needed for processes and/or systems to continue operation during temporary relocation of disaster event.	Data center equipment (racks, servers, UPS). Computers, desks, chairs. High-speed network connectivity. Remote support software and phones. Spare hardware/servers/appliances, cabling, backup (software, config files, etc), UPS, internet connectivity, Disaster Recovery Plans for each critical service, server. IDM office - ID cards, Yubikeys, Camera system, Card printers Access to internet, computers and AU shared drives, along with OIT Billing items mentioned in item 4 to ensure billing/revenue flow. Telephone sets and wiring supplies Fiber and associated parts and materials Network Electronics and other related network hardware Generators Sharepoint Active Directory AU Network AU Fiber Channel

		VMWare Host cluster PHD Backups of our key servers AU VPN DNS Active Directory Server infrastructure or DRS facility to run instance of virtual environment
7.	Identify your suppliers/contractors. • List any pre-event contractors. • List any standby contracts. • List any other vendors.	GovConnection IBM Global Financing Cisco Palo Alto Splunk FireEye East Alabama Telephone Specialties (on-site cabling contractor) Prosys (data network system engineering consultants) Telesoft (billing system vendor) Genband Graybar (Birmingham, AL) AU Facilities Oracle Microsoft BIGIP IBM MicroFocus Quest/Dell Unitrends RDX VMware Redhat BeyondTrust Microsoft Apple VCE
8.	Describe where and how essential records are maintained for the department.	Web application that has a database backend and customer portal from IBM. On-site multiple backup. Server/appliance config files are backed up periodically for firewall, vpn, fireeye, and DNS to on-site resources. Shared server to keep process documentation for IDM Xtender to store affiliate proof of identity documentation (scanned documents) Majority of OIT Financial reporting is stored on au05 shared drive under OIT Admin. Most of the files are Excel or Word documents to include Service Center, Auxiliary, Base and Project (Plant Fund) files. Additional billing files found in shared drive telemast (oitwebbill). Accounts Payable original invoices, travel vouchers and PCard supporting documentation are filed in OIT Admin file cabinets/retention

		center (following guidelines in AU Retention policy) but scanned copies of these documents are uploaded into Banner/Xtender as part of e-vendor, e-travel and PCard processes. Cash collection files are stored in OIT Admin area but scanned copy of the journal entries supporting cash deposited are uploaded into Banner/Xtender. Telephone system backup tapes are maintained in OIT Building room 367. All network infrastructure records are kept on a local database with paper backups located in OIT Building office. Essential ERP system records are kept primarily in our production Oracle and SQL Server database environment. These records are typically user/application maintained and backed-up based on our weekly Level 0 and nightly Level 1 backup plans. Additionally, virtual servers follow a similar image based backup in Unitrends PHD backup appliance. Records maintained on databases or infrastructure hosted in the OIT Data Center.
9.	Provide the number of computers in the department. Laptops and desktops. (In addition, complete attached Hardware Inventory List).	OIT Leased computers (**see attached list**): 57 desktops 86 laptops 171 monitors
10.	Describe systems and processes used for computer/file back-ups. If this is done on a regular schedule, please provide that schedule.	In house developed programs that backup config and data directories. Varies per server but generally backups are performed weekly and some cases daily. RANCID is a software backup solution utilized to backup switches, router, and firewall configurations. IDM – annual re-verification for affiliates using WorkFlow. Telephone system backups are made to tape and DVD once per week. All OIT servers that have an account on TSM1 have a schedule associated with them. The schedule determines the backup window and the frequency of the backups. For example, the AUDAILY schedule is a daily schedule with a backup window of 23:00 through 05:00. The window means that TSM will attempt to start the backup within the window. As long as the backup starts within the window, it will continue until it completes even if the completion time is beyond the end of the backup window. We do have some servers that are backed up to TSM via a script that the person responsible for that server maintains. For example, servers that require backups after specific events or servers that require multiple backups throughout the day may be doing manual backups rather than TSM scheduled backups.

		Attached is a spreadsheet with the schedule for each node defined on TSM1. Multiple systems – multiple backup methodologies
11.	For each day of down time, estimate the number of hours for each day it will take to process backlog of work?	4-6 hours to process backlog. 2 hours/day. The nature of our service to campus during a disaster would be critical systems are replicated off site basically once. After that it is estimated to be 2 hours a day. 5 FTEs @ 8 hours per day (administrative backlog) 1 FTE @ 8 hours per day (building maintenance) <u>Lab Support</u> If completely destroyed, 144 hours after datacenter and directory services resources are operational. If not completely destroyed, 24 hours after datacenter resumes normal operations.
12.	Specify critical business records by name, type of document, and location of document(s).	OIT Admin Billing – Telesoft Product and Supporting billing documentation Key items required to complete billing include: a.) Access to Telesoft product with call collection and costing (latronix in datacenter and server in Haley), supported backed up databases in Telesoft (app db and reporting db) and "Telmast" directory on the app server. OITWEBBILL servers b.) Verizon and SouthernLinc files (received from vendor and downloaded after sorting by Voice Service Center admin) c.) Student PC Shop and Student Labor Print charges – monthly entry using Excel and PaperCut d.) DeltaCom – CD from Earthlink Business through Mail e.) AULease -files from AU Lease database (maintained on OIT shared drive) f.) Access to shared drive au05 and telmast (oitwebbill) Restore of shared OIT Admin Drive found in drive au05 (current backup) would allow us to move forward with any critical analysis Rate development files available through Central Business Office HR/Payroll database available through Central Business Office Majority of contracts are stored on au05 shared drive and Central Business Office with invoice/purchase orders
13.	List any internal/external reporting requirements needed. Provide report name, authors, recipients, frequency, and delivery requirements.	External reporting to State of Alabama for sales/use related to Voice (tenant) – due by 20th of each month. On-line system followed by payment process via Business Office. Report completed by OIT Admin (Diane Sims)

		External reporting to Library of Congress Cable Royalty Report- due semi-annually (February and August of each year for prior 6 months). Report completed by OIT Admin (Mary Collins). Manual paper process followed by payment process via PPS in Central Business Office. Rate Development and subsequent year end reporting for six Service Centers. Internal reporting to Central Business Office by OIT Admin (Mary Collins) Payroll Hours and Reporting – bi-weekly, TES, monthly (will be dictated by emergency process from Central Office) Leave Reporting for Employees (will be dictated by emergency process from Central Office) Budget Process and Reserve Reporting – (will be dictated by emergency process from Central Office)
14.	List any items/materials that require refrigeration or special handling or equipment needs.	N/A
15.	Define any potential recovery issues to operations, time needed to recovery and any resources needed to recover from any disaster event.	Hardware will have to be evaluated, repaired, and/or replaced. If spare hardware is not on hand, the time it takes to get the device/server/appliance in house. Internet connectivity is absolutely essential. Critical personnel must be available. IDM equipment (camera and card printers) – if Tiger Card office was not affected, we could get backup equipment from them or another department with a card printer. ID Card special orders take at least 2 days. Ability to procure essential repair items (working with PPS to develop method) Access required to internet, Banner, Kronos, Telesoft and manual time by key personnel to enter or re-enter data/invoices/payroll time/billing info. Extra work related to documentation of loss for insurance purposes. Connection to AT&T (PSTN) and/or data network is critical. **Restore Power to network distribution points** Repair local on site generators (1 to 2 hours) or Bring in suitable portable power and connect (1 to 4 hours) **Repair fiber damaged during event** Repair fiber as currently deployed (4 to 12 hours) Reroute fiber by cutting away damage and splicing together in manhole (8 to 24 hours)

		Replace damaged network electronics Replace with equipment on hand (4 to 12 hours) Replace with sourced (shipped) equipment (12 to 48 hours) Potential Recovery Issues 1. Access to server hardware to restore our databases and server appliances too 2. Network connectivity to the Internet and the intranet 3. SAN Storage availability to store database data files 4. Fiber Channel network paths to storage devices Recovery Time Frame 1. Depending on the disaster it could take us 24 hrs to 2 weeks for full system recovery
16.	Describe any potential restoration issues to restore operations as normal.	New imaging servers may be needed and will take time to setup. Corrupted backups. Untested backups. Delays in shipping. Lack of manpower. Data loss, ID card stock, time, lack of communications (cell phone, email, etc.) Connection to AT&T (PSTN) and/or data network is critical. Access to needed hardware, materials or personnel needed Access to buildings, manholes or other locations where network gear may be present that needs repair Backup corruption Lack of server hardware proper equipment Missing or injured key personnel
17.	Explain how long (hours/days) that the department could be unusable before its loss would impact the University.	At no level could the University function normally for any length of time without OIT services.
18.	Describe in weeks or months how loss of the department would have an impact at certain times throughout the year.	OIT infrastructure, systems, and operations are critical to day-to-day operations throughout the year 24/7/365.
19.	Describe any operational impacts a disaster event or loss of department would have on the University, i.e., student enrollment, student tuition processing or cash flow, housing, etc.	OIT infrastructure, systems, and operations are critical to day-to-day operations throughout the year 24/7/365.

20.	Describe any estimated financial impact the loss of department would have on the University by days, weeks, months.	TouchNet credit card payment gateway is a central system operated by OIT. The university is unable to process credit card payments while this system is down (Admissions and Registration fees, tuition payments, Alumni Development fundraising efforts, and many others). Financial impact to the university would be determined by the dollar amount of revenue received for these type of credit card transactions for any given day, week, or month. Central IT systems operated by OIT are critical to student admissions, registration, and financial aid processing; all of which could have a financial impact on the university if those systems are down. Access to these and other central IT system is just as critical, so that loss of Internet connectivity or internal AU network and/or loss of web presence of AU systems would have the same effect as if the systems themselves were down.
21.	Identify any required equipment to continue operations during an event, i.e, servers, computers, phones, copiers, etc.	An offsite instance of Bomgar if customer support is needed, cell phones and computers with Internet connections. Firewalls, cabling, UPS, servers (VM or physical), VPN appliance, FireEye appliance, functioning communication network. Computers (desktops & laptops), printer/scanner/copier, cameras, ID card printer. OIT Admin – Call Costing Server/Lantronix box, Computers, Shared Drives (servers), Banner services, Kronos services, Telesoft Services, HEAT system for project tracking. Copiers for scanning purposes (required for Banner input). Communications devices: cell phones, desk phones, radios Transportation: trucks/vehicles to carry materials and personnel Fiber splicers Assorted hand tools and ladders <u>ERP systems</u> VMware virtual infrastructure hosts x 6 Cellphone availability Internet availability Computers for all key staff x 10 Working network connectivity, internal and external <u>Lab Support</u> Server and storage capacity. To run the current environment in another location, it would take roughly a $100,000 VCE VBlock to replicate current environment in another location.
22.	On average, provide the number of students/visitors that utilize your department on a daily/weekly basis.	

Additional Questions/Answers:

23. List of OIT systems/processes that are vulnerable to certain disaster events (high wind, loss of power, etc.).
    - Critical systems/servers
        - Banner
        - LSI
        - Luminis
        - SQL Server
        - F5 – main pair
        - TSM
        - SYS05 – shared file server
        - SYS012 – NIM (shared boot partition)
        - Production Oracle
        - Mallard
        - Web-based applications
    - Tower (potential lost revenues to OIT from various telecom carriers that reside on the tower)
    - Loss of power/generator in Haley Center or loss of Haley Center building would result in loss of Internet connectivity (critical) and landline telephone communications for the university (most critical telephone loss is incoming calls to main university numbers).
    - AU Campus Data Network (vulnerable at Haley Center, Tower Building, Medical Clinic, and CVM HWP).

24. Identify potential OIT facilities and mitigation efforts that could be done in advance to prevent loss during a future event. For example, if water is a threat to enter a critical OIT space during a high wind/rain storm (especially if it can be shown to have happened in the past) then we may qualify for grant funds to water-proof or structurally reinforce that OIT facility before a disaster event takes place.

    - Offsite instance of Bomgar for remote support.
    - Additional batteries for laptops to continue working during an extended power outage.
    - Offsite (Cloud) storage, hardware on hand, Hot Site facility,
    - At least one complete ID card setup located at an alternate/remote facility.
    - Redundant or immediate secondary internet provider access
    - Generator quick connect for key data centers across campus (OIT Data Center, Haley Center switch room, Medical Clinic IT room)
    - Secondary generator backups and batteries
    - Work with Business partners to self-identify quick remedial methods related to redundant internet and generators

- Move half of our VoIP switch into the OIT Data Center. This way if we lose Haley Center then VoIP telephones continue to operate out of the data center (geographic redundancy).
- Replicate some infrastructure in another location with a peer institution, such as Auburn Montgomery (AUM) campus.

BIA Interviews – Response to Additional Information Request

Office of Information Technology, John Helms 12/8/15

Robert,

Apparently, there was a Facilities project a few years ago that addressed the grounding issues in some older buildings, so lightning is no longer a big issue for OIT. We have UPS gear in each building to protect network equipment against power surges, brown outs, etc.

Listing of critical facilities that are not backed-up – in what way do you mean?

There is backup generator power at each of OIT's "critical" locations.

--John

From: Robert Mann
Sent: Tuesday, December 08, 2015 10:23 AM
To: John Helms
Subject: BIA Assessment Information

John,

If you have had a chance to gather the following BIA assessment information, can you please email it to myself and Sandra at SMaxwell@associates.wittobriens.com

- Listing of buildings that do not have lightning protection.

- Listing of critical facilities that are not backed-up.

Thank you,

Robert A. Mann MSM CEM

University Housing & Residence Life

BIA Interviews – Residential Housing, 11/3/15 @ 8:00am
Notes:

Possible mitigation projects:

- Cambridge Hall – maintenance needs to be elevated to another floor (300 beds).
- Key access control can be controlled off-site – possibly look at having capability installed on all student rooms for emergency situations.

Should a disaster occur, they could possibly relocate students off-site to hotels/tents. Currently, residence halls are at capacity. Also, McWharter Gymnastics facility is an option for cots/beds should an event occur (could hold up to 1,000 cots). Department Head and Staff need to explore possibility of hotels for temp housing.

Loss of Income for University: Residence Halls houses students/guests during the summer months for special programs – nightly fees are charged and would be loss of income should an event occur during summer months. (Staff will provide estimated dollar amounts of nightly fees loss)

Move-in day would be biggest loss of time, a lot of people on campus, a lot of activity. Every student moving in brings 1-5 people and 3-4 cars.

Vendor contracts: Residence Hall has a contract with CDW for maintenance.

We discussed storage of files and if their paper files were backed-up or have been scanned. They will check files to see if essential files are in basement and/or if they have been scanned.

If a disaster occurs, 90% of work is mobile; there would not be a backlog of work.

Reporting: once per semester – can do from home.

If ADA compliant housing is damaged – students need to be relocated to another ADA compliant facility. ADA housing is offered in multiple halls across campus.

University can survive without housing.

AUBURN UNIVERSITY
HAZARD MITIGATION PLAN
BUSINESS IMPACT ANALYSIS QUESTIONNAIRE
October 2016

Department: University Housing and Residence Life (UHRL)

POC/Title: Dr. Kevin Hoult, Director University Housing and Residence Life

POC phone and email: 334-844-4580

Building name and location: Burton Hall, 305 West Samford, Auburn AL

No. of staff (full time and part time – List separately): 10

	QUESTIONS	RESPONSES
1.	Please describe in detail your department's function/role.	UHRL is responsible for the fiscally sound year-round operation of 32 on-campus residence halls, housing approximately 4,800 undergraduate students. Working with campus partners we ensure that the facilities are clean, well-maintained, secure, provide access to technology. We ensure that residents are safe, secure, and fed; that developmental needs are met; and their academic focus is supported. Each summer we provide housing for athletic camps, academic programs, and new student orientation.
2.	Describe in detail the department's process and/or systems that the University depends on to perform normally. Specify if these processes are internally or externally essential to normal operations.	• Assign bed space to 4800 undergraduate students • Facilitate student move-in, move-out, and hall openings and closings throughout the year. • Manage summer housing and camps. • Collect and process room rental fees. • Distribute and collect student room keys
3.	Describe which processes or systems are the most essential to the University and its operations.	• House students • Maintain a fiscally sound operation • Clean facilities • Maintain facilities • Serve HR function with professional and student employees • Provide technology access to students • Assess/meet immediate needs of residents • Department website (for student/parent communication)
4.	Name processes and/or systems that can be completed on a temporary basis at a named recovery site/location.	• Reassign or provide temporary housing (if needed) • Provide information to residents, parents, staff, community • Assess damage and structural integrity of facilities • Order supplies/food services contact
5.	List key staff members/positions that are essential during temporary relocation of disaster event and to keep operations running.	Director, University Housing and Residence Life (1) Director, Residence Life (1) Assistant Director, Housing Operations (1) Assistant Director, Residence Life (1) Area Director (3)

6.	Name key materials needed for processes and/or systems to continue operation during temporary relocation of disaster event.	Cell phones, landlines, computers, printers Access to internet Cleaning supplies
7.	Identify your suppliers/contractors. • List any pre-event contractors. • List any standby contracts. • List any other vendors.	• AMCO, Inc. (Plumbing/Mechanical) • Bradley Plumbing (Plumbing/Mechanical) • Crosby Electric (Electrical) • Top Notch Cleaning, Inc. (Floor Maintenance) • Automated Door Ways, Inc. (Door Maintenance) • Johnson Controls (HBAC/Mechanical) • Pro Lawns, Inc. (Lawn Maintenance) • Nelson Electric (Electric Motor Service) • Precision Glass (Glass Repair/Installation) • C.W. Smith Decorating Co. (Painting and Associated Services) • ATC Hilyer (Grease Trap Pumping) • Prime Power Service, Inc. (Generator Maintenance) * • Roto Rooter (Drain Cleaning) • Mary's Cleaning Service (Cleaning Services) • Tubman, Inc. (Tub/Shower Repair) • Bat Man (Bat Removal/Exclusion) • ** Pending Final Award by AU Purchasing & Procurement Services Addresses and contact information in Appendix 1*
8.	Describe where and how essential records are maintained for the department.	• Student Conduct Records- Maxient • Financial and personnel records-Banner • STG/CBord-Housing Management Software • Key Access (Rob McKinnell)
9.	Provide the number of computers in the department. Laptops and desktops. (In addition, complete attached Hardware Inventory List).	See HARDWARE INVENTORY LIST (Appendix 2)
10.	Describe systems and processes used for computer/file back-ups. If this is done on a regular schedule, please provide that schedule.	OIT backs up all computers everynight
11.	For each day of down time, estimate the number of hours for each day it will take to process backlog of work?	For every day of downtime, ½ day backlog (assuming staff have computer access and can work remotely)
12.	Specify critical business records by name, type of document, and location of document(s).	The following are considered key/essential data that must be backed-up and stored off-site. • Floor plans • Rosters • Student emergency contact information-remote access via Banner • Budget information • Banner data—remote access • STG/CBord Housing Management System-remote access • Student Conduct Records via Maxient-remote access

13.	List any internal/external reporting requirements needed. Provide report name, authors, recipients, frequency, and delivery requirements.	Quarterly finance reports (Director, University Housing and Residence Life)
14.	List any items/materials that require refrigeration or special handling or equipment needs.	n/a
15.	Define any potential recovery issues to operations, time needed to recovery and any resources needed to recover from any disaster event.	May need to provide temporary or short term housing for displaced residents
16.	Describe any potential restoration issues to restore operations as normal.	May need to re-assign resident student parking
17.	Explain how long (hours/days) that the department could be unusable before its loss would impact the University.	Auburn University can operate independently of the residence halls.
18.	Describe in weeks or months how loss of the department would have an impact at certain times throughout the year.	If the residence halls were not available to students, the burden would fall on them to secure alternative housing. Some students might decide to withdraw or transfer depending on the severity of the housing shortage. In the summer, UHRL could lose revenue from summer camps and new student orientation (Camp War Eagle) would not be able to operate an overnight program for incoming students.
19.	Describe any operational impacts a disaster event or loss of department would have on the University, i.e., student enrollment, student tuition processing or cash flow, housing, etc.	If students could not live in university housing (a revenue loss), the University would have to determine other means to make payments on its debt service.
20.	Describe any estimated financial impact the loss of department would have on the University by days, weeks, months.	Financial impact by day for all areas: $143,721.82 Daily financial impact by area/building • Hill only: $34,898.18 • Quad only: $26,465.70 • Village only: $60,059.22 • S. Donahue $18,027.52 • Cambridge: $4,271.20
21.	Identify any required equipment to continue operations during an event, i.e, servers, computers, phones, copiers, etc.	• Landline and Cell Phones • Call tree • Email • Departmental website • The departmental Facebook page and Twitter account
22.	On average, provide the number of students/visitors that utilize your department on a daily/weekly basis.	• 4800 residents and approximately 4800 guests • 250 University staff (UHRL student and professional staff, Maintenance, Custodians)

Full time staff (as of 12/2015):

1. Kevin Hoult
2. Virginia Koch
3. Robert McKinnell
4. Maureen Young
5. Kimberly Presley
6. Lindsey Sharpe
7. Daniel Coradazzi
8. Lerone Joseph
9. Jessica Koehler
10. Caroline Bush
11. One administrative associate position is vacant

APPENDIX 1
UHRL Contractor and Vendors

Last revised: 12/7/2015

Plumbing/Mechanical

AMCO, Inc.
248 Lewis Street
Montgomery, Al 36107
334-264-2263
Contact: Zach Adams
adamsze@amcoinc.com

Electrical

Crosby Electric
6012 East Shirley Lane
Montgomery, Al 36124
334-272-2085
Contact: Charlie Meyling
charlie@crosbyelectric.com

Door Maintenance

Automated Door Ways, Inc.
307 38th Street
Columbus, GA 31904
866-572-3667
Contact: Ms. Terry Wilkes
twilks@automateddoorways.com

Lawn Maintenance

Pro Lawns, Inc.
557 Temple Street
Auburn, AL 36830
334-329-1088
Contact: Brent Truitt
prolawnsinc@ymail.com

Glass Repair/Installation

Precision Glass
2112 Frederick Road
Opelika, AL 36801
334-745-0558
Contact: Allen Lott
precisionglass1@bellsouth.net

Plumbing/Mechanical

Bradley Plumbing
431 Hackel Drive
Montgomery, AL 36117
334-271-0700
Contact: Blake Houser
bhouser@bradleyph.com

Floor Maintenance

Top Notch Cleaning, Inc.
2219 Center Hill Drive
Opelika, AL 36801
334-749-2031
Contact: Chris Warren
topnotchcleanllc@bellsouth.net

HVAC/Mechanical

Johnson Controls
1601 3rd Avenue South
Birmingham, AL 35233
205-214-3976
Contact: Scott Cofield
Donald.S.Cofield@jci.com

Electric Motor Service

Nelson Electric
2111 Steel Street
Opelika, AL 36801
334-749-2929
Contact: Rick Lashley
rick@1xrpm.com

Painting & Associated Services

C. W. Smith Decorating Co.
1313 Highway 31 North
Prattville, AL 36067
334-351-0650
Contact: Wayne Smith
wayne@cwsmithdecorating.com

Grease Trap Pumping

ATC Hilyer
4300 Birmingham Highway
Montgomery, AL 36108
334-279-6533
Contact: Arland Hilyer
arland@hilyerservices.com

Drain Cleaning

Roto Rooter
301 Sharp Street
Opelika, AL 36801
334-745-2906

Automotive Repair/Towing

Tiger Tire and Auto
1994 Wire Road
Auburn, AL 36832
334-826-6627

Bat Removal/Exclusion

Bat Man
116 Chunnenuggee Avenue
Union Springs, AL 36089
334-232-1424
Contact: George Perkins

Generator Maintenance**

Prime Power Service, Inc.
8225 Troon Circle SW
Austell, GA 30168
770-739-2561
***Pending Final Award by PPS*

Cleaning Services

Mary's Cleaning Service
2 Florence Court
Phenix City, AL 36869
706-325-4532
Contact: Charles Dixon

Tub/Shower Repair

Tubman, Inc.
2425 Smokey Road
Alabaster, AL 35007
205-229-0839
Contact: David Morris
tubmaninc@att.net

APPENDIX 2

AUBURN UNIVERSITY
HAZARD MITIGATION PLAN
UHRL COMPUTER HARDWARE INVENTORY
Last revised: Dec. 2015

Hardware (CPU, monitor, keyboard, mouse)	**Hardware size, RAM, CPU capacity**	**Model**	**Serial number**	**Purchase Date** (available from AU OIT)	**Cost** (lease per month)*
Monitor	n/a	Dell P1913S	CN21742612AM124M		
CPU	256GB	Dell 3010	4T78ZV1		22.71
Monitor	n/a	Dell P1913S	CN21742612AM123M		
CPU	256GB	Dell 3010	4T77ZV1		22.71
Monitor	n/a	Dell P1913S	CN0NWXT672872364F59L		
CPU	256GB	Dell 3010	7JVLYI		22.28
Monitor	n/a	Dell P1913S	CNONWXT672872364F5RL		
CPU	256GB	Dell Optiplex 3010	7L3K7Y1		22.28
Laptop	500GB	Dell P1913S	6HQ6PX1		48.32
Monitor	n/a	Dell Optiplex 3010	CN0FP04F7287236NFD3M		
Monitor	n/a	Dell P1913S	CNK414048K		
Laptop	500GB	Dell Optiplex 3010	8XMFH12		53.07
Monitor	n/a	Dell P1914S	CN0YGP3972872463C0VL		
CPU	500Gb	Dell Optiplex 7010	GMTPR12		23.85
Monitor	n/a	Dell P 1913S			
CPU	250GB	Dell Optiplex 3010	HPJ2GX1		21.84
Monitor	n/a	Dell P2214H			
CPU	500GB	Dell Optiplex 7020	39KS052		23.94
Monitor	n/a	Dell P2214H			
Laptop	320GB	Dell Latitude E6440	3D2GK12		54.39
Monitor	n/a	Dell P2214H			
CPU	500GB	Dell Optiplex 7020	JZBKV42		23.95
Monitor	n/a	Dell P1914S			
CPU	250GB	Dell Optiplex 7010	9ZFPT12		22.46
Monitor	n/a	Dell P2214H			
Laptop	320GB	Dell Latitude E6440	C55LP12		54.39
Monitor	n/a	Dell P2213			
CPU	250GB	Dell Optiplex 7010	8MCZBY1		29.87
Monitor	n/a	Dell P2213			
CPU	250GB	Dell Optiplex 7010	8MCYBY1		29.87
Monitor	n/a	Dell P2214H			
Laptop	320GB	Dell Latitude E6440	5PNLXZ1		44.54
Monitor	n/a	Dell P2214H			
Laptop	320GB	Dell Latitude E7240	1VYCK32		50.12

* Cost per month for all items= $570.59 X 12 months= $6847.08

City of Auburn, Fire Division

BIA Interview – 10/20/2015, 10:00am
Matt Jordan, Auburn Fire Division

Notes:

1. Auburn Fire Division is an off-campus entity. It is located approximately 2 blocks from the University.

2. They are the initial responders to the University. If there is a significant fire, they will call mutual aid responders.
3. The Division has a daily operating staff of 21-30 members. Vehicles consist of: 6 apparatus trucks, 2 ladder trucks, 4 pumpers, and one regularly staffed command vehicle, and 4-6 additional staff vehicles. They do not have any rescue vehicles.
4. In addition to the University, Auburn Fire Division also responds to the City of Auburn.
5. 9-1-1 calls go into the City dispatcher and calls are disbursed.
6. Next alternate facility has 5 fire stations.
7. The University is divided into 3 different response zones. For structural fires, a ladder truck would be dispersed for response as well as a command truck and pumper. Structure fires require at least 16 personnel; the larger the structure, the more staff will be sent.
8. Auburn Fire Division does not have any University-owned equipment.
9. Reporting: Would be reporting to University only if an event occurs.

Witt | O'Brien's

AUBURN UNIVERSITY
HAZARD MITIGATION PLAN
BUSINESS IMPACT ANALYSIS QUESTIONNAIRE
October 2016

Department: Auburn Fire Division

POC/Title: Matt Jordan/Deputy Fire Chief

POC phone and email: 334.501.3165 mjordan@auburnalabama.org

Building name and location: City of Auburn PS Building 161 North Ross Street

No. of staff (full time and part time – List separately): Approx 100

	QUESTIONS	RESPONSES
1.	Please describe in detail your department's function/role.	The Auburn Fire Division provides emergency fire response and first response medical services to the Auburn University campus.
2.	Describe in detail the department's process and/or systems that the University depends on to perform normally. Specify if these processes are internally or externally essential to normal operations.	The Fire Division works in conjunction with the University Risk Management and the AU Public Safety to ensure fire and medical related emergencies are mitigated effectively. The Fire Chief is included in the decision process in many of the campus events-from public gatherings to the completion of large parts of the infrastructure. The main role would, however, be emergency response-therefore we would not have a regular presence unless there is an emergency situation.
3.	Describe which processes or systems are the most essential to the University and its operations.	The Auburn Fire Division is an essential part of the fire protection on the campus. We work with Auburn Police Division to provide additional protection for large on-campus events.
4.	Name processes and/or systems that can be completed on a temporary basis at a named recovery site/location.	The Fire Division would work in conjunction with the University to establish and maintain an Incident Command on campus if there is an event.

5.	List key staff members/positions that are essential during temporary relocation of disaster event and to keep operations running.	The Fire Division provides fire and emergency response to the AU campus from an operational staff which has 6 operational apparatus and one command vehicle. A single alarm structural response sends 3 pumpers, 1 ladder and a command vehicle. With the size and scope of the assets on the AU campus if there is a significant event or emergency involving the infrastructure there would be a full response plus recall and mutual aid.
6.	Name key materials needed for processes and/or systems to continue operation during temporary relocation of disaster event.	The Auburn Fire Division would need to have an effective communications infrastructure if there was to be relocation in a disaster situation. We would also need assistance from personnel in order to provide the aid we would need to render.
7.	Identify your suppliers/contractors. • List any pre-event contractors. • List any standby contracts. • List any other vendors.	The Fire Division relies largely on the on campus Facilities and the City of Auburn public works. We also utilize the major utility companies such as Alagasco Company and Alabama Power Company. In the event of a large scale emergency we would also activate the local EMA and seek manpower and resource assistance. 908 Ave. B Campus - PW Dept. Opelika, AL Water University 1st City provides water to Campus then City.
8.	Describe where and how essential records are maintained for the department.	We maintain our record system through a program called Fire Programs. It is saved on a backed up drive through the City of Auburn server.
9.	Provide the number of computers in the department. Laptops and desktops. (In addition, complete attached Hardware Inventory List).	Mobile computers-approximately 12
10.	Describe systems and processes used for computer/file back-ups. If this is done on a regular schedule, please provide that schedule.	All data saved on the City of Auburn server is backed up and stored in a secure location.

11.	For each day of down time, estimate the number of hours for each day it will take to process backlog of work?	N/A
12.	Specify critical business records by name, type of document, and location of document(s).	Fire Programs contains a great deal of the fire related recording we do on a regular basis. (on occurrence)
13.	List any internal/external reporting requirements needed. Provide report name, authors, recipients, frequency, and delivery requirements.	The Auburn Fire Division works with the University to complete Clery Reporting for fire and EMS emergencies. As an agency we complete NFIRS reporting for fire related incidents.
14.	List any items/materials that require refrigeration or special handling or equipment needs.	1st response agency - no special needs
15.	Define any potential recovery issues to operations, time needed to recovery and any resources needed to recover from any disaster event.	As an emergency response agency we would need manpower to respond to a long term event on campus. Recovery would largely need to be compensation for long periods of overtime personnel would work in order to mitigate the event. In certain circumstances new materials may need to be obtained.
16.	Describe any potential restoration issues to restore operations as normal.	In the case of an on campus emergency there would still be a need to provide service to the surrounding community. The manpower needed to staff operational apparatus would be the biggest issue.
17.	Explain how long (hours/days) that the department could be unusable before its loss would impact the University.	
18.	Describe in weeks or months how loss of the department would have an impact at certain times throughout the year.	

19.	Describe any operational impacts a disaster event or loss of department would have on the University, i.e., student enrollment, student tuition processing or cash flow, housing, etc.	
20.	Describe any estimated financial impact the loss of department would have on the University by days, weeks, months.	
21.	Identify any required equipment to continue operations during an event, i.e, servers, computers, phones, copiers, etc.	A steady stream of manpower, an effect command infrastructure, a communications network (cell phones, radio network, computers) Radio system network
22.	On average, provide the number of students/visitors that utilize your department on a daily/weekly basis.	

Medical Clinic

BIA Interviews – 11/3/15 @ 10:00am
Medical Clinic - Fred Kam

The Medical Clinic is an outsource entity (and is part of the Lee County Hospital) that has a contractual arrangement with Auburn University. The agreement came into effect October 1, 1996 and with the hospital as of March 2000.

The Medical Clinic works out of a University facility, providing counseling services, medical needs, chiropractor, pharmaceutical, ob-gyn (women's health), and has 3-4 massage therapists on staff. Medical needs are available to faculty, staff, students, and the community.

They are closely connected to the University as acts as a department to the University. The Medical Clinic staff participates in University drills and also the Hospital drills. The Hospital and Auburn University work together as one.

Should an event occur, the Medical Clinic would rely upon the University to house them somewhere to continue services.

Key staff numbers needed to continue operations would be 10 clinicians; sports staff, 2-3 physicians, one full time – trainer. (The sports staff is separate entity).

Contractors are contracted through the County Hospital (Lee County) - the Medical Center depends on contractors from County Hospital and do not have any contractors specifically for the University.

The hospital serves 6-8 counties.

The hospital and medical center staff work extremely close together, also the counties all work together. So, should there be a disaster, the medical center would be supported by the county hospital and other counties.

Essential records: paper & health (electronically) stored at hospital on server. The hospital is contracted with a vendor to shred files after 10 years. Anything within last 5-6 years are all electronic and backed- up by hospital and vendor. Server is off-site at hospital.

Refrigeration is required for medications and allergy serum. If needed, students could temporarily store their medications at the medical facility. Pharmacy operates separately, but works very closely with medical. Pharmacy and Medical could be located together off-site if need be. Financials are housed at hospital. Medical Center reporting consists of: Month-end closing, financial, and annual fiscal responsibilities.

Loss of equipment is a potential problem for recovery: Vaccines, certain specialized equipment (EKG machine and x-ray equipment), crash carts, examine tables (approximately 40).

The Medical Center has a generator located at facility at the University.

There are some medical outbreaks that have the potential to impact the University should the University have to close down due to outbreaks: measles, meningitis, and Ebola.

The hospital has a medical trailer where medical equipment is stored for emergency use and the trailer can be deployed should need be.

Potential project would be to upgrade generator. Current generator does not fit the needs of running ventilation should there be an outage. In addition, without an upgrade, the Medical Center could not make x-rays or conduct any lab work. The Medical Center needs a generator to run entire building for ventilation. Without increase of generator, x-ray/labs could not work. A generator with a larger load capacity is needed.