Chapter 1
The Planning Process

Table 1-1 below highlights the significant changes made to Chapter 1 of the original HMP.

Table 1.1
Changes to the Planning Process Section of this Mitigation Plan

2023 HMP Chapter 1 Section	Updates to Section
1.1 Background and Purpose of the Mitigation Plan	Updated Text
1.2 Mitigation Plan Update: Methodology, Process, Participants	1.2.3 Changed Table 1.3: Affiliation To Department/Agency; Table 1.2 Changed Committee Members
1.3 How the 2018 Hazard Mitigation Plan was Reviewed, Analyzed and Revised	Updated Text
1.4 Hazard Mitigation Plan Organization	Updated Text
1.5 Local hazard, Risk, and Vulnerability Summary	Updated text and added new hazards:

2023 HMP Chapter 1 Section	Updates to Section
1.6 Rockdale County Mitigation Goals	Updated Text
1.7 Multi-Jurisdictional Special Considerations	Updated Text
1.8 Adoption. Implementation, Monitoring and Evaluation	Updated Text
1.9 Community Data	Updated Text and data and maps
1.10 National Flood Insurance Program – Activities and Program Compliance	Updated Text

1.1 Background and Purpose of the Mitigation Plan

1.1.1 Background

In the year 2000, the U.S. Congress passed legislation known as the *Disaster Mitigation Act of 2000 (DMA2K)*. The DMA2K legislation established a requirement that jurisdictions nationwide must develop and implement natural hazard mitigation plans in order to remain eligible for various FEMA grant programs, including those that provide funding for hazard mitigation projects.

The 2009 Rockdale County Hazard Mitigation Plan (HMP) was prepared to address the risk to life and property resulting from a wide range of natural and technological hazards. These hazards pose varying degrees of risk to property and the citizens of Rockdale County and the City of Conyers. The initial Plan provided homes, businesses, and communities with safeguards to mitigate the impacts of hurricanes, floods, tornadoes, hazardous materials, and other natural and technological hazards.

The first revision of the plan was completed in 2013, to update the original HMP and to bring it in line with 2008 State of Georgia Hazard Mitigation Strategy (State Plan). The second update of the Plan was in 2018. The third update of the Plan was to bring it in line with the new Federal Emergency Management Agency's updated Hazard Mitigation Guidelines and to meet the requirements of the Emergency Management Accreditation Program.

1.1.2 Purpose

In 2016, FEMA and the Georgia Emergency Management Agency (GEMA) provided Rockdale County with a grant to fund the second update of the County's HMP. The second update of the Plan is envisioned to bring further refinements of the pertinent mitigation actions and to comply with the general state-wide guidelines outlined in 2014 State of Georgia Hazard Mitigation Strategy. The present section of this second HMP update provides general background about Rockdale County and City of Conyers to provide context for the planning process and resulting actions.

Rockdale County has remained dedicated in continuing the work started in 2009 and 2013 by updating this Plan in 2023 to:

- Protect life and property by reducing the potential for future damages and economic losses that result from natural hazards;
- Qualify for additional grant funding, in both the pre-disaster and post-disaster environment;
- Provide quick recovery and redevelopment following future disasters;
- Integrate existing flood mitigation documents;
- Demonstrate a firm local commitment to hazard mitigation principles; and
- Comply with State and Federal legislative requirements tied to local hazard mitigation planning.

1.1.3 Scope

This Plan update has been prepared to meet requirements set forth by FMA and GEMA for Rockdale County and City of Conyers to be eligible for funding and technical assistance from State and Federal hazard mitigation programs. It will continue ro be updated and maintained to continually address those natural and technological hazards determined to be high and moderate risk as defined by the updated results of the local hazard, risk, and vulnerability summary. Other natural hazards will continue to be evaluated during future updates to the Plan in order to determine if they want warrant additional attention, including the development of specific mitigation measures intended to reduce their impact, Thus Plan will be updated, and FEMA approved within a five-year cycle.

1.1.4 Authority

This Hazard Mitigation Plan was adopted by Rockdale County in accordance with the authority granted to counties by the State of Georgia. This Plan was updated in accordance with current state and federal rules and regulations governing local hazard mitigation plans. The Plan shall be monitored and updated on a routine basis to maintain compliance with the following legislation and guidance:

- Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C., Section 322, Mitigation
- Planning, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106- 390) and by FEMA's
- Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201
- Georgia Emergency Management Act of 1981
- Authorized the Rockdale County Emergency Management Agency (EMA)

The following Federal Emergency Management Agency (FEMA) guides and reference documents were used to prepare this document:

- FEMA. 386-1: Getting Started. September 2002.
- FEMA. 386-2: Understanding Your Risks: Identifying Hazards and Estimating Losses. August 2001.
- FEMA. 386-3: Developing the Mitigation Plan. April 2003.
- FEMA. 386-4: Bringing the Plan to Life. August 2003.
- FEMA. 386-5: Using Benefit-Cost Review in Mitigation Planning. May 2007.
- FEMA. 386-6: Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation
- Planning. May 2005.
- FEMA. 386-7: Integrating Manmade Hazards into Mitigation Planning. September 2003.
- FEMA. 386-8: Multi-Municipality Mitigation Planning. August 2006.
- FEMA. 386-9: Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects. August 2008.
- FEMA. Local Multi-Hazard Mitigation Planning Guidance. July 1, 2008.

In addition to the Plan requirement, the Act also requires communities to utilize a specific planning process developed for an all-hazards approach to mitigation planning. This four-step planning process is crucial to ensure that the effective planning by a community meets all the Plan content criteria required by the Act. The Act requires adoption by the local governing body and specifies a stringent review process, by which states, and FEMA Regional Offices will review, evaluate and approve hazard mitigation plans. The 2023 Rockdale County Hazard Mitigation Plan Update will be formally re-adopted by both the Rockdale County Board of Commissioners and the City of Conyers, the only incorporated municipality in the County.

1.2 Mitigation Plan Update: Methodology, Process, Participants

1.2.1 Overview Of Hazard Mitigation Planning

Local hazard mitigation planning is the process of organizing community resources, identifying and assessing hazard risks, and determining how to best minimize or manage those risks. This process results in a hazard mitigation plan that identifies specific mitigation actions, each designed to achieve both short term planning objectives and a long-term community vision. To ensure the functionality of each mitigation action, responsibility is assigned to a specific individual, department or agency along with a schedule for its implementation. Plan maintenance procedures are established to implement, as well as evaluate and enhance the Plan as necessary. Developing clear plan maintenance procedures ensures that Rockdale County's Hazard Mitigation Plan remains a current, dynamic and effective planning document over time.

1.2.2 Local Methodology and Update Process

This updated Plan contains a narrative description of the process followed to prepare it. All relevant stakeholders were notified in fall of 2022 of the requirement concerning the Hazard Mitigation Planning Committee (HMPC) and the process. Subsequent meetings were held to ensure that all information is correct, and that all agencies, organizations and the public's input were included as presented. In all, the plan update process was conducted from November 2022 to November of 2023. Throughout the planning update process, the Rockdale County Mitigation Planning Committee reviewed and analyzed each section of the plan. In preparing the updated Plan, documentation indicates that the committee utilized a multi- jurisdictional planning process consistent with the one recommended by FEMA (Publication Series 386). The 2018 Plan addressed ten natural hazards, four technological hazards and all-encompassing hazards ("all hazards"). Each of those hazards were assessed by previous occurrences, vulnerability and exposure to County and municipal assets, and potential loss estimates. An update to the 2018 Plan was initiated in Fall of 2022 with funding support from GEMA and FEMA. The planning process used for the 2023 Plan update was based on Section 322 of the Disaster Mitigation Act of 2000 and supporting guidance developed by FEMA. The planning process followed these steps:

- Conduct kickoff meeting and reestablish the Mitigation Planning Committee/Team
- Review and update the local hazard, risk, and vulnerability summary;
- Determine capability for the county and each municipality;
- Update the mitigation strategy;
- Update the Plan maintenance procedures;
- Complete a draft plan for review by Rockdale County and City of Conyers;
- Provide final draft to GEMA for review;
- Provide final draft to FEMA for review;
- Advertise opportunity/hold public meeting for comment on final draft;
- Present Plan to municipalities for adoption;
- Present Plan to Rockdale County and City of Conyers for adoption;

Each of the planning steps described above resulted in key products and outcomes that collectively make up the Hazard Mitigation Plan. These work elements are further discussed below for introductory purposes.

The Community Profile, located later in this **Chapter 1**, describes the general makeup of Rockdale County and its municipalities, including prevalent geographic, demographic, and economic characteristics. This baseline information provides a snapshot of the Countywide planning area and thereby assists participating officials in recognizing those social, environmental, and economic factors that ultimately play a role in determining community vulnerability to natural and technological hazards.

The Local Hazard, Risk, and Vulnerability Summary (HRV), found in **Chapter 2**, is presented as three different elements: Hazard Identification/Profile, Hazard Analysis and a Vulnerability Assessment. Together, these elements serve to identify, analyze, and assess Rockdale County's overall risk to natural and technological hazards. The HRV builds on available historical data from previous occurrences, establishes hazard-by-hazard profiles, and culminates in a hazard risk priority or ranking based on conclusions about the frequency of occurrence, potential impact, spatial extent, warning time, and duration of each hazard. FEMA's HAZUS-MH loss estimation methodology was also used in evaluating known flood risks according to their relative long-term cost, measured in expected damages. The HRV is designed to assist communities in seeking the most appropriate mitigation actions to pursue and implement by focusing

their efforts on those hazards of greatest concern and those structures or planning areas facing the greatest risk(s).

The Community Profile and HRV collectively serve as a basis for updating goals for this Plan update, each contributing to the development, adoption, and implementation of a meaningful Mitigation Strategy update that is based on accurate background information.

The Mitigation Strategy, located in **Chapter 3**, consists of broad goal statements as well as specific mitigation actions for each jurisdiction participating in the planning process. This updated strategy provides the foundation for detailed Mitigation Action Plans that link jurisdictionally specific mitigation actions to locally assigned implementation mechanisms and target completion dates. Together, these sections are designed to make the Plan more strategic and functional through the identification of both long-term goals and near-term actions that will guide day-to-day decision-making and project implementation.

In addition to the identification and prioritization of possible mitigation projects, emphasis is placed on the use of program and policy alternatives to help make Rockdale County and City of Conyers less vulnerable to the damaging forces of nature while improving the economic, social, and environmental health of the community. The concept of multi-objective planning is emphasized throughout this Plan update, identifying ways to link hazard mitigation policies and programs with complimentary community goals that may be related to housing, economic development, community revitalization, recreational opportunities, transportation improvements, environmental quality, land development, and public health and safety. This Hazard Mitigation Plan update should be seen as a proactive document that represents a concerted effort to make Rockdale County and participating jurisdictions more livable communities.

The Plan Maintenance Procedures, found in **Chapter 4**, includes the measures Rockdale County will take to ensure the Plan's continuous long-term implementation. The procedures also include the manner in which the Plan will be regularly monitored, reported upon, evaluated and updated to remain a current and meaningful planning document. The Mitigation Planning Committee reviewed the current plan, identified new information that needed to be included in the Plan update and incorporated it as required by State and Federal guidelines. The planning committee was also tasked with collecting all accurate data from plan participants and provided outreach to the public and business stakeholders to ensure that everyone's information is included in this Plan update. **Chapter 5** gives a recap of the planning process described in this report.

1.2.3 The Planning Team

Hazard mitigation Planning Committee

The HMPC was established as the primary working group for development of the 2018 HMP update. It was comprised of representatives from various County and City of Conyers departments, as shown in the table below. The HMPC had various functions as the HMP update was taking place. The most important of these duties was to provide information and input on technical or procedural aspects of the work and to review drafts of various parts of the document as they were created and provided detailed feedback. Sections of the plan were circulated to HMPC members via email whenever possible. Comments were generally provided via email, although some of the discussions during HMPC meetings were also a source of additional information and plan edits.

Table 1.2
Rockdale County Hazard Mitigation Planning Committee

NAME	DEPARTMENT/AGENCY
Gerald Woodridge Jr.	Rockdale County EMA, Project Lead/ Planning Specialist
Michael Camp	Rockdale County Sherriff's Office
Dan Morgan	Rockdale County EMA, Director
Meredith Barnum	Rockdale County EMA, Deputy Director
Elizabeth White	Rockdale County EMA, EMA Specialist
William Brown	Rockdale County DOT, Deputy Director
Sharon Webb	Rockdale County Fire & Rescue, Deputy Chief
Kim Lucas	The City of Conyers Police Department, Deputy Chief of Police

Composition of the Stakeholders Group

A Stakeholders group is a typical component of a hazard mitigation plan update process, and it is intended to address the FEMA requirement that the community at large be involved. The purpose of such a group is to review the HMP during its development, and to provide feedback from the perspective of organizations outside the immediate HMPC group. Early in the update process the County determined that a group of interested neighboring communities, groups, businesses, academia and other organizations and individuals with an interest in the Rockdale County Plan update should be identified. During its first formal HMPC meeting, the committee identified the initial composition of the stakeholder group, which is shown in the table below. This Stakeholders Group was provided with regular updates on the planning process and given the opportunity to review the Plan at key points in its development. At two points in the HMP development process, the County provided copies of the Plan drafts to the Stakeholders and requested that the group provide feedback via email. Members of the Stakeholders group were also invited to attend and participate in the public meeting.

Table 1.3
Rockdale County Mitigation Planning Stakeholders Group
(In addition to members of Hazard Mitigation Committee from Table 1.2)

Name	Department/Agency
Sue Saunders	Rockdale County BOC, Chief of Staff

The Hazard mitigation Planning Committee met multiple times during the update of the HMP. Minutes of these meetings are included in this HMP as Appendix E.

Meeting 1: November 9, 2022; November 14, 2022	Official kick-off meeting (County officials, members of the public, GEMA)
Meeting 2: November 16, 2022	Meeting to select members of HMPC and Stakeholders group and to identify and rank natural and technological hazards.
Meeting 3: January 11, 2023	Work Meeting with HMPC / Stakeholders review and update mitigation strategies and actions.
Meeting 4: June 26, 2023	Presentation of the draft 2023 Hazard mitigation Planning Update. Preparation of the 45-day public review period.

The public kick-off meeting on November 9 was held at 10:00 AM and 12 PM to provide greater opportunity for public to participate in planning process (the agenda was the same). The Second Meeting was held on November 24, 2022, this meeting was held on Microsoft Teams for those that could not make the initial Kickoff meeting. Both meetings were attended by County officials, representatives of GEMA, and county affiliated partners and stakeholders. There was no public participation in these meetings despite the invitation and press release of the date, time, and location of the Kickoff Meeting.

The table below indicates the jurisdictions that participated in mitigation plan development in 2009, 2013, 2018, and 2023.

Table 1.4

Participants in Rockdale County Mitigation Plan

Jurisdiction	Initial 2009 Plan	2013 Plan Update	2018 Plan Update	2023 Plan Update
Rockdale County	✘	✘	✘	✘
City of Conyers	✘	✘	✘	✘

To ensure the consistency of the Rockdale County HMP with regional goals and objectives, the plan will be reviewed by the EMA departments of the surrounding counties: DeKalb, Gwinnett, Henry, Newton, and Walton (Appendix E).

Public Participation and Involvement

Public input was solicited throughout the Plan update process. The HMPC determined that the most efficient way to solicit public input on the final draft of the HMP update was to place a legal ad in the Rockdale Citizen, indicating that the document was available for review at the Rockdale County Website with contact email for comments. The legal ad indicated the location of the document, and how the public could provide feedback to the county (via email to a designated point of contact). Comments were to be archived, and, where appropriate, sent to the HMPC and discussed internally to determine if changes to the document were needed. A copy of the advertisement can be found in Appendix E. The advertisement indicated the location of the document and hoped the public could provide feedback during the 45-day public review period. There were no public comments received by the County during the public review process.

1.2.4 The State of Georgia Hazard Mitigation Plan

The Rockdale County Staff completed a detailed review of the 2019 Georgia Hazard Mitigation Plan as part of this update. This was done to ensure that consistency between this plan and the State-level document. Where appropriate, there are cross-references to the State HMP, and in some cases material is quoted and integrated into the County Plan.

1.3 How the 2018 Hazard mitigation Plan was Reviewed, Analyzed, and Revised

One of the initial steps in the update process was to review the update conducted in 2018 and perform a gap analysis, a specific process for evaluating each section and determining which portions require updating. As part of the gap analysis each section was reviewed in detail to identify data needs and which areas of the plan required re-evaluation.

As part of the 2023 update, certain elements of the original Plan have been retained, while outdated information has been either summarized or removed. For the current version, there is a particular focus on incorporating new hazard information, updating the risk assessment, providing status for actions listed in the original plan, identifying new actions, and describing meetings and presentations held as part of the update.

Table 1.5
Summary of Significant Changes to the 2023 Rockdale County HMP

2018 HMP Chapter & Sections	Description of Updates
CHAPTER 1 MODIFICATIONS	
1.1 Background and Purpose of the Mitigation Plan	1.1.1 Updated the dates and added '*the third update of the plan….'* And mentioned EMAP requirement for HMP. 1.1.2 Changed '*updating this plan in 2018…*' to 'updating this plan in 2023'
1.2 Mitigation Plan update: Methodology, Process, Participants	1.2.2 Updated text and dates to correspond with current planning process timeline. 1.2.3 Updated Tables 1.2 & 1.3 to reflect current members of the planning and stakeholder committee; updated meeting dates to fit current dates. Updated table 1.4 to reflect participation in the planning process.
1.3 How the 2018 Hazard Mitigation Plan was reviewed, Analyzed, and Revised	No changes
1.4 Hazard Mitigation Plan Organization	No Changes
1.5 Local Hazard, Risk, and Vulnerability Summary	Changed the dates to align with the 2023 plan update
1.6 Rockdale County Mitigation Goals	Changed the dates in *sub sections 1.6.1 & 1.6.2* *1.6.2* changed the number of mitigation actions to ____
1.7 Multi-Jurisdictional Special Considerations	No changes
1.8 Adoption. Implementation, Monitoring and Evaluation	1.8.1 Changing the Date from *February 4, 2019* to _____*, 2023;* changed 2018 to 2023 HMP; added the date for FEMA letter of approvability, Rockdale County adoption date added, City of Conyers adoption date added 1.8.4 Changed the dates to reflect current dates
1.9 Community Data	Updated maps 1.9.3 Updated Table 1.6 & 1.7 & 1.8 to reflect 2020/2021 census data.
1.10 National Flood Insurance Program – Activities and Program Compliance	No Changes
CHAPETR 2 MODIFICATIONS	
2.1 Overview if the Type and Location of all Natural Hazards that can affect Rockdale County	Update text and dates
2.2 Natural Hazard Risk and Vulnerability Assessment	Update table 2.2 new hazards; update table 2.3 with most recent disaster declaration; update tables 2.5, 2.6, & 2.7 with new hazards and data collected; added 2 new hazards to table 2.9

2.3.1 Severe Weather	Update text, demographics, figures, and tables
2018 HMP Chapter & Sections	**Description of Updates**
Chapter 2	
2.3.2 Inland Flooding	Renumerated to 2.3.8; Update text, demographics, figures, and tables
2.3.3 Wildfire	Renumerated to 2.3.9; Update text, demographics, figures, and tables
2.3.4 Severe Winter Weather	Renumerated to 2.3.4; Update text, demographics, figures, and tables
2.3.5 Drought	Renumerated to 2.3.6; Update text, demographics, figures, and tables
2.3.6 Tornado	Renumerated to 2.3.3; Update text, demographics, figures, and tables
2.3.7 Dam Failure	Renumerated to 2.3.5; Update text, demographics, figures, and tables
2.3.8 Extreme Heat	Renumerated to 2.3.2; Update text, demographics, figures, and tables
2.3.9 Hurricane Wind	Renumerated to 2.3.7; Updated text, demographics, figures and tables
2.3.10 Earthquake	Update text, data, figures, and tables
2.4 Technological Hazard Risk and Vulnerability Assessment	
2.4.1 Hazardous Materials	Renumerated to 2.4.2; Update text and tables
2.4.2 Railroad Derailment	Renumerated to 2.4.4; Update text and tables. Incorporated CSX Emergency Planning Guide
2.4.3 Radiological Emergency	Renumerated to 2.4.6; Updated text and tables
2.4.4 Pandemic Emergency	Renumerated to 2.4.1; Updated text to reflect recent pandemic
2.4.5 All Hazards Risk and Vulnerability Assessment	Renumerated to 2.4.7
N – Public Safety Emergency	New Hazard; added at 2.4.5
N-Major Utility Failure	New Hazard; added at 2.4.3
Chapter 3	
3.1 Introduction	Updated text and tables
3.2 Natural Hazard Mitigation Goal and Objectives Update Summary	At least one objective has been added for each of the 10 goals. For each hazard, the action items have been grouped by objective. Separate tables have been developed to identify the actions under each objective.
3.2.1 Severe Weather	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective. • Separated action 1.2.1 into 2 actions and created 1.2.2 using “Strengthen future structures…”
3.2.2 Severe Winter Weather	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.

3.2.3 Dam Failure	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.
3.2.4 Drought	• Revised goal, and updated action • Mitigation actions listed in table format under each objective.

2018 HMP Chapter & Sections	Description of Updates
Chapter 3	
3.2.5 Tornadoes	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.
3.2.6 Inland Flooding	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.
3.2.7 Wildfire	• Revised goal, and updated action • Mitigation actions listed in table format under each objective.
3.2.8 Extreme Heat	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.
3.2.9 Hurricane Wind	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.
3.2.10 Earthquakes	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.
3.3 Technological and All Hazard Mitigation Goals and Objectives Update Summary	At least one objective has been added for each of the 7 goals. For each hazard, the action items have been grouped by objective. Separate tables have been developed to identify the actions under each objective.
3.3.1 Hazardous Materials	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.
3.3.2 Pandemic Emergency	• Revised goal, and updated action • Mitigation actions listed in table format under each objective.
3.3.3 Railroad Derailment	• Revised goal, and updated action • Mitigation actions listed in table format under each objective.
3.3.4 Radiological Emergency	• Revised goal, and updated action • Mitigation actions listed in table format under each objective.
New Hazard - Public Safety Emergency	• Added goal and added one action. • Mitigation actions listed in table format under each objective.
New Hazard – Major Utility Failure	• Added goal and added one action. • Mitigation actions listed in table format under each objective.
3.3.7 All Hazards	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.
Chapter 4	
4.1 Implementation Action Plan	Update Text
4.2 Evaluating, Monitoring, and Updating	Update Text
4.3 Plan Update and Maintenance	Update Text

1.4 How the 2018 Hazard Mitigation Plan was reviewed, Analyzed and Revised

As mentioned elsewhere in this section, this mitigation plan is organized to follow the template provided by GEMA which describes specific elements that must be included as part of updating local hazard mitigation plans.

1.8 Local Hazard, Risk and Vulnerability Summary

The local hazards, risk, and vulnerabilities related to Rockdale County are addressed in Chapter 2 of the Plan update. The historical hazards of Rockdale County and City of Conyers were recorded and analyzed in this chapter. The information was identified by using both primary and secondary research materials, including FEMA and GEMA resources and reports from local, State, and national agencies, media accounts, State and local weather records, and conversations with key personnel and residents in the County. The analysis explains the possible severity and magnitude, and the potential impact of damage within each governing jurisdiction from future hazards.

Hazard Identification, Naming and Ranking

In accordance with FEMA Interim Final Rule (IFR) requirements, and as part of its efforts to support and encourage hazard mitigation initiatives, the Rockdale County HMPC identified hazards that have affected the County in the past and can be expected to do so in the future. As a result of the planning process, the HMPC determined that ten natural hazards, four technological hazards and "all-hazard" compendium pose a direct, measurable threat to Rockdale County.

When compared to 2018 HMP, the list of hazards remained the same. The names of some hazards were modified to correspond to the 2019 State Plan hazard naming convention. The respective order of hazards was also modified from the 2018 Plan to reflect updated hazard ranking for the 2018-2023 period.

1.6 Local Mitigation Goals and Objectives

1.6.1 Mitigation Goals

Goals are general descriptions of desired long-term outcomes of the mitigation strategy. State and Federal guidance and regulations pertaining to mitigation planning require the development of mitigation goals to reduce or avoid long-term vulnerabilities to identified hazards.

Rockdale County's hazard mitigation goals were determined by reviewing the 2018 HMP update and making any necessary modifications. There are a total of fifteen mitigation goals, each corresponding to a particular natural or technological hazard, or a general hazard (all-hazards). All mitigation goals are listed and described in full in Chapter 3 of this HM Plan update.

1.6.2 Mitigation Objectives

Mitigation objectives are courses of action designed and intended to achieve the mitigation goal. These are not as specific as individual mitigation actions, but are more general, and encompass various other actions. Rockdale County's hazard mitigation objectives were updated by reviewing the ones in the 2018 HMP, evaluating their progress and making changes where needed. There are a total of 17 mitigation objectives (one fewer than in 2018). All mitigation objectives are listed and described in full in Chapter 3 of this 2023 HM Plan update.

1.7 Multi-Jurisdictional Special Considerations

The City of Conyers was an active participant and equal partner in the planning process. As an active part of the HMPC, the City of Conyers contributed to the identification of mitigation goals and objectives and potential mitigation measures contained within the HMP. The hazards, the mitigation goals, objectives and measures were developed jointly between Rockdale County and City of Conyers.

1.8 Adoption, Implementation, Monitoring and Evaluation

1.8.1 Adoption

On February 4, 2019, Rockdale County submitted the initial draft of the 2023 HMP update to GEMA for

review and comment.
After addressing GEMA comments in the document, the HMP was resubmitted for final consideration and approval by GEMA and FEMA Region IV. FEMA provided a letter of approvability on XXXXX, and the Plan was forwarded to the Rockdale County Board of Commissioners for adoption, which occurred on XXXXX. The adoption resolution is included as Appendix E. As noted in the Appendix, the City of Conyers adopted the overall HMP on XXXXX. The FEMA approval letter is also included as Appendix E.

1.8.2 Implementation

Upon adoption of the Plan update by the Rockdale County Board of Commissioners and the City of Conyers, the Plan will be posted on the official websites for both the County and City. In addition, a copy of the plan will be made available to appropriate department heads within Rockdale County and City of Conyers. The Plan will also be distributed to any local, State and Federal agencies that were notified and invited to participate in the planning process and development of the Plan update.

As part of the mitigation planning process, the HMPC and other agencies involved in managing hazards and implementing measures to minimize future risk considered a range of mitigation actions. Actions were identified and prioritized and are listed under each goal in Chapter 3. For each mitigation action, the tables identify the lead agency, support agencies, priority level, and time period for implementation. Each lead agency is responsible for factoring the action into its work plan and schedule over the indicated time period. See Chapter 3 for specific mitigation actions.

1.8.3 Monitoring the Plan

The Rockdale County EMA Director, or his designee, will be charged with ensuring that this Plan update is monitored and reviewed (and possibly updated) at least annually, after the occurrence of any major disaster, or more often if deemed necessary. The method of evaluation will consist of utilizing a checklist to determine what mitigation actions were undertaken, the completion date of these actions, the cost associated with each completed action, and whether actions were deemed to be successful. A committee, perhaps with much of the same membership as the existing HMPC, will convene quarterly in order to accomplish the annual Plan review and evaluation. These meetings will provide an opportunity to discuss the progress of the action items and maintain the partnerships that are essential for the sustainability of the HMP. The EMA Director, or his designee, should document the progress of quarterly meetings, and ensure the results are reported to the Rockdale County Board of Commissioners, as well as to any agencies or organizations having an interest in the hazard mitigation activities identified in the plan update.

This Plan will be monitored by the Rockdale County EMA Director for several related purposes:

1. Maintain the currency of hazard and risk information.

2. Ensure that mitigation projects and actions are accurately represented in the document and reflect the priorities of the County and the City of Conyers.

3. Comply with FEMA and the State of Georgia requirements for Plan maintenance and maintain the County's eligibility for Federal disaster assistance and mitigation grants.

The EMA Director and Planning Specialist will continuously monitor the Plan with respect to the purpose noted above, and with respect to the update triggers noted below.

Although the representatives filling the positions may change from year to year, the future HMPC and Stakeholders group will continue to be comprised of the same job functions or titles. However, the decision of specific job duties will be left to the EMA Director.

1.8.4 Method and Schedule for Future Updates of the HMP

Rockdale County has a method to ensure a regular review and update of the 2018 Hazard Mitigation Plan. The actions described below are the responsibility of the HMPC and the Rockdale County EMA Director. The composition and responsibilities of the HMPC are described in detail in subsection 1.2.3 of this hazard mitigation plan. The DMA2K legislation requires that local jurisdictions review and update their hazard mitigation plans at least every five years. The present HMP will be adopted in 2018, and thus must undergo another update no later than the same date in 2023. At the direction of the EMA Director, the Rockdale County HMPC will reconvene at the beginning of 2022 in order to accomplish this requirement. The revision process should include a firm schedule and timeline and identify any agencies or organizations participating in the Plan revision. The committee will review the mitigation goals, objectives and action items to determine their relevance to changing situations in the County, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. The committee will also review the risk assessment portion of the plan to determine if this information should be updated or modified, given any new available data. The surrounding counties will be invited to participate in all meetings in future plan updates.

Specifically, the following key topics and questions below will be addressed by the HMPC at the initial meeting in 2022.

- Changes to hazard profiles either for the County or the City of Conyers.
- Availability of any new hazard or vulnerability studies, including maps.
- Availability of new loss estimation (risk) studies or information.
- Changes in development patterns or rates, especially development in proximity to hazard areas.
- Presence of any new special high-risk populations, or significant changes to existing ones.
- Status of actions listed in this plan, and any new actions being contemplated.

If a disaster occurs or as action items are completed, the County will review, revise, and update the Plan before the required date, using the process described in this section. The EMA Director will take the following criteria into consideration when determining if a review and update should be initiated:

- Changes in mitigation Plan requirements for funding programs, i.e., any updates that are required to maintain the County's eligibility for grant funds.
- Required changes or revisions to existing mitigation action items specific to either Rockdale County or the City of Conyers. The review will consider the current status and progress of these actions and strategies.
- Information derived from the annual meetings suggesting that the Mitigation Strategies section of the Plan should be modified.
- Changes to membership or responsibilities of the HMPC or Stakeholders groups.

The mitigation plan review and update will be accomplished by reviewing each action item to determine its relevance to changing situations in the County or the City of Conyers as well as changes to State or Federal policy, and to ensure that they are addressing current and expected conditions. The HMPC will also review the Vulnerability Assessment and Loss Estimation sections completed for the County and City of Conyers and determine if they should be updated or modified.

The Rockdale County EMA Director is also responsible for ensuring that any modifications required by the HMPC are included in future updates. The HMPC will work together as a team, with each member sharing responsibility for completing the evaluation and updates. It will be the responsibility of the EMA Director to ensure that any future Plan updates are completed on time and meet all requirements established by FEMA and GEMA. All necessary revisions will be completed at least three months prior to the end of the five-year period to allow the HMPC time to review the updated HMP. During the revision process, the EMA Director

will send a status report (meeting minutes) to the Rockdale County Board of Commissioners after each HMPC meeting. Any required revisions will be implemented into existing Plans, as applicable, within six months following the review process. This process will be repeated for each five-year review of the Plan.

The EMA Director will ensure the revised plan is presented to the Rockdale County Board of Commissioners for formal adoption. In addition, all holders of the HMP will be notified of affected changes. No later than the conclusion of the five-year period following initial approval of the plan, the EMA Director shall submit a revised Hazard Mitigation Plan to GEMA and FEMA for review and approval. FEMA and GEMA have the authority to evaluate the progress of existing mitigation Plans to determine if the Plan is fulfilling program requirements.

1.8 Community Profile

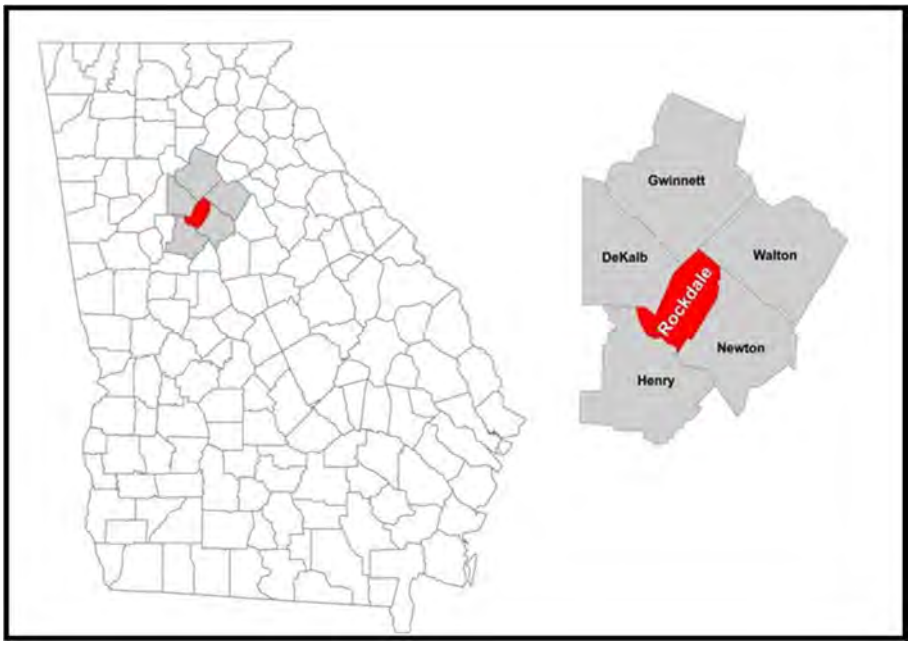
1.9.1 Geography

Rockdale County is located in north-central Georgia and is bordered to the north by Gwinnett County, to the east by Newton and Walton Counties, to the south by Henry County, and to the west by DeKalb County (Figure 1.1).

Rockdale County is located on the Interstate 20 corridor on the eastern fringe of the Greater Atlanta Metropolitan Area, approximately 25 miles east of downtown Atlanta. The County includes one incorporated area, the City of Conyers which is located in the center of the County. The County has a total area of approximately 132 square miles.

The County is drained by two major rivers, the Yellow River to the north and the South River to the South. Both rivers are major headwater tributaries of the Altamaha River system. The Yellow River flows southeasterly through the County following a meandering course through rolling hills and a wide floodplain. The South River, which forms part of the southern boundary of Rockdale County, drains the southeast section of urban Atlanta[1,2.] They are both tributaries of Ocmulgee River, which is ultimately a part of the Altamaha River basin[3].Figures 1.2 and 1.3 depict Rockdale County and City of Conyers, respectively.[4]

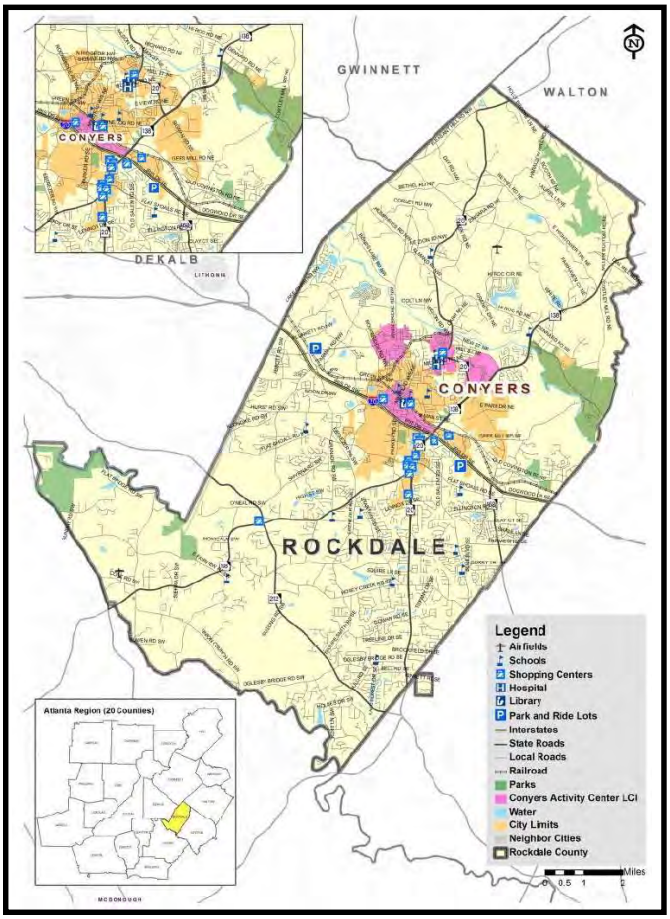
Figure 1.1
Rockdale County – Location Map



[1] Flood Insurance Study (FIS) - Rockdale County, Georgia, January 19, 2001
[2] Flood Insurance Study (FIS) - Rockdale County, Georgia, December 8, 2016
[3] Flood Risk Report, Upper Ocmulgee Watershed, June 4, 2014
[4] Source: Rockdale County/City of Conyers Comprehensive Transportation Plan, December 2009

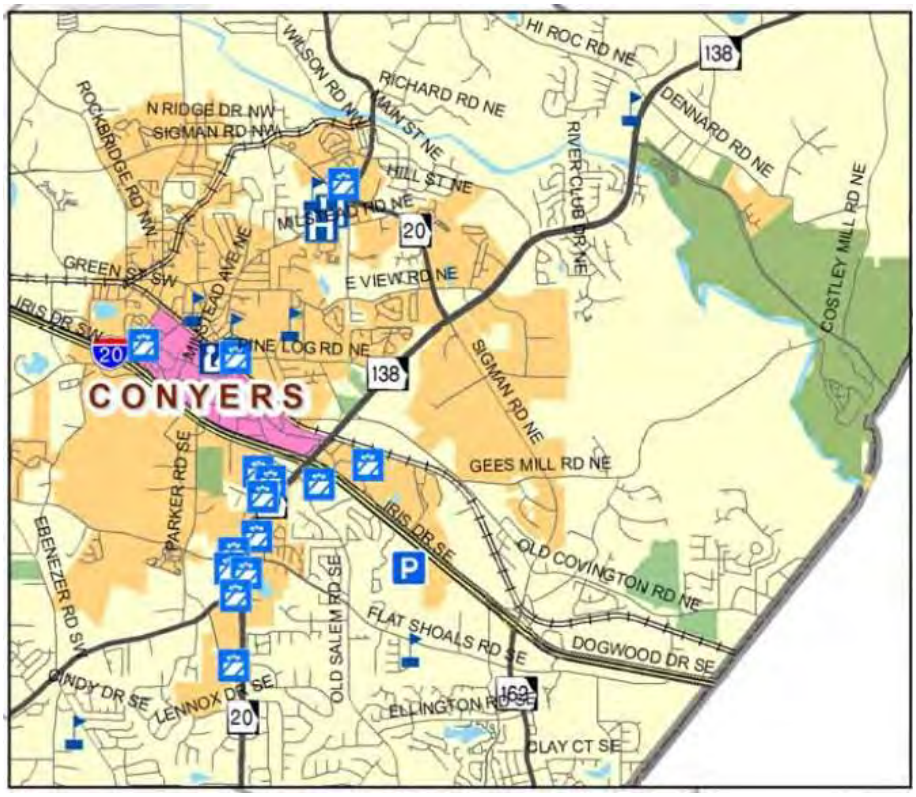
Figure 1.2

Rockdale County Map



The City of Conyers has a total land area of 11.67 square miles. The Conyers downtown core area consists of two National Register Historic Districts: the Conyers Commercial Historic District and the Conyers Residential District. [5] Figure 1.3 depicts the City of Conyers.

Figure 1.3
Map of the City of Conyers, Georgia



1.9.2 History

In the early 1700s, the first settlers came to the area, which later became Rockdale County, and constructed cabins along Hightower Trail. This area was officially opened to settlers in 1816. Soon a railroad was built to connect Augusta and Marthasville (now Atlanta). Rockdale County was created from parts of Henry and Newton counties. Rockdale County became the 133rd County of the State and now ranks 158th (out of 159) in size. Its boundaries have been changed several times. It was named after the Rockdale Church, as well as the vein of granite running beneath the County.[6]

Conyers, the County seat and the only incorporated municipality in Rockdale County, was named for a local physician who donated a right-of-way for the first railroad and a lot in town for the railway depot. The Monastery of the Holy Ghost was founded in the County in 1944 by a group of monks who practice self-sufficiency, cultivating their own food. Visitors are welcomed at church services and in the greenhouse and gift shop, although some areas are off-limits to women.

The Panola Mountain State Conservation Park was Georgia's first conservation park. Near the center of the 617-acre park is a 100 acre granite monadnock, often compared to Stone Mountain. The park has been designated a National Natural Landmark by the National Park Service. Most of downtown Conyers, both the residential and business districts, is listed on the National Register of Historic Places, as well as the Dial Mill (1830) and the first Rockdale County Jail (1897). The City of Conyers is also home to the Georgia International Horse Park, site of the 1996 Olympic Equestrian events.

[5] Partial Update of the City of Conyers Comprehensive Plan, Revised based on Regional and State Review, September 19, 2008.
[6] Official Rockdale County website. County Facts – History of Rockdale County

1.9.3 Demographics

In addition to population data, the US Census Bureau compiles statistics related to demographics. The tables below summarize the demographics for Rockdale County. (Tables 1.6 – 1.7). The data is from the 2021 American Community Survey (ACS) part of the US Census data collection, which was the most current at the time of the Plan update.

Table 1.6
Rockdale County – Estimated Breakdown of Population Statistics for the Year 2021
(Source: American Community Survey 2021, Rockdale County GIS)

GENERAL CHARACTERISTICS	ESTIMATE	PERCENT	GEORGIA
Total population	94,082	--	10,799,566
Male	44,310	47.1%	48.8%
Female	49,772	52.9%	51.2%
Median Age (years)	38.8	--	37.5
Under 5 years	5,628	6.0%	5.8%
18 years and over	71,524	76.0%	76.6%
65 years and over	14,437	15.3%	14.7%
One race	87,606	93.1%	91.2%
White	27,176	28.9%	51.9%
Black or African American	53,026	56.4%	30.8%
American Indian and Alaska Native	1,149	1.2%	0.5%
Asian	1,580	1.7%	4.3%
Native Hawaiian and Other Pacific Islander	0	0.0%	0.1%
Some other race	4,675	5.0%	3.7%
Two or more races	6,476	6.9%	8.8%
Hispanic or Latino (of any race)	10,028	10.7%	10.0%
Total housing units	35,727	---	4,475,242
Occupied housing units	33,141	92.8%	89.4%
Owner-occupied housing units	22,585	68.1%	66.0%
Renter-occupied housing units	10,556	31.9%	34.0%
Vacant housing units	2,586	7.2%	10.6%

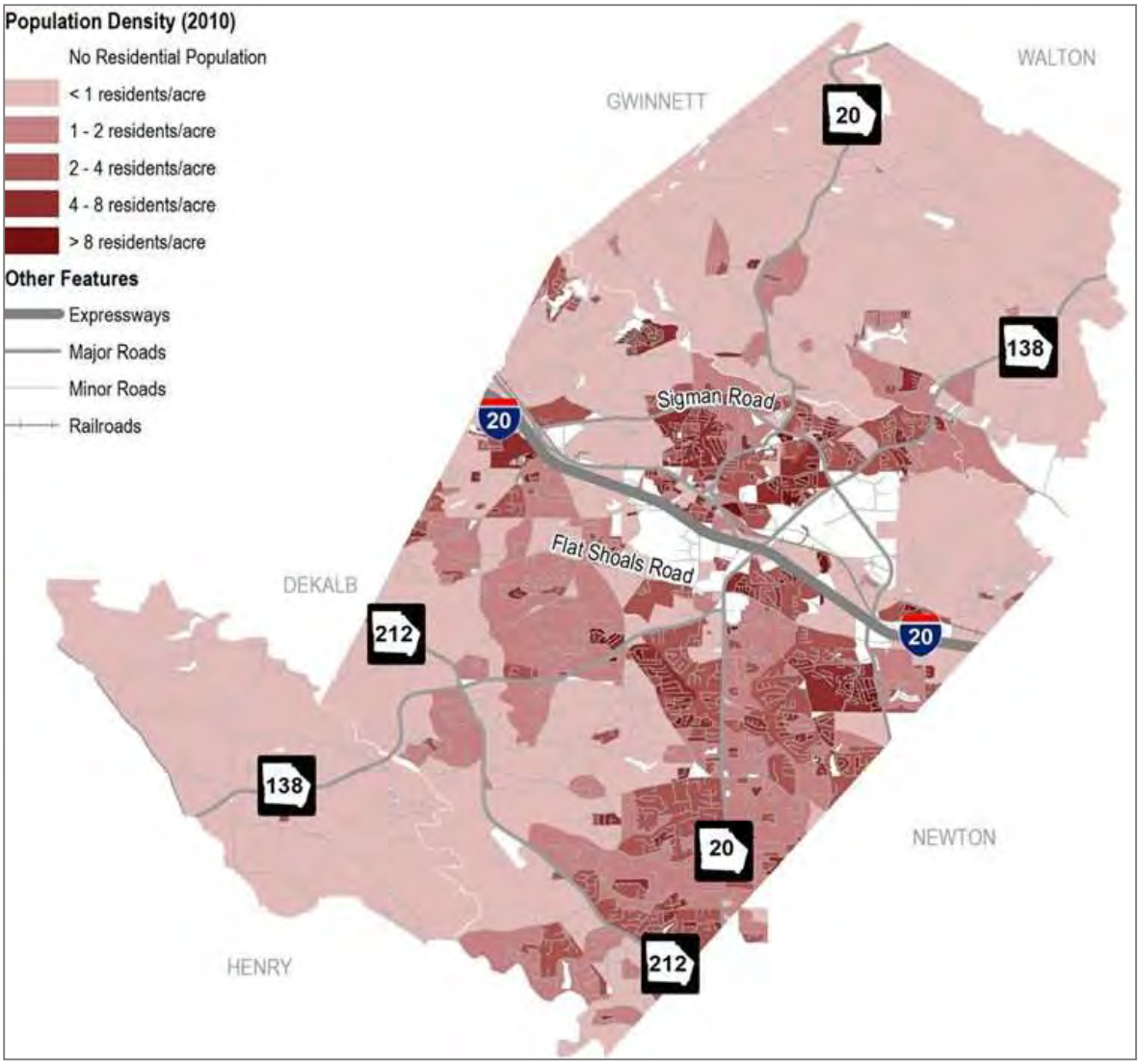
Table 1.7
Rockdale County – Estimated Social Characteristics for the Year 2021
(Source: US Census Bureau, 2021 American Community Survey)

SOCIAL CHARACTERISTICS	ESTIMATE	PERCENT
Population 25 years and over	56,812	---
High school graduate or higher	49,497	87.1%
Bachelor's degree or higher	14,749	26.0%

Civilian population 18 years and over	64,912	---
Civilian Veterans	6,211	9.6%
Foreign born	8,413	9.6%

As of the 2016 US Census estimate, Rockdale County's population was 87,569 and the City of Conyers' population was 15,682. For the City of Conyers, this is a 46.7% increase from the 2000 population which was 10,689. Per 2016 Census estimates, approximately 87.8% of Rockdale County residents (76,880) live outside the City of Conyers, the only incorporated area in the County. Figure 1.4 shows the population distribution by block group for Rockdale County. According to the 2016 U.S. Census estimates, the map shows the highest population concentrations in Rockdale County are located in the northeastern and southeastern part of the County (shaded dark brown).

Figure 1.4
Rockdale County Population Distribution Map
(Source: Rockdale County Comprehensive Transportation Plan Update 2018)



1.9.4 Population Growth and Development Trends

Rockdale County is one of the fastest growing counties in Georgia. At a growth rate of 4.6% per year, the County had the tenth fastest average growth rate in Georgia between 1970 and 2000. Despite being the second smallest County in Georgia in terms of land area, Rockdale County ranks 28th in terms of total population. [7] Between 1970 and 2021, Rockdale County added roughly 76,000 new residents. Data from the US Census Bureau indicates the County growth rate was 21% between 2000 and 2010. That growth has slowed down since then, with approximately 8,867 residents added between 2010 and 2021 (estimates).

Table 1.8
Population Growth Comparison for Georgia and Rockdale County, 1970 – 2016
(Source: U.S. Census Bureau)

GEOGRAPHIC AREA	1970	1980	1990	2000	2010	2016	2021 Estimate
Georgia	4,589,575	5,463,105	6,478,216	8,186,453	9,815,210	10,099,320	10,799,566
Rockdale Co.	18,152	36,747	54,091	70,111	85,215	87,569	94,082
Unincorporated Co.	13,262	30,180	46,711	59,422	70,020	71,877	76,981
City of Conyers	4,890	6,567	7,380	10,689	15,195	15,682	17,101

The Rockdale County Comprehensive Plan includes population projections from various sources that extend out to the year 2040. The median-low projection comes from the Atlanta Regional Commission and predicts Rockdale County will have a population of 128,000 by the year 2040. The County is presently developing the 2040 County Comprehensive Plan.

Population is one indicator where development is occurring, past development is another. As of 2021, the US Census Bureau estimated there were 35,727 housing units in Rockdale County. Table 1.9 shows the past building permits for single family homes for the years 2005 through 2019.

[7] Rockdale County 2020 Comprehensive Land Use Plan – Chapter II, Population

Table 1.9
Rockdale County - Residential Building Permits (Single Family Homes), 2005 - 2014
(Source: City-data.com)

Year	# of Permits
2005	1005
2006	1010
2007	602
2008	152
2009	59
2010	40
2011	30
2012	36
2013	81
2014	133
2015	2
2016	9
2017	23
2018	120
2019	167

1.9.3 Commerce

The alphabetical list below indicates the largest employers in Rockdale County, as reported by the Conyers-Rockdale Economic Development Council in the first Quarter of 2018.

20th Television
Acuity Lighting Group
Air Products & Chemicals, Inc.
AT&T Services
Batchelor & Kimball, Inc
KIK/Bio-Lab
Dart, Inc
Diversitech Corporation
Golden State Foods
Haver Filling Systems, Inc
Hill-Phoenix

Lexicon Technologies
LioChem, Inc
Piedmont Rockdale Hospital
Pratt Industries
Rockdale County
Rockdale County Public Schools
Southeast Connections LC
Tempur-Sealy Mattress Company
Volume Transportation

The same report indicates that of the total work force in Rockdale County of 44,354, the manufacturing of goods employs approximately 25.4%, while service industry employs 61.2%. The private sector employs 31,561, or 87.1% of the work force, while government (local, State and Federal) employs 4,683, or 12.9%.

1.8 National Flood Insurance Program – Activities and Program Compliance

Rockdale County and the City of Conyers each participate in the National Flood Insurance Program (NFIP) and follow the Program guidelines to ensure future development is carried out in the best interests of the public. The County entered the NFIP on February 15, 1979, and the City entered the NFIP program on December 1, 1978. Consistent with NFIP guidelines, both jurisdictions have executed a Flood Damage Prevention Ordinance.

Rockdale County's Flood Prevention Ordinance was last adopted on October 25, 2016, based on the FEMA approved model Floodplain Ordinance for the Metropolitan North Georgia Water Planning District. Chapter 320 of the Rockdale County Code of Ordinances, Sections 320-3 (Permit procedures and requirements) and 320-4 (Standards for Development) include a no-rise (no adverse impact) requirement within the floodway and the adoption of the future flood as the higher standard. Rockdale County and City of Conyers have completed future flood analysis for both jurisdictions to the 100 acre drainage basin. Rockdale County has a Certified Floodplain Manager who actively monitors USGS gages on the primary water bodies during inclement weather and has developed inundation maps for use by Public Safety should rivers/creek rise above the action stage. Rockdale County actively pursues outreach opportunities to educate citizens on flood dangers and avoidance.

In 2014, as part of the Risk Map mapping program, FEMA produced a comprehensive Flood Risk Report (FRR) for the Upper Ocmulgee River Watershed, which includes Rockdale County as well. The purpose of this type of watershed-based studies and reports is to quantify flood risk in specific areas of the County by quantifying flood depths and setting stage for any potential economic analysis.

Additionally, in December of 2016, Rockdale County adopted FEMA Flood Insurance Study, 13247CV001B/2B, first since 2001). The FIS for Rockdale County includes all jurisdictions (both the City of Conyers and the other parts of the County). The study and the FIRM panels were both produced digitally.

Chapter 2
Local Hazards, Risk and Vulnerability Assessment

This chapter describes Natural, Technological and All Hazards, and their related Risk, and Vulnerability (HRV) summary undertaken by Rockdale County and the City of Conyers. This section consists of the following subsections:

Similar to the 2018 Plan, all natural and technological hazards (including all hazards) have been placed into Chapter 2, titled “Local Hazards, Risk, and Vulnerability Assessment”. There are new hazards that were identified; no hazards were removed from the 2018 hazard list. The table of contents above and the table below depict the order the hazards were prioritized in 2023 Plan update.

Table 2.1 below highlights the significant changes made to Chapters 2 of the 2018 HMP.

Table2.1
Changes to the Local Hazard Risk and Vulnerability Sections of the 2018 Hazard Mitigation Plan

2018 HMP Sections in Chapter 2	DESCRIPTION OF UPDATE
CHAPTER 2 MODIFICATIONS	
n/a	
2.1 Overview of the Type and Location of all Natural Hazards that can affect Rockdale County	Update text and dates
2.2 Natural Hazard Risk and Vulnerability Assessment	Update table 2.2 new hazards; update table 2.3 with most recent disaster declaration; update tables 2.5, 2.6, & 2.7 with new hazards and data collected; added 2 new hazards to table 2.9
2.3.1 Severe Weather	
2.3.2 Inland Flood	Changed to 2.3.8; Update to demographics and figures and tables
2.3.3 Wildfire	Changed to 2.3.9; Update to demographics and figures and tables
2.3.4 Severe Winter Weather	Changed to 2.3.4; Update to demographics and figures and tables
2.3.5 Drought	Changed to 2.3.6; Update to demographics and figures and tables
2.3.6 Tornado	Changed to 2.3.2; Update to demographics and figures and tables
2.3.7 Dam Failure	Changed to 2.3.5; Update to demographics and figures and tables
2.3.8 Extreme Heat	Changed to 2.3.3; Update to demographics and figures and tables
2.3.9 Hurricane Wind	Changed to 2.3.7**;** Update to demographics and figures and tables
2.3.10 Earthquake	Update to demographics and figures and tables

2018 HMP Sections in Chapter 2	DESCRIPTION OF UPDATE
2.4 Technological Hazard Risk and Vulnerability Assessment	
2.4.1 Hazardous Materials	Changed to 2.4.2; Update to demographics and figures and tables
2.4.2 Railroad Derailment	Changed to 2.4.3 ; Update to demographics and figures and tables
2.4.3 Radiological Emergency	Changed to 2.4.6; Update to demographics and figures and tables
2.4.4 Pandemic Emergency	Changed to 2.4.1; Update to demographics and figures and tables
2.4.5 All Hazards Risk and Vulnerability Assessment	Moved to 2.4.7
N - Public Safety Emergency	New Hazard; moved to 2.4.4
N- Major Utility Failure	New Hazard; moved to 2.4.5

2.1 Introduction

A key step in preventing disaster losses in Rockdale County is developing a comprehensive understanding of the hazards that pose risks to its communities. The following terms can be found throughout this Plan (FEMA, 2001):

Hazard: Event or physical conditions that have the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, damage to the environment, interruption of business, other types of harm or loss.
Risk: Product of a hazard's likelihood of occurrence and its consequences to society
Vulnerability: Degree of susceptibility and resilience of the community and environment to hazards

The Local Hazard, Risk, and Vulnerability (HRV) summary is a process or application of a methodology for evaluating risk as defined by probability and frequency of occurrence of a hazard event, exposure to people and property to the hazard, and consequences of that exposure. Different methodologies exist for assessing the risk of hazard events, ranging from qualitative to quantitative.
Rockdale County and its communities are vulnerable to a wide range of natural and technological hazards that threaten life and property. The hazards identified by the Rockdale County Mitigation Planning Committee for inclusion in this HRV summary are those determined to be of actual potential threat to Rockdale County and its incorporated jurisdiction, the City of Conyers, and are consistent with the hazards identified by the State of Georgia and the Federal Emergency Management Agency for this part of the State and this region of the country. These hazards are analyzed in greater detail in the following paragraphs.

2.2 Overview of the Type and Location of all Hazards That Can Affect Rockdale County

As a mandatory step in HMP process, hazards are identified and ranked to provide structure, prioritization, and feasibility of proposed mitigation goals and actions. Ranking is both quantitative and qualitative. First, the quantitative analysis considers all the GIS and HAZUS data available. Then, a qualitative approach is used to provide additional insights on the specific risks and exposure associated with each hazard. This process is a valuable cross-check or validation of the quantitative analysis performed. This qualitative approach can vary, but for Rockdale County it used HMPC survey methodology and Risk Factor Approach.

For the 2023 Rockdale County HM Plan update, members of the local HMPC reviewed and re-evaluated ten natural and four technological hazards from the 2013 Plan. The Committee completed a thorough review of the hazards identified, the hazard data and the community risks. As part of their review, the HMPC decided to retain all of the original hazards included in the 2013 Plan with some name modifications to streamline the plan with the 2019 State of Georgia Hazard Mitigation Strategy. Table 2.2 documents some of the name changes. The order of hazards in 2023 HMP update is slightly modified from the 2018 HMP and reflects new hazard ranking by HMPC.

Table 2.2
List of Natural and Technological Hazards Included in 2023 Rockdale County HMP Update

2023 HAZARDS	STATUS	CHANGES FROM 2018 HMP
Severe Weather	**Unchanged**	**None**
Severe Winter Weather	**Unchanged**	**Renumerated to 2.3.4**
Dam Failure	**Unchanged**	**Renumerated to 2.3.5**
Drought	**Unchanged**	**Renumerated to 2.3.6**
Tornadoes	**Unchanged**	**Renumerated to 2.3.3**
Inland Flooding	**Unchanged**	**Renumerated to 2.3.8**
Wildfire	**Unchanged**	**Renumerated to 2.3.9**
Extreme Heat	**Unchanged**	**Renumerated to 2.3.2**
Hurricane Wind	**Unchanged**	**Renumerated to 2.3.7**
Earthquake	**Unchanged**	**None**
Hazardous Materials	**Unchanged**	**Renumerated to 2.4.2**
Pandemic Emergency	**Unchanged**	**Renumerated to 2.4.1**
Railroad Derailment	**Unchanged**	**Renumerated to 2.4.4**
Radiological Emergency	**Unchanged**	**Renumerated to 2.4.6**
Major Utility Failure	**New**	**New; added to 2.4.3**
Public Safety Emergency	**New**	**New; added to 2.4.5**

Table 2.3 presents a list of all Federal disaster and emergency declarations that have occurred in Rockdale County since 1953, according to the Federal Emergency Management Agency. This list presents the foundation for identifying what hazards pose the greatest risk within Rockdale County. There were a total of eight major declarations in Rockdale County, of which eight Presidential Declarations and one Emergency Declarations[8] (including the most recent Pandemic, Severe Thunderstorms, and Flash Flooding).

Table 2.3
Natural Hazards and Declared Major Disasters in Rockdale County
(Source: Federal Emergency Management Agency)

DECLARATION NUMBER	DATE OF DECLARATION	EVENT TYPE
FEMA-DR-4501	03/29/2020	Presidential Declaration; COVID-19 Pandemic
FEMA-DR-4338	09/15/2017	Presidential Declaration; Hurricane Irma
FEMA-EM-3368	02/11/2014	Emergency Declaration; Severe Winter Storm
FEMA-DR-1858	09/24/2009	Presidential Declaration; Severe Storms and Flooding
FEMA-DR-1311	01/28/2000	Presidential Declaration; Winter Storm
FEMA-DR-1209	03/11/1998	Presidential Declaration; Severe Storm, Tornadoes and Flooding
FEMA-DR-1071	10/10/1995	Presidential Declaration; Hurricane Opal
	03/02/1994	Tornadoes, Flooding and Torrential Rain from Hurricane Alberto
	02/23/1990	3 tornadoes in Rockdale County
FEMA-DR-370	04/04/1973	Presidential Declaration, F-2 tornado
FEMA-DR-110	03/02/1961	Presidential Declaration; Floods

HMPC Survey Approach

Once the hazards were identified for the 2018 Plan update, each member of the HMPC then ranked the hazards for *concern* (probability) and for *severity* (extent). The survey on *concern* addressed the perceived level of risk for each listed hazard (i.e. probability of occurrence and concern associated with it). The values in this survey ranged from Low and Medium to High. The survey results were numerically scored from 1 (low concern) to 3 (high concern).

The survey on severity addressed primarily the perceived physical extent of the hazard (the physical impact) and ranged from Minor and Limited, to Critical and Catastrophic. The results of the *severity* survey were numerically scored form 1 (Minor severity) to 4 (Catastrophic severity). The results of both HMPC surveys were combined into a single number per each hazard. The values were weight averaged, to account for a different number of possible answers in each survey.

As it will be demonstrated in this section, the results of the HMPC survey accounted for 40 percent of the overall hazard ranking. Table 2.4 presents combined results of the HMPC survey.

Risk Factor (RF) Approach

In addition to a subjective HMPC survey, hazards were also ranked using RF approach. This methodology combines historic hazard data, local knowledge, and consensus risk assessment evaluations to produce numerical values to compare identified hazards in determining community vulnerability.

The process allows identified hazards to be comparatively ranked (higher RF values = greater hazard risk). RF values are obtained by assigning degrees of risk in five categories for each hazard: *probability, impact, spatial extent, warning time*, and *duration*. Each degree of risk is assigned a value

range of 1 to 4 and a weighting factor for each category agreed upon by the HMPC. The HMPC adjusted the weighting scheme based on unique concerns or circumstances in the planning area. To calculate RF value for each hazard, risk values are multiplied by the weighting factor. The sum of the five categories equals the final RF value, revealed in the RF Value equation and RF criteria in RF Equation below and Table 2.5, respectively:

Table 2.4
Rockdale County - Combined HMPC Survey Results of Natural and Technological Hazards
(Average Score for Probability and Extent Across the HMPC)

HAZARDS	HMPC MEMBER									HMPC Score
	A	B	C	D	E	F	G	H	I	
NATURAL HAZARDS										
Severe Weather	3.00	3.00	2.70	2.70	3.00	2.00	3.00	1.70	2.30	**2.60**
Inland Flooding	2.00	2.00	1.30	2.70	2.30	1.00	1.70	1.30	1.30	**1.73**
Wildfire	2.00	1.30	1.30	2.00	2.70	1.00	2.00	1.00	1.30	**1.62**
Severe Winter Weather	2.70	2.30	2.00	2.30	2.30	1.30	2.30	2.00	1.30	**2.06**
Drought	2.00	1.00	1.70	2.70	1.70	1.00	2.30	1.00	1.00	**1.60**
Tornadoes	2.30	2.70	2.30	2.70	3.00	1.00	3.00	2.30	2.00	**2.37**
Dam Failure	2.30	1.70	2.30	2.30	2.00	1.00	1.00	1.30	1.00	**1.66**
Extreme Heat	2.70	1.30	2.70	2.70	2.30	1.00	3.00	2.30	2.00	**2.22**
Hurricane Wind	2.70	1.30	2.00	1.70	3.00	1.00	2.30	1.00	1.00	**1.78**
Earthquake	2.00	1.00	1.70	1.70	1.00	1.00	1.00	1.00	1.00	**1.27**
TECHNOLOGICAL HAZARDS										
Hazardous Materials	3.00	2.30	1.70	2.30	2.70	1.00	3.00	2.30	2.30	**2.29**
Railroad Derailment	3.00	2.00	1.30	1.30	2.30	1.30	3.00	1.00	2.30	**1.94**
Radiological Emergency	2.70	1.00	1.30	2.30	1.70	1.00	2.30	2.00	1.00	**1.70**
Pandemic Emergency	3.30	2.00	2.00	2.70	2.70	2.00	3.00	2.30	2.00	**2.44**
Public Safety Emergency	2.30	1.30	2.00	2.30	2.30	1.30	3.00	1.30	1.30	**1.90**
Major Utility Failure	1.70	2.00	1.30	3.00	2.00	1.30	3.00	1.00	1.00	**1.81**

RF Value Equation

RF Value = [(Probability x 30%) + (Impact x 30%) + (Spatial Extent x 20%) + (Warning Time x 10%) + (Duration x 10%)]

Note that all rankings are for the County and the City of Conyers as a whole, and do not refer to specific sites in the planning area. Also note that probability rankings in the table are independent of severity rankings, i.e., they do not refer to probabilities for specific levels of the hazards, but rather the likelihood of events occurring somewhere in the planning area during any given year period. RF rating for 16 hazards in Rockdale County is presented in Table 2.6

Table 2.5
Rockdale County HMPC Hazard, Risk and Vulnerability (HRV) Risk Factor Criteria

RISK ELEMENT	SCALE TERM	DESCRIPTION	INDEX	WEIGHT
PROBABILITY What is the likelihood of a hazard event occurring in a given year?	**UNLIKELY**	Less than1% annual probability	**1**	**30%**
	POSSIBLE	2% to 10% annual probability	**2**	
	LIKELY	More than 10% but less than 100% annual probability	**3**	
	HIGHLY LIKELY	100% annual probability	**4**	
IMPACT In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?	**MINOR**	Few if any injuries. Only minor property damaged and minimal disruption to quality of life. Temporary shutdown of critical facilities.	**1**	**30%**
	LIMITED	Some minor injuries. Only minor property damage in planning area is impacted, in various severities. Partial shutdown of critical facilities is likely, but limited in duration.	**2**	
	CRITICAL	Multiple deaths and injuries likely. More than 25% of property in affected area is impacted, and some impacts are severe. Critical facility operations are limited or completely shut down, in some cases for up to a week.	**3**	
	CATASTROPHIC	High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	**4**	
SPATIAL EXTENT How large of an area could be impacted by a hazard event? Are impacts localized or regional?	**NEGLIGIBLE**	Less than 1% of area affected	**1**	**20%**
	SMALL	Between 1% & 10% of area affected	**2**	
	MODERATE	Between 10 & 50% of area affected	**3**	
	LARGE	Between 50% & 100% of area affected	**4**	
WARNING TIME Is there usually some lead time associated with the hazard event? Have warning measures been implemented?	**24 HOURS +**	Self-defined	**1**	**10%**
	12-24 HOURS	Self-defined	**2**	
	6-12 HOURS	Self-defined	**3**	
	< 6 HOURS	Self-defined	**4**	
DURATION How long does the hazard event usually last?	**< 6 HOURS**	Self-defined	**1**	**10%**
	< 24 HOURS	Self-defined	**2**	
	< ONE WEEK	Self-defined	**3**	
	ONE WEEK +	Self-defined	**4**	

Table 2.6
Rockdale County – Risk Factor Hazard Scoring
For Natural and Technological Hazards

HAZARDS	30% PROBABILITY	30% IMPACT	20% SPATIAL EXTENT	10% WARNING TIME	10% DURATION	RF SCORE
NATURAL HAZARDS						
Severe Weather	3.8	1.6	2.2	1.7	1.9	**2.44**
Inland Flooding	1.8	1.2	1.2	2.1	2.2	**1.57**
Wildfire	1.6	1.2	1.4	2.6	1.7	**1.55**
Severe Winter Weather	2.4	1.8	3.1	1.2	2.4	**2.24**
Drought	2.0	1.3	2.4	1.2	3.7	**1.96**
Tornadoes	2.6	2.3	1.9	3.3	1.6	**2.34**
Dam Failures	1.2	2.2	1.9	3.2	2.6	**1.98**
Extreme Heat	3.1	1.7	3.0	1.1	2.9	**2.44**
Hurricane Wind	2.0	1.6	2.3	1.4	1.6	**1.84**
Earthquake	1.1	1.8	2	3.7	1.0	**1.74**
TECHNOLOGICAL HAZARDS						
Hazardous Materials	2.4	2.0	1.6	4.0	2.6	**2.30**
Railroad Derailment	1.7	2.3	2.0	4.0	2.7	**2.27**
Radiological Emergency	1.3	1.9	1.9	4.0	2.9	**2.03**
Pandemic Emergency	2.3	3.0	3.6	1.6	4.0	**2.87**
Public Safety Emergency	2.4	2.1	2.0	3.8	1.7	**2.30**
Major Utility Failure	2.0	2.0	3.0	4.0	3.0	**2.50**

Final Scoring and Ranking Methodology

The final natural hazard scoring (and subsequent ranking) took into account both the subjective (local) input of the County's HMP Committee, and the objective RF approach. The formula used for the final scoring is as follows:

Final Score = (HMPC Survey Score) x 40% + (RF Score) x 60%

Table 2.7 presents final scoring and ranking for the ten natural and six technological hazards in Rockdale Count

Table 2.7
Rockdale County – Final Composite Scoring and Ranking
For Natural and Technological Hazards

HAZARDS	HMPC SCORE	RF SCORE	FINAL SCORE	FINAL RANK
NATURAL HAZARDS				
Severe Weather	2.60	2.44	**2.50**	**1**
Inland Flooding	1.73	1.57	**1.63**	**8**
Wildfire	1.62	1.55	**1.58**	**9**
Severe Winter Weather	2.06	2.24	**2.17**	**4**
Drought	1.60	1.96	**1.82**	**6**
Tornadoes	2.37	2.34	**2.35**	**3**
Dam Failure	1.66	1.98	**1.85**	**5**
Extreme Heat	2.22	2.44	**2.35**	**2**
Hurricane Wind	1.78	1.84	**1.82**	**7**
Earthquake	1.27	1.74	**1.55**	**10**
TECHNOLOGICAL HAZARDS				
Hazardous Materials	2.29	2.30	**2.30**	**2**
Railroad Derailment	1.94	2.27	**2.14**	**3**
Radiological Emergency	1.70	2.03	**1.90**	**6**
Pandemic Emergency	2.44	2.87	**2.70**	**1**
Public Safety Emergency	1.90	2.30	**2.14**	**4**
Major Utility Failure	1.81	2.50	**2.22**	**5**

Based on the composite scoring, the natural hazard with the highest risk potential is “Severe Weather”, which has a value of 2.50. This is primarily due to the probability of the hazard occurring and the spatial extent of the potential widespread damage within the affected areas of the County. This hazard “Severe Weather” was also the highest ranked hazard in the 2018 HMP update. Potentially due to the recent climate change and other weather events, “Extreme Heat” was ranked second in the 2023 update, with score of 2.35. “Severe Winter Weather”, a strong second ranked hazard in 2018 (2.49), was placed at the fourth position in 2023.

The technological or human-made hazard with the highest risk potential was found to be “Pandemic Emergency”, with a value of 2.70. This is primarily due to recent events with the Coronavirus pandemic from 2020 – 2023. With a high elderly population and many services being closed and struggling to return was also a major contributing factor.

The conclusions drawn from the qualitative and quantitative assessments were fitted into two categories for a final summary of hazard risk for Rockdale County based on Moderate or Low risk designations, as depicted in Table 2.8 below:

Table 2.8
Rockdale County – Categorizations of Hazard Risks

Hazard Risk Category	Hazard
Moderate Risk (2.0 – 3.0)	Severe Weather, Tornadoes, Extreme Heat, Severe Winter Weather, Dam Failure, Drought, All Technological Hazards
Low Risk (0.1 – 1.9)	Hurricane Wind, Inland Flooding, Wildfire, and Earthquake

General Summary of Extent and Effects of Potential Hazards in Rockdale County

Table 2.9 briefly summarizes the extent (potential severity) and possible effects of a range of natural and technological hazards in Rockdale County. Note that each of these hazards is part of a separate and more detailed subsection later in this part of the hazard mitigation plan. Further note that the extent of many hazards in this table cannot be accurately characterized in a general statement. This is because risks from hazards such as floods and dam failure are highly site-specific. As such, this table should be used only as a general indication of the parameters.

Table 2.9
Rockdale County – Extent and Potential Effects of Natural and Technological Hazards

HAZARD	EXTENT (POTENTIAL SEVERITY)	DISCUSSION OF POTENTIAL EFFECTS
NATURAL HAZARDS		
Severe Weather	Severe thunderstorms are a fairly regular occurrence in Georgia, and events with winds above 60 mph, with large hail and torrential rains occur fairly often. The maximum potential extent of this hazard is winds above 100 mph, baseball-sized hail and rains exceeding several inches per hour.	Effects of thunderstorms are usually localized, particularly hail. Effects would include damage to roofs from wind and hail, and dangerous local flooding, including flash floods
Extreme Heat	It is possible that Rockdale County could experience a period of weeks with temperatures nearing 100 degrees.	The entire County and most of its population would be affected by a severe and prolonged extreme heat event.
Tornadoes	Rockdale County is not in an area of the country that is particularly prone to tornadoes, especially those more severe than EF-3s. The maximum possible tornado strength is and EF-5, but the maximum likely event is expected to be an EF-3.	Tornadoes generally impact smaller areas than most other hazards. In areas that are directly impacted by tornadoes (particularly more severe ones such as EF-4s and EF-5s), there will be widespread devastation, with most structures significantly damaged or destroyed, with relatively long recovery times.
Severe Winter Weather	As noted in text, Georgia is in an area with a subtropical climate, and thus the extent (potential severity) of winter storms is likely temperatures below freezing for a few days, with dangerous ice accumulations during more severe events.	Potential effects of severe winter storms are relatively limited compared to other hazards in this part of the country. There could be widespread tree damage and utility (mainly overhead wires) effects during extreme ice events, and there is always potential for road accidents as a result of ice and snow. These effects are usually small, however.

Dam Failure	The "extent" (which is actually potential severity) of a dam failure is related to the nature of the failure itself, the amount of water impounded, and the areas of potential inundation downstream. The worst case would be for a dam of large impoundment failing without warning. In this case, hundreds of acres downstream could be quickly inundated. However, these effects must be studied in order to accurately characterize the "extent" of this hazard.	A significant dam failure would likely impact hundreds of acres and possibly hundreds of structures. Populations affected would depend on warning time, among other factors.

HAZARD	EXTENT (POTENTIAL SEVERITY)	DISCUSSION OF POTENTIAL EFFECTS
Drought	There is potential for drought extending over a period of years in this part of the country, although as discussed in text, there are various levels of drought, as expressed by the PDSI scale.	The entire County and most of its population would be affected by a severe and prolonged drought.
Hurricane Wind	As discussed in text, Rockdale County is far enough inland that it is not prone to any of the typical coastal effects of hurricanes, such as surge or extreme wind. The maximum expected extent is winds exceeding 75 mph and torrential rain, which could be as much as two or three inches per hour in some cases.	The entire County would be affected by high winds, and specific low-lying areas would be most affected by flooding related to torrential rain.
Inland Flooding	Floods are highly localized events, and thus "extent", i.e. potential severity, cannot be accurately described in general terms. In extreme floods, there is potential for areas of the County to be flooded by extreme flow in streams, or via overland flow in areas without channels.	Floods have among the highest potential for affecting large areas and populations in the county. In worst cases up to 10% of the population and about the same percentage of the land area of Rockdale County could be affected.
Wildfire	There is some potential for wildfires of hundreds of acres or more occurring in the County, depending on factors as antecedent conditions, the timeliness of detection, and the effectiveness of the fire department in suppressing the event.	The hazard has relatively little potential to affect large areas of the County (as noted, hundreds of acres would be a large fire). Structures numbering in the dozens would be affected in a serious scenario.
Earthquake	Rockdale County is not in a particularly seismic area of the country, although it is in the area of potential effects if specific faults are involved. The potential extent is likely as much as 3% G expressed in terms of PGA. There is more discussion of earthquakes in that subsection below.	Most of the County would be affected by a severe earthquake, with unreinforced masonry buildings and infrastructure suffering the most damage. Populations affected would be many and widespread in such a scenario.

HAZARD	EXTENT (POTENTIAL SEVERITY)	DISCUSSION OF POTENTIAL EFFECTS
TECHNOLOGICAL HAZARDS		
Hazardous Materials	The extent of hazardous materials release depends on type and amount of the material, and the manner in which it was released. The worst case would be a catastrophic failure of the facility with the atmospheric release reaching highly populated areas. The extent of such a hazard would need to be carefully studied on a case-by-case basis.	The area in the immediate vicinity and most of its population would be affected by a release of hazardous materials.
Pandemic Emergency	Albeit with no historic instance of widespread illnesses in the area, Rockdale County is a transient zone, along major interstate highway, and within large metropolitan area. The extent of the emergency would depend on the particular pandemic and the counter response in adequate medical treatments, managed by the local, state and federal public health agencies.	In case of severe pandemic emergency, most of the County would be quarantined. Populations affected would be many and widespread in such a scenario.
Railroad Derailment	The extent of railroad derailment depends on scale of the derailment (crossing accident, large scale derailment) and type and amount (if any) of the material released as the result. The worst case would be similar to a hazardous materials release. The extent of such a hazard would need to be carefully studied on a case-by-case basis.	The area in the immediate vicinity and some of its population, depending on case-by-case situation.
Radiological Emergency	The extent of radiological emergency depends on type and amount of the material, and the manner in which it was released. The worst case would be a catastrophic failure of the facility with the atmospheric release reaching highly populated areas. The extent of such a hazard would need to be carefully studied on a case-by-case basis.	The area in the immediate vicinity and most of its population would be affected by a release of radiological materials.
Public Safety Emergency	The extent of a public safety emergency depends on type of emergency. The worst case would be multiple emergencies that would overwhelm public safety departments. Such as, but are not limited to: Active Threats, Acts of Terrorism, Trafficking, and Civil Unrest. The extent of such a hazard would need to be studied on a case-by-case basis.	The area in the immediate vicinity and some of the population would be affected by a public safety emergency.
Major Utility Failure	The extent of a major utility failure depends on type and location. The worst case would be a catastrophic failure of all utilities in Rockdale	The area in the immediate vicinity and most of the population would be affected by a major utility failure.

	County affecting the population of Rockdale County. The extent of such a hazard would need to be studied on a case-by-case basis. This Hazard refers to these events: Power Outages / Down Power Lines Pipeline Bursts Power Station Incidents Water Pump Failure/ Contaminated Water	

Total losses from Hazards in Rockdale County

To identify the total economic losses in Rockdale County from hazards, data was queried from two database sources:

- SHELDUS (Spatial Hazard Events and Losses Database for the United States) commercial database;
- NOAA/NCEI (National Centers for Environmental Information) free of charge database

The compendium of property and human losses is depicted in the table below:

Table 2.10
Rockdale County – Available databases of Natural Hazard Occurrences and Losses
(Source: NCEI and SHELDUS)

CATEGORY	NOAA/NCEI	SHELDUS
Time period start	01/01/2000	01/01/2000
Time period end	12/31/2022	12/31/2022
Number of Records	201	83
Property Losses	$16,279,000	$20,621,850
Agricultural Losses	N/A	56.5
Fatalities	2	2
Injuries	1	1

2.3 Natural Hazards Risks and Vulnerability Assessment

2.3.1 Severe Weather

Severe Weather Hazard Profile

Under the “severe weather” we usually refer to inclement weather during summer and spring months, characterized by strong thunderstorms with strong winds, occasional hail, and lighting. Equally severe winter weather is analyzed separately under “Severe Winter Weather” hazard, in Section 2.3.4.

Thunderstorms are local storms produced by cumulonimbus clouds. By definition they are accompanied by lightning and thunder. Thunderstorms are the by-products of atmospheric instability, which promotes vigorous rising of air particles. A typical thunderstorm may cover an area three miles wide. A Severe Thunderstorm is defined as a thunderstorm producing wind at or above 58 mph and/or hail ¾ of an inch in diameter or larger. This threshold is met by approximately 10% of all thunderstorms. These storms can strike any time of year, but similar to tornadoes, are most frequent in the spring and summer months. They are nature's way of providing badly needed rainfall, dispersing excessive atmospheric heat buildup and cleansing the air of harmful pollutants. Not only can severe thunderstorms produce injury and damage from violent straight-line winds, hail, and lightning, but these storms can produce tornadoes very rapidly and without warning.

The extent of thunderstorms may be measured by the cell intensity: ordinary cell, multi-cellular, and super cell. The most common type of thunderstorm is termed the “ordinary” cell, which is limited in size and lifespan, but can produce short bursts of severe weather. Several other variants also exist, but the most dangerous form is termed the “super cell” thunderstorm. The super cell is typically an isolated form and always has the potential to be severe because of its strong and persistent rotating updraft, which dissipates at the upper levels forming the characteristic anvil and overshoot of clouds. Vertical wind shear (i.e., wind speed increasing with height) is important in the development of severe storms such as super cells. The shearing effect serves to separate the updrafts from the downdrafts, thus creating circulation. In a normal thunderstorm, the downdraft tends to fall back into the updraft, effectively dissipating the storm’s energy.

Hail and heavy rain are associated with the downdraft zones and under some specific conditions may also form a tornado towards the left rear flank of the storm cell. This small but rapidly rotating column of air descends below the cloud base, reaching the surface with devastating consequences. As the storms translate at speeds typically in the range of 25 to 30 mph, these relatively narrow impact widths become long swaths of potentially very high damage. Super cells may have a lifespan of several hours and present an impact front as wide as 25 miles. Records of damage generally indicate “pulsing” whereby the ground level impacts tend to fluctuate, probably depending on the supply of material held aloft by the updrafts. Very severe super cells can exhibit almost continuous damage fronts for several hours as combinations of wind, rain, and hail. All these types of thunderstorms are possible in the planning area.

Thunderstorms produce several kinds of wind, including rotational (also known as cyclonic), downbursts, and straight-line. Nearly every thunderstorm produces some downbursts, which are small areas of rapidly descending air beneath a thunderstorm that strikes the ground and may cause significant damage. The typical downburst consists of only a 25-mph gusty breeze, accompanied by a temperature drop of as much as 20 degrees within a few minutes. However, severe downburst winds can reach from 58 to 100 mph or more, significantly increasing the potential for damage to structures. Downbursts develop quickly with little or no advance warning and come from thunderstorms whose radar signatures appear non- severe. There is no sure method of detecting these events, but atmospheric conditions have been identified that favor the development of downbursts. Severe downburst winds have been measured in excess of 120-mph, or the equivalent of an F2 tornado. Such winds have the potential to produce both a loud “roaring” sound and the widespread damage typical of a tornado.

Such winds tend to affect areas of Rockdale County with significant concentrations of trees, as well as areas with exposed property, infrastructure, and aboveground utilities. Resulting damage often includes power outages, transportation and economic disruptions, and significant property damage. Severe thunderstorms can ultimately leave a population with injuries and loss of life.

Hail can also be a destructive aspect of severe thunderstorms. Hailstones are created when strong rising currents of air called updrafts carry water droplets high into the upper reaches of thunderstorms where they freeze. These frozen water droplets fall back toward the earth in downdrafts. In their descent, these frozen droplets bump into and coalesce with unfrozen water droplets and are then carried back up high within the storm where they refreeze into larger frozen drops. This cycle may repeat itself several times until the frozen water droplets become so large and heavy that the updraft can no longer support their weight. Eventually, the frozen water droplets fall back to earth as hailstones. Hail causes more monetary loss than any other type of severe weather related to thunderstorms. Annually, the United States suffers about $1 billion in crop damage from hail. Storms that produce hailstones only the size of a dime can produce dents in the tops of vehicles, damage roofs, break windows and cause significant injury or even death. Unfortunately, hail is often much larger than a dime and can fall at speeds in excess of 100 mph.

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

For additional information about severe thunderstorms and high winds visit NOAA's Severe Weather page located at http://www.noaawatch.gov/themes/severe.php.

Location

The entire planning area is subject to the wind effects from the thunderstorm/high wind hazard. Figure 2.1 shows how the frequency and strength of extreme windstorms vary across the United States. The map is based on a combination of all past occurrences and shows that Rockdale County, falls within wind Zone II, where wind speeds can reach as high as 160 mph.

Figure 2.11
Wind Zones in the United States
(Source: FEMA)

Impact on Life and Property

All people and assets within Rockdale County are considered to have the same degree of exposure to the severe thunderstorm hazard. Within the county, the risk to people and property from the high wind hazard cannot be distinguished by area; the hazard is expected to have a relatively uniform probability of occurrence across the entire planning area.

Several meteorological conditions can result in winds severe enough to cause property damage. In Rockdale County, most wind damage has been limited to downed trees, blocked roads, and disabled power lines. Typically, assets of lighter construction (such as mobile homes) are most vulnerable to the high winds hazard. The NCDC database indicates that between 2000 and 2022 Rockdale County experienced one death (2013) no injuries from severe thunderstorm high wind events. The NCDC indicates that between 2000 and 2022 there were no injuries or deaths from hail, or lightning. During this same time period, property damage totaled $11,759,000.

Table 2.11 identifies the five severe thunderstorms in Rockdale County that have caused property damage greater than $5,000. The table shows that the hail resulting from severe thunderstorm on March 15, 2008 caused the greatest damage, according to the NOAA/NCDC database.

Table 2.11
Rockdale County: Thunderstorm Events Causing Damage Grater Than $5,000; 2000-2022, Ordered by Property Damage
(Source: NOAA/NCEI)

DATE	LOCATION	TYPE OF EVENT	FATALITIES	INJURIES	PROPERTY DAMAGE
03/15/2008	Conyers	Hail	0	0	$5,000,000
06/12/2007	Conyers	Hail	0	0	$1,600,000
03/15/2008	Magnet	Hail	0	0	$1,000,000
02/21/2005	Conyers	Hail	0	0	$550,000
03/31/2005	Conyers	Lightning	0	0	$500,000
09/16/2004		High Wind	0	0	$350,000
01/05/2007	Conyers	Thunderstorm Wind	0	0	$350,000
07/11/2000	Lakeview Estates	Lightning	0	0	$250,000
11/11/2002	Conyers	Lightning	0	0	$250,000
06/06/2007	Conyers	Lightning	0	0	$250,000
07/12/2010	Princeton	Lightning	0	0	$250,000
03/30/2002	Conyers	Lightning	0	0	$150,000
07/06/2005		Thunderstorm Wind	0	0	$150,000
09/11/2017		Tropical Storm	0	0	$150,000
07/04/2001	Conyers	Lightning	0	0	$100,000
09/07/2004		High Wind	0	0	$75,000
01/03/2022		Strong Wind	0	0	$75,000
07/23/2000	Conyers	Thunderstorm Wind	0	0	$50,000
05/02/2003	Zingara	Lightning	0	0	$50,000
05/02/2003	Magnet	Lightning	0	0	$50,000
07/06/2005	Conyers	Lightning	0	0	$50,000
06/08/2007	Conyers	Lightning	0	0	$50,000
02/26/2013		Strong Wind	1	0	$50,000
06/22/2020	Richardson	Thunderstorm Wind	0	0	$50,000
04/24/2021	Blossom	Thunderstorm Wind	0	0	$50,000
11/11/2002	Conyers	Lightning	0	0	$40,000
07/11/2000	Conyers	Lightning	0	0	$25,000
05/05/2003	Conyers	Lightning	0	0	$25,000
07/17/2012	Conyers	Lightning	0	0	$20,000
08/09/2018	Sardum	Thunderstorm Wind	0	0	$15,000
04/06/2016	Conyers	Thunderstorm Wind	0	0	$12,000

03/31/2020	Magnet	Thunderstorm Wind	0	0	$12,000
06/18/2015	Magnet	Thunderstorm Wind	0	0	$10,000
03/21/2017	Honey Creek	Thunderstorm Wind	0	0	$10,000
04/13/2020	Honey Creek	Thunderstorm Wind	0	0	$10,000
08/10/2020	Honey Creek	Thunderstorm Wind	0	0	$10,000
07/01/2007	Magnet	Lightning	0	0	$8,000
04/03/2017	Richardson	Thunderstorm Wind	0	0	$8,000
04/19/2017	Magnet	Thunderstorm Wind	0	0	$8,000
10/31/2019	Honey Creek	Thunderstorm Wind	0	0	$8,000
06/17/2016	Honey Creek	Thunderstorm Wind	0	0	$7,000
04/13/2020	Velta	Thunderstorm Wind	0	0	$6,000
02/16/2001	Conyers	Thunderstorm Wind	0	0	$5,000
03/20/2001		High Wind	0	0	$5,000
08/17/2007	Lakeview Estates	Thunderstorm Wind	0	0	$5,000
09/27/2018	Milstead	Thunderstorm Wind	0	0	$5,000
05/28/2020	Conyers	Thunderstorm Wind	0	0	$5,000
08/03/2020	Honey Creek	Thunderstorm Wind	0	0	$5,000
TOTALS for 2000-2022			1	0	$11,759,000

Occurrences

The NCDC database documents 84 severe thunderstorm events, 19 hail events,16 lightning, 6 strong wind, and 3 high wind events during the past 22 years in Rockdale County. Of the 19 hailstorms, the event causing the most property damage occurred on March 15, 2008, when strong thunderstorms produced golf ball- to baseball-sized hail across the northern half of Rockdale County. The hailstorm caused an estimated $5 million in damage.

With 47 severe thunderstorm events between 2000 and 2022, Rockdale County experiences on average about one severe thunderstorm event per year. Most likely the number of events is slightly higher and there are historical events that were never documented by the NCDC. Based on the data from the NCDC, with one event per year there is a 100% annual probability of future severe thunderstorms events occurring in Rockdale County. Although the probability of future events is high for future thunderstorm high, the impact on life and property in the planning area is probably minimal.

With 16 lightning events between 2000 and 2012, Rockdale County experiences on average about one significant lightning event per year (using only NCDC data, which is based on reporting that likely under-represents the actual number of serious strikes). With roughly one event per year there is a 72% annual probability of future lightning events occurring in Rockdale County. With 19 hail events between 2000 and 2013, Rockdale County experiences on average about one hail event per year, which translates into an 86% annual probability of future hail events occurring in Rockdale County.

Similarly, for the City of Conyers, of 50 severe weather events between 2000 and 2022, hail occurred 15 times, lighting 11 times, and thunderstorm 24 times (this was using the combined NOAA/NCDC data). This roughly translates into annual probability of 86% for hail, 72% for lighting, and 100% for future severe thunderstorms occurring in the City of Conyers.

Inventory of Assets Exposed to Severe Weather

In evaluating assets that are susceptible to severe weather, hail, and lightning, the committee determined that, since this hazard is not spatially defined, all public and private property is susceptible to severe weather, including all critical facilities. For the purpose of using standardized inventory information, with details related to structural occupancy class of the buildings, RCEMA used FEMA compiled database, also used by its HAZUS model. Albeit HAZUS was not used to model the severe thunderstorms, its database includes FEMA-provided, comprehensive national building inventory stock for the continental United States. The data was based on 2020 census with additional structural categorization developed at the later date. According to HAZUS database, there are approximately 34,014 structures in Rockdale County, all of which are exposed to the severe weather hazard. Of the 34,014 structures in Rockdale County, 7,277 are located in the City of Conyers. All structures in Conyers are also exposed to the severe weather. See Appendix D (Severe Weather Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers.

As of 2022, there are 36 critical facilities (Care Facilities, EOCs, Fire Stations, Police Stations, and Schools) located within Rockdale County (this information was provided by the Rockdale County EMA). Of this total, 10 were located within the City of Conyers or were traversing the City's jurisdiction. All 36 critical facilities are located within the hazard area which, in the case of severe weather, includes the entire County.

Estimate of Potential Losses from Severe Weather
High winds can damage roofs, ranging from loss of roofing materials to total loss of the roof structure. A great deal of wind damage is due to wind-borne debris that breaks windows and opens building envelopes to additional wind damage, as well as the entry of wind-driven rains that soak contents and interiors. Debris can inflict injuries on people who have not sought shelter, or even in result death. High winds dislodge manufactured homes that are not adequately anchored and bring down electric and telephone lines and poles. In general, older structures are expected to be more susceptible to wind damage in part because their construction pre-dated building codes but also because older structures may not have been maintained. This type of construction also influences the likelihood of damage, with shingled, overhanging roofs (common on residences) more vulnerable to wind damage than flat asphalt roofs (common on non-residential buildings).

Land Use and Development Trends related to Severe Weather
Severe weather is expected to impact the planning area equally, so land use and development trends have negligible influence on the vulnerability of the community. There are various characteristics of structures that make them more (or less) vulnerable to the effects of high winds and severe weather in general. These characteristics include roof profile, the type and strength of windows, and the nature of the structural system. Modern building codes are very effective in ensuring that structures can withstand all but the most extreme events. In some cases, hail can severely damage vehicles and roofs of structures, but there are few mitigation measures that have any effectiveness in preventing such damages.

Multi-jurisdictional Hazards
Rockdale County and the City of Conyers are equally exposed to the effects of severe weather.

General Summary of Severe Weather and its Effects on the Planning Area
The entire planning area is about equally subject to the effects of severe weather, which are generally localized. These are often related to trees and branches falling on structures, and roof and building envelope damage. Generally speaking, private-sector insurance addresses more extreme damage from high winds, so with the exception of NCDC/NOAA portal, there are no readily available open-source records from which to extract information about past losses. As previously shown in Table 2.11, the County is impacted by thunderstorms fairly often, but damages are generally small. The 2023 Rockdale County HMPC recognized the potential threats of severe weather and identified specific mitigation actions. These can be found in Chapter 3.

2.3.2 Tornadoes

Tornado Hazard Profile

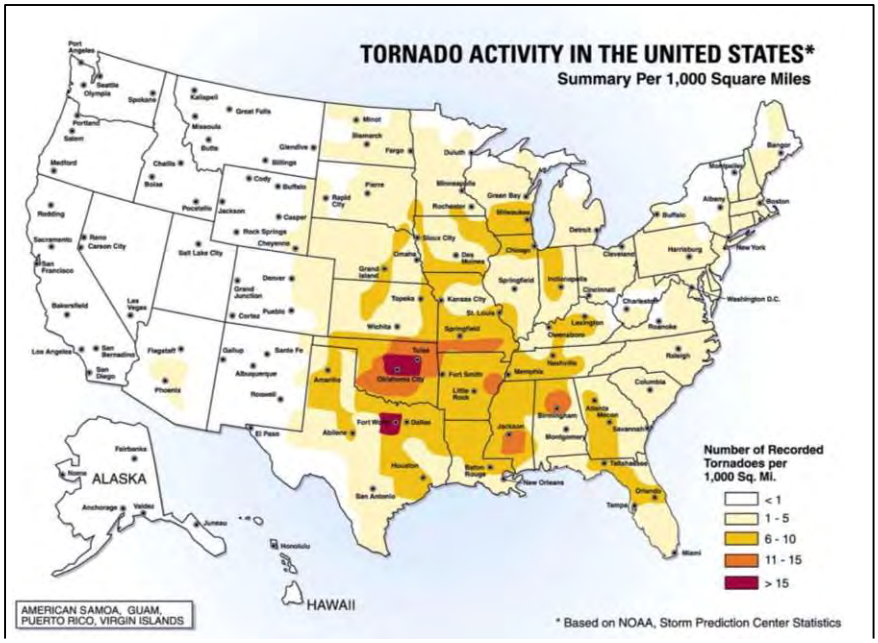
Tornadoes are defined as violently rotating columns of air extending from thunderstorms and cyclonic events. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.
Tornadoes pose a great risk to the state of Georgia and its citizens. Tornadoes can occur at any time during the day or night. They can also happen during any month of the year. The unpredictability of tornadoes makes them one of Georgia's most dangerous hazards. Their extreme winds are violently destructive when they touch down in the region's developed and populated areas. Current estimates place the maximum velocity at about 300 miles per hour, but higher and lower values can occur. A wind velocity of 200 miles per hour will result in a wind pressure of 102.4 pounds per square foot of surface area—a load that exceeds the tolerance limits of most buildings. Considering these factors, it is easy to understand why tornadoes can be so devastating for the communities they hit.

Tornadoes are most hazardous when they occur in populated areas. Tornadoes can topple mobile homes, lift cars, snap trees, and turn objects into destructive missiles. Among the most unpredictable weather phenomena, tornadoes can occur at any time of day, almost anywhere in the country, and in any season. In Louisiana, tornadoes have a higher frequency in the spring months of March, April, and May. While the majority of tornadoes cause little or no damage, some are capable of tremendous destruction. Additionally, tornadoes are often generated from hurricanes, so the entire hurricane season has to be viewed as a risk period for this hazard. For additional information about tornadoes visit NOAA's *Severe Weather* page located at:

https://www.nssl.noaa.gov/education/svrwx101/tornadoes/

Location. Figure 2.8 illustrates the frequency of tornado strikes in the U.S. per 1,000 square miles. The map indicates that NOAA has recorded 6-10 tornadoes per 1,000 square miles in the western half of Georgia, including Rockdale County.

Figure 2.12
Tornado Activity in the United States
(Source: FEMA)



Tornadoes are unpredictable and are indiscriminate as to when or where they strike. In evaluating assets that may potentially be impacted by the effects of tornados, the HMPC determined that all critical facilities, public and private property, are susceptible.

Tornadoes are classified according to the Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in Table 2.17

Table 2.12
Enhanced Fujita Tornado Measurement Scale
(Source: NOAA)

Category	Wind Speed	Examples of Possible Damage
EF-0	**Gale (65 - 85 mph)**	Light damage. Some damage to chimneys; break branches of trees; push over shallow rooted trees; damage to sign boards.
EF-1	**Moderate (86 – 110 mph)**	Moderate damage. Peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads.
EF-2	**Significant (111 – 135 mph)**	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over, large trees snapped or uprooted; light-object missiles generated.
EF-3	**Severe (136 – 165 mph)**	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.
EF-4	**Devastating (166 - 200 mph)**	Devastating damage. Well-constructed houses leveled; structure with weak foundations blown off some distance; cars thrown, and large missiles generated.
EF-5	**Incredible (> 200 mph)**	Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile sized missiles fly through air in excess of 100 yards; trees debarked; incredible phenomena will occur.

In February 2007 the F-Scale was replaced with a more accurate Enhanced Fujita Scale (EF-scale). It was the Jarrell, Texas tornado of May 27, 1997, and the Oklahoma City/Moore tornado of May 3, 1999, that brought to the forefront the problem that perhaps the wind estimates were too high in the F-Scale. The changes to the original scale were proposed by a committee of meteorologists and engineers searching for a more accurate method of assessing the magnitude of tornadoes. The modifications made to the F-scale were limited to ensure that the new Enhanced F-scale could continue to support the original tornado database found within the NDCD.

The Enhanced Fujita Scale is a set of wind estimates (not measurements) based on observed damages after a tornado. It uses three-second gusts estimated at the point of damage based on a judgement of eight levels of damage to 28 indicators that include various commercial and residential building types, transmission towers, poles, and trees. Similar to the original scale, the new Enhanced F-scale includes five classes ranging from EF0 to EF5 (Source: NOAA, National Weather Service –

Storm Prediction Center). The wind speeds from the Fujita Scale were used as basis for development of the Enhanced F- scale. The following Table displays the wind speed ranges for the original Fujita Scale, the derived wind speeds (Enhanced F- scale), and the new Enhanced F-scale currently in use since February of 2007.

Table 2.13
Wind Speed Comparison of Fujita Scale and Enhanced Fujita Scale
(Source: NOAA – National Weather Service)

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	**EF Number**	**3 Second Gust (mph)**
0	40-72	45-78	0	65-85	**0**	**65-85**
1	73-112	79-117	1	86-109	**1**	**86-110**
2	113-157	118-161	2	110-137	**2**	**111-135**
3	158-207	162-209	3	138-167	**3**	**136-165**
4	208-260	210-261	4	168-199	**4**	**166-200**
5	261-318	262-317	5	200-234	**5**	**Over 200**

Within the planning area it is possible for a tornado of any magnitude to occur, with the probability decreasing as the intensity scale increases.

Impact on Life and Property. Tornadoes pose a significant threat to life and safety in Rockdale County. While a tornado is on the ground, all citizens in its path are potentially in danger or injury or death. Infrastructure is also at risk from tornadoes. Historically, lightly constructed residential structures (in particular, manufactured housing, specifically mobile homes) located within the planning area are most vulnerable to the tornado hazard. People living in manufactured or mobile homes are most exposed to damage from tornadoes. Even if anchored, mobile homes do not withstand tornado wind speeds as well as permanent, site-built structures.
The NCDC database reports there have been no deaths or injuries from tornadoes in Rockdale County. The NCDC indicates that five tornadoes occurred in Rockdale County between 1950 and 2011. These five tornadoes caused an estimated $755,000 in property damage; in 2023 this would estimate to be around $1,040,000 in property damage.

Occurrences of the Hazard
In the State of Georgia, the NCDC indicates there have been a total of 936 recorded tornadoes between 1950 and 2014. The statewide map on the following page shows the number of Georgia tornadoes by County during this time period. The map shows the Counties with the highest frequency of tornadoes are located northwest of Atlanta and near the southwestern part of the State. The map indicates there have been seven tornados in Rockdale County during this time period.

Table 2.19 lists the seven tornadoes identified by the NCDC and Storm Prediction Center that occurred in Rockdale County between 1950 and 2022. The event causing the greatest damage occurred on October 1, 1989, when three tornadoes in Rockdale County caused an estimated $500,000 in damages.

Figure 2.13
Georgia Tornadoes 1950 – 2014
(Source: National Weather Service)

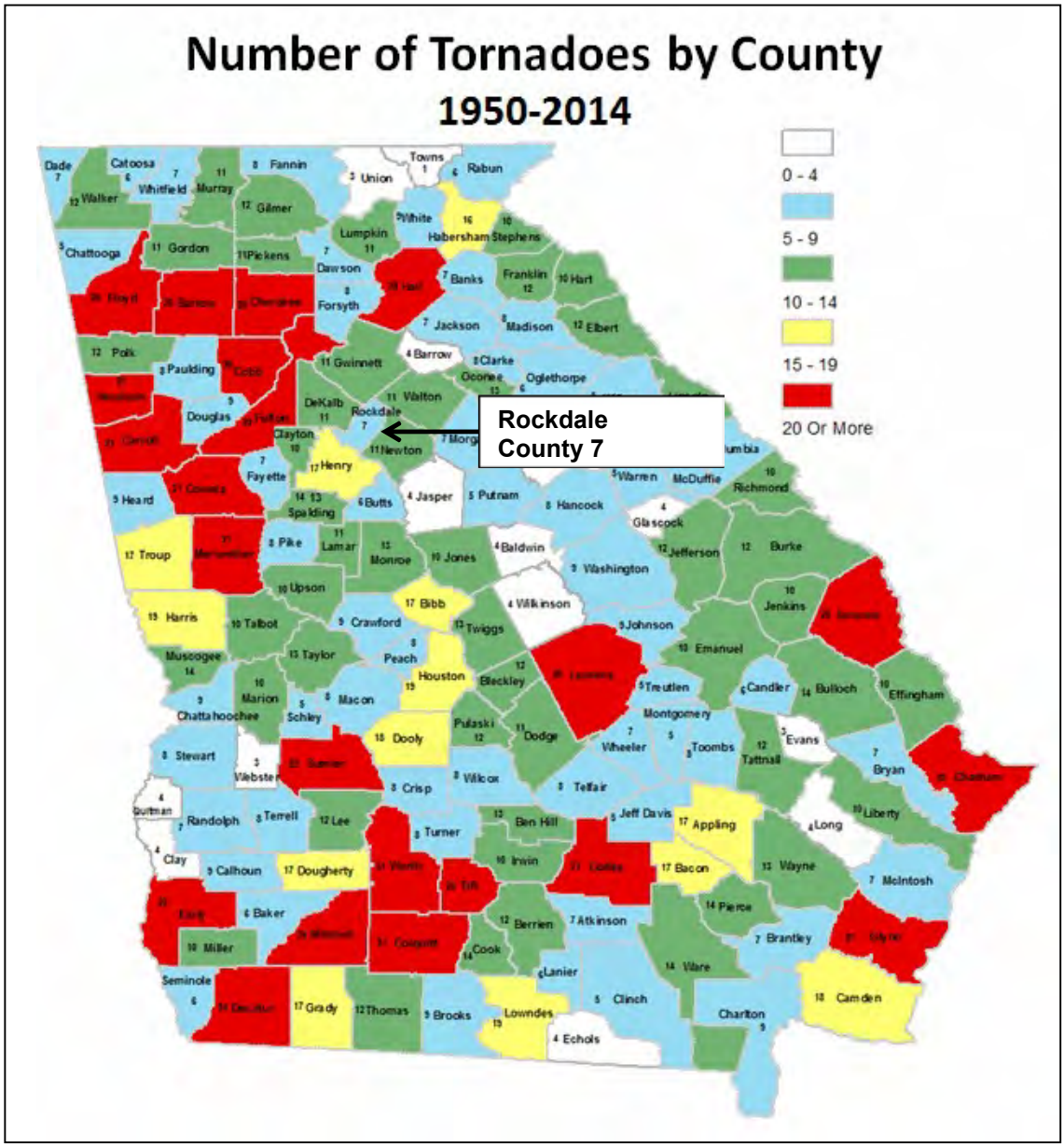


Table 2.14
Rockdale County: Tornado Events, 1950 – 2022
(Source: NOAA/NCDC, Storm Prediction Center)

Date	Length (IN MILES)	Intensity	Fatalities	Injuries	Property Damage
5/10/1981	1	F1	0	0	$250,000
10/1/1989	1	F2	0	0	$0
10/1/1989	0.5	F1	0	0	$250,000
10/1/1989	2	F2	0	0	$250,000
5/11/2008	9	EF0	0	0	$5,000
Total			**0**	**0**	**$755,000**

With a total of seven tornado events between 1950 and 2022, Rockdale County experiences on average approximately one tornado every nine years and based on this information it is possible to infer an approximate 11% annual probability of occurrence County-wide. Clearly it is possible, however, for zero tornadoes or many tornadoes to occur in any specific year.

The annual probability for tornadoes targeting City of Conyers is relatively low, but if hit, this area would sustain considerable damage. This scenario warranted a study described below.

For that purpose, in 2018, the Georgia Emergency Management Agency partnered with the Carl Vinson Institute of Government at the University of Georgia to develop a detailed risk assessment focused on defining tornado risks in Rockdale County. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets.

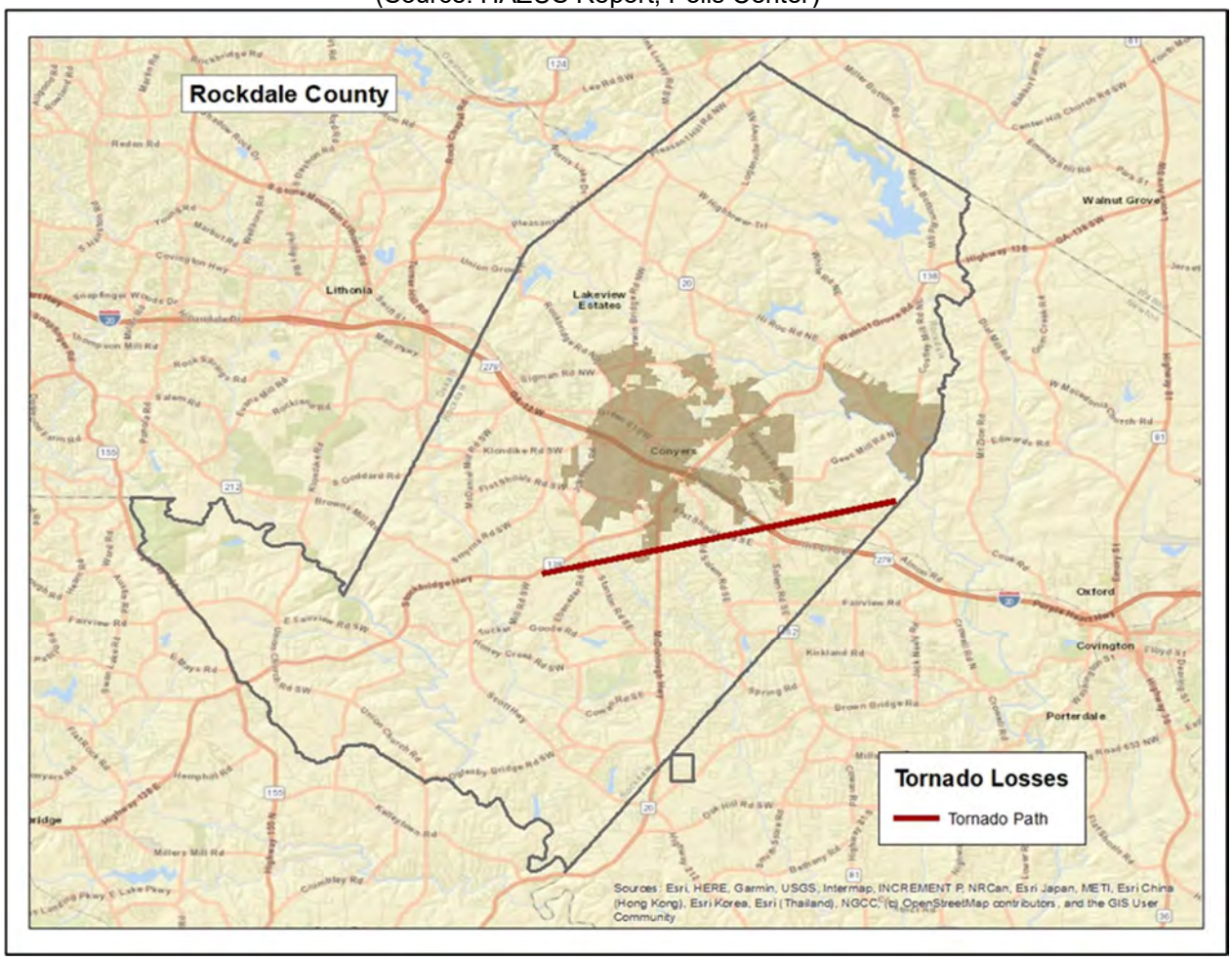
For this report, an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis used a hypothetical path based upon an EF3 tornado event running along the predominant direction of historical tornados (southwest to northeast). The tornado path was placed to travel through the center of Conyers, the highest-populated area in the County. The selected widths were modeled after a re-creation of the Fujita-Scale guidelines based on conceptual wind speeds, path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these categories. Table 2.20 depicts tornado path widths and expected damage.

Table 2.15
Tornado Path Widths and Damage Curves
(Source: HAZUS Report, Polis Center)

EF NUMBER	PATH WIDTH (FEET)	MAXIMUM EXPECTED DAMAGE
EF-5	**2,400**	**100%**
EF-4	**1,800**	**100%**
EF-3	**1,200**	**80%**
EF-2	**600**	**50%**
EF-1	**300**	**10%**
EF-0	**300**	**0%**

The modeling assumed Hypothetical EF-3 tornado affecting downtown Conyers, as depicted in Fig. 2.10

Figure 2.14
Hypothetical EF-3 Tornado Path in Rockdale County
(Source: HAZUS Report, Polis Center)



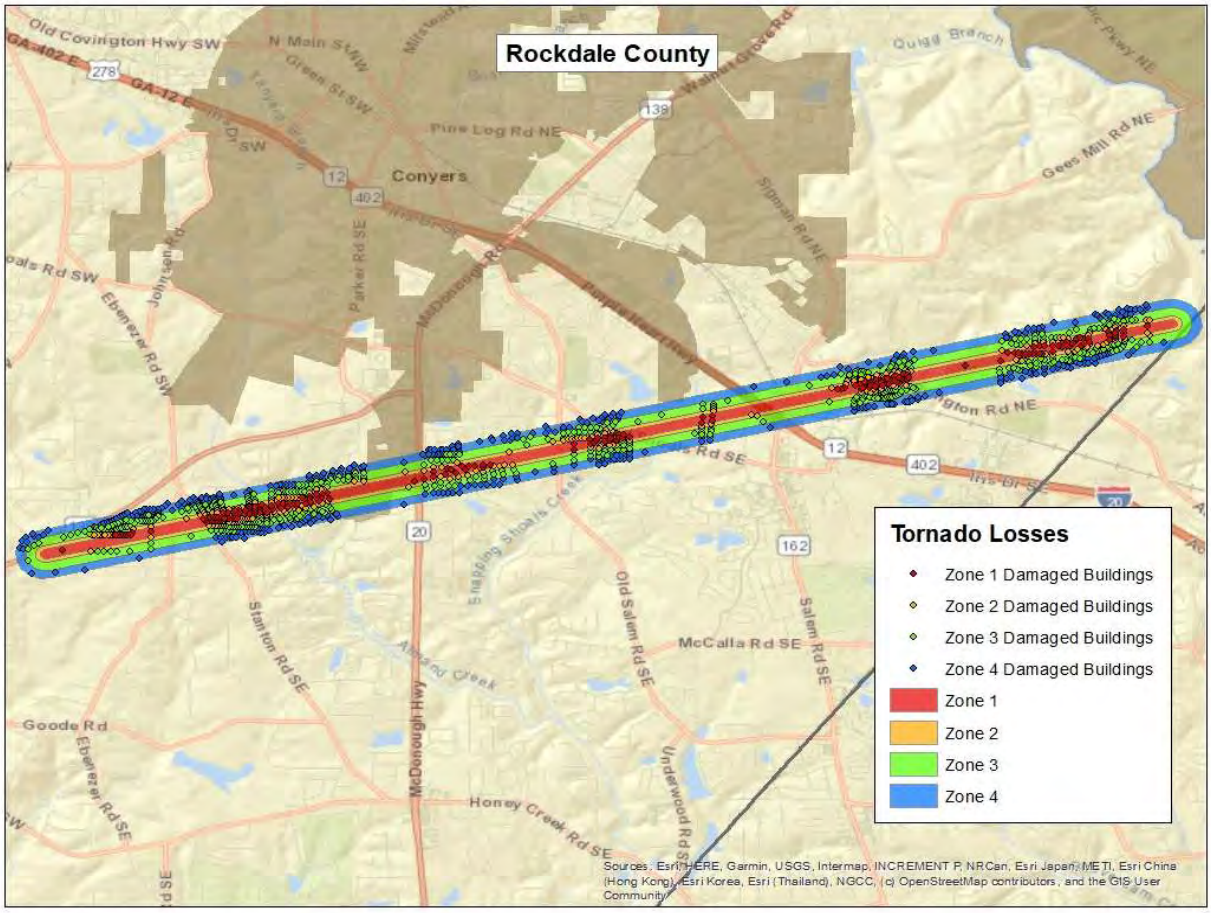
An EF-3 tornado has four damage zones, depicted in Table 12. Major damage is estimated within 150 feet of the tornado path. The outer buffer Is 900 feet from the tornado path, which buildings will not experience any damage. The selected hypothetical tornado path is depicted in Figure 12 and damage curve buffer zones are shown in Figure 13.

Table 2.16
EF-3 Tornado Zones and Damage Curves
(Source: HAZUS Report, Polis Center)

DAMAGE ZONE	BUFFER (FEET)	DAMAGE CURVE
1	0-150	80%
2	150-300	50%
3	300-600	10%
4	600-900	0%

Inventory of Assets Exposed to Tornadoes
Tornadoes are unpredictable and are indiscriminate as to when or where they strike. In evaluating assets that may potentially be impacted by the effects of tornadoes, the HMPC determined that all critical facilities, public and private property, are susceptible.

Figure 2.11
Modeled EF-3 Tornado Damage Buffers in Rockdale County
(Source: HAZUS Report, Polis Center)



Estimate of Potential Losses from Tornadoes

High winds can damage roofs, ranging from loss of roofing materials to total loss of the roof structure. A great deal of wind damage is due to wind-borne debris that breaks windows and opens building envelopes to additional wind damage, as well as the entry of wind-driven rains that soak contents and interiors. Debris can inflict injuries on people who have not sought shelter, or even in result death. High winds dislodge manufactured homes that are not adequately anchored and bring down electric and telephone lines and poles. In general, older structures are expected to be more susceptible to wind damage in part because their construction pre-dated building codes but also because older structures may not have been maintained. The type of construction also influences the likelihood of damage, with shingled, overhanging roofs (common on residences) more vulnerable to wind damage than are flat asphalt roofs (common on non-residential buildings).

Tornado Loss Estimation

The analysis estimated that approximately 1,207 buildings could be damaged, with estimated building losses of $75 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Rockdale County that were joined with Assessor records showing estimated property replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are shown in Table 2.21.

Table 2.17
Estimated Building Losses by Occupancy Type
(Source: HAZUS Report, Polis Center)

Occupancy	Buildings Damaged	Building Losses
RESIDENTIAL	1,170	$68,878,510
COMMERCIAL	21	$605,341
INDUSTRIAL	9	$163,901
GOVERNMENT	2	$13,104
EDUCATIONAL	5	$4,975,565
TOTAL	**1,207**	**$74,633,421**

Additionally, there were four essential facilities located in the tornado path – three schools and one fire station. Table 2.22 outlines the specific facilities and the amount of damage under the scenario.

Table 2.18
Estimated Essential Facilities Damaged
(Source: HAZUS Report, Polis Center)

OCCUPANCY	BUILDING LOSSES
Rockdale Co. Fire Department Station 09	Major Damage
Edwards Middle School	Major Damage
Flat Shoals Elementary School	Minor Damage
Sims Elementary School	Minor Damage

According to the Georgia Department of Education, Sims Elementary School's enrollment was approximately 486 students, Edwards Middle School's enrollment was approximately 943 students and Flat Shoals Elementary School's enrollment was approximately 578 students as of October 2022. Depending on the time of day, a tornado strike as depicted in this scenario could result in significant injury and loss of life. In addition, arrangements would have to be made for the continued education of the students in another location.

Land Use and Development Trends Related to Tornadoes
In Rockdale County there are specific building code requirements designed to minimize the impacts of the high winds associated with tornadoes. The wind zone map of the United States indicates that the Rockdale County is located in Zone III, where tornado winds can reach speed of 200 mph.

The tornado risk level is based on the wind zone area and the number of tornadoes. Rockdale County is located in a high-risk area based on the number of tornadoes per 1,000 square miles (1-5 tornadoes) combined with being located in Wind Zone category III. In this area, shelter is the preferred method of protection from high winds.

The International Code Council (ICC), through the International Building Code (IBC) defined the standards for designing buildings to withstand reasonably anticipated winds in order to minimize property damage.[12] Construction in Rockdale County must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code (2006 edition). For Rockdale County, the "design wind" speed is 115 miles per hour (mph).

Multi-jurisdictional Hazards
As defined afore, much of Rockdale County has a design wind speed of 115 mph as determined by the American Society of Civil Engineers (ASCE)[12]. Since no part of the County is immune from tornados, any mitigation steps taken related to tornados should be undertaken on a countywide basis, including the City of Conyers.

[12] American Society of Civil Engineers, 2002

General Summary of Tornadoes and their Effects on the Planning Area
Although the history of tornadoes within Rockdale County appears to indicate relatively low tornado activity, the County remains at risk to potential damage from tornados. Should a tornado strike dense residential areas, or certain critical facilities, significant damage and loss of life could occur. Due to the destructive power of tornados, it is essential that the mitigation measures identified in this plan receive full consideration. Specific mitigation recommendations related to tornados are identified in Chapter 3, Section 3.2.5.

2.3.3 Extreme Heat

Extreme Heat Profile
Extreme heat is defined as temperatures that are significantly above normal are considered extreme temperatures. There is no specific point when air temperatures are defined as significantly above normal. However, the National Weather Service (NWS) will initiate alert procedures such as special weather statements when the heat index is expected to exceed 105°F-110°F (depending on local climate), for at least two consecutive days.[16] Heat stress can be indexed by combining the effects of temperature and humidity.

Location
The entire planning area is subject to the hazards associated with extreme heat.

Impact on Life and Property
The potential severity (extent) of extreme heat events is measured by temperature, duration and humidity. There is no generally accepted scale or definition of extreme heat. The U.S. Environmental Protection Agency defines the term as “periods of summertime weather that are substantially hotter and/or more humid than typical for a given location at that time of the year.” In Rockdale County this would mean a period with temperatures of 100 degrees or more extending for more than a week, although this is intended only as a general definition.

Most events are less than a week in duration. Summer daytime temperatures average in the low to mid 90s, with nighttime lows in the low to mid 70s. Extreme heat waves may occur about once every one to two years when maximum daily temperatures exceed 100°F for an extended period of time. It may seem like a small difference, but when daytime high temperatures exceed 100 degrees and the overnight low does not fall below 80, heat stress increases dramatically. The passing of a cold front usually moderates temperatures after a few days to a week.

Heat kills by pushing the body beyond its limits. Under normal conditions an internal thermostat produces perspiration that evaporates and cools the body. The human body dissipates heat by varying the rate and depth of blood circulation, by losing water through the skin and sweat glands, and as a last resort, by panting, when blood is heated above 98.6°F. Sweating cools the body through evaporation. However, high relative humidity retards evaporation, robbing the body of its ability to cool itself. When heat gain exceeds the level the body can remove, body temperature begins to rise, and heat related illnesses and disorders may develop.

Most heat disorders occur because the person has been overexposed to heat or has over-exercised for his or her age and physical condition. The Heat Index (HI) is the temperature the body feels when heat and humidity are combined. Tables 2.28 and 2.29 illustrate the heat index and its potential effects on the human body.

16 NOAA− Heat Wave Description

Table 2.22
Temperature Versus Relative Humidity
(Source: National Weather Service)

TEMPERATURE (°F)	RELATIVE HUMIDITY (%)					
	90%	80%	70%	60%	50%	40%
80	86°	84°	83°	82°	81°	80°
86	105°	100°	95°	91°	88°	85°
90	122°	113°	105°	100°	95°	91°
96			126°	116°	108°	101°
100				129°	118°	109°
106					137°	124°
110						136°

*This chart is based upon shady, light wind conditions; exposure to direct sunlight can increase the HI by up to 15°F.
** Due to the nature of the heat index calculation, the values in the table has an error +/- 1.3F.

Source: National Weather Service: https://www.weather.gov/ama/heatindex

Table 2.23
Heat Index Versus Possible Effects
(Source: National Weather Service)

CLASSIFICATION	HEAT INDEX	EFFECT ON THE BODY
Caution	80°F – 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat Stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	124°F or higher	Heat stroke highly likely

Source: National Weather Service: https://www.weather.gov/ama/heatindex

The extreme heat hazard can impact all citizens of Rockdale County, but has the greatest impact on the elderly, functional access needs groups, and very young. County residents without air-conditioned homes could be left trying to survive in their super-heated homes. These residents must seek assistance to prevent heat sickness or possible death. Household pets and farm animals can also suffer and can even succumb during extended periods of extreme heat.

The NCDC database was queried to identify past injuries and deaths related to extreme heat events in Rockdale County. The structure of the NCDC database combines the extreme cold and extreme heat into temperature extremes. The results from the database query indicate there have been no deaths and no injuries in Rockdale County from extreme heat-related events between 2012 and 2022, including the event recorded from 06/29/2012 to 07/01/2012.

Although there have been no deaths from extreme heat reported in Rockdale County, the hazard can be moderately disruptive to life in the planning area. Damages from the extreme high temperature hazard are generally confined to effects on humans, although occasionally there may be relatively minor effects on infrastructure such as electrical grids.

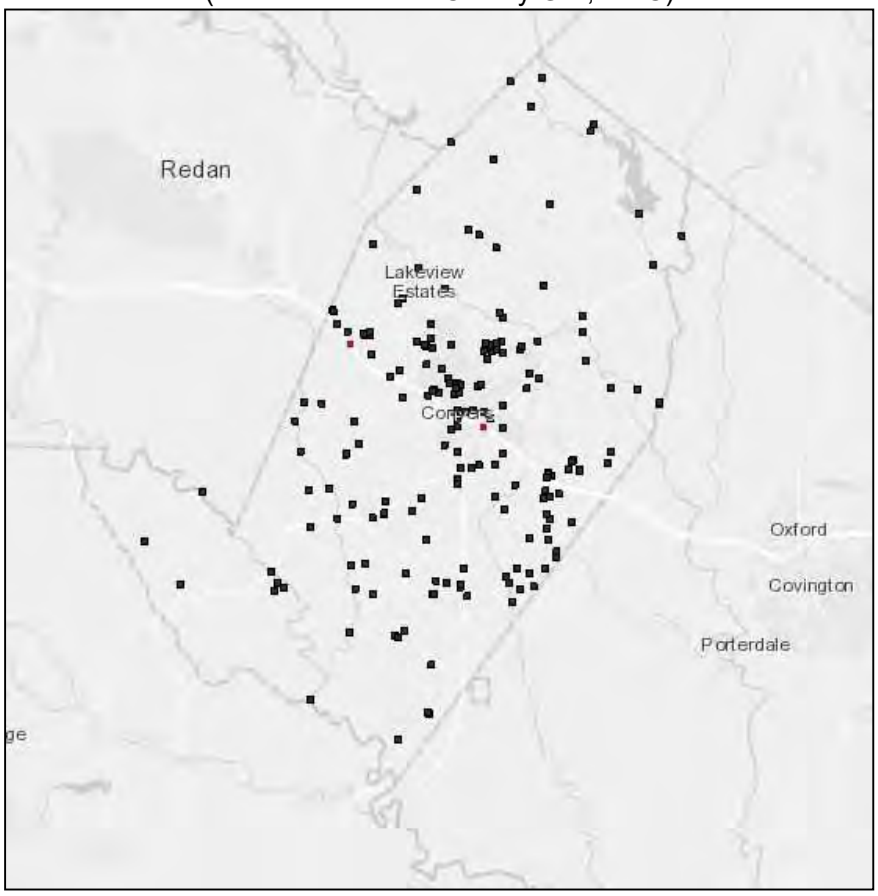
Occurrences of the Hazard
The NCDC database indicates there has been one recorded extreme heat event in Rockdale County during the period 2012 through 2022. The extreme heat event occurred in June /July 2012, described as “the strong upper-level ridge responsible for record-breaking heat across the Plains and Midwest slid toward the Southeast on the 28th. This was one of the hottest events in Georgia state history, with multiple all-time heat records tied or broken”. The annual probability for future extreme heat events for both Rockdale County and City of Conyers can be approximated at 15%.

Inventory of Assets Exposed to Extreme Heat

According to HAZUS database, there are 33,858 structures in Rockdale County, including 7,277 that are located in the City of Conyers. All structures are exposed to the extreme heat hazard. See Appendix D (Extreme Heat Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers.

Figure 2.19 is the extreme heat exposure map for Rockdale County. The map highlights the critical facilities located within the hazard area, which for the extreme heat hazard includes the entire County. As of 2018 HMP update, there were 200 critical facilities located within Rockdale County, of which 30 within the City of Conyers. See Appendix A, Critical Facilities Inventory Report, for a complete list of the critical facilities located within Rockdale County and the City of Conyers.

Figure 2.12
Rockdale County – Extreme Heat Exposure Map (the entire County)
(Source: Rockdale County GIS, PMC)



Estimate of Potential Losses from Extreme Heat

Prolonged drought conditions can increase the risk of wildfires. Commercial losses for landscape businesses, farmers, outdoor event promoters and tourism destinations are frequently associated with extreme heat events.

On a less general note, during prolonged dry periods some older homes may experience settling due to the falling water table which leads to local consolidation and compaction of soils. Engineering mitigation measures usually include reconstruction of foundations.

Extreme heat can especially affect vulnerable segments of the population in planning area. These population groups include adults over 60 years of age, persons younger than 18 years of age and homeless individuals. For the 2021 Census information, it was estimated that for the City of Conyers, there were 6,392 vulnerable individuals (4,310 younger than 18 years and 2,082 older than 65 years), while for Rockdale County, there were additional 36,995 individuals; 22,558 younger than 18 years and 14,437 older than 60

years). Additionally, the 2019 GaDCA biannual reported over 70 homeless individuals in Rockdale County, with limited sheltering resources around 65 beds, with 72% of the beds available. While statistics were not available for the City of Conyers, it is assumed that most of the homeless individuals are located in the urban, high-density area of the County. Providing enough cooling capacity for these individuals is included in specific mitigation actions.

Land Use and Development Trends related to Extreme Heat
Any portion of Rockdale County can potentially be affected by extreme heat. All areas within the County, including the City of Conyers, carry the same risk level from the extreme heat hazard. Any steps taken to mitigate the effects of extreme heat should be undertaken on a countywide basis and include the City of Conyers.

Multi-jurisdictional Hazards
Extreme heat events, unlike some other natural hazards, typically afford communities some advance warning. The National Weather Service (NWS) typically issues extreme heat advisories as extreme high temperatures move into the area. The 2018 Rockdale County HMPC recognized the potential threats of extreme heat and identified specific mitigation actions. These can be found in Chapter 3, Section 3.2.8.

General Summary of Extreme Heat and their Effects on the Planning Area
Extreme heat typically does not impact buildings or other structures but rather affects vulnerable populations including children, elderly or physically impaired persons and people working or exercising outdoors. During long periods of extreme heat, EMA personnel and other such as health care providers are faced with challenges such as providing cooling centers for those without air conditioning and health care to those affected by the heat. Economic losses related to extreme heat can include extended periods of electrical power outages, crop loss, and decrease of local and visitor attendance at outdoor venues or events.

2.3.4 Severe Winter Weather

Severe Winter Weather Profile

Winter storms bring various forms of precipitation that occur only at cold temperatures. These include snow, sleet, or a rainstorm where ground temperatures are cold enough to allow icy conditions. These cold weather storms can also take the form of freezing rain or a wintry mix. A winter storm is defined as “the occurrence of hazardous winter weather due to a variety of elements, occurring either independently or in combination, including freezing rain, sleet, snow, ice and windy conditions that may contribute to low wind chill temperatures.” Accumulations of sleet, snow and/or ice may render roads impassable and trigger utility outages.

The potential severity (or extent) of winter storms is measured by several different factors depending on which individual element is being considered. For example, extent may be measured by temperature, amount of ice or snowfall, wind, or duration. Often extent is expressed as a combination of these factors. There is no common definition of the term severe winter storm, because it incorporates multiple hazard elements.

More specifically, winter weather is a common occurrence in Georgia throughout the winter, and early spring months. According to the National Climatic Data Center, there have been 18 winter events in Northeast Georgia since 1950. Storms bring various forms of precipitation that occur only at cold temperatures. These include snow, sleet, or a rainstorm where ground temperatures are cold enough to allow icy conditions. These cold weather storms can also take the form of freezing rain or a wintry mix. A winter storm is defined as “the occurrence of hazardous winter weather due to a variety of elements, occurring either independently or in combination, including freezing rain, sleet, snow, ice and windy conditions that may contribute to low wind chill temperatures.” Accumulations of sleet, snow and/or ice may render roads impassable and trigger utility outages.

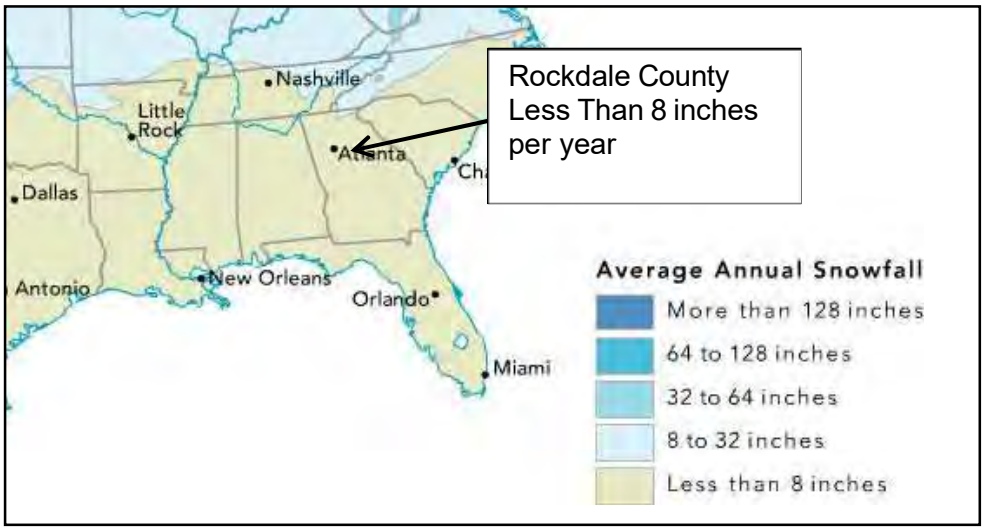
Most winter storms last less than a week, but can be much longer in some cases, although this is very rare in the southern U.S. An extreme cold event with temperatures in the single digits and wind chills

below zero is possible in Rockdale County, but not likely. Damages from extreme cold temperatures are generally minimal with effects mainly limited to humans, although occasionally there may be relatively minor effects on infrastructure such as freezing pipes or electrical grids. Normally, the mercury falls below freezing about 10 to 15 times each winter, but rarely are readings lower than 25 degrees experienced. Heavy snowfall and extreme cold can immobilize an entire region. Even areas that normally experience mild winters can be hit with a major snowstorm or extreme cold. Winter storms can result in flooding, storm surge, closed highways, blocked roads, downed power lines and hypothermia.

Location

The potential for winter storms is uniform for the entire planning area. All people and assets are considered to have the same degree of exposure. Figure 2.2 shows the average annual snowfall totals for the southeastern United States. The map shows that the State of Georgia, and Rockdale County, receives less than eight inches of snow per year.

Figure 2.13
Southeastern United States Average Annual Snowfall Map



Impact on Life and Property

Although severe winter storms occur relatively infrequently, they have the potential to wreak havoc on the community when they do strike. Winter weather affects the planning area nearly every year although there is a low probability of severe winter storms of such magnitude and severity that widespread property damage and power outages occur. Winter storms within Rockdale County typically cause damage to power lines, trees, buildings, structures, and bridges, to varying degrees. Due to the County's high elevation, many highways have steep grades, resulting in very hazardous travel conditions when they are covered with frozen precipitation. Another hazard exists due to the large tree population. Trees and branches weighed down by snow and ice become very dangerous to person and property.

Occurrences of the Hazard

Albeit in the South, the State of Georgia (and specifically its northern part) is often exposed to winter weather. February 2014 brought severe winter weather with freezing temperatures covering the entire north half of the State. The four-day event (2/10-2/14) brought metro Atlanta traffic to a standstill and resulted in Federal Emergency Declaration FEMA-3368-EM. Additionally, in winter of 2000, Georgia was hit by a series of protracted winter storms, bringing freezing rain and snow over much of northern Georgia. As many as 500,000 customers lost power in northern Georgia and several injuries and automobile accidents were reported. The governor of Georgia declared a state of emergency for 39 counties and a federal disaster declaration (FEMA-1311-DR) covered 34 Georgia counties, including Rockdale. The Georgia Emergency Management Agency estimated 48 million dollars in damage and the devastation from the storm was compared to Hurricane Opal in 1995 (non-winter event) and the blizzard of 1993 (emergency declared as FEMA-3097-EM).

To identify past winter storm events for the 2023 Plan update both NCDC and Spatial hazard Events and Losses Database for the United States (SHELDUS) were queried. The NCDC SHELDUS database identified 21 past events between 2000 and 2022. The SHELDUS database had only 5 events identified (between 2000 and 2005) and was mainly used to confirm some of the winter storms within the planning area. Neither database provided extensive information on property damage. The events are summarized below in table 2.12.

Table 2.23
Rockdale County Severe Winter Weather Events, 2000-2022
(Source: NCDC, SHELDUS)

Date	Location	Type of Event	Fatalities	Injuries	Property Damage
01/16/2018	Rockdale County	Winter Weather	0	0	$0
12/09/2017	Rockdale County	Winter Weather	0	0	$0
02/11/2014	Rockdale County	Winter Storm	0	0	$0
01/28/2014	Rockdale County	Winter Storm	0	0	$0
02/09/2011	Rockdale County	Winter Weather	0	0	$0
01/09/2011	Rockdale County	Heavy Snow	0	0	$0
03/02/2010	Rockdale County	Winter Weather	0	0	$0
02/12/2010	Rockdale County	Heavy Snow	0	0	$0
03/31/2009	Rockdale County	Winter Weather	0	0	$0
01/19/2008	Rockdale County	Winter Weather	0	0	$0
04/07/2007	Rockdale County	Frost/Freeze	0	0	$0
12/16/2005	Rockdale County	Freezing Fog	0	0	$0
12/15/2005	Rockdale County	Ice Storm	0	0	$2,000
01/28/2005	Rockdale County	Winter Strom	0	0	$150,000
02/26/2004	Rockdale County	Winter Storm	0	0	$0
01/25/2004	Rockdale County	Ice Storm	0	0	$0
01/23/2003	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
01/11/2003	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
12/24/2002	Rockdale County	Ice Storm	0	0	$0
05/18/2002	Rockdale County	Cold/WindChill	0	0	$0
03/01/2002	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
02/26/2002	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
01/02/2002	Rockdale County	Heavy Snow	0	0	$0
10/27/2001	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
09/26/2001	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
12/19/2000	Rockdale County	Winter Storm	0	0	$0
12/17/2000	Rockdale County	Winter Storm	0	0	$0
12/01/2000	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
10/08/2000	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
06/07/2000	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
04/09/2000	Rockdale County	Extreme Cold/Wind Chill	0	0	$0
01/28/2000	Rockdale County	Ice Storm	0	0	$32,790
01/22/2000	Rockdale County	Ice Storm	0	0	$980,000
		Totals 2000-2022	**0**	**1**	**$1,165,000**

During the past 22 years, there have been 33 documented winter weather events. In addition to afore mentioned February 2014 event, and in addition to 2017-2018 light snow events, the most recent winter storm occurred on January 9th, 2011, when the metro-Atlanta region, including Rockdale County, was impacted by a rare January snowstorm. The 4-6 inches of snow across the area had a significant impact on local interstate highways and caused numerous motor vehicle accidents. Based on the 2000-2022 period, a severe winter weather event is likely to occur in the planning area approximately once every other year – about a 60% annual probability based on the historical record. Similarly, the annual probability for future severe winter weather events in Conyers is also approximately 60%.

Inventory of Assets Exposed to Severe Winter Weather
In evaluating assets that may potentially be impacted by the effects of winter weather, the HMPC determined that all critical facilities, public and private property, are susceptible. According to HAZUS database, Rockdale County has 34,014 structures, all of which are exposed to the severe winter storm hazard. Of the 34,014 structures in Rockdale County, 7,277 are located in the City of Conyers. All structures in Conyers are also exposed to the severe winter storm hazard. See Appendix D (Severe Winter Weather Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers.

As of 2023, there are 26 critical facilities (Care Facilities, EOCs, Fire Stations, Law Enforcement Stations, Schools) located within Rockdale County (this information was provided by the Rockdale County EMA). Of this total, 10 were located within the City of Conyers or were traversing the City's jurisdiction. All 26 critical facilities are located within the hazard area which, in the case of severe weather, includes the entire County.

Estimate of Potential Losses from Severe Winter Weather
Severe winter weather and resulting winter storms, especially those with heavy icing, generate a lot of downed trees and limbs, requiring cleanup of the resulting debris. The costs of managing debris are not included in regular budgets. When events prompt debris cleanup, staff from the Public Services and Recreation & Parks departments are diverted from other work, often causing delays in scheduled projects. Estimated losses by building type located in Appendix D: (GEMA worksheet 3a for Severe Winter Weather) In recent years, events with large quantities of debris may prompt communities to waive landfill fees, thus reducing potential income. Icing of roads and bridges affects traffic but is not considered a major factor in physical damage to roads. A growing problem associated with periods of freezing weather is road icing due to automatic outdoor sprinkler systems and building damage from frozen interior sprinkler systems.

Severe Winter Weather can especially affect vulnerable segments of population in planning area. These population groups include adults over 65 years of age, persons younger than 5 years of age and homeless individuals. For the 2021 Census information, it was estimated that for the City of Conyers, there were 6,392 vulnerable individuals (4,310 younger than 18 years and 2,082 older than 65 years), while for Rockdale County, there were additional 36,995 individuals; 22,558 younger than 18 years and 14,437 older than 65 years). Additionally, the 2019 GaDCA biannual reported over 70 homeless individuals in Rockdale County, with limited sheltering resources around 65 beds, with 72% of the beds available. While statistics were not available for the City of Conyers, it is assumed that most of the homeless individuals are located in the urban, high-density area of the County.

Land Use and Development Trends related to Severe Winter Weather
Rockdale County currently has no land use or development trends related to winter storms. All new buildings must be designed and constructed to meet current building code requirements, including snow loads in Rockdale County and City of Conyers. The effects of winter storms are not influenced by land use and development trends.

Multi-jurisdictional Hazards
Any portion of Rockdale County, including the City of Conyers, can be negatively impacted by winter weather. Consequently, any mitigation actions related to winter weather should be pursued on a countywide basis and include the City of Conyers.

General Summary of Severe Winter Weather and its Effects on the Planning Area
Winter storms, unlike other natural hazards, typically provide communities with some advance warning. The National Weather Service issues winter storm warnings and advisories as these storms approach.

Unfortunately, even with advance warning, some of the most destructive winter storms have occurred in the Southern United States, where buildings, infrastructure, crops, and livestock are not well-equipped for severe winter conditions. Motorists, not accustomed to driving in snow and icy conditions, pose an additional danger on roads and highways. The 2023 Rockdale County HMPC recognized the potential threats of winter storms and identified specific mitigation actions. These can be found in Chapter 3, Section 3.2.2.

2.3.5 Dam Failure

Dam Failure Profile

Georgia law defines a dam as any artificial barrier which impounds or diverts water, is 25 feet or more in height from the natural bed of the stream or has an impounding capacity at maximum water storage evaluation of 100 acre-feet (equivalent to 100 acres one foot deep) or more. Dams are usually constructed to provide a ready supply of water for drinking, irrigation, recreation and other purposes. They can be made of rock, earth, masonry, or concrete or of combinations of these materials.

Dam failure is a term used to describe the major breach of a dam and subsequent loss of contained water. Dam failure can result in loss of life and damage to structures, roads, utilities, crops, and livestock. Economic losses can also result from a lowered tax base, lack of utility profits, disruption of commerce and governmental services, and extraordinary public expenditures for food relief and protection. National statistics show that overtopping due to inadequate spillway design, debris blockage of spillways, or settlement of the dam crest account for one third of all U.S. dam failures. Foundation defects, including settlement and slope instability, account for another third of all failures. Piping and seepage, and other problems cause the remaining third of national dam failures. This includes internal erosion caused by seepage, seepage and erosion along hydraulic structures, leakage through animal burrows, and cracks in the dam.

Location

The inventory of dams in Rockdale County is administered under the Georgia Safe Dams Program (GASD).

Per GASD 2016 Annual Report, there were 39 dams in Rockdale County. Dams are typically ranked by hazard classification, which is determined by the potential for infrastructure and property damages downstream if a dam failure were to occur. Category I classification indicates probable loss of life if the dam failed, while a Category II classification indicates loss of life would not be probable, as determined by the Safe Dams Program. A Category I dam has specific rules and regulations that must be applied to its design and operation, while a Category II dam does not. In addition, the Safe Dams Program does not regulate dams that are 6 feet in height or less regardless of storage, or dams that have storage volume of 15 acre-feet or less regardless of height.

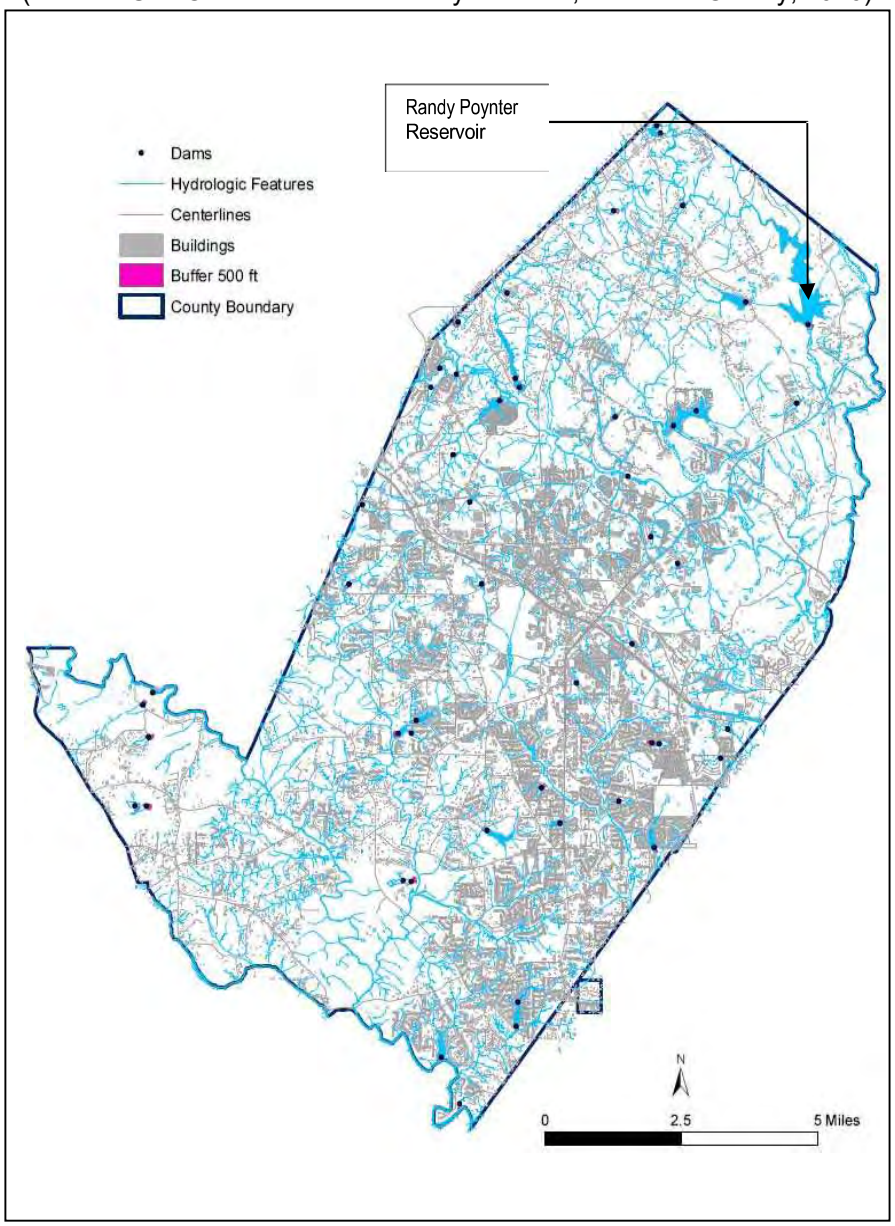
Table 2.13 summarizes information reported by the USACE's NID for the 39 dams located in Rockdale County. Of the 39 dams in the County, there are six Category I dams, and 33 Category II dams. The table is ordered by hazard classification which ranks the potential for loss of life and infrastructure and property damage downstream if a dam failure were to occur. Of particular concern is Big Haynes Creek Reservoir Dam (also known as Jack Turner Dam, on Randy Poynter Reservoir) which, at 19,000 ac-ft capacity is by far the largest reservoir in the County. The dam break incident on this particular water body would catastrophically affect the downstream areas, including the eastern part of the City of Conyers.

Table 2.24
Rockdale County – Inventory of Dams, ordered by Hazard Classification
(Source: Georgia Safe Dams Program, Rockdale County, updated 2021)

DAM NAME	HAZARD CLASS	STATE ID	DAM HEIGHT (FEET)	MAXIMUM STORAGE (ACRE-FEET)
Cowan Lake Dam	I	122-034-01341	33.0	508
Jack Turner Reservoir Dam	I	122-053-04677	47.0	19,000
Lakefield Commons Lake Dam	I	122-055-05239	33.0	96.4
Meadow Brook Lake Dam #2	I	122-033-01293	28.0	347
Lake Rockdale Dam	I	122-003-00055	33.0	1,579
Walker Lake Dam	I	122-004-00303	30.0	170
Abbot Lake Dam	II	122-031-01218	22.0	141
Alexanders Lake East Dam	II	122-010-00280	25.0	138
Alexanders Lake West Dam	II	122-009-00279	21.0	189
Arenzo Lake Dam	II	122-049-04421	34.0	60
Behrens Dam	II	122-046-03636	27.0	17
Brushy Knob Ranch Lake Dam	II	122-027-01337	26.0	130
Brushy Knob Ranch Lake Dam Upper	II	122-028-01338	27.0	84
Deerrun Lake Dam	II	122-038-01651	26.0	381
East View Lake Dam	II	122-029-01216	25.0	56
Garden Lake Dam	II	122-048-04388	35.0	77
Hi-Roc Lake Dam	II	122-006-00108	19.0	148
Hurst Lake Dam	II	122-030-01217	20.0	100
Josephs Lake Dam	II	122-025-01214	22.0	140
Lake Brooks Dam	II	122-007-00566	31.0	491
Lake Capri Dam	II	122-011-00731	16.0	192
Lake Haynes Dam	II	122-054-04785	43.0	160
Lake Rockaway Dam	II	122-002-00042	24.0	300
Lake Sarrento Dam	II	122-013-00755	13.0	250
Lakeridge Dam	II	122-051-04483	27.0	40
Lees Lake Dam	II	122-020-01202	22.0	144
Mann Lake Dam	II	122-032-01661	26.0	91
Meadowbrook Lake Dam #1	II	122-017-01177	26.0	138
Muller Forset Lake Dam	II	122-058-05717	25.0	58
New Lake Dam	II	122-050-04463	25.0	150
North Hampton Lake Dam	II	122-041-01666	23.0	114
Piney Wood Shores Lake Dam	II	122-005-00062	23.0	119
Salem Lake Dam	II	122-035-01648	33.0	312
Sheppard's Lake Dam	II	122-001-00023	37.0	142
Smokerise East Lake Dam	II	122-019-01201	35.0	150
Stonecrest Lake Dam	II	122-059-05718	28.0	16
Upper Bond Lake Dam	II	122-021-01203	13.0	105
Upper Twin Lakes Dam	II	122-036-01649	24.0	120
Weaver Lake Dam	II	122-008-00528	26.0	144

The following map identifies the location for the 39 NID dams in Rockdale County. The map shows that dams in Rockdale County are fairly evenly distributed throughout the County.

Figure 2.14
Rockdale County Dams
(Source: USACE – National Inventory of Dams, Rockdale County, 2016)



In addition to the high hazard dams identified by the USACE above, the HMPC identified several other dams that could potentially cause damages downstream if a failure were to occur. Although classified as Hazard Class II by the USACE the following low-lying dams could also cause physical damages downstream if a failure were to occur.

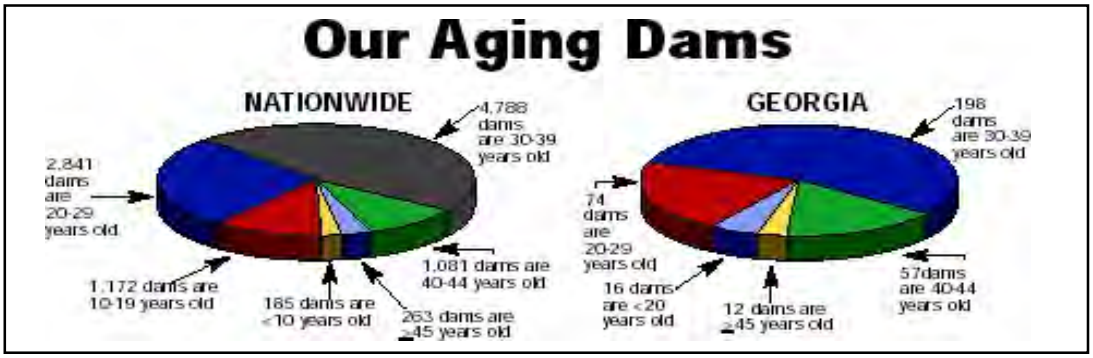
- Arenzo Lake Dam
- Meadow Brook Lake Dam No. 2

Although physical damages associated with dam failure would be limited to certain areas, the damage to the local economy and problems associated with delivery of water and other utilities could be felt Countywide.

Impact on Life and Property

The potential severity (extent) of a dam failure event depends on several factors, including the size of the dam, the nature of the failure (i.e., catastrophic structural failure versus a small breech), the velocity of the floodwater released, the density of built environment and populations downstream, and the volume of water impounded by the dam. There is no common scale for describing the "extent" of dam failure (meaning potential severity, not geographic extent). As noted elsewhere in this subsection, the USACE and states have established a dam hazard rating system, and the former organization maintains the National Inventory of Dams Program, according to the USACE, as of 2005 there were 79,500 dams in the United States. Approximately one third of these pose a "high" or "significant" hazard to life and property if failure occurs). As of 2016, the Georgia Statewide inventory of dams consisted of 4,428 dams. The Safe Dams Program also approves plans and specifications for construction and repair of all Category I dams, of which there are 622 in the State. Category I dams are continuously monitored for safety by Georgia EPD. Table 2.13 provides hazard classifications for dams in Rockdale County, according to the USACE NID database. Absent detailed studies of individual dams, this rating system is the best proxy for the extent presently available in Rockdale County.

Figure 2.15
Age Comparison of Dams in the US vs. Georgia



Occurrences of the Hazard

A review of current literature and open data sources including historical data from the Environmental Protection Division (EPD) within the Georgia Department of Natural Resources (DNR) as well as County records revealed no known past dam failures in or near Rockdale County. As of 2023, Rockdale County has never experienced a major dam failure. It is possible that some small private dams have been breached at some point in the past, but no records have been found to indicate any type of
emergency response related to such a failure, or even that such a failure has taken place. Based on no past dam failures in the County, the probability of future failures is most likely low. The same rationale may be applied to the city of Conyers, i.e., the probability of future dam failure is relatively low.

Inventory of Assets Exposed to Dam Failure.

In coordination with the members of HMPC, the dam failure hazard area was generally defined as a buffer zone approximately 500 feet downstream from the downstream face of the dam. This estimation methodology is very general in nature, and it is intended to produce a very rough (order-of-magnitude level) assessment of the structural and human resources exposed to dam break hazard. According to HAZUS database, Rockdale County has 33,858 structures, of which 107 (0.4%) were located within the dam failure hazard area. The City of Conyers has 7,277 structures, of which 3 (or 0.1%) are located within a 500-ft dam failure hazard area. See Appendix D (Dam Failure Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers.

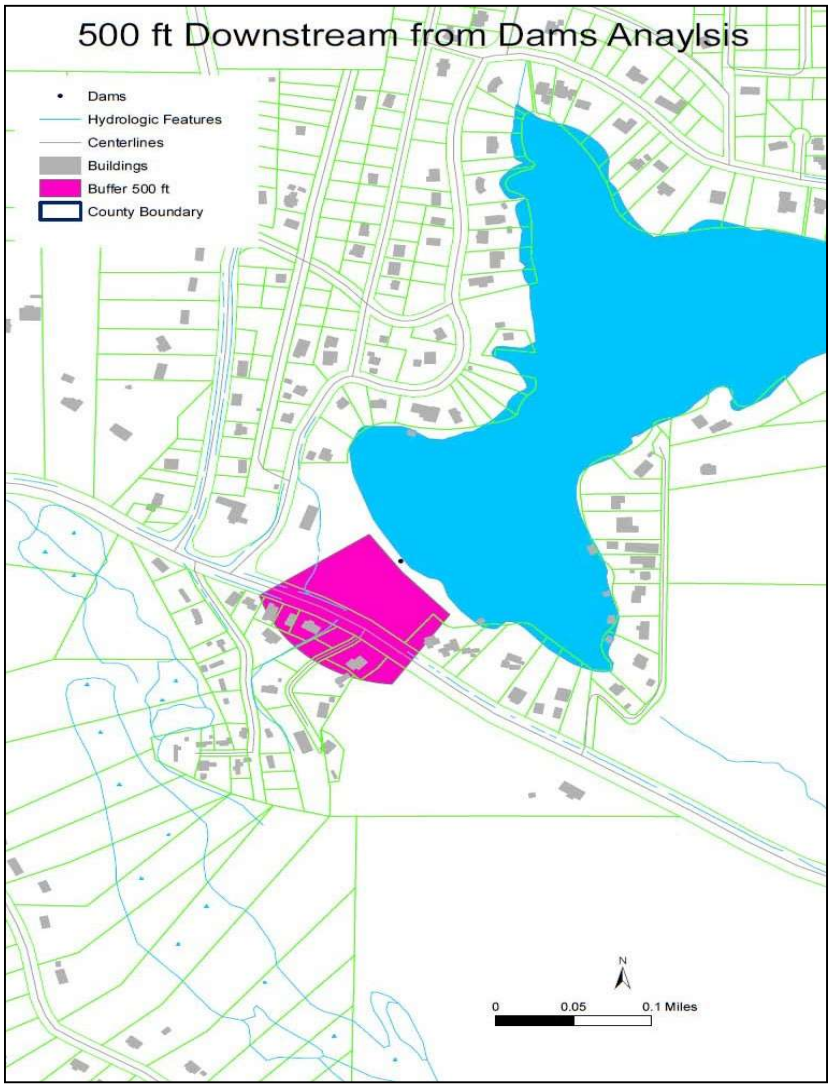
The Rockdale County HMPC reviewed the inventory of dams from the USACE National Inventory of Dams and determined that the Big Haynes Creek Reservoir Dam OR Rockdale Lake Dam would be selected for further analysis as part of the dam failure risk assessment. Both of these facilities are classified as High Hazard dams by the USACE.

The HMPC determined that to estimate downstream dam failure vulnerabilities, a geographic information system (GIS) would be used to establish a buffer extending 500 feet downstream of each high hazard dam. This area is then used in combination with population, housing, and land use data to determine the degree

of exposure downstream. The downstream buffer is shown only to identify the population and development downstream of the dam. *It is important to note that the buffer zone is intended for general planning purposes only and does not indicate the downstream inundation area if a dam failure were to occur. Inundation areas and zones of potential high- velocity flow is highly site- specific and require detailed engineering study to accurately characterize risk.*

Figure 2.5 depicts a map of Rockdale Lake Dam, which is located near Lakeview Estates, along the tributary to Carr Branch and along Hi-Roc Road in northernmost third of the County. The map identifies the number of structures intersecting a 500-foot buffer extending downstream of the dam.

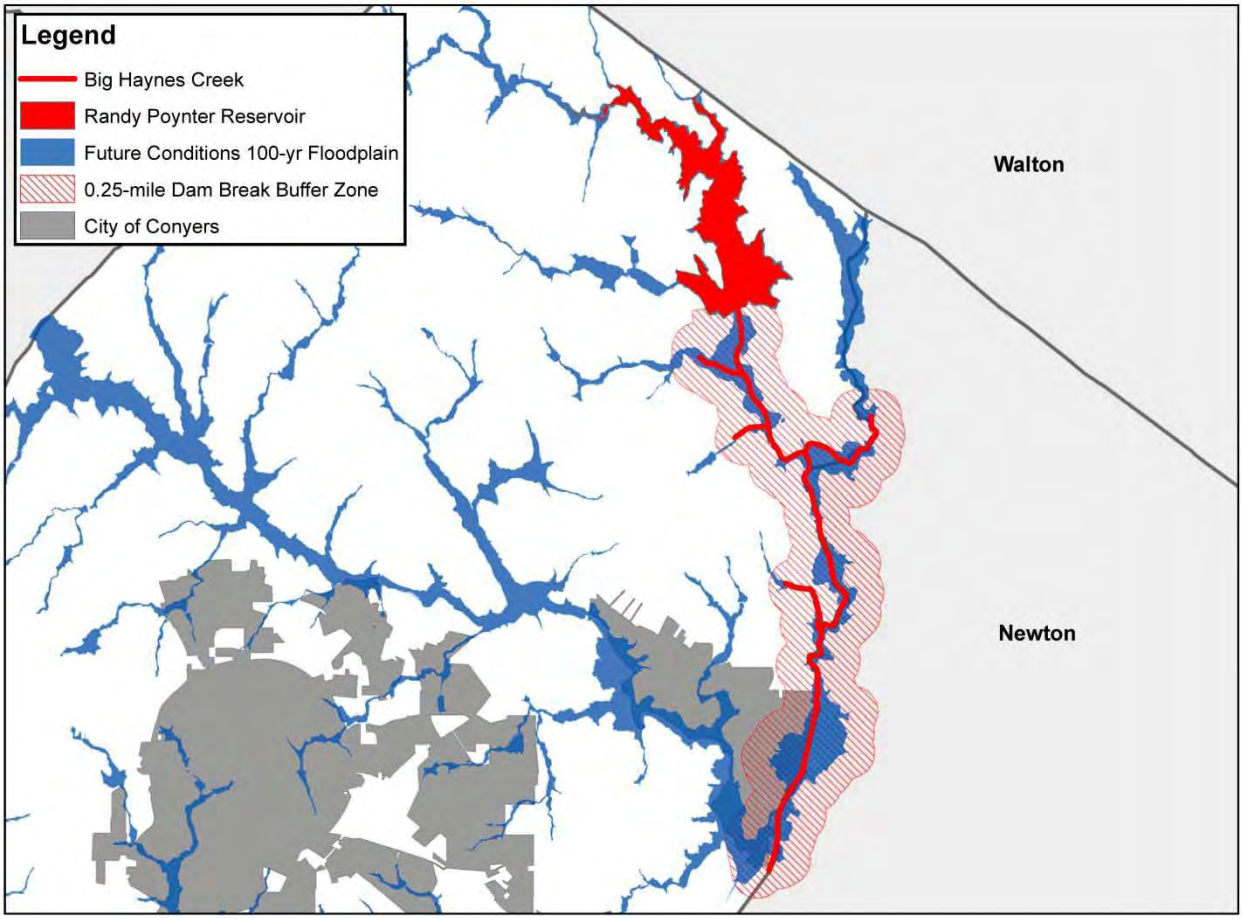
Figure 2.16
Rockdale Lake Dam with 500 Foot Downstream Buffer
(Source: Rockdale County GIS)



Estimate of Potential Losses from Dam Failure

As per coordination with the Rockdale County HMPC, the only reservoir exhibiting potential risk is Jack Turner Reservoir Dam on Big Haynes Creek. A simplified estimate of the potentially affected area in case of a catastrophic dam failure included creating a quarter-mile buffer around the downstream reach of Big Haynes Creek and several smaller tributaries. The exposed structural and human assets in both Rockdale County and the City of Conyers, including critical infrastructure facilities, were extracted from the HAZUS database and applied to GEMA worksheet 3a in Appendix D. See Appendix D (Dam Failure Section) for the estimate of potential losses for dam failure.

Figure 2.17
Jack Turner Reservoir Dam
(Source: Rockdale County GIS)



Rockdale County (CID No. 130384) and the City of Conyers (CID No. 130213) both participate in the National Flood Insurance Program (NFIP). In accordance with NFIP guidelines, the County and City have each executed a Flood Damage Prevention Ordinance. The purpose of this ordinance is to minimize the loss of human life and health as well as to minimize public and private property losses due to flood conditions. The ordinance requires that potential flood damage be evaluated at the time of initial construction of structures, facilities and utilities, and that certain uses be restricted or prohibited based on this County or City evaluation. The ordinance also requires that potential homebuyers be notified that a property is located in a flood area. In addition, all construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code (2006 edition). The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards.

Multi-jurisdictional Hazards

All of Rockdale County, including the City of Conyers, is vulnerable to the negative impact of dam failure. The USACE indicates there are five dams in or near the City of Conyers. These dams are shown below in Table 2.14.

Table 2.25
City of Conyers: Inventory of Dams, ordered by Hazard Classification
(Source: USACE, National Inventory of Dams, Rockdale County 2021)

DAM NAME	HAZARD CLASS	RIVER/STREAM	HEIGHT (FT)	STORAGE (AC-FT)	LAST DATE INSPECTED
Lake Rockdale Dam	High	Rockdale Lake	33.0	1,579	3/14/2019
Walker Lake Dam	High	Unknown	30.0	170	3/1/2019
Piney Wood Shores Lake Dam	Low	Unknown	23.0	119	8/26/2018
Weaver Lake Dam	Low	Quigg Branch	26.0	179	9/1/2018
Sheppard's Lake Dam	Low	Carr Branch	37.0	129	9/1/2018

General Summary of Dam Failures and their Effects on the Planning Area
A search of open sources identified no recorded dam failures in Rockdale County. However, with five high hazard dams located in the county, risks associated with dam failure cannot be ignored. The Rockdale County HMPC has identified some specific mitigation actions for dam failure in Chapter 3, Section 3.2.3.

2.3.6 Drought

Drought Hazard Profile

The definition of drought is a prolonged period of moisture deficiency. Drought is a normal, recurrent feature of climate. It occurs almost everywhere, although its features vary from region to region. These conditions originate from a deficiency of precipitation over an extended period of time, resulting in a water shortage. Drought conditions affect the development of crops and livestock as well as a water availability and water quality. Drought is also a key factor in Winter Storm development by making natural fuels (grass, brush, trees, dead vegetation) more prone to fires.

Drought is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area. Severe drought conditions can profoundly impact agriculture, water resources, tourism, ecosystems, and human welfare. According to NOAA, the economic impact of drought in the United States has been estimated to be $6-8 billion annually (FEMA, 1995). Drought may become a more common issue in the future, as suggested by NOAA climate data, showing increased warm U.S. and global temperatures since the mid-1990s. Climate models have also suggested that the likelihood of heat waves could increase in intensity and frequency over several decades, strengthening the environmental conditions for drought and wildfire events, (NOAA, National Oceanic and Atmospheric Administration, 2011).

Drought Identity
Drought is a complex physical and social process of widespread significance, although rarely does a single period of drought affect an entire state. The most commonly used definitions of drought are based on meteorological, agricultural, hydrological and socioeconomic effects:

Meteorological drought is defined by a period of substantially diminished precipitation duration and/or intensity. This definition is usually expressed as 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 (or normal) 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 also affect livestock and other dry-land agricultural operations.

Hydrological drought refers to deficiencies in surface and subsurface water supplies. It is measured in terms of stream flow and as lake, reservoir and groundwater levels. There is usually a delay between lack of rain and resultant reduction in measurable water in streams, lakes and reservoirs. Therefore, hydrological measurements tend to lag other drought indicators.

Socio-economic drought occurs when physical water shortages start to affect the health, well-being, and quality of life of residents, or when restricted water supplies affect the supply and demand of an economic product.

The Standardized Precipitation Index (SPI) is a drought index based on the probability of an observed precipitation deficit occurring over a given prior time period. The assessment periods considered range from 1 to 36 months. The variable time scale allows the SPI to describe drought conditions important for a range of meteorological, agricultural, and hydrological applications. For example, soil moisture conditions respond to precipitation deficits occurring on a relatively short time scale, whereas groundwater, streamflow, and reservoir storage respond to precipitation deficits arising over many months.

The Palmer Drought Severity Index (PDSI) 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 negative numbers; for example, -2 is moderate drought, -3 is severe drought, and -4 is extreme drought. Anything below minus 5 is considered an exceptional drought, as presented in table 2.15.

Table 2.26
Drought Severity Classification
(Source: National Drought Mitigation Center, Drought Monitor)

NDMC Category	Description	Possible Impacts	Ranges	
			Standardized Precipitation Index (SPI)	Palmer Drought Severity Index (PDSI)
D0	Abnormally Dry	Going into drought • Short-term dryness slowing planting, growth of crops or pastures. Coming out of drought • Some lingering water deficits • Pastures or crops not fully recovered	-0.5 to -0.7	-1.0 to -1.9
D1	Moderate Drought	• Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested	-0.8 to -1.2	-2.0 to -2.9
D2	Severe Drought	• Crop or pasture losses likely • Water shortages common • Water restriction imposed	-1.3 to -1.5	-3.0 to -3.9
D3	Extreme Drought	• Major crop/pasture losses • Widespread water shortages or restrictions	-1.6 to -1.9	-4.0 to -4.9
D4	Exceptional Drought	• Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies	-2.0 or less	-5.0 or less

It should be noted that drought and extreme heat are two different hazards that have several overlapping characteristics. One of the more important distinctions between these hazards is that extreme heat is associated with very high temperatures for extended periods of time, while drought results from below normal rainfall.

Location
Any or all residents may be affected within a drought-afflicted area, as well as any residents beyond the immediate area who are dependent upon water resources from a drought-afflicted area. The drought hazard is equally distributed across the planning area.

Impact on Life and Property
No significant damage to facilities is anticipated as a result of drought conditions, aside from the threat of wildfire. Crop damage cannot be accurately quantified due to several unknown variables: duration of the drought, temperatures during the drought, severity of the drought, rainfall requirements for specific crops and livestock, and the different growing seasons. There may also be financial losses related to water system shortages and emergency efforts required to supply residents with fresh drinking water.
Unlike other hazard events, drought causes damage slowly. A sustained drought can cause severe economic stress to the agricultural interests of the County and even the entire State or Region. The potential negative effects of sustained drought are numerous. In addition to an increase threat of wildfires, drought can affect water supplies, stream-water quality, water recreation facilities, hydropower generation, as well as agricultural and forest resources.

Occurrences of the Hazard
According to the National Climatic Data Center, north-central Georgia, including Rockdale County has experienced drought conditions in 2000, 2001, 2002, 2007, 2016, 2019. One of the most severe droughts in Rockdale County occurred in 2007. In September 2007, the director of the Georgia Environmental Protection Division (EPD) declared a level four drought response across the northern third of Georgia, to include Rockdale County, which prohibits most types of outdoor residential water use. “The drought of 2007 has reached historic proportions, so it’s critical that we take immediate action to ensure that Georgians have a sufficient supply of safe drinking water,” said EPD Director Carol A. Couch. “All of the counties included in the level four declarations are located in areas of either exceptional or extreme drought.”

Based on historical records, drought created no significant property damage loss since 1950, however, significant damage to agriculture has occurred. The most notable event occurred in 2000 when extremely dry conditions pushed into the month of June. These same dry conditions had persisted for most of the prior 2 years resulting in significant cotton crop losses throughout the northern portion of Georgia. Summarized in Table 2.29 are drought events that have occurred since 2000 in Rockdale County
The most recent drought that Georgia also experienced was between September and December 2019. By the end of October, 34% of the NWS Atlanta forecasted area were classified under a D2 Severe Drought or worse.

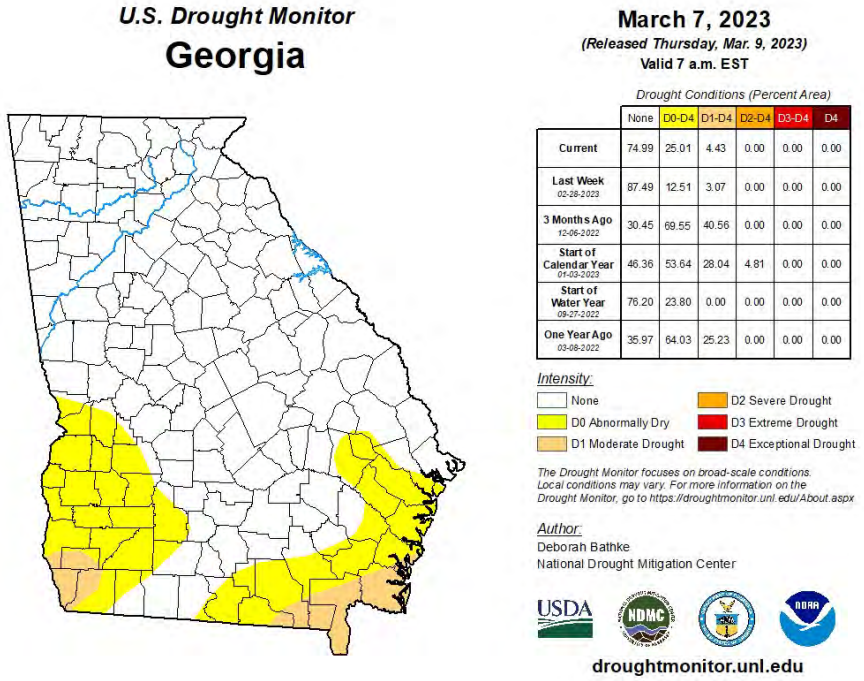
Table 2.27
Rockdale County – Drought Events 2000 – 2022
(Source: NOAA/NCDC for crops damage)

Date	Event Type	Fatalities	Injuries	Property Damage	Crops Damage
2/1/2000	Drought	0	0	$0	$0
4/1/2000	Drought	0	0	$0	$0
5/1/2000	Drought	0	0	$0	$0
6/1/2000	Drought	0	0	$0	$0
7/1/2000	Drought	0	0	$0	$0
10/1/2000	Drought	0	0	$0	$0
10/1/2001	Drought	0	0	$0	$0
11/1/2001	Drought	0	0	$0	$0
12/1/2001	Drought	0	0	$0	$0
4/1/2002	Drought	0	0	$0	$0
8/1/2002	Drought	0	0	$0	$0

1/1/2003	Drought	0	0	$0	$0
3/1/2004	Drought	0	0	$0	$0
5/1/2007	Drought	0	0	$0	$0
9/1/2007	Drought	0	0	$0	$0
10/1/2007	Drought	0	0	$0	$0
11/1/2007	Drought	0	0	$0	$0
12/1/2007	Drought	0	0	$0	$0
9/1/2011	Drought	0	0	$0	$0
6/1/2016	Drought	0	0	$0	$0
7/1/2016	Drought	0	0	$0	$0
8/1/2016	Drought	0	0	$0	$0
9/1/2016	Drought	0	0	$0	$0
10/1/2016	Drought	0	0	$0	$0
11/1/2016	Drought	0	0	$0	$0
12/1/2016	Drought	0	0	$0	$0
1/1/2017	Drought	0	0	$0	$0
9/24/2019	Drought	0	0	$0	$0
10/1/2019	Drought	0	0	$0	$0
11/1/2019	Drought	0	0	$0	$0
Totals		**0**	**0**	**$0**	**$0**

With a total of 30 drought events between 2000 and 2023, Rockdale County experiences a drought period on average approximately once every two years. Based on this information it is possible to infer an approximate 44% annual probability of occurrence County-wide. Due to regional character of the drought hazard, the same 44% annual probability may be applied to the city of Conyers.
Figure 2.7 illustrates drought conditions in Georgia in September of 2018, indicating Rockdale County as presently not being affected by drought.

Figure 2.18
Georgia Drought Conditions, September 2018
(Source: Western Regional Climate Center, Drought Monitor)



Inventory of Assets Exposed to Drought
The entire planning area is equally exposed to the drought hazard. Drought conditions typically pose little threat to structures. With the occasional exception of impacts such as rail line or road buckling, damage to buildings and other infrastructure is typically not associated with droughts. However, wildfires can occur as a result of prolonged drought and the risk from wildfires can present a significant threat to a majority of public and private property within the County, including critical facilities. In addition, water resources may become scarce during periods of drought. Any or all residents may be affected within a drought-afflicted area, as well as any residents beyond the immediate area who are dependent upon water resources from a drought-afflicted area.

According to HAZUS database, there are approximately 33,858 structures in Rockdale County, all of which are exposed to the drought hazard. This number includes 7,277 structures that are located in the City of Conyers. All structures in Conyers are also exposed to the drought hazard. All 55 listed critical facilities in Rockdale County (including 14 in Conyers) are exposed to drought hazard, albeit this exposure is limited.

Estimate of Potential Losses from Drought
Rockdale County EMA reported during prolonged dry periods water resources to fight fires are insufficient. Prolonged drought conditions can increase the risk of wildfires.

Land Use and Development Trends related to Drought
Rockdale County has a growing population with an increasing need for additional water resources. This phenomenon may make drought more of a concern in years to come. Metropolitan North Georgia Water Planning District (MNGWPD) has addressed the issue of water shortage in Metro Atlanta area, frequently exacerbated by the drought conditions. On May 7, 2009, MNGWPD adopted the updated Water Supply and Water Conservation Management Plan. This Plan defines a framework for water supply facilities and strategies for resource management for all 15 participating counties, including Rockdale County as well.

Multi-jurisdictional Hazards
In addition to wildfires, agricultural losses associated with drought are more likely to occur in the rural, less populated areas of the County. This would mainly consist of unincorporated areas outside of the City of Conyers. Although the City may be somewhat less likely to experience drought-related agricultural losses, all portions of the County and City can be impacted by water system supply shortages due to drought.

General Summary of Drought and its Effects on the Planning Area
Unlike other hazard events, drought causes damage slowly. A sustained drought can cause severe economic stress to the agricultural interests of the County and even the entire State or Region. The potential negative effects of sustained drought are numerous. In addition to an increased threat of wildfires, drought can affect water supplies, stream-water quality, water recreation facilities, hydropower generation, as well as agricultural and forest resources. The HMPC realized the limitations associated with mitigation actions for drought but did identify some basic mitigation measures in Chapter 3, Section 3.2.4

2.3.7 Hurricane Wind

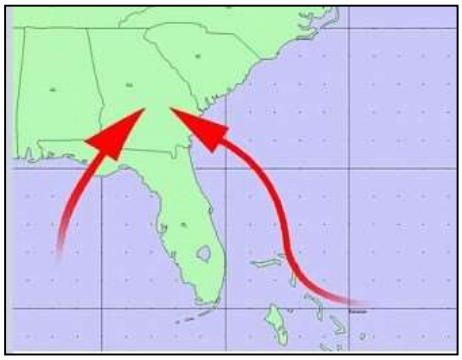
Hurricane Wind Profile

The National Hurricane Center describes a hurricane as a tropical cyclone in which the maximum sustained wind is, at minimum, 74 miles per hour (mph)[1]. 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. Hurricanes in the Atlantic Ocean, Gulf of Mexico, and Caribbean form between June and November with the peak of hurricane season occurring in the middle of September. Hurricane intensities are measured using the Saffir-Simpson Hurricane Wind Scale. This scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time.
Hurricanes bring a complex set of impacts. The winds from a hurricane produce a rise in the water level at landfall called storm surge. Storm surges produce coastal flooding effects that can be as damaging as the hurricane's winds. Hurricanes bring very intense inland riverine flooding. Hurricanes can also produce tornadoes that can add to wind damage inland. In this risk assessment, only hurricane winds, and coastal storm surge are considered.

Location
Hurricane risk in the United States extends along the entire east coast from Maine to Florida, the Gulf Coast (including Florida, Alabama, Louisiana, and Texas), and Hawaii. The southeastern United States and Gulf Coast are at greatest risk based on historical storm tracks and the warmer waters of the Gulf of Mexico and Atlantic Ocean. In Georgia, the geographic location of the State makes it makes it susceptible from tropical storms and hurricanes from both the Gulf of Mexico and Atlantic Ocean.

National Hurricane Center (2011). "Glossary of NHC Terms." National Oceanic and Atmospheric Administration. http://www.nhc.noaa.gov/aboutgloss.shtml#h. Retrieved 2012-23-02.

Figure 2.
Possible Hurricane Tracks Impacting Georgia
(Source: GEMA, Preparedness – Hurricanes in Georgia)



Impact on Life and Property
The potential severity (extent) of hurricanes and tropical storms is measured primarily by wind velocity, flooding, central pressure, and storm surge although as discussed below the most common measure is wind speed. Due to its inland location, Rockdale County is not especially prone to the very high winds associated with hurricanes in Categories 3 and higher (see information about the Saffir-Simpson Scale below in Table 2.28, nor is there any exposure to storm surge. The primary hurricane threat for central Georgia is related to flooding from the torrential rains that often accompany such events. The extent of flooding is discussed in the flood section above and is not repeated here.

For the period 1886 – 1994, an average of five hurricanes per year has occurred in the North Atlantic basin. This region is particularly vulnerable because hurricanes occur frequently, the areas are prone to storm surge and coastal riverine flooding, and the population has climbed to an estimated 36 million people.

As shown in Table 2.30, the Saffir-Simpson Hurricane Scale is used to classify storms by numbered categories. Hurricanes are classified as Categories 1 through 5 based on central pressure, wind speed, storm surge height, and damage potential.

Table 2.
Saffir-Simpson Hurricane Scale
(Source: NOAA, NHC & CPHC; HAZUS Report & POLIS Center)

STORM CATEGORY	CENTRAL PRESSURE	SUSTAINED WINDS	STORM SURGE	POTENTIAL DAMAGE
1	> 980 mbar	74 – 95 mph	4 – 5 ft	Minimal; Very dangerous winds will produce some damage
2	965 – 979 mbar	96 – 110 mph	6 – 8 ft	Moderate; Extremely dangerous winds will cause extensive damage
3	945 – 964 mbar	111 – 129 mph	9- 12 ft	Extensive, Devastating damage will occur
4	920 – 944 mbar	130 – 156 mph	13 – 18 ft	Extreme; Catastrophic damage will occur
5	< 920 mbar	> 157 mph	> 18 ft	Catastrophic; Catastrophic damage will occur

The winds associated with a hurricane cause many devastating effects. Property damage associated with hurricane force winds increases greatly with the wind strength of the hurricane. A Category 1 storm may cause little or no damage to permanent buildings. Most damage will be to mobile homes, trees, shrubs, and signs. A Category 3 storm will cause some structural damage to homes, down trees, and destroy signs. Winds from a Category 5 storm will be devastating to buildings. There will be complete roof failure on many

residences and commercial buildings. In addition to causing wind-blown related structural damage, winds increase the storm surge as they grow stronger.

Generally speaking, the County's vulnerability to high winds is a direct function of (a) the potential exposure of citizens to high winds, and (b) the characteristics of structures in the jurisdiction, including both private- and government-owned facilities. Most structures built using modern construction techniques and up-to-date building codes are able to withstand moderate wind forces (up to Hurricane Category 3) but are subject to greater levels of damage as wind intensity increases.

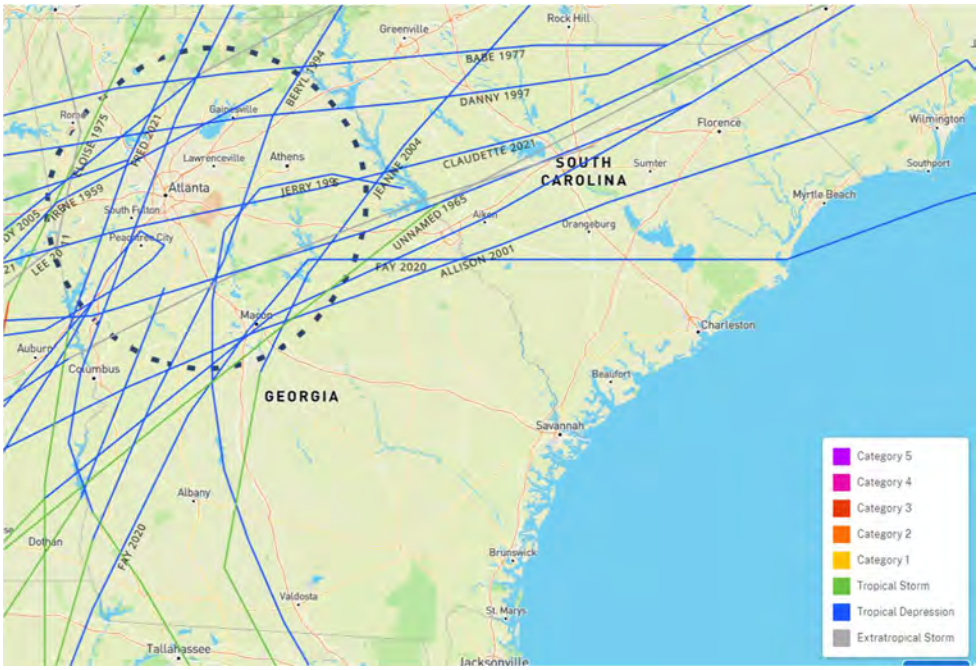
Occurrences of the Hazard
The NDCC database indicates that Tropical Storm Irma in 2017 and Hurricane Humberto in 2007 was the only hurricane to impact Rockdale County between 2006 and 2018.

Tropical Storm Irma: On the morning of August 30th Tropical Storm Irma developed rapidly over the eastern Atlantic Ocean, just west of the Cape Verde Islands. Tropical Irma quickly strengthened as it moved west, reaching hurricane strength by the morning of August 31st. Hurricane Irma continued to move steadily westward across the Atlantic Ocean, intensifying to a category 4 storm on the Saffir- Simpson scale as it approached the northern Leeward Islands of the Lesser Antilles on September 4th. By the morning of the September 5th Hurricane Irma had reached category 5 and remained so into the morning of September 8th as it moved through the northern Antilles and approached the Bahamas. Irma continued moving west northwest as a category 4 storm before turning north over the Florida Straits and crossing the Florida Keys on the 9th and 10th. Hurricane Irma made landfall over southwest Florida as a category 4 storm during the evening of the 10th and travelled north northwest through western Florida before weakening to a category 1 hurricane as it crossed into southwest Georgia the afternoon of September 11th. Tropical Storm Irma crossed southwest Georgia through the day of the 11th before weakening to a tropical depression over north Alabama early on the morning of the 12th. Tropical storm strength winds produced widespread damage across central and north Georgia through the day of September 11th and into the early morning hours of the 12th. Isolated flash flooding associated with Tropical Storm Irma was reported as well.

Tropical Storm Zeta: The Rockdale County Emergency Manager and the local news media reported numerous trees and power lines blown down across the county. A woman in Conyers was struck by a large falling tree branch sustaining minor injuries. A wind gust of 46 mph was measured in Conyers. Radar estimated between 2 and 4 inches of rain fell across the county with 3.15 inches measured in Milstead. Per NOAAs information, the County sustained approximately $150,000 in damages, with Rockdale County schools closed for four days, from 9/11-9/14 (source: RCPS).

Other events: Other sources indicated north-central Georgia and Rockdale County have been impacted by numerous tropical storms, tropical depressions, or downgraded hurricanes. NOAA's historical hurricane tracks database indicates that a total of 11 tropical storms or downgraded hurricanes have impacted the area between 1859 and 2018 by moving within 20 miles of the County boundaries. Figure 2.21 identifies past hurricane and tropical storm tracks that have impacted Rockdale County during this time period. Although not identified on the map, the three tropical depressions that have come closest to Rockdale County include Tropical Storm (TS) Arlene in 1959, TS Beryl in 1994 and TS Jerry in 1995.
Using the above numbers, a very approximate estimate of the annual probability for future hurricane/ tropical storm impact for both Rockdale County and City of Conyers would be 7%. This probability is most likely higher in reality, given that tropical weather systems are relatively large and may affect areas several hundred miles away from its relatively narrow path.

Figure 2.
Past Hurricane and Tropical Storm Tracks Impacting Rockdale County (1950 – 2022)
(Source: NOAA – Historical Hurricane Tracks)



In 2023, the Georgia Department of Emergency Management partnered with the Carl Vinson Institute of Government at the University of Georgia to develop a detailed risk assessment focused on defining Hurricane Wind risks in Rockdale County. This assessment identifies the characteristics and potential consequences of the hurricane-strength winds, how much of the community could be affected by the disaster, and the impact on community assets.
The risk assessment study assessment modelled a probabilistic Tropical Storm with maximum winds of 67 mph (corresponding to a 1% chance storm event). For comparison, the winds speeds recorded during Hurricane/Tropical Storm Irma were in vicinity of 48 mph. Figure 2.22 shows wind speeds for the modelled Tropical Storm.

Inventory of Assets Exposed to Hurricane
Buildings in Rockdale County are vulnerable to storm events, and the cost to rebuild may have significant consequences to the community. All structures within Rockdale County are exposed to the hurricane strength wind. Table 2.31 shows a summary of the results of wind-related building damage in Rockdale County for the Tropical Storm (100 Year Event). The loss ratio expresses building losses as a percentage of total building replacement cost in the county. Figure 2.23 illustrates the building loss ratios of the modeled Tropical storm.

Table 2.
Rockdale County – Hurricane Wind Building Damage
(Source: HAZUS Report & POLIS Center)

CLASSIFICATION	NUMBER OF BUILDINGS DAMAGED	TOTAL BUILDING DAMAGE	TOTAL ECONOMIC LOSS	LOSS RATIO
Tropical Storm	29	$5,246,020	$7,750,370	0.06%

Figure 2.
Rockdale County – Wind Speeds by Storm Category
(Source: GADEP)

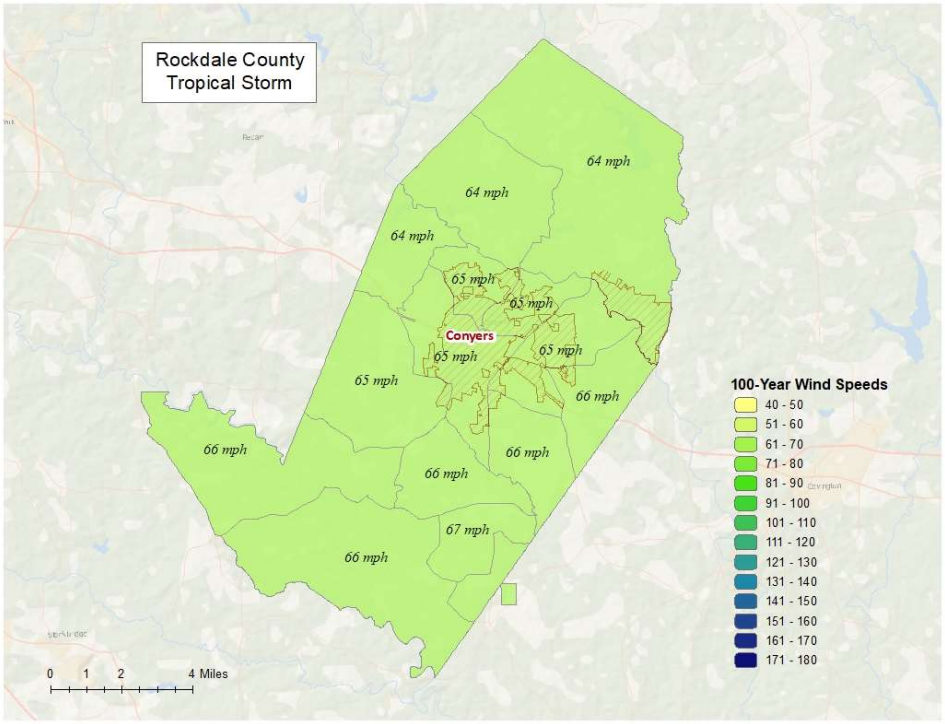


Figure 2.
Rockdale County – Hurricane Wind Building Loss Ratios
(Source: HAZUS Report & POLIS Center)

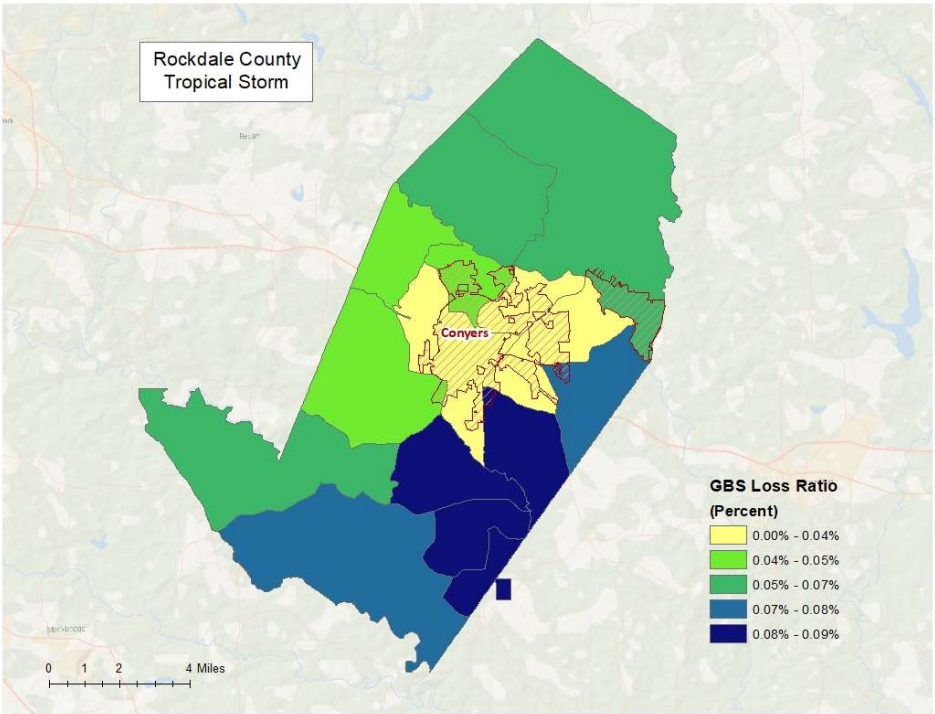


Figure 2.
Rockdale County – Wind Related Debris in Tons
(Source: HAZUS Report & POLIS Center)

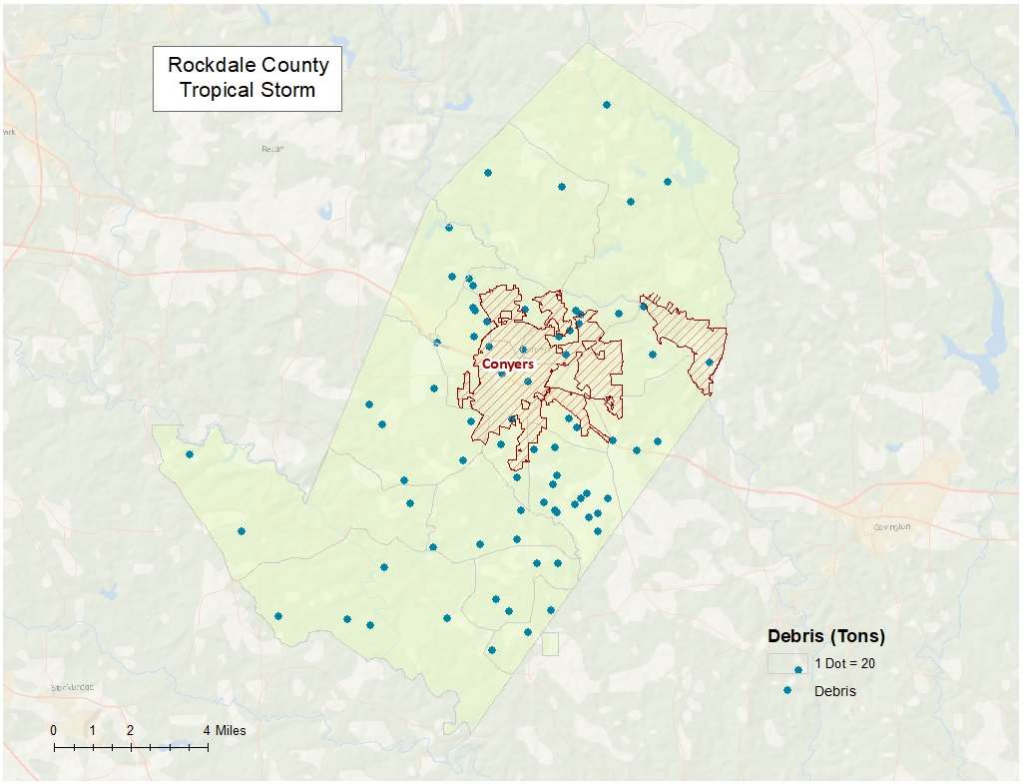


Table 2.
Rockdale County – Wind Related Debris Weight (Tons)
(Source: HAZUS Report & POLIS Center)

CLASSIFICATION	BRICK, WOOD, AND OTHER	REINFORCED CONCRETE AND STEEL	ELIGIBLE TREE DEBRIS	OTHER TREE DEBRIS	TOTAL
Tropical Storm	179	0	1,304	3,463	4,946

Critical facilities are also vulnerable to storm events, and the potential loss of functionality may have significant consequences to the community. HAZUS-MH identified 58 critical facilities that may be moderately damaged by winds, by being closed for less than a day.

Land Use and Development Trends Related to Hurricane
All new construction in Rockdale County must be designed and constructed to meet current building code requirements. Rockdale County is located in wind zone III, which is associated with 200-mph design wind speeds as determined by the American Society of Civil Engineers (ASCE). Construction in Rockdale County must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code (2006 edition). The minimum standards established by these codes provide reasonable protection from most natural hazards associated with straight-line winds such as hurricanes, tropical storms, and severe thunderstorms.

Multi-jurisdictional Hazards
There are no differences in exposure to high winds between Rockdale County and the City of Conyers. Rockdale County has a design wind speed of 115 mph as determined by the American Society of Civil Engineers (ASCE). Since hurricanes affect the entire planning area, any mitigation steps taken related to tornados should be undertaken on a countywide basis, including the City of Conyers.

General Summary of Hurricanes and their Effects on the Planning Area
All of Rockdale County and the City of Conyers are vulnerable to hurricanes/hurricane wind. Within the planning area, the most significant consequences associated with high winds are the potential for moderate structural damage, downed trees, falling limbs, debris and vegetation on roadways, and downed utility lines which may also cause widespread power outages. The Rockdale County HMPC identified one specific mitigation action for the hurricane hazard, which can be found in Chapter 3, Section 3.2.7.

2.3.8 Inland Flooding

Inland Flooding Hazard Profile

Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto the adjacent floodplain. Hundreds of floods occur each year, making them one of the most common hazards in all 50 States and U.S. territories. Floods are also the most widespread of all natural disasters except fire. Flooding typically results from large-scale weather systems generating prolonged rainfall. Most communities in the United States have experienced some kind of flooding after spring rains, heavy thunderstorms, or winter snow thaws.

The vulnerability of a river or stream to flooding depends upon several variables. Among these are topography, ground saturation, rainfall intensity and duration, soil types, drainage, drainage patterns of streams, and vegetative cover. A large amount of rainfall over a short time span can result in flash flood conditions. Nationally, the total number of flash flood deaths has exceeded tornado fatalities during the last several decades. Two factors seem to be responsible for this: public apathy regarding the flash flood threat and increased urbanization. A small amount of rain can also result in floods in locations where the soil is saturated from a previous wet period or if the rain is concentrated in an area of impermeable surfaces such as large parking lots, paved roadways, etc. Topography and ground cover are also contributing factors for floods in that water runoff is greater in areas with steep slopes and little or no vegetation.

Location
Rockdale County is located on the eastern fringe of the Greater Atlanta Metropolitan Area, approximately 20 miles east of downtown Atlanta. The County covers 128 square miles and is drained by two major rivers, the Yellow River to the north and the South River to the South. Both rivers are major headwater tributaries of the Altamaha River system. The Yellow River flows southeasterly through the County following a meandering course through rolling hills and a wide floodplain. The South River, which forms part of the southern boundary of Rockdale County, drains the southeast section of urban Atlanta.[13] Rockdale County is divided into five watersheds: Big Haynes Creek, Yellow River, Snapping Shoals Creek, Honey Creek, and South River.

There is a total of six USGS stream-gauging station in Rockdale County (including one in Conyers):

Table 2.
Rockdale County: USGS Stream-gauging Stations
(Source: USGS)

USGS STREAM-GUAGING STATION	STREAMS AND LOCATION
USGS 02207414	Randy Poynter Lake at Spillway, Near Milstead, GA
USGS 02207418	Big Haynes Creek at Jack Turner Dam, Near Milstead, GA
USGS 02204130	Honey Creek At GA 212, Near Conyers, GA
USGS 02207448	Big Haynes Creek at Bald Rock Road, Near Milstead, GA
USGS 02207335	Yellow River at Gees Mill Road, Near Milstead, GA
USGS 02207300	Yellow River at Milstead, GA
USGS 02207435	Little Haynes Creek at Dial Mill Rd, Near Milstead, GA

[13] Flood Insurance Study (FIS) – Rockdale County, Georgia, December 8, 2016

The Flood Insurance Rate Maps (FIRMs) prepared by FEMA provide an overview of flood risk but can also be used to identify the areas of the County that are vulnerable to flooding. FIRMs are used as a basis for regulating new development (through permitting and subdivision design standards) and to control the substantial improvement and repair of substantially damaged buildings. FIRMs are accompanied by a Flood Insurance Study (FIS), which presents the flood risk for specific watercourses, lakes, and coastal flood hazard areas within a community. The most recent FIS for Rockdale County is dated December 8, 2016. This FIS was prepared for both the unincorporated areas and incorporated communities of Rockdale County. The FIS compiles all previous flood information and includes data collected on numerous waterways.

Flood severity is measured in various ways, including frequency, depth, velocity, duration, and contamination. In Rockdale County, characterizing the severity of the flood hazard depends on what part of the jurisdiction is being considered. The Rockdale County FIS indicates that significant flood events occurred in 1948 and 1961. More recently, flooding in Rockdale County has caused moderate to severe damage on a relatively small number of occasions within the past two decades. The County has been impacted by five significant flood events in the past 23 years: 1994, 2004, 2005, 2009, and 2015. The most significant flooding occurred in September 2009 (FEMA-DR-1858), as illustrated in record peak stage and discharge on USGS 02207335 station on Yellow River:

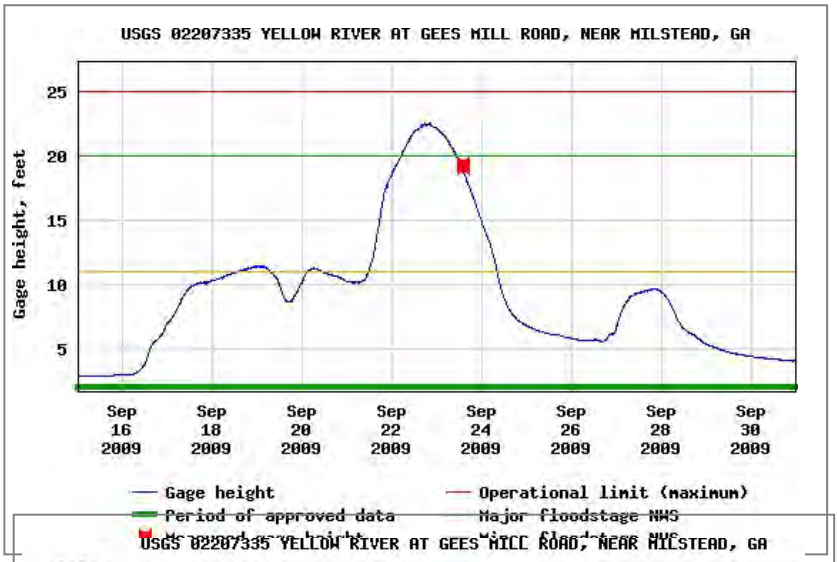


Figure 2.
USGS 0220735
Peak Stage
(Source: USGS)

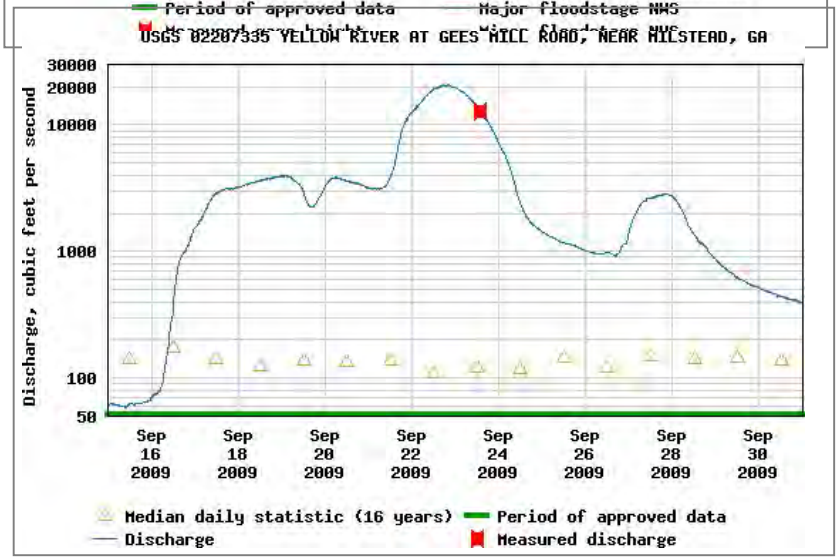


Figure 2.
USGS 0220735
Peak Discharge
(Source: USGS)

Figures 2.27 and 2.28 identify Special Flood Hazard Areas (or 100-year floodplain) for Rockdale County and for the City of Conyers, respectively.

Figure 2.
Rockdale County Floodplain Map
(Source: HAZUS Report)

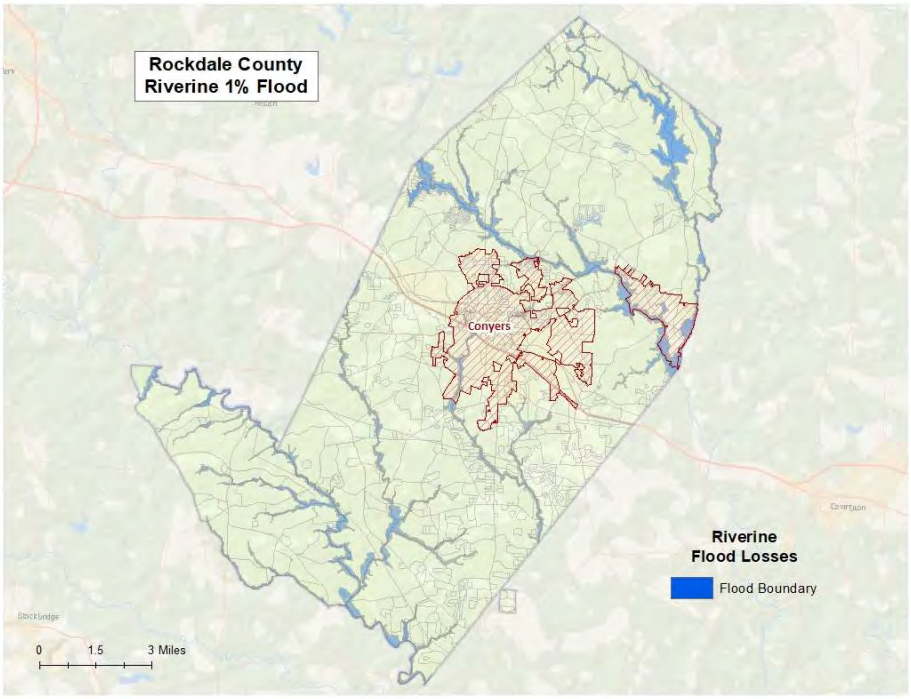
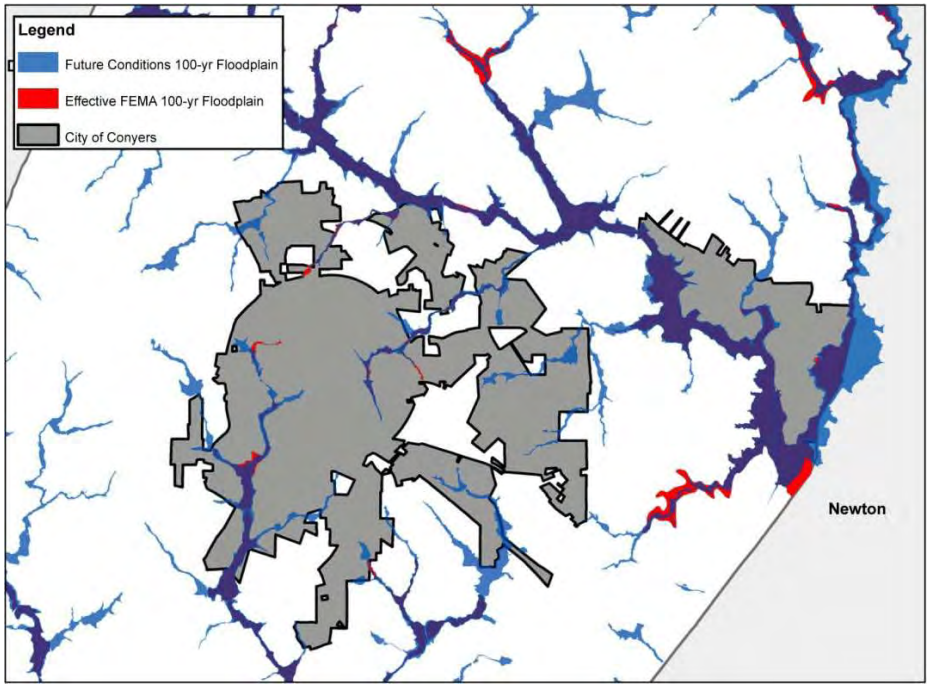


Figure 2.
City of Conyers Floodplain Map
(Rockdale County Future Conditions Flood Study, 2010)



Impact on Life and Property. The NCDC database indicates that there have been twelve floods in Rockdale County in the period from 1950 to 2022, with property damage slightly over $3.3 million. The NCDC database indicates the events that occurred between 2003 and 2020. The database provides no indication as to why there are no events recorded prior to 2003, but presumably past flood events follow a

similar pattern as the 17 years of historical data. Figures maintained by NCDC indicate that Rockdale County has experienced no deaths and no injuries due to floods.

Occurrences. As noted, the NCDC indicates there have been twelve flood events in Rockdale County between 1950 and 2022. The events are summarized below in Table 2.24. The event causing the greatest amount of damage was a flood caused by torrential rains in Georgia, between September 21 and 23, 2009 (FEMA-DR-1858). The greatest damage caused by this event in Rockdale County was recorded in McElroy's Mill on September 21, 2009, with damages in excess of $3million.

Table 2.
Rockdale County: Flood Events, 1950 – 2022
(Source: NOAA/NCEI)

DATE	EVENT TYPE	LOCATION	FATALITIES	INJURIES	PROPERTY DAMAGE
05/06/2003	Flash Flood	Conyers	0	0	**$0**
09/16/2004	Flash Flood	County Wide	0	0	**$50,000**
09/16/2004	Flood	Rockdale	0	0	**$0**
07/06/2005	Flood	Rockdale	0	0	**$0**
07/06/2005	Flash Flood	County Wide	0	0	**$150,000**
07/11/2005	Flood	Rockdale	0	0	**$0**
09/21/2009	Flood	McElroys Mill	0	0	**$2,010,000**
09/21/2009	Flood	McElroys Mill	0	0	**$990,000**
12/24/2015	Flash Flood	Lakeview Estates	0	0	**$50,000**
12/30/2015	Flash Flood	Lakeview Estates	0	0	**$100,000**
04/19/2019	Flash Flood	Conyers	0	0	**$0**
08/25/2020	Flash Flood	Lakeview Estates	0	0	**$0**
TOTAL for 1950 - 2022			**0**	**0**	**$3,350,000**

With twelve flood events between 2003 and 2020, Rockdale County experiences on average one flood every four years; there is a 25% annual probability of a future flood event occurring in Rockdale County. Using a similar approach, the annual probability for Conyers is approximately 20%. This method is not intended to be an exact, scientific assessment of probability – site-specific engineering studies such as FISs should be used to determine flood probability on a case-by-case basis when specific metrics are needed.

In 2018, the Georgia Department of Emergency Management partnered with the Carl Vinson Institute of Government at the University of Georgia to develop a detailed risk assessment focused on defining riverine flood risks in Rockdale County. This assessment identifies the characteristics and potential consequences of the inland flooding, how much of the community could be affected by the disaster, and the impact on community assets.

For this report, a HAZUS Level II study was performed using the 1% effective (2016) flood boundaries. The flood boundaries were overlaid with the USGS 10-meter DEM using the HAZUS-MH Enhanced Quick Look tool to generate riverine depth grids. The riverine flood depth grid was then imported into HAZUS-MH to calculate the riverine flood loss estimates.

For the HAZUS Level II study, the General Building Stock (GBS) records were replaced with data derived from parcel and property assessment data obtained from Rockdale County. The County-provided property assessment data was current as of May 2018 and the parcel data current as of May 2018.

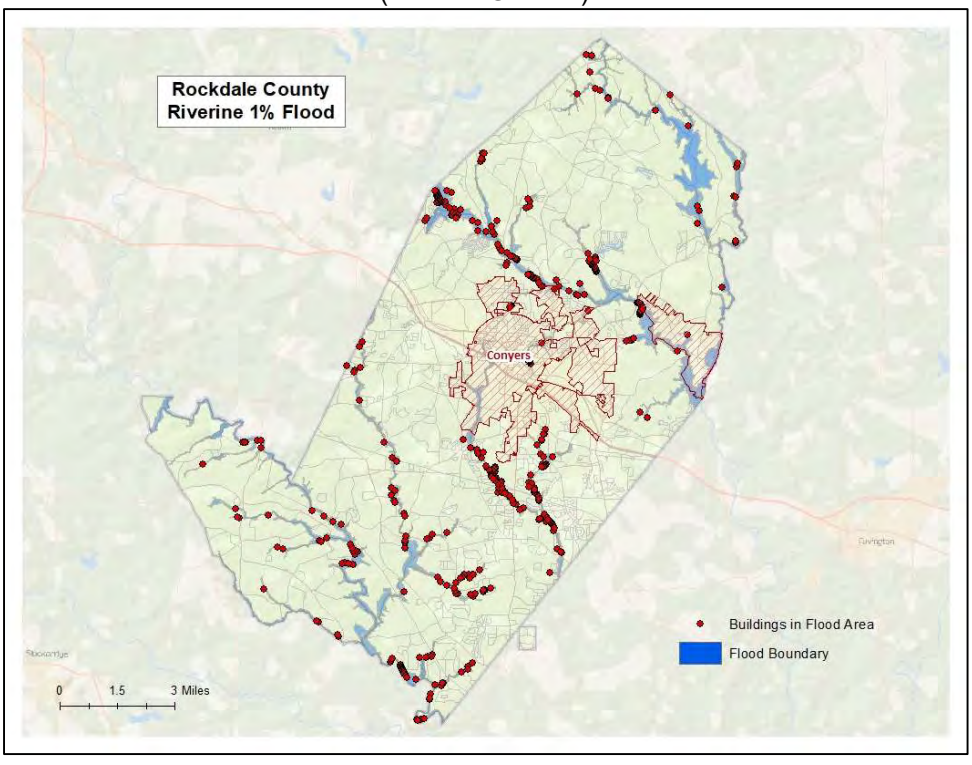
Records without improvements were deleted. The flood losses were calculated from building inventory modeled in HAZUS-MH as User-Defined Facility (UDF), or site-specific points.

Table 2.25 provides a summary of the potential flood-related building damage in Rockdale County by jurisdiction that might be experienced from the 1% flood. Figure 2.16 maps the locations of the buildings within the 1% flood inundation boundary.

Table 2.
Rockdale County – Riverine Flooding 1% Building Losses
(Source: GADEP)

OCCUPANCY	TOTAL BUILDINGS IN THE JURISDICTION	TOTAL BUILDINGS DAMAGED IN THE JURISDICTION	TOTAL BUILDING EXPOSURE IN THE JURISDICTION	TOTAL LOSSES TO BUILDINGS IN THE JURISDICTION	LOSS RATIO OF DAMAGED BUILDINGS TO EXPOSED BUILDINGS
CITY OF CONYERS					
COMMERCIAL	769	1	$378,983,756	$52,694	0.01%
INDUSTRIAL	227	1	$143,172,761	$24,421	0.02%
RESIDENTIAL	4,447	17	$914,058,914	$950,040	0.10%
UNINCORPORATED ROCKDALE COUNTY					
RESIDENTIAL	27,140	352	$6,009,827,287	$21,846,554	0.36%
COMMERCIAL	817	11	$601,225,218	$77,949	0.01%
EDUCATION	46	1	$223,091,742	$532,541	0.24%
GOVERNMENT	38	1	$25,729,573	$369	0.00%
AGRICULTURAL	32	1	$1,402,827	$741	0.05%
ROCKDALE COUNTY TOTAL					
	33,516	385	$8,297,492,078	$23,485,309	

Figure 2.
Rockdale County – Damaged Buildings in Riverine Floodplain (1% Food)
(Source: GADEP)



Inventory of Assets Exposed to Inland Flooding
According to the HAZUS database, Rockdale County had 25,698 structures, of which 1,810 (7%) were located within the floodplain. The City of Conyers had 3,914 structures, of which 195 (5%) were located within the floodplain. See Appendix D (Flood Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers.

A critical facility may encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g., a damaged police station will no longer be able to serve the community).

As of fall 2018, there were 200 critical facilities located within Rockdale County (this information was provided by the Rockdale County EMA and is current). Of this total, 30 were located within the City of Conyers or were traversing the City's jurisdiction.

The analysis identified no essential facilities that were subject to damage in the Rockdale County riverine 1% probability floodplain.

Land Use and Development Trends related to Inland Flooding
Rockdale County and the City of Conyers each participate in the National Flood Insurance Program (NFIP) and follow the Program guidelines to ensure future development is carried out in the best interests of the public. The County entered the NFIP on February 15, 1979, and the City of Conyers entered the NFIP program on December 1, 1978. Consistent with NFIP guidelines, both jurisdictions have executed a Flood Damage Prevention Ordinance. The purpose of this ordinance is to minimize the loss of human life and health as well as to minimize public and private property losses due to flood conditions. The ordinance requires that potential flood damage be evaluated at the time of initial construction of structures, facilities and utilities, and that certain uses be restricted or prohibited based on this County/City evaluation. The ordinance also requires that potential homebuyers be notified that the property is located in a flood area. In addition, all construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code (2006 edition). The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards.

At the present time, there are no repetitive-loss (RL) of severe repetitive-loss (SRL) structures in Rockdale County or the City of Conyers.

The *Rockdale County 2018 Comprehensive Plan (DRAFT)* was reviewed as part of the Plan update to identify future development trends in Rockdale County. The Rockdale County Comprehensive Plan included 14 future land use categories identified within Part F, *Future Land Use Plan,* of Chapter 3, Recommended Plan. The three largest future land use categories combined make up roughly 78 percent of all land in the County. The largest future land use category is Medium Density Residential which makes up approximately 48 percent of the County land area. In this area the County intends to have property preserved as open space. This land is located on both sides of I-20, Scott Highway (SR 212) roughly the southern boundary with additional Medium Density Residential property is north of I-20, with HI Roc Road the northern boundary.

The second largest future land use category is Low Density Residential/Agriculture, comprising 16 percent of the total land area in Rockdale County. Land within this category is located in the southwestern part of the County, south of Scott Highway (SR 212). The third largest category is Watershed Protection and accounts for 14 percent of the total land area. This land use category is located north of Hi Rock Road and is associated with the watershed of Big Haynes Creek. In order to protect the Big Haynes Creek watershed, development is limited to one unit per three acres. The remaining 13 categories combined make up approximately 22 percent of the County's land use.[14]

[14] Rockdale County 2020 Comprehensive Plan, Chapter VIII, Land Use, Part F, Future Land Use Plan

The *Future Land Use Plan* section also indicates where commercial and industrial growth is anticipated. The Future Land Use map identifies three special mixed-use activity center areas that are located on Salem Road (SR 162) and the Stonecrest area. Commercial growth in these areas is shown as a slight expansion in areas already used for commercial purposes.

The Future Land Use conditions for Rockdale County were used for hydrologic conditions for the MNGWPD floodplain study and subsequent maps. Rockdale County HMPC decided to use the future land use conditions as the basis for flood hazards in this Hazard Mitigation update.

To identify future development trends for the City of Conyers the *Update of the Comprehensive Plan, City of Conyers, Georgia* (September 2018) was reviewed. Review of the 2018 Comprehensive Plan identified several areas where future development is anticipated as well as infill development within the City of Conyers.

Multi-jurisdictional Hazards
The City of Conyers is located atop the major ridge divide between the Yellow River and South Rivers. There are several creeks and tributaries that flow through or near the city including Almand Creek, Tanyard Branch, Boar Tusk Creek, and North Conyers Tributary. Review of the Rockdale County FIS and City of Conyers FIRM, flood risk is concentrated along these rivers and tributaries.

General Summary of Inland Flooding and Its Effects on the Planning Area
Flooding has the potential to inflict significant damage within Rockdale County. Mitigation of flood damage requires the community to have knowledge of flood-prone areas, including roads, bridges, bodies of water, and critical facilities, as well as the location of the County's designated shelters. The Rockdale Co. HMPC identified flooding as a hazard requiring mitigation measures and identified specific mitigation goals, objectives and action items they deemed necessary to lessen the impact of flooding. These findings are found in Chapter 3, Section 3.2.6.

2.1.9 Wildfire

Wildfire Profile

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

Three classes of fires are presented: understory fires, crown fires, and ground fires. Naturally induced wildfires burn at relatively low intensities, consuming grasses, woody shrubs, and dead trees. These understory fires often play an important role in plant reproduction and wildlife habitat renewal and self-extinguishment by low fuel loads or precipitation. Crown fires, which consist of fires consuming whole living tress, are low probability but high consequence type events. Crown fires typically match perceptions of wildfires. In areas with high concentrations of organic materials in the soil, ground fires may burn, sometimes persisting undetected for long periods until the surface is ignited. [15]

[15] 2011 Georgia Hazard Mitigation Strategy

Location

The State of Georgia faces the possibility of major wildfire occurrences each year. The risk for wildfire is increased and compounded by increasing development within the zone commonly referred to as the "urban-wildland interface (UWI)." The UWI is defined as the area where structures and other human development meet or intermingle with undeveloped wildland. Within this zone of natural landscape, buildings become additional fuel for fires when fires do occur. Most wildland fires are man-caused and occur in the interface of developed lands and forest and range lands. In particular, the dry conditions, high temperatures, and low humidity that characterize drought periods set the stage for wildfires.

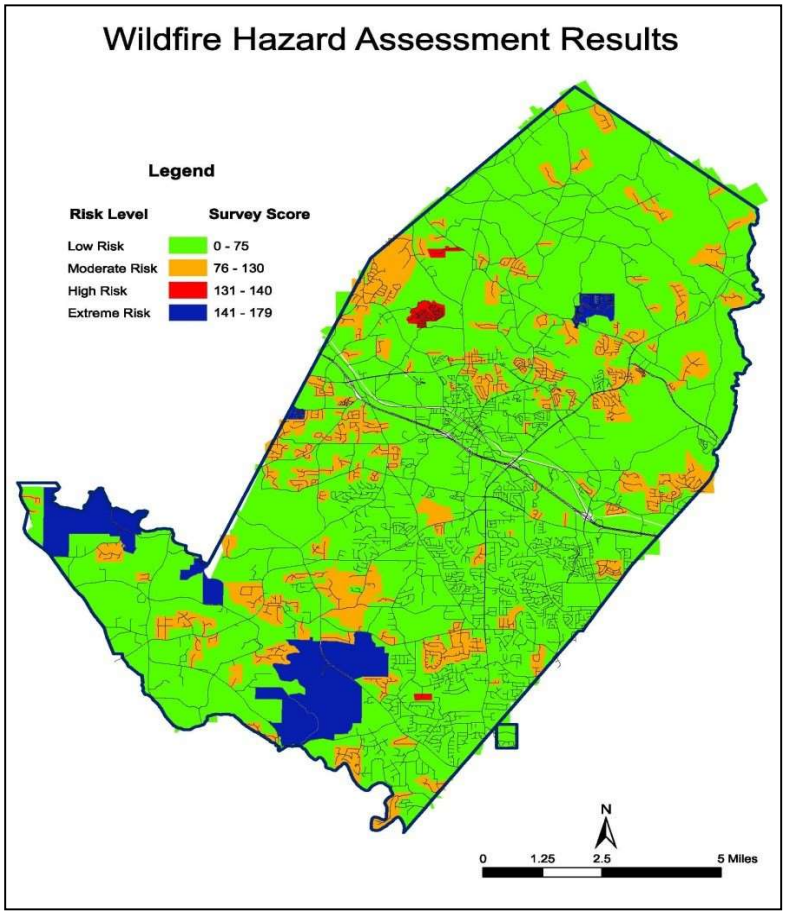
The United States Department of Agriculture (USDA) Forest Service has developed a Wildland Fire Risk to Flammable Structures map. The map was developed by the USDA Forest Service's Rocky Mountain Research Station (RMRS) Fire Sciences Laboratory. The wildfire hazard areas identified on the map were based on variables such as housing density, potential fire exposure, and extreme fire weather potential. The hazard scores are identified in the wildfire hazard risk table below.

Table 2.
RMRS Wildland Fire Risk to Flammable Structures
(Source: GEMA, 2011)

HAZARD SCORE	DESCRIPTION
0	No Houses: • Agriculture • Bodies of Water • Dense Urban Development
1	Very Low Risk
2	Low Risk
3	Moderate Risk
4	High Risk

Figure 2.___ identifies the wildfire hazard areas in Rockdale County. The map is color coded and identifies threat categories ranging from low risk to extreme risk. The Rockdale County GIS department calculated there were 6,477 structures within 500 feet of wildfire hazard areas.

Figure 2.
Rockdale County Wildfire Hazard Exposure Hazard Areas
(Source: Rockdale County CWPP, 2016)



Impact on Life and Property
Review of the NCDC database indicates there are no injuries or deaths from wildfire in the planning area. See Appendix A for past wildfire events and the estimated suppression costs.

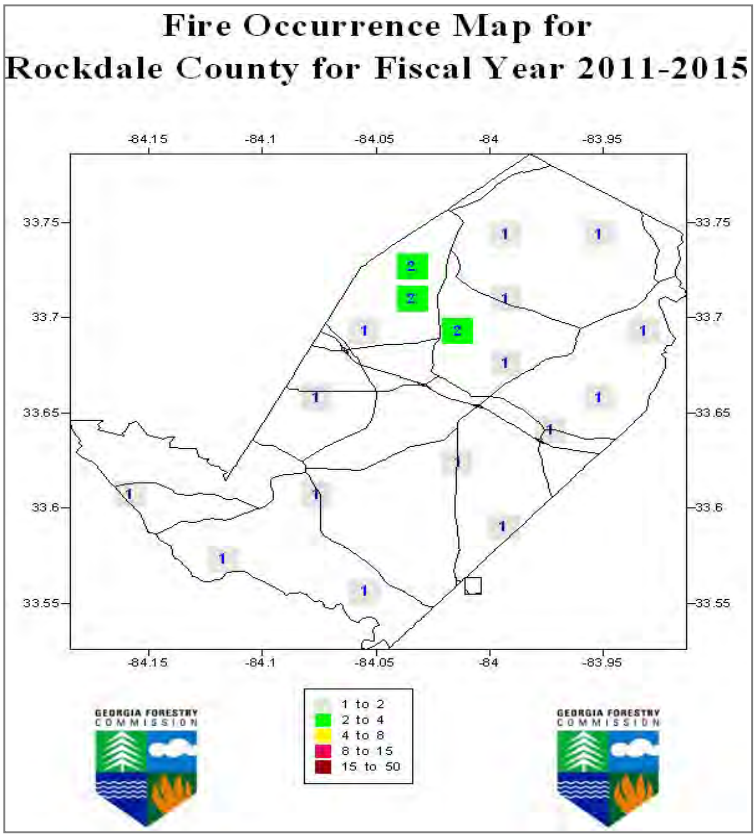
Occurrences of the Hazard
Although none of the State fire declarations included Rockdale County, there have been numerous grass, brush, and wildland fires. Wildfires are a serious threat to Rockdale County. Between 2007 and 2016 there have been 73 wildfires (by Cause) reported by the Rockdale County Fire Department (per Rockdale County 2016 Wildfire Protection Plan, page 12).

Based on Table 2. below, it is likely that a wildfire event will occur approximately four times per year in Rockdale County, consuming in total approximately 9 acres per year. Consequently, the annual probability for both Rockdale County and the City of Conyers is 100%. However, it should be noted that many wildfires are relatively minor and are extinguished quickly or otherwise burn themselves out.

Table 2.
Rockdale County Fire Cause and Acreage for Fiscal Year 2016
(Source: Rockdale County CWPP, 2016)

Fire Cause	Fires	Acres	Fires 5-Year Average	Acres 5-Year Average
Children	0	0.00	0.60	1.30
Debris: Residential, Leaf Piles, Yard, etc.	0	0.00	0.60	1.08
Incendiary	0	0.00	0.60	0.72
Lightning	0	0.00	0.40	1.68
Machine Use	0	0.00	0.80	3.40
Miscellaneous	0	0.00	0.20	0.20
Miscellaneous: Power lines/Electric fences	1	0.20	0.20	0.04
Miscellaneous: Spontaneous Heating/Combustion	1	0.10	0.20	0.02
Smoking	0	0.00	0.40	0.58
Total for 2016:	**2**	**0.30**	**4.00**	**9.02**

Figure 2.
Locations Where the GFC Responded to Wildfires FY 2010-2015
(Source: Rockdale County CWPP, 2016)



Inventory of Assets Exposed to Wildfire
According to HAZUS database, Rockdale County had 25,698 structures, of which 4,162 (16 %) were located within the wildfire hazard area. The City of Conyers had 3,914 structures, of which 960 (25 %) were located within the wildfire hazard area. See Appendix D (Wildfire Section) for GEMA Worksheet #3a which provides a complete inventory of assets and has been completed for both Rockdale County and the City of Conyers.

Estimate of Potential Losses from Wildfire
At this time, there is incomplete damage data for the for wildfires report between September 2005 and September 2012. The existing list of critical facilities does not contain replacement values for all facilities, and it is unclear as to their vulnerability to wildfire is. Total exposure of all structures in Rockdale County to wildfire is $2.02 billion, including $616 million in the City of Conyers.

Land Use and Development Trends related to Wildfire
The 2008 report, *Fire in the South, the Southern Wildfire Risk Assessment,* prepared by the Southern Group of State Foresters indicated that the southern United States consistently has the highest number of wildfires per year. Population growth is pushing housing developments further into natural and forested areas where most of these wildfires occur.

This is also occurring in Rockdale County, which has experienced significant population growth over the past fifteen years as people move out of Atlanta and into the suburbs. This population restructuring has resulted in rapid development in the rural areas with attractive recreational and aesthetic amenities and increased green space, such as Rockdale County. This demographic change is increasing the size of the urban-wildland interface (UWI). The expansion of the UWI in recent decades has significant implications for wildfire management and impact for Rockdale County. The UWI creates an environment in which fire can move readily between structural and vegetation fuels. Its expansion has increased the likelihood that wildfires will threaten structures and people.

Multi-jurisdictional Hazards
Within the City of Conyers, the wildfire threat is predominately concentrated in the south-western corner of the city proper and across appropriated City area on the east side of the County.

General Summary of Wildfires and their Effects on the Planning Area
Wildfires pose a serious threat to Rockdale County in terms of property damage, as well as injuries and loss of life. Wildfires are one of the most frequently occurring natural hazards within the County each year. Based on the frequency of this hazard, as well as the ability of wildfires to cause damages most anywhere in the County, the mitigation measures identified in this Plan update should be continued. Specific mitigation actions related to wildfire are identified in Chapter 3, Section 3.2.7.

2.1.10 Earthquake

Earthquake Profile

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

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

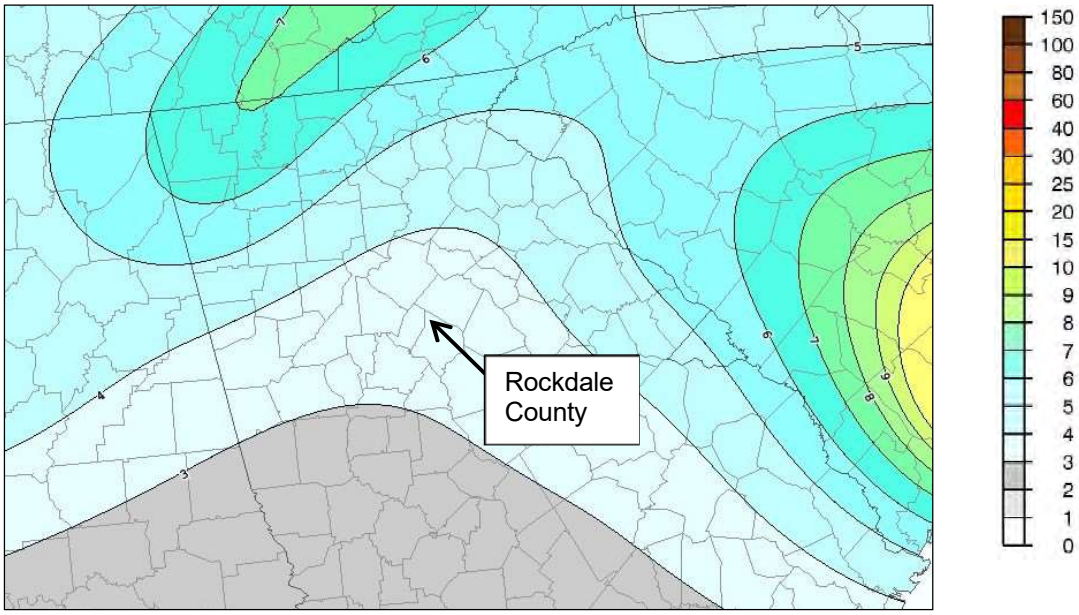
Another way to estimate the likelihood of future earthquakes is to study how fast strain accumulates. When plate movements build the strain in rocks to a critical level, like pulling a rubber band too tight, the rocks will suddenly break and slip to a new position. Scientists measure how much strain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

Magnitude and intensity measure different characteristics of earthquakes. Magnitude measures the energy released at the source of the earthquake and is determined from measurements on seismographs. Intensity measures the strength of shaking produced by the earthquake at a certain location and is determined from effects on people, human structures, and the natural environment.

Location

The entire planning area is susceptible to the effects of earthquakes. Figure 2.24 displays the central and north Georgia portion of a United States Geological Survey (USGS) earthquake hazard map produced in 2008. The map shows peak ground acceleration (pga) with a 10% chance of being exceeded over 50 years is in the 4% to 5%g range across north-central Georgia, including Rockdale County. The *FEMA How-To guidance, Understanding Your Risks*, FEMA 386-2, p. 1-7, suggests the earthquake hazard should be profiled if the pga is greater than 3%g.

Figure 2.3
Seismic Hazard Map, showing Peak Ground Acceleration in Percent of *g*, with 10% exceedance in 50 years
(Source: USGS, 2008)



Note that the "extent" (i.e., potential severity) of earthquakes is measured primarily through the use of this scale, which includes both the potential acceleration of the ground and the probability of this level of ground motion being exceeded in a 50-year period, as illustrated above. As noted, in Rockdale County, the "extent" of the hazard is approximately 3% G, meaning 3% of the acceleration of gravity.

Impact on Life and Property

There are no known deaths or injuries from earthquakes in Rockdale County. Some of the past earthquakes in Georgia were severe enough to cause minor property damage in Rockdale County. Damages included broken windows or contents falling from shelves. The effects on life and property in the planning area could be significant if a large earthquake were to occur, because of the nature of the built environment. However, the very low probability of an event suggests that potential for these impacts is minimal.

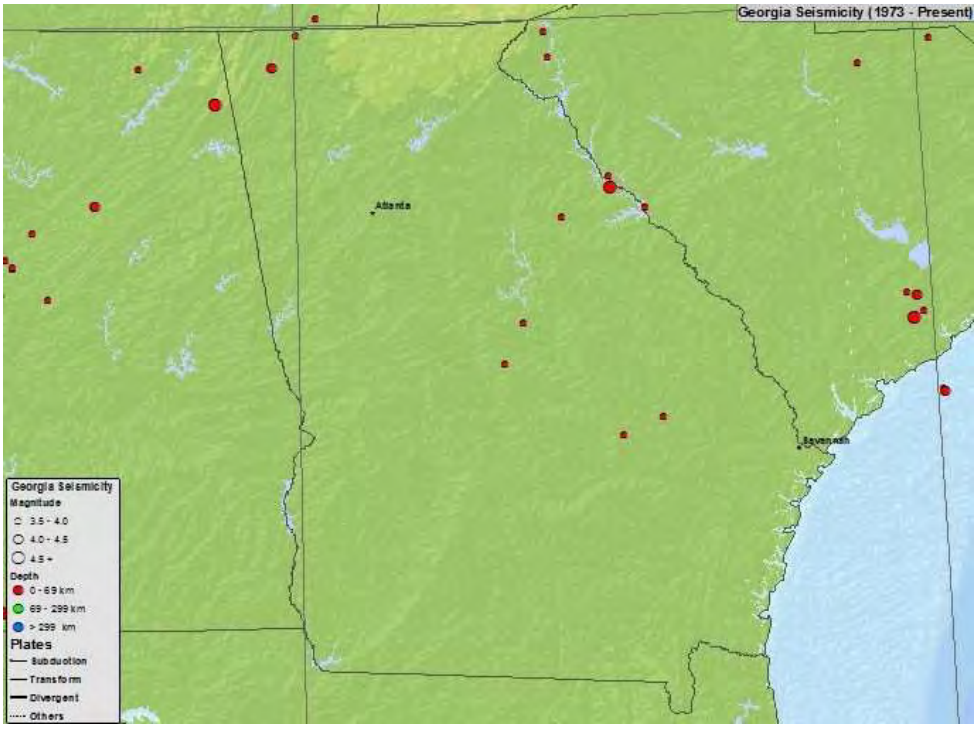
Occurrences of the Hazard

The Rockdale County HMPC reviewed historical data from the National Climatic Data Center (NCDC) and the U.S. Geological Survey (USGS) in researching earthquake events of the County. Although no events were identified by the NCDC, the USGS indicated eight earthquakes in the State of Georgia between 1974 and 2011. The HMPC was unable to determine which of these additional earthquakes affected Rockdale Co. and, if so, to what degree. Nevertheless, the HMPC determined that these earthquakes would have occurred close enough to Rockdale Co. to merit consideration. Figure 2.25 identifies the depth and magnitude for the eight earthquakes that have occurred in Georgia between 1974 and 2011. The majority of these earthquakes were very small, causing little or no property or infrastructure damage. See Appendix A, Earthquake, for a Georgia Seismicity map for the period 1872 – 2011.

With a total of eight earthquake events in Georgia between 1974 and 2011, the State experiences on average one earthquake every four to five years. With one event roughly every 4-5 years, there is a 21% annual probability of a future earthquake occurring in Georgia that could possibly affect Rockdale County, and within it, the City of Conyers. Although there is a moderate probability of an earthquake occurring in Georgia, most likely the effects in Rockdale County will be minimal, perhaps slightly higher in the city of Conyers.

Figure 2.
Earthquakes, Magnitude 3.5 or Greater,
1974-2011

(Source: USGS – Earthquake Hazards Program, Georgia Seismicity Map 1974 - 2011)



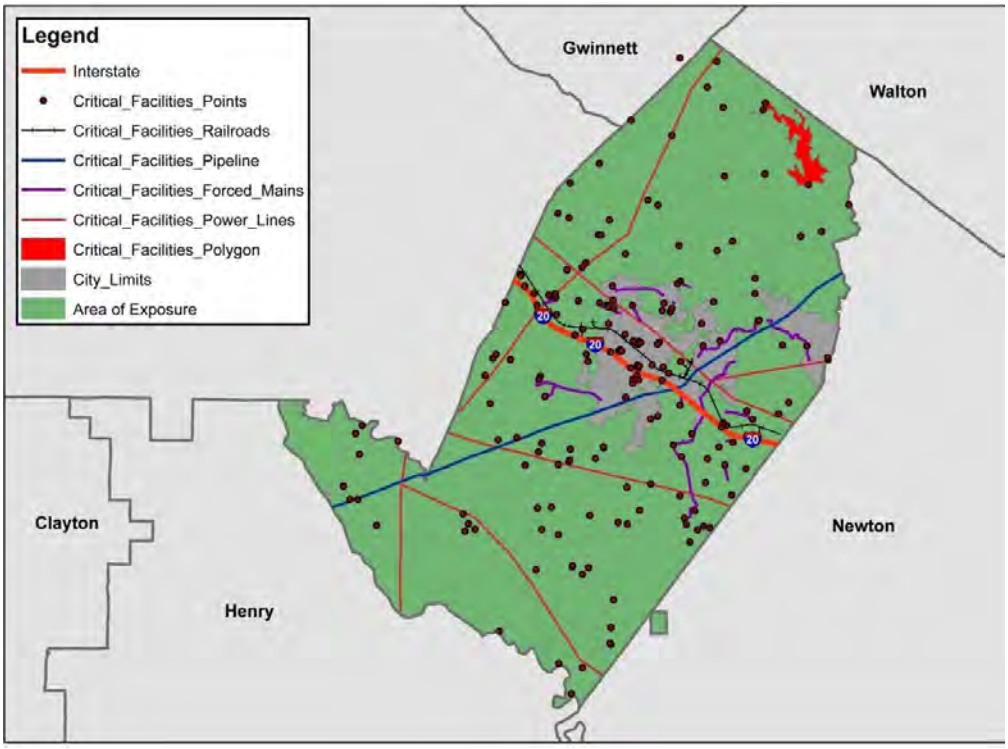
One of the larger earthquake events occurred on April 29, 2003. This 4.9 magnitude earthquake occurred just across the Georgia border near Fort Payne, Alabama. Figure 2.26 shows the epicenter of the earthquake.

Figure 2.
Fort Payne Earthquake, April 29, 2003

Inventory of Assets Exposed to Earthquake. All structures and facilities within Rockdale County are susceptible to earthquake damage since they can occur in any portion of the County. In evaluating assets that may potentially be impacted by the effects of earthquakes, the HMPC determined that all critical facilities, public and private property, are susceptible. According to HAZUS, as of 2012 Rockdale County had 25,698 structures, all of which are exposed to the earthquake hazard. Of the 25,698 structures in Rockdale County, 3,914 are located in the City of Conyers. All structures in Conyers are also exposed to the earthquake hazard. See Appendix D (Earthquake Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers.

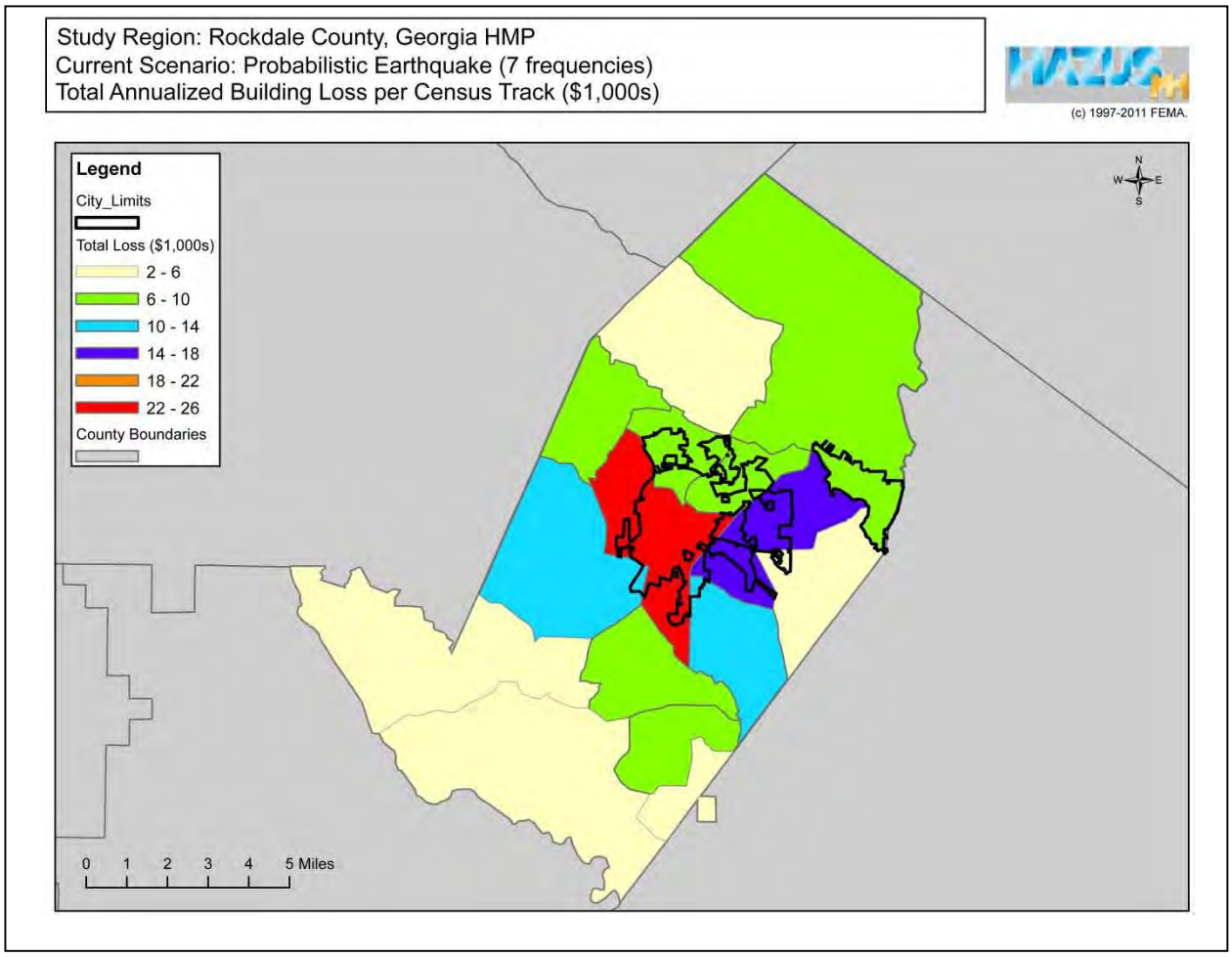
Figure 2.27 is the earthquake exposure map for Rockdale County. The map highlights the critical facilities located within the hazard area (all green areas), which for the earthquake hazard includes the entire County. As of early 2013, there were 200 critical facilities located within Rockdale County. See Appendix A, Critical Facilities Inventory Report, for a complete list of the critical facilities located within Rockdale County and the City of Conyers.

Figure 2.
Rockdale County Earthquake Hazard Exposure Map
(Source: Rockdale County GIS, PMC)



Estimate of Potential Losses from Earthquake.
Risk assessment for Seismic Hazard was performed using HAZUS-MH. Given that the seismic hazard is at the very high level, the analyses focused on the annualized seismic damages, based on seven frequencies. The losses are presented in the resulting HAZUS maps on the following page and quick assessment report in the earthquake section of Appendix A.

Figure 2.
Rockdale County Annualized Earthquake Damages for Seven Probabilistic Earthquakes
(Source: HAZUS)



Land Use and Development Trends related to Earthquake
Rockdale County currently has no land use or development trends related to earthquakes.

Multi-jurisdictional Hazards
Any portion of Rockdale County can potentially be affected by earthquakes. All areas within the County, including the City of Conyers, carry the same threat level for earthquakes. Any steps taken to mitigate the effects of earthquake should be undertaken on a countywide basis and include the City of Conyers.

General Summary of Earthquakes and their Effects on the Planning Area
Scientific understanding of earthquakes is of vital importance to the United States. As the population increases, expanding urban development and construction works encroach upon areas susceptible to earthquakes. With a greater understanding of the causes and effects of earthquakes, we may be able to reduce damage and loss of life from this destructive phenomenon. The HMPC was limited in its ability to develop mitigation measures associated with earthquakes, but did provide some guidance in Chapter 3, Section 3.2.10.

2.4 Technological and All Hazards Risk and Vulnerability Assessment

2.4.1 Pandemic Emergency

Pandemic Emergency Profile

A pandemic is an epidemic of infectious disease that has spread through human populations across a large region; for instance multiple continents, or even worldwide. It is determined by how the disease spreads, not how many deaths occur. 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 generally exclude recurrences of seasonal flu.

Throughout history there have been a number of pandemics, such as smallpox and tuberculosis. More recent pandemics include the human immunodeficiency virus (HIV) pandemic and the H1N1 pandemic and SARS-COVID-19 (COVID-19).

Location
The entire Rockdale County planning area is subject to the hazards associated with pandemic.

Impact on Life and Property
A pandemic could potentially cause serious health problems for those living within the planning area. An influenza pandemic, which occurs when a new influenza virus emerges for which people have little or no immunity, can cause serious illness and spreads easily person-to-person. A pandemic can spread across the country and around the world in a very short period of time causing millions of deaths. The Georgia Department of Public Health is prepared to respond to the unique and complex challenges a pandemic will pose and is working with many public and private providers to ensure all relevant areas of preparedness are addressed adequately.[17]

Occurrences of the Hazard
The Georgia Department of Public Health indicates there have been four pandemics in the past century. The four pandemics were all flu related and included.

- 1918-1919 (flu)
- 1957-1958 (flu)
- 1968-1969 (flu)
- 2009-2010 (flu)
- 2019-2022 (Covid-19)

Inventory of Assets Exposed to Pandemic.
In Rockdale County, assets exposed to the pandemic hazard would be the risks to people from contact or exposure to the pandemic flu (no risk to structures). According to US Census database (based on 2010 US Census), Rockdale County had 85,215 residents, all of which were exposed to the pandemic hazard. Of the 85,215 residents in Rockdale County, 10,724 were located in the City of Conyers. The new 2020 US Census updated data brings these numbers to 90,155 in Rockdale County (of which 17,305 in Conyers), all of which being exposed to the pandemic hazard. See Appendix D (Pandemic Emergency Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers (based on available HAZUS database).

[17] Georgia Department of Public Health, Georgia Pandemic Influenza Preparedness Information.

Estimate of Potential Losses from Pandemics
The economic losses caused by the pandemic would be hard to quantify both from the perspective of geographic extent and time frame during which the losses can be attributed solely to pandemics. The pandemic hazard would primarily affect the human resources (population, as opposed to structural assets), thus affecting County economy by the functional downtime and loss of services.

Land Use and Development Trends related to Pandemics.
In Rockdale County there is currently no development trends related to pandemics.

Multi-jurisdictional Hazards
A pandemic outbreak would have an equal effect on the City of Conyers. Any efforts taken to reduce the risk from Pandemic in Rockdale County would also include the City of Conyers.

General Summary of Pandemic and their Effects on the Planning Area
As mentioned, a pandemic could have serious, even catastrophic impacts on life in the planning area. However, the likelihood of a pandemic impacting Rockdale County should be considered relatively low. It should be noted that in a true pandemic, unlike many other disasters, little help from outside the county can be expected since other jurisdictions will be experiencing the same conditions. Therefore, the Rockdale County HMPC has identified some specific mitigation actions for hazardous materials in Chapter 3, Section 3.4.1.

2.4.2 Hazardous Materials

Hazardous Materials Profile

Hazardous material refers to any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a real hazard to human health or the environment if it is released. Hazmat includes flammable and combustible materials, toxic materials, corrosive materials, oxidizers, aerosols, and compressed gases. Specific examples of hazmat are gasoline, bulk fuels, propane, propellants, mercury, asbestos, ammunition, medical waste, sewage, and chemical, biological, radiological, nuclear, and explosive (CBRNE) threat agents. Specific Federal and State guidelines exist on transport and shipping hazardous materials. Research institutes, industrial plants, individual households, and government agencies all generate chemical waste. Approximately one percent is classified as hazardous.

Location
The environment is especially vulnerable to hazardous materials. Waterways are at greatest risk of contamination. Over the past two decades, numerous waterways in Rockdale County. Such releases are also a potential threat to all property and persons within any primary highway and railway corridors of Rockdale Co., especially Interstate 20 and the CSX Rail Line, due to the fact that certain hazmat releases can create several square miles of contamination. The same holds true of property and persons located in the vicinity of facilities or industries that produce or handle large amounts of hazardous materials. Historical data indicates that most hazmat releases within the County have been relatively minor in nature. The most common hazmat releases include diesel, gasoline, oil, antifreeze, paint, battery acid, and sewage. However, records show there have been incidents involving much more toxic substances within the County over the past couple of decades including copper sulfate, sodium hydroxide, potassium hydroxide, ethylene glycol, chlorine gas, and sulfuric acid, as well as many cases of unknown substances.

Impact on Life and Property
It is difficult to determine potential damage to the environment caused by hazardous materials. Waterways within Rockdale County have certainly been impacted to some degree. Such damage is difficult to calculate in dollar figures however, and future problems are almost impossible to estimate. In addition, no recorded information was located that mentioned damage to any critical facilities as a result of hazmat releases. It should be noted however, when either fixed or transportation hazmat releases do occur, there are significant costs incurred relating to emergency response, road closings, evacuations, watershed protection, expended man-hours, and cleanup materials and equipment. Such releases can occur in virtually any part of the County or City accessible by road. Fixed location releases are not as likely to affect the more rural areas of the County.

The Rockdale County HMPC reviewed historical data from the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources (DNR) and County records in their research involving hazardous materials within Rockdale County. Hazardous materials spills are usually categorized as either fixed releases, which occur when hazardous material is released on the site of a facility or industry that stores or manufactures hazardous material, or transportation-related releases, which occur when hazmat is released during transport from one place to another. Both fixed and transportation-related hazmat spills represent tremendous threats to Rockdale County. The County's thriving industries are one of the main threats with regard to fixed hazmat spills. Perhaps the more serious concern comes from transportation-related hazardous material spills. Interstate 20 and a CSX Rail Line run directly through the County. They also run directly through the City of Conyers.

Occurrences of the Hazard

As part of the 2023 Plan update, various sources were reviewed to identify information about toxic releases. Although there is no single, comprehensive source of open-source information about hazardous materials in the state, there are several specific sources that can be queried. One of the best sources for the release of hazardous materials into the environment is the Right-to-Know (RTK) network (which also acts as a switchboard for access to several other related databases. The Right-to-Know (RTK) network contains data related to hazardous materials that has been compiled from various EPA databases. Several databases from the RTK site include the following:

- **Toxic Release Inventory (TRI).** Releases and transfers of toxic chemicals from large facilities. See Occurrences of Hazardous Material for additional details about the TRI database and releases for Rockdale County.
- **Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).** Information on potential and actual Superfund Sites.
- **Emergency Response Notification System.** Toxic chemicals and spills reported to the National Response Center.
- **Facility Registry System.** Names, addresses, and ID numbers of all facilities regulated by the EPA.
- **Biennial Reporting System (BRS).** The BRS is one of EPA's primary tools for tracking the generation, shipment, and receipt of hazardous waste. The BRS appears to be the best U.S. hazardous waste tracking database. It contains information from the Hazardous Waste Reports that must be filed every two years under the RCRA program. RCRA (the Resource Conservation and Recovery Act) is the Federal statute that regulates the generation, treatment, storage, disposal, or recycling of solid and hazardous waste. The RTK site includes BRS records from 1989 through 2016.

Each of the databases listed can be queried from the following website: https://www.epa.gov/toxics-release-inventory-tri-program/tri-data-and-tools#tritools

The following two tables (Tables 2.32 and 2.33) display the top five general industries for pounds released and the top five chemicals released in Rockdale County between 1987 and 2016.

Table 2.
Rockdale County: Top General Industries for Pounds of Releases, 2012 – 2021
(Source: EPA – Toxic Release Inventory)

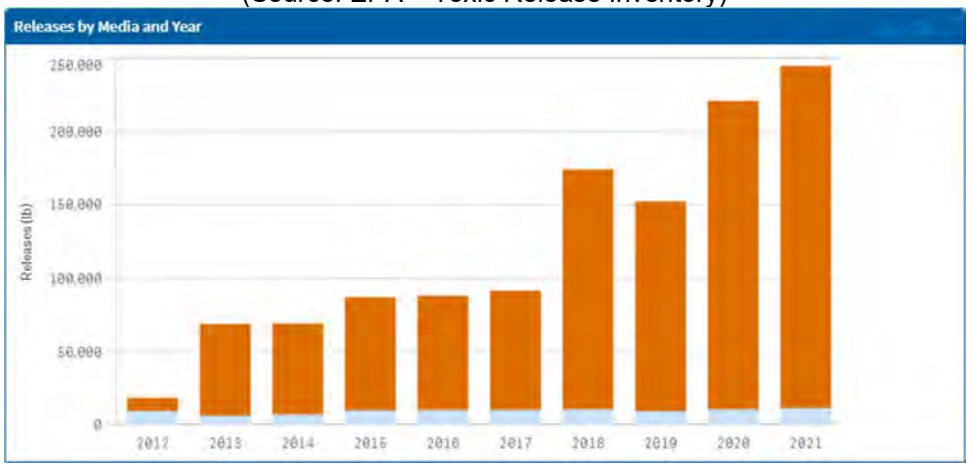
INDUSTRY TYPE	QUANTITY RELEASES (POUNDS)
Chemicals	769,385
Paper	445,574
Machinery	2,961
Wood Products	200

Table 2.
Rockdale County: Top Chemicals for On-Site releases, 2012 – 2021
(Source: EPA – Toxic Release Inventory)

CHEMICAL NAME	QUANTITY RELEASES (POUNDS)
Dissocyanates	593,582
Copper and Copper Compounds	267,206
Manganese and Manganese Compounds	98,476
Xylene (mixed isomers)	82,405
Lead and Lead Compounds	67,748
Ammonia	55,175
Toluene	44,484

Review of the EPA database indicates that the annual pounds of chemicals released in Rockdale County have drastically increased over the past 10 years. With 2019 showing a decrease in pounds released. The increase in releases for Rockdale County can be show graphically by displaying the TRI trend for a list of top chemicals during the period 2012 to 2021.

Figure 2.
Rockdale County Toxic Release by Media and Year (Core Chemicals): 2012 - 2021
(Source: EPA – Toxic Release Inventory)



Inventory of Assets Exposed to Hazardous Material
According to HAZUS database, there are 25,698 structures, in Rockdale County, all of which are exposed to the hazardous material release hazard. That number includes 3,914 structures located in the City of Conyers. All structures in Rockdale County Conyers are exposed to the hazardous material release hazard. See Appendix D (Hazardous Material Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers.

Estimate of Potential Losses from Hazardous Material
It is difficult to determine potential damage to the environment caused by Hazardous Materials. Waterways within Rockdale County have certainly been impacted to some degree. Such damage is difficult to calculate in dollar figures however, and future problems are almost impossible to estimate. In addition, no recorded information was located that mentioned damage to any critical facilities as a result of hazmat releases. It should be noted however, when either fixed or transportation hazmat releases do occur, there are significant costs incurred relating to emergency response, road closings, evacuations, watershed protection, expended man-hours, and cleanup materials and equipment. Corridors for the CSX Rail Line, Interstate 20, and State Routes 20, 138, 162,

212, and 402 are most vulnerable to transportation-related releases. However, such releases can occur in virtually any part of the County or City accessible by road. Fixed location releases are not as likely to affect the more rural areas of the County.

For additional loss estimate information, please refer to Appendix D and Worksheet 3a. This hazard is not spatially defined which means that all structures within the County and City are at risk and have been considered in loss estimate calculations in each relevant Worksheet 3a.

Land Use and Development Trends related to Hazardous Material
As part of the 2023 Plan update, the 2018 Rockdale County Comprehensive Land Use Plan / Future Land Use Plan was reviewed to identify land use and development trends related to hazardous materials. As Rockdale County attracts more residents and more industrial and commercial developments, the threat of hazardous material continues to grow.

Multi-jurisdictional Hazards
All of Rockdale County, including the City of Conyers, is vulnerable to both fixed and transportation- related hazardous materials.

General Summary of Hazardous Materials and their Effects on the Planning Area
Hazardous materials are a common occurrence in Rockdale County. Almost 350 recorded incidents have occurred over the past two decades. This makes hazmat releases one of the most significant threats to Rockdale County. Unknown quantities and types of hazmat are transported through the County by truck on a daily basis. Fixed hazmat releases are also considered to be a major threat to Rockdale County, especially due to the proximity of the CSX Rail Line and Interstate 20. Therefore, the Rockdale County HMPC has identified some specific mitigation actions for hazardous materials in Chapter 3, Section 3.4.2.

2.4.3 Major Utility Failure

Major Utility Failure Profile

A utility failure is any disruption in the services necessary for the safe and proper operation of a community, in this case Rockdale County, to include electricity, heating, natural gas, pipeline incidents, energy shortages, air conditioning, telephone, internet, and water utilities. A Utility failure can occur anywhere in the planning area. Major utility failure may also be the result of cyberattacks and acts of terrorism, these incidents are:

- Power Outages / Blackouts
- Large Number of Down Power Lines
- Pipeline Incidents
- Natural Gas Incidents
- Energy Shortages
- Water Pump Incidents
- Water Shortages
- Down cell/radio towers
- Internet Outage
- Power Transformer Damage

Location
The entire planning area is at risk from a major utility failure. The areas that could be the most affected are the City of Conyers, International Horse Park, any residential area, and any education and government office/facility.

Impact on Life and Property
Although there have been a few utilities related incidents within the planning area such as; down powerlines, power outages, and pipeline incidents to name a few, it is imperative to plan for them due to the increasing population and businesses resulting in large numbers of injuries and fatalities.

Occurrences of the Hazard
In addition to the information available via public databases and local stakeholders, we were able to determine the frequency of each incident within the county. Although there have been down power lines, a pipeline incident, and power outages in the county, there hasn't been a major utility failure classified in the last 10 years.

Due to the number of inclement weather and geography of the planning area bring about major utility failures such as major power outages, down power lines and poles. Thus, causing sections of the county to be without a major lifeline for sustainable living.

Inventory of Assets Exposed to Radiological Emergency
In Rockdale County assets exposed to a major utility failure would be the risks to people and property and all critical infrastructure depending on where the emergency is occurring). According to the 2021 US Census estimates the affected population is 90,155 in Rockdale County (of which 17,305 in Conyers) all of which being exposed to the major utility failure. See Appendix D (Radiological Emergency Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers (based on available HAZUS database).

Estimate of Potential Losses from Major Utility Failures
It is difficult to estimate the potential losses due to a utility failure or major utility failure at this time.

Land Use and Development Trends related to Radiological Emergency
Rockdale County has no land use or development trends related to major utility failure at this time.

Multi-jurisdictional Hazards
The potential for major utility failure within the planning area will affect all parts of Rockdale County and the City of Conyers. The 2023 Rockdale County HMPC identified one mitigation action for the major utility failure hazard. The action can be found in Chapter 3, Section 3.3.3

2.4.4 Railroad Derailment

Railroad Derailment Profile

The Georgia Department of Transportation indicates the Georgia Rail System is made up of passenger rail, commuter rail and freight rail service, which consists of over 5,000 miles of railroad. Georgia is home to six of the top 50 cargo carriers, including the world's largest, UPS. According to the Federal Railroad Administration, a derailment is an accident on a railway in which a train leaves the rails, which can result in moderate to severe damage, injury, and death. Train derailments are caused by either mechanical or human factors. Mechanical factors include such things as problems with locomotives, rail cars and/or track. Human factors include mistakes made by both train and personnel and vehicle drivers at crossings.

Hazard Profile

CSX Transportation operates an east-west rail line within Rockdale County. The railroad mainly runs along I-20 and has a length of about 40 miles. The rail line is a section of the railroad across Georgia connecting Augusta and Atlanta. Several commodities originate within Rockdale County that are transported by this rail line within the County to destinations outside of Georgia. Those originating products are mainly pulp, paper and allied products. Products that transported into the County from sources outside State boundaries are mainly lumber and wood products. In total, nearly 16.88 million tons of products are transported in and out of the County each year.[18] The 2009 Georgia State Rail plan indicates that between the years of 2010 and 2027, rail tonnage in Georgia is projected to grow by 30%.

According to the American Association of Railroads (AAR), rail tonnage in the U.S. is expected to grow by 90% between 2005 and 2035.

Conyers has approximately five miles of inactive rail line originating at the rail crossing at Old Covington Highway. This is a north-south spur line that extended to a location close to Sigman Road.

Impact on Life and Property

Although there have been no prior incidents of train derailments, a major train derailment could potentially result in considerable loss of life and property. When a train derails, depending on the cargo, there is also the potential for the release of hazardous materials or fire. When this occurs, there is the potential need for evacuations or the risk of exposure to nearby citizens.

Occurrences of the Hazard

In addition to the information available in 2018 Rockdale County Comprehensive Transportation Plan, the Federal Railroad Administration (FRA) offers an overview of railroad accidents and incidents in Rockdale County. Accident information indicates if the event was track caused, if the actual derailment occurred, and if there were any hazardous material releases. The information also lists the number of Highway- railroad incidents and any deaths and incidents related to them. Table 2.34 gives a comprehensive overview of such information for Rockdale County for periods 1999-2008 and 2009 to June 30, 2018. For comparative purpose, the table lists the statistics for State of Georgia for the same time period.

Table 2.
Rockdale County – Railroad Accident/Incident Annual Overview 2012 - 2022
(Source: U.S. DOT; Federal Railroad Administration, March 2023)

CATEGORY	ROCKDALE 2012 – 2022	GEORGIA 2012 - 2022
TOTAL ACCIDENTS/INCIDENTS	10	3,024
Total Fatalities	2	255
Trespasser deaths, not at HRC	2	173
Trespasser Injuries, not at HRC	1	177
Train Accidents (Not at grade crossings)	0	646
Track Caused		

Derailments	N/A	386
Hazmat Releases	0	20
Highway-rail Incidents	7	1,141
Highway-rail incidents deaths	0	77
Highway-rail incidents injuries	0	432
Incidents at public crossings	6	1,006

Inventory of Assets Exposed to Railroad Derailment
According to HAZUS database, there are 25,698 structures in Rockdale County, of which 8,182 (32%) are located within a 1.5-mile buffer of all train lines traveling through the County. The City of Conyers has 3,914 structures, of which 3,654 (93%) are located within the 1.5 mile buffer. The area of exposure covers most of the City of Conyers and the entire Interstate I-20 corridor through Rockdale County. See Appendix D for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers.

Estimate of Potential Losses from Railroad Derailment
Figure 2.30 depicts exposure area to the Railroad Derailment Hazard. The area was delineated with assumption that the derailment would be a catalyst to an incident related to either hazardous material release or radiological emergency. The losses for this type of hazard are very difficult to quantify, but it should be taken into account that potential radiological/hazardous material incident caused by the derailment would probably shut down Interstate I-20 for extended period of time and significantly increase indirect losses caused by this major thoroughfare closure.

Land Use and Development Trends related to Railroad Derailment
Rockdale County currently has no land use or development trends related to railroad derailments.

Multi-jurisdictional Hazards
All Rail lines located within Rockdale County and City of Conyers are vulnerable to the possibility of train derailment. Any mitigation action related to train derailment developed for Rockdale County will also include the City of Conyers

General Summary of Railroad Derailments and their Effects on the Planning Area
The potential for railroad derailment within the planning area is concentrated along rail lines traveling through parts of Rockdale County and the City of Conyers. The 2018 Rockdale County HMPC identified one specific mitigation action for the hazard railroad derailment. The action can be found in Chapter 3, Section 3.3.4

Figure 2.
Rockdale County Railroad Derailment Hazard Exposure Map
(Source: Rockdale County GIS)

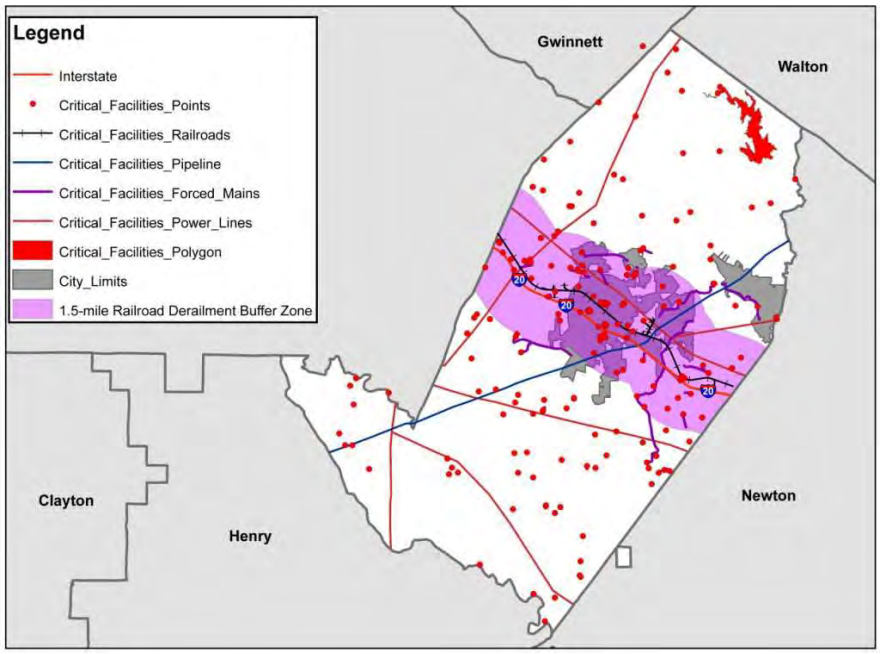


Figure 2.
Rockdale County – Location of Public Street Crossin CSX Railroad Tracks
(Source: 2018 Rockdale County Comprehensive Transportation Plan update)

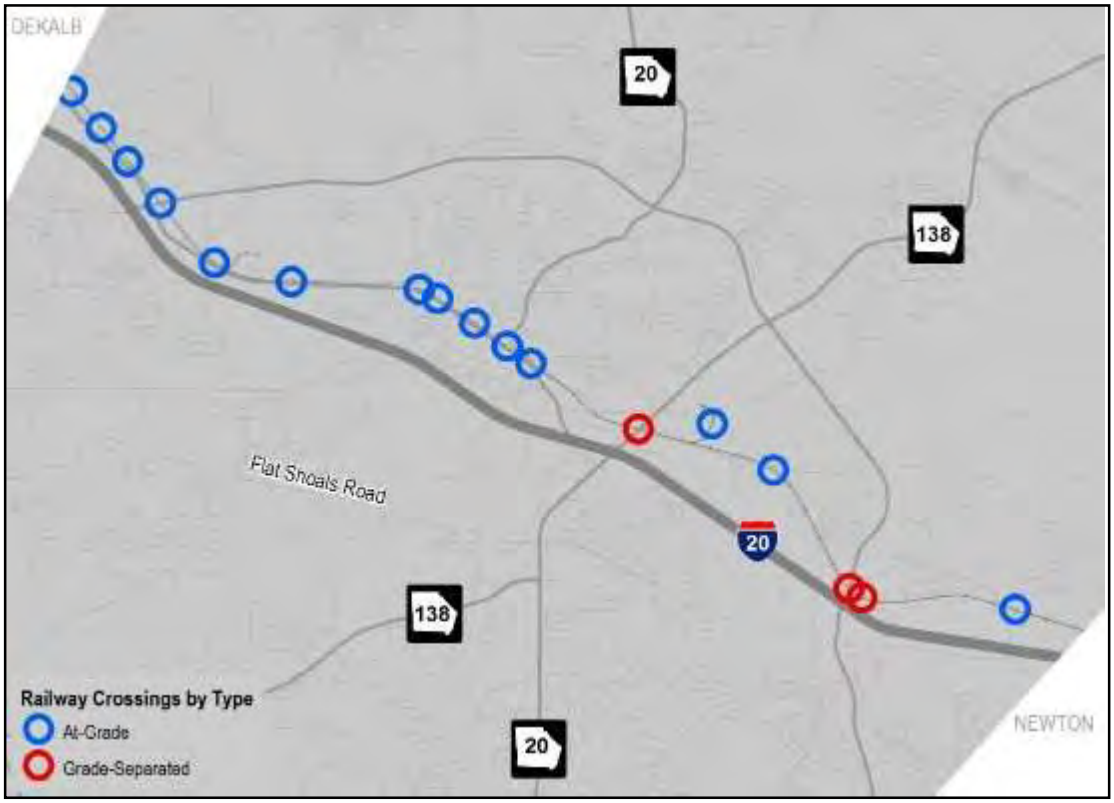


Table 2.
Rockdale County – Description of road crossings over CSX tracks
(Source: 2018 Rockdale County Comprehensive Transportation Plan update)

Crossing Street	Street Configuration	Crossing Type	Average Daily Traffic
Lake Capri Road	2-lane, blacktop	At-grade w/ gates	not available
Lake Rockaway Road	2-lane, blacktop	At-grade w/ gates	1,360
Plunkett Road	2-lane, blacktop	At-grade w/ gates	Not available
Sigman Road	5 lanes (2 EB, 3 WB), blacktop	At-grade w/ gates	13,700
Industrial Boulevard	2-lane, blacktop	At-grade w/ gates	830 (estimate from nearby count)
Unnamed connector to Industrial Blvd (at Sealy Mattress)	2-lane, blacktop	At-grade w/ gates	Not available
Rockbridge Road	2-lane, blacktop	At-grade w/ gates	Not available
Ellington Drive	2-lane, blacktop	At-grade w/ gates	Not available
West Avenue / Almand Street	3 lanes (1 NB, 2 SB), blacktop	At-grade w/ gates	Not available
Center Street	2-lane, blacktop	At-grade w/ gates	Not available
Scott Street	2-lane, blacktop	At-grade w/ gates	Not available
SR 138	6-lane, concrete	Grade-separated over RR	38,200
Gees Mill Road	2-lane, blacktop	At-grade w/ gates	Not available
N Salem Road	4-lane, concrete	Grade-separated over RR	17,900
Dogwood Connector	2-lane, concrete	Grade-separated over RR	Not available

2.4.5 Public Safety Emergency

Public Safety Emergency

Public safety is defined as anything which is injurious to the safety or health of an entire community or neighborhood, or any considerable number of persons.[19] Rockdale County is home to several public safety agencies/departments that could become overwhelmed by an incident of significance. With the given population size and increase in active threats over the past couple of years, it is important to plan and exercise the response to incidents that fall under the Public Safety Emergency hazard profile. This hazard can include the following incidents of significance:

- Active Threats
- Bomb Threats
- Mass Casualty Incidents
- Civil Disturbance
- Acts of Terrorism
- Cyber Attacks/ / Related Incidents

Location
The entire planning area is at risk from a public safety emergency. The areas that could be the most affected are the City of Conyers, International Horse Park, any residential area near an entertainment venue or any education facilities or government offices.

Impact on Life and Property
Although there have been no prior mass casualty incidents within the planning area, it is imperative to plan for them due to the increasing number of active threats and incidents resulting in large numbers of injuries and fatalities. Active threats and bomb threats are a danger to all lives and property in Rockdale County due to the unknown factors that are presented at the time the incidents commence.

Occurrences of the Hazard
In addition to the information available via public databases and local Law Enforcement Agencies, we were able to determine the frequency of each incident within the county. Although there have been active threats in the county, there hasn't been a mass casualty incident identified in the last 10 years.

Over the last 5 years the number of incidents occurring has decreased slightly, but with tensions and events sparking more controversy, it is imperative that Rockdale County and the City of Conyers prepares and assesses its capabilities for these incidents of significance. These incidents present a danger to life, property, and the environment of the planned area.

Man-made and technological hazards are by definition non-quantifiable. Calculating or estimating monetary losses from terrorism hazards can only be identified in that all assets are at risk. As such, they cannot be compared and prioritized in the same manner as risks from natural hazards. The HMPC recognizes the inability to quantify assets exposed to radiological emergency beyond those stated above.

Inventory of Assets Exposed to Radiological Emergency
In Rockdale County assets exposed to the public safety emergency would be the risks to people and property and all critical infrastructure depending on where the emergency is occurring). According to US Census database (based on 2010 US Census), Rockdale County had 85,215 residents, all of which were exposed to the pandemic hazard. Of the 85,215 residents in Rockdale County, 10,724 were located in the City of Conyers. The new 2020 US Census updated data brings these numbers to 90,155 in Rockdale County (of which 17,305 in Conyers), all of which being exposed to the radiological hazard. See Appendix D (Radiological Emergency Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers (based on available HAZUS database).

Estimate of Potential Losses from Radiological Emergency
The losses from public safety emergency depend on several, variable factors: Location and type of emergency, response and preparedness, conditions immediately after the accident, and number of casualties if any.

Land Use and Development Trends related to Radiological Emergency
Rockdale County currently has no land use or development trends related to public safety emergencies.

Multi-jurisdictional Hazards
The potential for public safety emergency within the planning area will affect all parts of Rockdale County and the City of Conyers. The 2023 Rockdale County HMPC identified one specific mitigation action for the public safety emergency. The action can be found in Chapter 3, Section 3.4.5.

[19]Law Insider: Public Safety Definition

2.4.6 Radiological Emergency

Radiological Emergency Profile

According to the International Atomic Energy Agency (IAEA) a radiological emergency is an emergency in which there is, or is perceived to be, a hazard due to radiation exposure from a source. As sources of radiation are used in various fields, including industry, medicine and research[20], Radiological Emergencies may occur anywhere. Radiological Emergencies generally fall into two categories that include international (terrorist acts) and unintentional or unplanned emergencies. International acts can include such things as:

- contaminating food or water with radioactive material
- exploding a nuclear weapon
- bombing or destroying a nuclear reactor
- causing a truck or train carrying nuclear material to spill its load
- exploding a nuclear weapon

Unplanned Radiological Emergencies can include:

- Dirty bombs
- Nuclear blasts
- Nuclear reactor accidents
- Transportation accidents[1]

Location
The entire planning area is at risk from a radiological emergency. However, as mentioned earlier in the hazardous materials section the threat of a radiological emergency within Rockdale and the City of Conyers appears to be highest along the corridors of the CSX Rail Line, Interstate 20, and State Routes 20, 138, 162, 212, and 402 which have experienced significant commercial and industrial growth.

A radiological emergency could also occur from a nuclear reactor accident. The Nuclear Regulatory Commission indicates there are two nuclear power plants operating in Georgia. The two nuclear power plants include Edwin I. Hatch Nuclear Power Plant (Units 1 and 2) and the Vogtle Electric Generating Plant (Units 1 and 2). The Edwin Hatch facility is located in Baxley, Georgia approximately 200 miles southeast of the City of Conyers. The second facility, Vogtle, is located in Waynesboro Georgia about 150 miles east of Conyers. The location of these two facilities indicates that the risk from nuclear reactor accidents in Rockdale County is most likely minimal.

Impact on Life and Property
Radiological emergencies can pose a serious risk to people. Radioactive contamination of the public or of public places could occur as the result of members of the public, unaware of the hazard, handling a lost or stolen dangerous source. Contamination could also occur as the result of a deliberate act. These emergencies are often discovered, unfortunately, after several people have been exposed and there has been considerable spread of radioactive material.

Many radiological emergencies are first identified through medical examinations of persons that have been exposed to radiation. A physician may consider the possibility of radiation induced injures when there are burns without an apparent cause, suspicions expressed by the patient that some 'object' was making them sick, or a patient being in a profession where there is an increased risk of encountering a dangerous source.[21]

[20] Centers for Disease Control and Prevention, Emergency Preparedness and Response, Types of Radiation Emergencies.
[21] International Atomic Energy Agency. Nuclear Safety and Security. Emergency Preparedness. What is a radiological emergency?

Occurrences of the Hazard
There have been no past radiological emergencies that have impacted Rockdale County.

Inventory of Assets Exposed to Radiological Emergency
In Rockdale County assets exposed to the radiological hazard would be the risks to people from contact or exposure to radiological material (no risk to structures). According to the 2021 US Census data the demographic numbers have increased to 90,155 citizens in Rockdale County (of which 17,305 in Conyers), all of which being exposed to the radiological hazard. See Appendix D (Radiological Emergency Section) for GEMA Worksheet #3a which provides a complete inventory of assets for both Rockdale County and the City of Conyers (based on available HAZUS database).

Estimate of Potential Losses from Radiological Emergency
The losses from radiological emergency depend on several, very variable factors: Location and method of release, response and containment preparedness and meteorological conditions immediately after the accident.

Man-made and technological hazards are by definition non-quantifiable. Calculating or estimating monetary losses from terrorism hazards can only be identified in that all assets are at risk. As such, they cannot be compared and prioritized in the same manner as risks from natural hazards. The HMPC recognizes the inability to quantify assets exposed to radiological emergency beyond those stated above.

The Rockdale County and the City of Conyers EOP plan recognizes and incorporates the various jurisdictional and functional authorities of departments and agencies; municipal governments; and private- sector organizations in incident management. The EOP details the specific incident management roles and responsibilities of the departments and agencies involved in incident management (Specifically Emergency Support Function 10, Hazardous Materials). Further, the plan establishes the multi-agency organizational structures and processes required to implement the authorities, roles, and responsibilities for incident management. The plan is applicable to all departments and agencies that may be requested to provide assistance or conduct operations in the context of actual or potential disasters or emergencies.

Radiological emergencies are high-impact events that require a coordinated and effective response by an appropriate combination of County, City, municipal, private-sector, and nongovernmental entities in order to save lives, minimize damage, and provide the basis for long-term community recovery and mitigation activities.

Land Use and Development Trends related to Radiological Emergency
As mentioned in the Hazardous Materials subsection, Rockdale County's continued growth attracts more residents and more industrial and commercial developments, increasing the threat of a radiological emergency. The entire planning area is at risk from a radiological emergency. However, due to development trends over the past decade, the threat within Rockdale County appears to be highest along the corridors of the CSX Rail Line, Interstate 20, and State Routes 20, 138, 162, 212, and 402 which have experienced significant commercial and industrial growth. In addition to these areas, all main highway corridors will continue to be areas of concern with regard to the potential for a radiological emergency. Review of the 2009-2010 Rockdale County Future Land Use map indicates that industrial development will continue to be concentrated along the I-20 corridor, traversing through the central part of the County.

Multi-jurisdictional Hazards
All of Rockdale County, including the City of Conyers, is vulnerable to Radiological Emergencies. Any actions considered for Rockdale County will also include the City of Conyers.

General Summary of Radiological Emergency and their Effects on the Planning Area
The probability of a radiological emergency in Rockdale County is considered low, however the potential impact of an occurrence would be significant enough that it is still considered a threat to the planning area. The 2023 Rockdale County HMPC identified one specific mitigation action for Radiological Emergency in Chapter 3, Section 3.3.4.

2.4.7 All Hazards Risk and Vulnerability Assessment

The HMPC determined that an all-hazards approach to analyze the impacts of current policies, ordinances, and plans on community safety from technological hazard risks due to growth decisions losses in Rockdale County and City of Conyers would provide a holistic methodology to address community risk.

The specific mitigation strategy and action is the production of a Safe Community Audit Report to inform citizens and decision makers in Rockdale County and City of Conyers about important safety issues and to relay needed changes in community ordinances, processes, and policies, (Godschalk, 2009).

Chapter 3
Local Hazard Mitigation Goals and Objectives
Overall Community Mitigation Goals, Policies and Values Narrative

Compared to 2018 Plan, all natural and technological mitigation goals and objectives (including the ones related to all hazards) have been combined from Chapters 4 and 5 into a single Chapter 3, titled “Overall Community Mitigation Goals, Policies and Values Narrative; Local Hazards, Risk, and Vulnerability Assessment”.

Table **3.1** below summarizes the updates for the natural hazard goals and objectives from the 2018 HMP.

Table 3.1
Rockdale County – Changes to the Local Hazard Mitigation Goals and Objectives Sections of this Mitigation Plan

2018 HMP – Chapter 3	SECTION UPDATES
Section 3.2 (Natural hazards from the original plan)	• In this subsection, updates have been provided for each section. • At least one objective has been added for each of the 10 goals. For each hazard, the action items have been grouped by objective. Separate tables have been developed to identify the actions under each objective.

Severe Weather	• Revised goal, and updated actions • Mitigation actions listed in table format under each objective.
Inland Flooding	• Revised goal, and updated actions. • Mitigation actions listed in table format under each objective.
Wildfire	• Revised goal, and updated actions. • Mitigation actions listed in table format under each objective.
Severe Winter Storm	• Revised goal, and updated action. • Mitigation actions listed in table format under objective.
Drought	• Revised goal, and updated actions. • Mitigation actions listed in table format under objective.
Tornado	• Revised goal, and updated action. • Mitigation action listed in table format under objective.
Dam Failure	• Revised goal, and updated actions. • Mitigation actions listed in table format under objective.
Extreme Heat	• Revised goal added one objective, and updated actions. • Mitigation actions listed in table format under objective
Hurricane	• Revised goal, and updated action. • Mitigation actions listed in table format under objective.
Earthquake	• Revised goal, and updated action. • Mitigation actions listed in table format under objective.

3.1 Introduction

This section outlines the mitigation strategy for Rockdale County and the City of Conyers including outlining specific goals and objectives. These goals will serve as the guiding principles for future mitigation policy and project administration, along with a list of proposed actions deemed necessary to meet those goals and reduce the impact of natural hazards. It is designed to be comprehensive and strategic in nature. The development of the strategy included a thorough review of natural hazards and identified policies and projects intended to not only reduce the future impacts of hazards, but also to assist Rockdale County and the City of Conyers achieve compatible long-term economic, environmental and social goals.

The development of this section is also intended to be strategic, in that all policies and projects are linked to establish priorities assigned to specific departments or individuals responsible for their implementation and assigned target completion deadlines. Funding sources are identified that can be used to assist in project implementation.

The HMPC drafted a prioritized project list and analysis of a range of specific mitigation actions and projects to reduce the effect of each hazard, emphasizing new and existing buildings and infrastructure.

- Projects included non-structural, (e.g., planning, regulatory measures, property acquisition,) or structural, (e.g., dams, retrofitting, elevation) solutions; and
- Prioritized projects and action based on cost effective hazard mitigation projects, HMPC and STAPLEE ranking, a Community Assessment Spreadsheet, (Appendix D) and report.

STAPLEE Mitigation Development, Analysis, and Prioritization

STAPLEE is a method for assessing actions based on six general criteria: **S**ocial, **T**echnical, **A**dministrative, **P**olitical, **L**egal, **E**conomic, and **E**nvironmental. The HMPC STAPLEE analysis of proposed mitigation projects focused on these key areas. Selected options were considered the best fit for Rockdale County and the City of Conyers to meet the criteria of feasibility analysis. Coordination with relevant Federal, State and Local agencies for input and technical assistance included FEMA, GEMA, Regional Representatives, the 2023 HMPC, local hospitals, relief agencies, businesses, industry, and citizens Rockdale County and the City of Conyers.

The result was a concise report of whether the strategies and/or projects worked and recommendations for improvements to existing strategies, deletions of ineffective strategies, and effective new strategies to accomplish the Goals and Objectives of the Plan in a cost-effective manner. The STAPLEE Summary below reveals the assessment and prioritization of the Mitigation Strategies, Goals, and Objectives.

Using the STAPLEE criteria and local input, the HMPC verified the effectiveness of mitigation strategies identified in the 2023 HMP. There were nine members on the committee representing Rockdale County and the City of Conyers.

There are 23 assessment criteria in the STAPLEE worksheet and nine respondents in the HMP Committee. The respondents were asked to mark each mitigation measure that would result in a positive effect to a STAPLEE factor with +1 (positive one), or with the adverse effect in that particular STAPLEE category with -1 (negative one). The mitigation measure that had no pronounced effect or wasn't applicable to the particular STAPLEE category was to be marked with 0 (zero). Each one of the mitigation measures had a theoretical range from -23 to +23. The results from all nine respondents were averaged and then ranked within each Hazard. The ranking results are presented in the STAPLEE Ranking Summary Table below (green fields indicate new mitigation actions for 2023 HM Plan update).

Table 3.2
Rockdale County – STAPLEE Ranking Summary

MITIGATION ACTION NUMBER	MITIGATION ACTION	STAPLEE SCORE	STAPLEE RANKING
NATURAL HAZARD: SEVERE WEATHER			
1.1.1	A Countywide tornado/severe thunderstorm public safety and awareness campaign.	**1.95**	**3**
1.1.2	Provide NOAA Weather Radios to elderly and low-income citizens, as well as any vulnerable population.	**5.68**	**1**
1.2.1	Ensure vulnerable populations have access to adequate storm shelter; create/construct safe room. Strengthen future structures through improvement of wind engineering measures, construction techniques etc.	**4.24**	**2**
1.2.2	Strengthen future structures through improvement of wind engineering measures, construction techniques etc.	**-0.35**	**4**
NATURAL HAZARD: EXTREME HEAT			
2.1.1	Organize outreach to vulnerable populations; establish and promote accessible cooling centers in the community.	**1.20**	**1**
NATURAL HAZARD: TORNADOES			
3.1.1	Identify all owners of inadequately installed manufactured homes within Rockdale County and the City of Conyers.	**-2.68**	**1**
NATURAL HAZARD: SEVERE WINTER WEATHER			
4.1.1	Identify all owners of inadequately installed manufactured homes within Rockdale County and the City of Conyers	**1.90**	**1**
NATURAL HAZARD: DAM FAILURE			
5.1.1	Establish inspection maintenance, and enforcement program; comply with Georgia Safe Dams Act.	**2.93**	**2**
5.1.2	Consider potential problems prior to dam construction; plan for dam breaks and emergency needs; restrict development.	**4.48**	**1**

MITIGATION ACTION NUMBER	MITIGATION ACTION	STAPLEE SCORE	STAPLEE RANKING
NATURAL HAZARD: DROUGHT			
6.1.1	Install new water towers at the north end of the County; "loop" all streets.	**2.48**	**1**
6.1.2	Install additional 10-million-gallon clean water storage tank at the Water treatment Plant.	**1.92**	**2**
NATURAL HAZARD: HURRICANE WIND			
7.1.1	Promote tree management on the public property and streets, to reduce potential hurricane debris.	**1.43**	**1**
NATURAL HAZARD: INLAND FLOODING			
8.1.1	Model County-wide and city wide storm water runoff including infrastructure, sheet flow, ditches and streams.	**1.97**	**1**
8.1.2	Continue participation in FEMA Community Rating System (CRS).	**1.66**	**3**
8.2.1	Increase culverts; add storm drains where appropriate; apply other stormwater measures to mitigate flooding.	**1.89**	**2**
8.2.2	Develop a strategy to identify, prioritize and generally expedite acquisition of flood-prone structures for declared disasters.	**1.07**	**4**
NATURAL HAZARD: WILDFIRE			
9.1.1	Work with Georgia Forestry on solutions for urban interface issues; conduct public education program and media campaign.	**2.50**	**1**
9.1.2	Consider controlled burns and mandatory brush control; conduct identification of all structures and infrastructures located in the wildfire hazard area; collect loss information.	**0.26**	**2**
NATURAL HAZARD: EARTHQUAKE			
10.1.1	Develop a survey procedure and guidance document to inventory structural and non-structural hazards in and near critical facilities	**0.48**	**1**
TECHNOLOGICAL HAZARD: PANDEMIC EMERGENCY			
11.1.1	Maintain public health system with sufficient disease monitoring and surveillance capabilities to protect population from large-scale outbreaks (coordinate with Federal and State health agencies). Promote public awareness through highlighting causes, symptoms, and protective actions for disease outbreaks.	**0.82**	**1**
TECHNOLOGICAL HAZARD: HAZARDOUS MATERIALS			
12.1.1	Provide replacement response equipment. Provide training and refresher training.	**3.06**	**3**
12.1.2	Continue to utilize and support the LEPC; update and incorporate the LEOP in trainings and exercises.	**1.66**	**4**

12.1.3	Purchase equipment to assist in the prevention and response of sewage spills (additional alarm systems & vacuum truck).	**1.57**	**5**
12.1.4	Implement continuous maintenance program designed to clear easements and allow for proper drainage.	**4.05**	**2**
12.1.5	Install or retrofit all older residential water meters with dual check valves	**4.96**	**1**
TECHNOLOGICAL HAZARD: MAJOR UTILITY FAILURE			
13.1.1	Develop and regularly update a comprehensive emergency response plan; work in conjunction with utility companies to create a detailed emergency response plan that outlines procedures for responding to different types of utility failures, such as power outages, gas leaks, or water main breaks.	**1.53**	**1**
TECHNOLOGICAL HAZARD: RAILROAD DERAILMENT			
14.1.1	Develop and practice emergency plan involving designation of detour roads, traffic control and mass-casualty situational training	**1.61**	**1**
TECHNOLOGICAL HAZARD: PUBLIC SAFETY EMERGENCY			
15.1.1	Emergency planning and training for incidents of significance; develop and practice an emergency plan for handling incidents of significance involving all City and County public safety.	**1.52**	**1**
TECHNOLOGICAL HAZARD: RADIOLOGICAL EMERGENCY			
16.1.1	Emergency Planning for Transportation Routes; develop emergency plan for handling accidents involving nuclear waste transit.	**1.78**	**1**
ALL HAZARDS			
17.1.1	Provide training programs for County and City Employees in response to various emergency situations.	**1.87**	**6**
17.1.2	Comply fully with the presidential directive requiring NIMS compliance for all City and County department heads.	**2.06**	**5**
17.2.1	Install fuel tanks at each of the ten Rockdale County Fire Stations.	**5.77**	**2**
17.2.2	Install fixed emergency generators at each of the nine Rockdale County Fire Stations.	**7.21**	**1**
17.2.3	Establish off-site location to record and archive CAD information.	**2.79**	**4**
17.2.4	Install fixed generators for highest priority sewer lift stations; install surge and lightning protection for all 28 lift stations.	**5.76**	**3**

MITIGATION ACTION NUMBER	MITIGATION ACTION	STAPLEE SCORE	STAPLEE RANKING
ALL HAZARDS			
17.1.1	Provide training programs for County and City Employees in response to various emergency situations.	**1.87**	**6**
17.1.2	Comply fully with the presidential directive requiring NIMS compliance for all City and County department heads.	**2.06**	**5**
17.2.1	Install fuel tanks at each of the ten Rockdale County Fire Stations.	**5.77**	**2**
17.2.2	Install fixed emergency generators at each of the nine Rockdale County Fire Stations.	**7.21**	**1**
17.2.3	Establish off-site location to record and archive CAD information.	**2.79**	**4**
17.2.4	Install fixed generators for highest priority sewer lift stations; install surge and lightning protection for all 28 lift stations.	**5.76**	**3**

3.2 Natural Hazard Mitigation Goals and Objectives Update Summary

In developing natural hazard mitigation goals and objectives for the 2023 Plan update, Rockdale County and the City of Conyers worked together as a team within the framework of the HMPC. Both of the jurisdictions realized the importance of protecting both incorporated and unincorporated areas of the County. Though the County facilitated this planning process, the City of Conyers provided input relating to their natural hazard mitigation goals, objectives, and measures.

Goals and objectives were considered for the following natural hazards: severe summer weather, severe winter weather, dam failure, drought, tornadoes, inland flooding, wildfire, extreme heat, hurricane wind and earthquake. Each of these hazards has the potential to impact any portion of the planning area. Therefore, creating a narrowly defined “hazard area” for each of the natural hazards above proved a difficult and imprecise effort. The exceptions to some extents are inland flooding and wildfire. Although these two hazards can occur in any portion of the County, they tend to occur in certain spatially defined areas.

Due to the fact that there were no significant differences in jurisdictional risks for each of the natural hazards identified within this Plan update, with the exception of flooding, the County and the City worked together to create a single set of goals and objectives to help mitigate these hazards. Therefore, the HMPC combined the goals and objectives for Rockdale County and the City of Conyers.

The County and City are adequately staffed and have technical and administrative experience to handle most situations locally. The County Department of Transportation Department handles most conventional public works duties.

Rockdale County Water Resources provides significant technical assistance in managing all water, wastewater, and storm water services in unincorporated Rockdale County. Rockdale County Stormwater is responsible for Floodplain Management within the County on its staff who handle all floodplain management in unincorporated County.

The City of Conyers Department of Public Works would handle most conventional public works duties in the City, including its own stormwater and floodplain management.

Goals are general descriptions of desired long-term outcomes. State and Federal guidance and regulations pertaining to mitigation planning require the development of mitigation goals to reduce or avoid long-term vulnerabilities to identified hazards. The 2018 HMP included the following two goals for each natural hazard.

1. Minimize the loss of life and property from natural and man-made hazards.

2. To the greatest extent possible, prevent disruption of services to the public.

As part of the 2023 Plan update the HMPC reviewed the goals from the 2018 Plan and established the following ten goals (with supporting objectives) related to natural hazards:

2023 MITIGATION GOALS AND OBJECTIVES

Goal 1: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **SEVERE WEATHER**.

Objective 1.1: Increase public awareness and increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of severe weather.

Objective 1.2: Increase resilience of critical facilities (including shelters) to the effects of severe weather.

Goal 2: Minimize loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **TORNADOES.**

Objective 2.1: Increase the level of protection to local population in Rockdale County and the City of Conyers from the effects of tornadoes.

Goal 3: Minimize loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **EXTREME HEAT**.

Objective 3.1: Increase public awareness and increase the level of protection to local population in Rockdale County and the City of Conyers from the effects of extreme heat.

Goal 4: Minimize loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **SEVERE WINTER WEATHER**.

Objective 4.1: Increase resilience of critical transportation infrastructure to the effects of severe winter weather.

Goal 5: Minimize loss of life and property and other economic losses in Rockdale County and the City of Conyers due **DAM FAILURE**.

Objective 5.1: Increase security awareness and increase the level of protection to local population in Rockdale County and the City of Conyers from the effects of dam failure.

Goal 6: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **DROUGHT**.

Objective 6.1: Increase the level of protection to local population in Rockdale County and the City of Conyers from the effects of drought.

Goal 7: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **HURRICANE WIND**.

Objective 7.1: Promote continuation of emergency services and utility services in Rockdale County and the City of Conyers from the effects of sustained hurricane winds.

Goal 8: Minimize loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **INLAND FLOODING**.

Objective 8.1: Increase understanding of flood hazard through improving morphologic information and increase floodplain and stormwater management.

Objective 8.2: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of inland flooding.

Goal 9: Minimize loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **WILDFIRE**.

Objective 9.1: Increase public awareness and increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of wildfires.

Goal 10: Minimize loss of life and property and other economic losses in Rockdale County and the City

of Conyers due to **EARTHQUAKE**.

Objective 10.1: Increase resilience of critical facilities (including shelters) to the effects of earthquake.

3.2.1 Severe Weather Mitigation Strategy

Community Mitigation Goals. The mitigation goals associated with severe thunderstorms, hail, and lightning are largely the same as those associated with tornados. Tornados are usually more destructive and less frequent than thunderstorms, but both represent similar threats. Severe thunderstorms have the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. These weather events, including damaging hail and deadly lightning, represent one of the greatest threats to Rockdale County. Severe thunderstorms are one of the most frequently occurring natural hazards in the County. Although the severity of thunderstorms is often unpredictable, advanced planning can help limit the damages and injuries they cause. As part of the 2013 Plan update, the single goal identified for severe summer thunderstorms is to minimize the loss of life and property. The Rockdale County HMPC has identified several courses of action that both local officials and citizens can use to mitigate the deadly effects of severe thunderstorms.

Identification & Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect children, dense groups of citizens, and citizens who live in manufactured homes or unsafe homes. Mitigation strategies include both structural and non-structural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modifications to older structures. Specific strategies could result in alterations to current policies if approved.

Severe Weather - Mitigation Strategy and Recommendations

Mitigation Goal 1: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to severe weather.

Objective 1.1: Increase public awareness and increase the level of protection for the local population in Rockdale County and the City of Conyers from the effects of severe weather.

Mitigation Actions: The 2023 Rockdale HMP includes two mitigation actions for this objective. The first action is to complete a County-wide tornado/severe thunderstorm public safety and awareness campaign. The second action is to provide NOAA Weather Radios to vulnerable populations, specifically the elderly and low-income citizens. The actions are described in detail in Table 3.3.

Objective 1.2: Increase resilience of critical facilities (including shelters) to the effects of severe weather.

Mitigation Actions: The 2023 Rockdale HMP includes two mitigation actions for this objective. The first action aims to ensure vulnerable populations, including children, the elderly, and the sick, have access to adequate storm shelter by creating safe rooms and by strengthening future public and private structures against severe wind damage. The second action is to strengthen future structures through improvement of wind engineering measures, construction techniques, etc.

Special Multi-Jurisdictional Strategy and considerations. Installation of an emergency warning siren network should take into consideration all areas of the County, including the City of Conyers. An effort should be made by the County and City to cooperate to the fullest extent possible in obtaining and operating an emergency warning siren network in order to reduce costs.

Local public information and awareness strategy. As with all potential hazards identified within this Plan update, the HMPC recommends steps be taken to increase public awareness of severe thunderstorms in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and Countywide workshops. The public will also continue to be involved in the hazard mitigation

planning process, including the implementation and periodic maintenance of this HMP.

Modified, cancelled or removed Mitigation Actions from 2018 HM Plan update: See Tables 3.3 and 3.4

Table 3.3 Rockdale County – Extreme Heat Strategies

2023 HMP Number	2018 HMP Number	Action Item Description	Responsible Department	Anticipated Cost	Existing and Potential Funding Sources	Timeframe	Priority	Status as of 2023
SEVERE WEATHER								
GOAL: 1 **OBJECTIVE: 1.1 Increase public awareness and increase the level of protection to the local population**								
1.1.1	**1.1.1**	A Countywide tornado/severe thunderstorm public safety and awareness campaign (through Channel 23, RCSO website and multiple other news outlets) to include encouraging all citizens to have a weather radio for monitoring purposes, and to sign up for Swift Reach	Rockdale County EMA	$3,000 for printing media (reduced due to increased use of social media)	Local Funding	Ongoing in perpetuity	1	Ongoing
1.1.2	**1.1.2**	Provide NOAA Weather Radios to elderly and low-income citizens, as well as any other citizens that may be determined to be a vulnerable population. An increased use of mobile telephony to disseminate weather warnings and other critical information has limited a need for NOAA Weather radios).	Rockdale County EMA	$1,000 (reduced, due to new technologies)	Private donations, public and private grants, and/or local government budget	Ongoing in perpetuity	3	Ongoing
GOAL: 1 **OBJECTIVE: 1.2 Increase resilience of critical facilities (including shelters)**								
1.2.1	**1.2.1**	Ensure vulnerable populations, including children, the elderly, and the sick, have access to adequate storm shelter. Create safe room(s) within existing structures or construct separate storm shelter(s) if necessary. Strengthen future public and private structures against severe wind damage through improvement of wind engineering measures, construction techniques, roof architectural design, and safe room requirements by adopting higher standards	Planning & Development, with input from EMA City of Conyers Planning & Development	Staff time Cost depends on type, size and use of the building	Contributions from the facilities affected, the American Red Cross, private donations, various public and private grants, and/or local government budgets	48 months	2	Ongoing

1.2.2	**1.2.1**	Strengthen future public and private structures against severe wind damage through improvement of wind engineering measures, construction techniques, roof architectural design, and safe room requirements by adopting higher standards	Planning & Development, City of Conyers Planning & Development	Staff time Cost depends on type, size and use of the building, to be determined using guidance on wind retrofitting (FEMA P-577, ASCE 7, IEBC, IBC) for non-residential buildings	Contributions from the facilities affected, the American Red Cross, private donations, various public and private grants, and/or local government budgets	5 Years	4	Ongoing

Table 3.4 Rockdale County – Updated Mitigated Actions for 2023 HM Plan Severe Weather

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
SEVERE WEATHER		
GOAL: 1 OBJECTIVE: 1.1		
A Countywide tornado/severe thunderstorm public safety and awareness campaign	Updated; ongoing	Introduced new technology, reduced budget, extended to perpetuity
Provide NOAA Weather Radios to elderly and low-income citizens, as well as any vulnerable population	Updated; ongoing	Introduced new technology, reduced budget, extended to perpetuity
GOAL: 1 OBJECTIVE: 1.2		
Ensure vulnerable populations have access to adequate storm shelter; create/construct safe room	Updated; Ongoing	Responsible agency assigned to Planning & Development, with EMA assisting; extended to perpetuity and in coordination with new construction
Strengthen future structures through improvement of wind engineering measures, construction techniques etc.	Modified, Updated, Ongoing	Responsible agency assigned to Planning & Development, with EMA assisting; extended to perpetuity and in coordination with new construction

3.2.2 Extreme Heat Mitigation Strategy

Community Mitigation Goals. Extreme heat has the potential to cause injury, loss of life, and serious damage to crops, and livestock. The single goal identified for extreme heat is to minimize the loss of life and property. The 2018 Rockdale County HMPC has identified one action item that both local officials and citizens can use to mitigate the damaging effects of extreme heat.

Identification & Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County from extreme heat. These vulnerable populations include senior citizens, children, high-density clusters of population, and citizens who live in older homes or homes with non-functioning climate controls. Mitigation strategies include non-structural mitigation measures. Specific strategies could result in alterations to current policies if approved.

Extreme Heat - Mitigation Strategy and Recommendations

Mitigation Goal 2: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to extreme heat.

Objective 2.1: Increase public awareness and increase the level of protection to local population in Rockdale County and the City of Conyers from the effects of extreme heat.

Mitigation Actions: As part of the 2023 Plan update, one mitigation action was identified that focuses on providing outreach to vulnerable populations during extreme heat events. This action is described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Extreme Heat affects all of Rockdale County. As a result, any mitigation steps taken related to winter storms should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of winter storms in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

Modified, cancelled or removed Mitigation Actions from 2018 HM Plan update: See Tables 3.5 and 3.6

Table 3.5 Rockdale County – Extreme Heat Strategies

EXTREME HEAT								
GOAL: 2 **OBJECTIVE: 2.1 Increase resilience of critical infrastructure to the effects of extreme heat.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
2.1.1	**8.1.1**	Organize outreach to vulnerable population during times of extreme heat, including establishing and promoting accessible cooling centers in the community	Rockdale County EMA, with Senior Services	Depending on need (est. $25,000 per cooling center/year in public facilities	General budget	5 years	1	Ongoing

Table 3.6 Rockdale County – Updated Mitigated Actions for 2023 HM Plan Extreme Heat

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
EXTREME HEAT		
GOAL: 2 **OBJECTIVE: 2.1**		
Organize outreach to vulnerable population during times of extreme heat, including establishing and promoting accessible cooling centers in the community	Modified, deferred; relabeled from 8.1.1 to 2.1.1	Action is being continued. Lead responsible agency is now RC EMA, with assistance of Senior Services Time frame remains at 5 years

3.2.3 Tornadoes Mitigation Strategy

Community Mitigation Goals. A tornado has the potential to cause injury, loss of life, and incalculable damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. Tornadoes are, by far, the most deadly, unpredictable natural hazard Rockdale County experiences. However, advanced planning can help limit the damage they cause. As part of the 2018 Plan update, the single goal identified for drought is to minimize the loss of life and property. The Rockdale County HMPC has identified one action item that both local officials and citizens can use to mitigate the damaging effects of tornadoes.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. These vulnerable populations include senior citizens, children, densely populated areas, and citizens who live in manufactured homes or unsafe homes. Mitigation strategies include both structural and non-structural mitigation measures. Specific strategies could result in alterations to current policies if approved.

Tornadoes - Mitigation Strategy and Recommendations

Mitigation Goal 3: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to tornadoes.

Objective 3.1: Increase the level of protection to local population in Rockdale County and the City of Conyers from the effects of tornadoes.

Mitigation Actions: The 2013 HM Plan contained one mitigation action that focused on protecting property, particularly lighter construction such as manufactured homes. The action included identification, inspection, and eventual hardening of the mobile homes. In 2018, this mitigation action was significantly modified: instead of pursuing a measure that was very hard to implement/enforce, the practical benefits would be negligible, given the low structural integrity of manufactured homes. Instead, the action was modified to evaluate the possibility of building hardened tornado shelters in areas of high concentration of manufactured and other mobile homes. This action is described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Protection and improvements to manufactured homes will take into consideration all areas of the County, including the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of tornadoes in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and Countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

Completed and deleted action steps from 2018 HM Plan update: None

Unchanged action steps: See Tables 3.7 and 3.8

Table 3.7 Rockdale County – Tornadoes Mitigation Strategies

TORNADOES								
GOAL: 3 **OBJECTIVE: 3.1 Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to tornadoes.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
3.1.1	**5.1.1**	Evaluate possibility of building tornado shelters in areas of high concentration of manufactured and other mobile homes.	EMA, City and County Planning and Development	Staff time and in house planning	Federal and State grants with local governments	5 Years	1	Ongoing

Table 3.8 Rockdale County – Updated Mitigated Actions for 2023 HM Plan Tornadoes

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
TORNADOES		
GOAL: 3 **OBJECTIVE: 3.1**		
Identify all owners of inadequately installed manufactured homes within Rockdale County and the City of Conyers.	Updated; relabeled from 5.1.1 to 3.1.1	Action is being continued. Action modified to reflect building of tornado shelters. Responsible agencies are EMA and Planning and Development Potential funding sources to include State and Federal grants.

3.2.4 Severe Winter Weather Mitigation Strategy

Community Mitigation Goals. Severe winter weather has the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. The winter storms represent one of the greatest natural hazard threats to Rockdale County. Most damage within Rockdale County during winter storms is caused by the formation of ice on roads and bridges, tree limbs, and power lines. These storms are usually predictable and can often be forecasted in advance. However, some storms do come by surprise. Either way, advanced planning can help prevent much of the damage winter storms cause. In 2013 and 2018 Plan update, the single goal identified for severe winter storms is to minimize the loss of life and property. The Rockdale County 2023 HMPC has identified one action item that both local officials and citizens can use to mitigate the damaging effects of winter weather.

Identification & Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to winter weather, these vulnerable populations include senior citizens and children. The HMPC has focused on both structural and non-structural mitigation measures in addressing winter weather. Specific strategies could result in alterations to current policies if approved.

Drought - Mitigation Strategy and Recommendation

Mitigation Goal 4: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to severe winter weather.

Objective 4.1: Increase resilience of critical infrastructure to the effects of severe winter weather.

Mitigation Actions: Mitigation Actions: The 2018 Rockdale HMP included one mitigation action for this objective. The action is to add existing road maintenance capabilities. This action is described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Winter storms affect all of Rockdale County. As a result, any mitigation steps taken related to winter storms should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of winter storms in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

Unchanged action steps: See Table 3.7.
Completed and deleted action steps from 2018 HM Plan update: See Table 3.9 and 3.10

Table 3.9 Rockdale County – Drought Mitigation Strategies

DROUGHT								
GOAL: 4 **OBJECTIVE: 4.1 Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to drought.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
4.1.1	**2.1.1**	Adding to existing road maintenance capabilities. This would include road scraping and salt/sand spreading equipment.	City and County Public Works	Quantity depending on need (average cost of salt-spreading truck approx. $170,000)	Private donations, public and private grants, and/or local government budgets	Year to Year	1	Ongoing

Table 3.10 Rockdale County – Updated Mitigated Actions for 2018 HM Plan Drought

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
DROUGHT		
GOAL: 4 **OBJECTIVE: 4.1**		
Adding to existing road maintenance capabilities. This would include road scraping and salt/sand spreading equipment.	Updated; relabeled from 2.1.1 to 4.1.1	Action is being continued Time frame changed to reflect active monitoring

3.2.5 Dam Failure Mitigation Strategy

Community Mitigation Goals. Dam failure has the potential to cause injury, loss of life, and incalculable damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. Advanced planning and safety measures can help avoid these catastrophic events. The Rockdale County HMPC has identified several courses of action that both local officials and citizens can use to mitigate the deadly effects of dam failure. The 2018 HM Plan update included a single mitigation goal to address dam failures within Rockdale County – to minimize the loss of life and property and other economic losses. The Rockdale County HMPC has identified two mitigation action items that both local officials and citizens can use to mitigate the damaging effects of dam failure.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the high-risk areas downstream from the dams. Mitigation strategies include both structural and non-structural mitigation measures. Specific strategies could result in alterations to current policies if approved. All dams Classified as Category 1 (high Risk dams) have to have emergency operation plans and on file with Rockdale EMA. There are presently six dams classified as Category 1 in Rockdale County as of summer 2023.

Dam Failure - Mitigation Strategy and Recommendation

Mitigation Goal 5: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to dam failure.

Objective 5.1: Increase security awareness and increase the level of protection to local population in Rockdale County and the City of Conyers from the effects of dam failure.

Mitigation Actions: The 2023 Plan update contained two mitigation actions that focused on maintenance, monitoring, and development restrictions. The two actions are described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Protection and improvements to manufactured homes will take into consideration all areas of the County, including the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of tornadoes in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

Completed and deleted action steps from 2018 HM Plan update: none.

Modified mitigation actions: See Tables 3.11 and 3.12

Table 3.11 Rockdale County – Dam Failure Strategies

DAM FAILURE								
GOAL: 5 **OBJECTIVE: 5.1 Increase security awareness and increase level of protection to local population from the effects of dam failure.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
5.1.1	**3.1.1**	Establish inspection, maintenance, and enforcement program to search for problems. Include guidelines for timely repairs. Comply with GA. Safe Dams Act of 1978	Stormwater & Rockdale Water Resources, input from EMA	Staff time and in-house planning	Local Government budget	Ongoing	1	Ongoing
5.1.2	**3.1.2**	Plan for dam breaks and emergency needs. Consider restriction of development in a dam's hydraulic shadow.	Stormwater, EMA	Staff time and in-house planning	Local Government budget	5 years	2	Ongoing

Table 3.12 Rockdale County – Updated Mitigated Actions for 2018 HM Plan Dam Failure

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
TORNADOES		
GOAL: 5 **OBJECTIVE: 5.1**		
Establish inspection, maintenance, and enforcement program to search for problems.	Updated; relabeled from 3.1.1 to 5.1.1	Modified budget, extended to perpetuity. Including EMA input on inspection
Plan for dam breaks and emergency needs; Consider restrictions of development in a dam's hydraulic shadow.	Updated; relabeled from 3.1.2 to 5.1.2	Including EMA in the planning process for dam failures and potential inspections.

3.2.6 Drought Mitigation Strategy

Community Mitigation Goals. Drought poses a significant threat to Rockdale County, particularly to the agricultural industry and water supplies. Drought itself poses no threat to structures. However, wildfire is a threat to structures and is often a direct result of drought. Therefore, drought has the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock.

Most damage within Rockdale County during periods of drought is due to crop damage and insufficient water supplies. Drought is largely unpredictable with regard to beginning, ending, duration and severity. Advanced planning cannot eliminate these negative consequences, but it can help mitigate them. As part of the 2023 Plan update, the single goal identified for drought is to minimize the loss of life and property. The Rockdale County HMPC has identified one action item that both local officials and citizens can use to mitigate the damaging effects of drought.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to droughts, these vulnerable populations include senior citizens and children. The HMPC has focused on both structural and non-structural mitigation measures in addressing droughts. Specific strategies could result in alterations to current policies if approved.

Drought - Mitigation Strategy and Recommendation

Mitigation Goal 6: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to drought.

Objective 4.1: Increase the level of protection to local population in Rockdale County and the City of Conyers from the effects of drought.

Mitigation Actions: The two mitigation actions from the 2018 Plan update included such projects as installing new water towers, installing an additional 10-million-gallon water storage tank, and installing a water pump at Lorraine Water Tank. For the 2023 Plan update, these actions were modified, completed or removed, as described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Drought affects all of Rockdale County. As a result, any mitigation steps taken related to drought should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of winter storms in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and Countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

Unchanged action steps: See Table 3.13
Completed and deleted action steps from 2013 HM Plan update: See Tables 3.13 and 3.14

Table 3.13 Rockdale County – Drought Mitigation Strategies

NATURAL HAZARD: DROUGHT GOAL: 6 OBJECTIVE: 6.1 Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to drought.								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
6.1.1	**4.2.2**	Install new water towers at the north end of the County "Loop" all streets in a hydraulic model.	Rockdale Water Resources	TBD	Public and private grants, government budgets	1 Year	1	Ongoing
6.1.2	**4.1.2**	Install additional 4-million-gallon clean water storage tank at the Water Treatment Plant	Rockdale Water Resources	TBD	Public and private grants, and/or local government budget	5 Years	2	Ongoing

Table 3.14 Rockdale County – Updated Mitigated Actions for 2018 HM Plan Drought

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
INLAND FLOODING		
GOAL: 6 OBJECTIVE: 6.1		
Install new water towers at the north end of the County "Loop" all streets in a hydraulic model.	Relabeled from 4.1.1 to 6.1.1	Water Towers completed Water model undergoing an update, ongoing
Install additional 4-million-gallon clean water storage tank at the Water Treatment Plant	Relabeled from 4.1.2 to 6.1.2	Ongoing

3.2.7 Hurricane Wind Mitigation Strategy

Community Mitigation Goals. Hurricanes have the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. Hurricanes can also be accompanied by high winds, floods, and tornadoes, representing a significant threat to Rockdale County. The severity of hurricanes is typically measured by the Saffir-Simpson Hurricane Scale and impacts to life and property can range from moderate to severe. Advanced planning can help limit the damage and injuries they cause. The 2023 Plan update states one mitigation goal related to hurricanes. The goal is to minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers. This goal is supported with one action item that both local officials and citizens can use to mitigate the damaging effects of hurricane winds.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to hurricanes, these vulnerable populations include senior citizens and children. The HMPC has focused on non-structural mitigation measures in addressing hurricanes. Specific strategies could result in alterations to current policies if approved.

Hurricane Wind - Mitigation Strategy and Recommendation

Mitigation Goal 7: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to hurricane winds.

Objective 7.1: Promote continuation of emergency services and utility services in Rockdale County and the City of Conyers from the effects of sustained high hurricane winds.

Mitigation Actions: The HMPC identified one action related to hurricanes. This action is described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Hurricanes affect all of Rockdale County. As a result, any mitigation steps taken related to drought should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of hurricane winds to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

Modified, cancelled or removed Mitigation Actions from 2018 HM Plan update: See tables 3.15 and 3.16

Table 3.15 Rockdale County – Wildfire
Mitigation Strategies

NATURAL HAZARD: WILDFIRE								
GOAL: 7 **OBJECTIVE: 7.1 Increase public awareness and increase the level of protection to the local population from the effects of wildfires.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2018**
7.1.1	**9.1.1**	Promote tree management on public property and streets, for purpose of reducing potential hurricane debris and impacts of falling tree limbs.	Parks & Rec Department, Rockdale DOT, Snapping Shoals EMC, Local EMCs	Staff time and in house effort	General Budget	5 Years	1	Ongoing

Table 3.16 Rockdale County – Updated Mitigated Actions for 2018 HM Plan
Wildfires

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
WILDFIRES		
GOAL: 7 **OBJECTIVE: 7.1**		
Promote tree management on the public property and streets, for purpose of reducing potential hurricane debris and impacts of falling tree limbs	Modified; relabeled from 9.1.1 to 7.1.1	Action is being continued No changes in responsible agency Timeframe will stay at 5 years

3.2.8 Inland Flooding Mitigation Strategy

Community Mitigation Goals. Inland (riverine) **f**looding has the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. These events represent one of the greatest natural hazard threats to Rockdale County. Advanced planning can help prevent much of the damage that flooding can cause. There is one main mitigation goal for floods within Rockdale County, to minimize the loss of life and property. The Rockdale County HMPC has identified several courses of action that both local officials and citizens can use to mitigate the damaging effects of inland flooding.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to flooding, these vulnerable populations include senior citizens and children. The HMPC has focused on both structural and non-structural mitigation measures in addressing flooding. The structural mitigation recommendations presented deal mainly with existing and future dams. Rockdale County has twelve dams classified as Category I (high risk). Many others are scheduled to be studied or have not yet been identified by the State. Specific strategies could result in alterations to current policies if approved. Substantially damaged properties (more than 50 percent repair/replacement of pre-damage valuation) from flooding that lie within the 100-year floodplain and/or severe repetitive loss properties (as defined in the Rockdale County Floodplain Ordinance) will be pursued for buy-out with approval of the affected property owner.

Inland Flooding - Mitigation Strategy and Recommendation

Mitigation Goal 8: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to riverine and localized (inland) flooding.

Objective 8.1: Increase understanding of flood hazard through improving morphologic information and increase floodplain and storm water management.

Mitigation Actions: The 2013 Rockdale HMP included three mitigation actions for this objective. The first action was to complete GIS LIDAR mapping and the second was to capture and model data on all storm water structures (inlets and outlets). The final action was to participate in the FEMA Community Rating System (CRS). The GIS LIDAR mapping was completed in 2013 and the pertinent action removed. The remaining two mitigation actions are described in detail in Table 3.11.

Objective 8.2: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Mitigation Actions: The 2018 Rockdale HMP included three mitigation actions for this objective. The first action was to increase culverts and add storm drains where appropriate. The second action was to dredge the Big Haynes Creek wetland area (This was removed in the 2023 HMP update). The third mitigation action was added during the 2013 HMP update. The action entailed developing a strategy of identifying, prioritizing and generally expediting acquisition of flood-prone structures. These actions are described in detail in Table 3.17 and 3.18.

Table 3.17 Rockdale County – Inland Flooding Strategies

2023 HMP Number	2018 HMP Number	Action Item Description	Responsible Department	Anticipated Cost	Existing and Potential Funding Sources	Timeframe	Priority	Status as of 2023
INLAND FLOODING								
GOAL: 8 **OBJECTIVE: 8.1 Increase understanding of flood hazard and increase floodplain and storm water management.**								
8.1.1	**6.1.1**	Capture elevation data on all storm water structures (inlets and outlets) within Rockdale County and the City of Conyers. Model County-wide and city-wide storm water runoff including infrastructure, sheet flow, ditches, creeks, and rivers	Stormwater/ Planning Office for Rockdale County and City of Conyers, GIS	Staff time and in-house effort	TBD	Ongoing		Ongoing
8.1.2	**6.1.2**	Continue Participation in FEMA Community Rating System (CRS)	Floodplain Management; Rockdale Stormwater	Staff time and in-house effort	Public and private grant, local government budget	Ongoing		Ongoing
GOAL: 8 **OBJECTIVE: 8.2 Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of inland flooding.**								
8.2.1	**6.2.1**	Culvert sizes need to be increased. Install storm drains where appropriate, and/or other storm water measures taken to correct flooding problems.	Rockdale Stormwater	$3 million/year	Storm water utility	Ongoing		Ongoing
8.2.2	**6.2.3**	Develop a strategy to identify, prioritize and generally expedite acquisition of flood-prone structures	City and county floodplain management, Rockdale Stormwater, input from EMA	Staff time and in-house effort	Public and private grants, including local government budgets and FEMA planning grants	5 years		Strategy development currently ongoing

Table 3.18 Rockdale County – Updated Mitigated Actions for 2018 HM Plan Inland Flooding

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
Inland Flooding		
GOAL: 8 OBJECTIVE: 8.1		
Capture elevation data on all storm water structures (inlets and outlets) within Rockdale County and the City of Conyers. Model County-wide and city-wide storm water runoff including infrastructure, sheet flow, ditches, creeks, and rivers	Relabeled from 6.1.1 to 8.1.1	Modified responsible County department Modified Source of Funding Mitigation Action is ongoing
Continue Participation in FEMA Community Rating System (CRS)	Relabeled from 6.1.2 to 8.1.2	Have joined the FEMA CRS Maintain participation in FEMA CRS
GOAL: 8 OBJECTIVE: 8.2		
Culvert sizes need to be increased. Install storm drains where appropriate, and/or other storm water measures taken to correct flooding problems.	Relabeled from 6.2.1 to 8.2.1	Increased activity, ongoing activity
Dredge in the Big Hanes Creek wetland area	Cancelled; removed	Action is not needed
Develop a strategy to identify, prioritize and generally expedite acquisition of flood-prone structures	Relabeled from 6.2.3 to 8.2.2	Action ongoing

3.2.9 Wildfire Mitigation Strategy

Community Mitigation Goals. Wildfire is one of the most frequently occurring natural hazards within Rockdale County. Wildfires have the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. These events represent a potentially devastating threat to Rockdale County.

Most damage caused by wildfire within the County is limited to timber destruction and the resulting environmental problems, including erosion. However, the potential injury and death of citizens and loss of property is also a concern. These fires are totally unpredictable and cannot be accurately forecasted in advance. However, advanced planning can help prevent a portion of wildfires. More importantly advanced planning can go a long way in preventing much of the devastation wildfire causes. The 2018 Plan included one main mitigation goals for wildfire within Rockdale County which was to minimize the loss of life and property (include the County's forests). This goal remains the same for the 2023 Plan update. The Rockdale County HMPC has identified measures that can be used to help mitigate the damaging effects of wildfire.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to wildfire, these vulnerable populations include senior citizens and children. Specific strategies could result in alterations to current policies if approved.

Wildfire - Mitigation Strategy and Recommendation

Mitigation Goal 9: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to wildfires.

Objective 9.1: Increase public awareness and increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of wildfires.

Mitigation Actions: The 2018 Rockdale HMP included one mitigation action for this objective. The mitigation action is to provide various wildfire related public outreach materials to citizens and work with Georgia Forestry to develop solutions to problems related to urban interface issues. This action is maintained with some modifications and described in detail below.

Objective 9.2: Increase resilience of critical facilities (including shelters) to the effects of wildfires.

Mitigation Actions: The single actions were consolidated into a single one for the 2018 HM Plan Update.

Special Multi-Jurisdictional Strategy and considerations. Wildfire is capable of affecting any portion of Rockdale County. As a result, any mitigation steps taken related to wildfire should be undertaken on a Countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this Plan update, the HMPC recommends steps be taken to increase public awareness of wildfire in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and Countywide workshops. Forestry personnel have also expressed a willingness to assist with any fire safety public workshops the County might wish to sponsor. Information disseminated may include strategies for property maintenance to remove potential fuels, bi-annual chimney maintenance, smoke detectors/fire extinguishers, evacuation procedures, and maintenance of water supplies in accordance with National Fire Protection Association (NFPA) standards. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

Completed and deleted action steps from 2018 HM Plan update: None as of 2023

Modified mitigation actions: See Tables 3.19 and 3.20

Table 3.19 Rockdale County –Wildfire Strategies

2023 HMP Number	2018 HMP Number	Action Item Description	Responsible Department	Anticipated Cost	Existing and Potential Funding Sources	Timeframe	Priority	Status as of 2023
WILDFIRE								
GOAL: 9 **OBJECTIVE: 9.1 Increase public awareness and increase the level of protection to the local population from the effects of wildfires.**								
9.1.1	**7.1.1**	Work in conjunction with Georgia Forestry Commission to find solutions to problems concerning urban interface issues. Provide educational materials in permit process. Hold public workshops to educate public. Conduct public education program. Purchase public education materials on wildfires and on fire safety.	Rockdale County Fire Department / Georgia Forestry Commission	Staff time and in-house efforts	$20,000 (reduced from $100,000, due to assistance from GFC and development of technology) Media campaign can be handled through Channel 23, and various social media	Ongoing	1	Ongoing
GOAL: 9 **OBJECTIVE: 9.2 Increase resilience of critical facilities (including shelters) to the effects of wildfires.**								
9.2.1	**7.2.1**	Consider controlled burns and mandatory brush control Conduct identification of all structures and infrastructure located in the wildfire hazard area. Include location, values, and other necessary loss estimation information.	Georgia Forestry Commission with follow-up by RCFD, and with input from RC GIS and community partners	$10,000 - $20,000	Public and private grants, and local government budgets	Ongoing	2	Ongoing

Table 3.20 Rockdale County – Updated Mitigated Actions for 2018 HM Plan Hurricane Wind

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
HURRICANE WIND		
GOAL: 9 OBJECTIVE: 9.1		
Work in conjunction with Georgia Forestry Commission to find solutions to problems concerning urban interface issues. Provide educational materials in permit process. Hold public workshops to educate public. Conduct public education program. Purchase public education materials on wildfires and on fire safety. Purchase classroom equipment. Purchase advertising in media.	Modified, deferred; relabeled from 7.1.1 to 9.1.1	Action is being continued. Lead responsible agency is now RC Parks Department, Snappy Shoals EMC, and other local EMCs Time frame changed to 5 years
GOAL: 9 OBJECTIVE: 9.2		
Consider controlled burns and mandatory brush control Conduct identification of all structures and infrastructure located in the wildfire hazard area. Include location, values, and other necessary loss estimation information.	Modified, relabeled from 7.2.1 to 9.2.1	Action is being continued, with responsibility expanded to Georgia Forestry Commission with follow-up by RCFD and with input from RC GIS and community partners. Anticipated cost modified to $10,000-$$20,000

3.2.10 Earthquake Mitigation Strategy

Community Mitigation Goals. Earthquakes have a great potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. Such events are uncommon within Rockdale Co. As a matter of fact, no records of serious earthquake damage have been found for Rockdale Co. Nevertheless, the tremendous destructive capacity of an earthquake requires the HMPC to consider mitigation strategies. The 2023 Plan update recognizes the single goal for earthquakes: to minimize the loss of life and property and other economic losses. To address this goal, there is one action item that both local officials and citizens can use to mitigate the damaging effects of earthquakes.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to hurricanes, these vulnerable populations include senior citizens and children. The HMPC has focused on non-structural mitigation measures in addressing hurricanes. Specific strategies could result in alterations to current policies if approved.

Earthquake - Mitigation Strategy and Recommendation

Mitigation Goal 10: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to earthquakes.

Objective 10.1: Increase resilience of critical facilities (including shelters) to the effects of earthquake.

Mitigation Actions: The 2013 Plan lists one mitigation action that is related to developing school survey procedures The 2018 Plan update expands this category to all critical facilities (including schools). This action is described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Earthquakes have the potential to affect all of Rockdale County. As a result, any mitigation steps taken related to earthquakes should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of earthquakes to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

Modified, cancelled or removed Mitigation Actions from 2013 HM Plan update: See tables 3.21 and 3.22.

Table 3.21 Rockdale County – Earthquake Strategies

EARTHQUAKE GOAL: 10 OBJECTIVE: 10.1 Increase resilience of critical facilities (including shelters) to the effects of earthquake.								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 201823**
10.1.1	**N-10.1.1**	Develop a survey procedure and guidance document to inventory structural and non-structural hazards at and near critical facilities. Determine mitigation priorities that can be incorporated into capital improvement plans.	City and County pertinent departments	Staff time and in-house efforts	Public and private grants, and/or government budgets	5 years	1	Ongoing

Table 3.22 Rockdale County – Updated Mitigated Actions for 2018 HM Plan Earthquake

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
EARTHQUAKE		
GOAL: 10 OBJECTIVE: 10.1		
Develop a survey procedure and guidance document to inventory structural and non-structural hazards at and near critical facilities Determine mitigation priorities that can be incorporated into capital improvement plans.	Modified, deferred; relabeled from N-10.1.1 to 10.1.1	Surveyed facilities expanded from schools to all critical facilities in the County. Responsibility transferred from school officials to pertinent departments. Time frame changed to 5 years

3.3 Technological and All Hazard Mitigation Goals and Objectives Update Summary

In developing technological hazard and all-hazard mitigation goals and objectives for the Plan update, Rockdale County and the City of Conyers worked together as a team within the framework of the HMPC. Both jurisdictions recognize the importance of protecting both incorporated and unincorporated areas of the County. Though the County facilitated this planning process, the City of Conyers provided input relating to their natural hazard mitigation goals, objectives, and measures.

For the 2018 Plan update, goals and objectives were considered for the hazardous materials release, pandemic emergency, railroad derailment, and radiological emergency. These hazards have the potential to impact any portion of the planning area. Therefore, creating a narrowly defined "hazard area" for these three hazards proved a difficult and imprecise effort. The technological hazard railroad derailment will follow rail lines found within the planning area.

Due to the fact that there were no significant differences in jurisdictional risks for each of the technological hazards identified within this Plan update the County and the City worked together to create a single set of goals and objectives to help mitigate these hazards. Therefore, the HMPC combined many of the goals and objectives for Rockdale County and the City of Conyers.

Goals are general descriptions of desired long-term outcomes. State and Federal guidance and regulations pertaining to mitigation planning require the development of mitigation goals to reduce or avoid long-term vulnerabilities to identified hazards.

As part of the 2018 Plan update the HMPC reviewed the goals from the 2013 Plan and established the following four goals and objectives related to technological hazards (the enumeration of mitigation goals from 11 to 14 in this 2018 HMP update follows a holistic approach to all hazards combined):

Goal 11: Minimize loss of life and property and other economic losses in Rockdale County and the City of Conyers due to severe **PANDEMIC EMERGENCIES**.

> **Objective 11.1:** Increase public awareness and the level of protection to the local population in Rockdale County and the City of Conyers from the effects of pandemic emergencies.

Goal 12: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **HAZARDOUS MATERIALS**.

> **Objective 12.1:** Increase public awareness and increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of hazardous materials.

Goal 13: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **MAJOR UTILITY FAILURE.**

> **Objective 13.1:** Increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of major utility failure.

Goal 14: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **RAILROAD DERAILMENT**.

> **Objective 14.1:** Increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of railroad derailment.

Goal 15: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **PUBLIC SAFETY EMERGENCY.**

> **Objective 15.1:** Increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of public safety emergency.

Goal 16: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to **RADIOLOGICAL EMERGENCIES**.

Objective 16.1: Increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of radiological emergencies.

3.3.1 Pandemic Emergency Mitigation Strategy

Community Mitigation Goals. Pandemic emergencies have the potential to cause injury and loss of life. Although such events cannot be predicted, advanced planning and safety measures can help limit their frequency and severity. The single mitigation goal for this threat within Rockdale County is to minimize the loss of life and property. The 2023 Rockdale County HMPC has identified one action item that both local officials and citizens can use to mitigate the deadly effects of Pandemic Emergencies.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. These vulnerable populations include senior citizens, children, centers of population, and citizens who live in manufactured homes or unsanitary homes. Specific strategies could result in alterations to current policies if approved.

Pandemic Emergency - Mitigation Strategy and Recommendation

Mitigation Goal 11: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to pandemic emergencies.

Objective 11.1: Increase public awareness and level of protection to the local population in Rockdale County and the City of Conyers from the effects of pandemic emergencies.

Mitigation Actions: The HMPC identified one action related to pandemic emergencies. This action is described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Pandemic emergencies can affect all areas of Rockdale County. As a result, any mitigation steps taken related to pandemic emergency should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this Plan update, the HMPC recommends steps be taken to increase public awareness of pandemic emergencies to reduce the likelihood of injury or death. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this HMP.

Modified, cancelled or removed Mitigation Actions from 2018 HM Plan update: See tables 3.23 and 3.24

Table 3.23 Rockdale County – Pandemic Emergencies Strategies

PANDEMIC EMERGENCIES								
GOAL: 11 **OBJECTIVE: 11.1 Increase public awareness and increase the level of protection to the local population from the effects of pandemic emergencies.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
11.1.1	**12.1.1**	Maintain public health systems with sufficient disease monitoring and surveillance capabilities to protect population from large-scale outbreaks (coordinate with Federal and State health agencies). Promote public awareness through highlighting causes, symptoms, and protective actions for disease outbreaks.	Public Health	Staff time; presumed cost-effective as part of the jurisdictions' ongoing response capabilities.	Georgia DHS	Ongoing	1	Ongoing

Table 3.24 Rockdale County – Updated Mitigated Actions for 2023 HM Plan Pandemic Emergencies

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
HAZARDOUS MATERIALS		
GOAL: 11 **OBJECTIVE: 11.1**		
Maintain public health systems with sufficient disease monitoring and surveillance capabilities to protect population from large-scale outbreaks (coordinate with Federal and State health agencies). Promote public awareness through highlighting causes, symptoms, and protective actions for disease outbreaks.	Relabeled from 12.1.1 to 11.1.1	Extended timeframe Action ongoing

3.3.2 Hazardous Materials Mitigation Strategy

Community Mitigation Goals. Hazardous materials have the potential to cause injury, loss of life, and widespread damage and contamination to public and private property, utilities, crops, and livestock. Hazardous materials are the most frequently occurring technological hazard within Rockdale County. Although such events cannot be predicted, advanced planning and safety measures can help limit their frequency and severity. The 2023 Plan includes one main mitigation goal to address hazardous materials release within Rockdale County, which is to "minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers." The 2023 Rockdale County HMPC has agreed to adopt the mitigation strategy from 2018 HM Plan Update that both local officials and citizens can use to mitigate the deadly effects of hazardous materials.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. These vulnerable populations include senior citizens, children, areas of high-density population, and citizens who live in manufactured homes or unsafe homes. Specific strategies could result in alterations to current policies if approved.

Pandemic Emergencies - Mitigation Strategy and Recommendation

Mitigation Goal 12: Minimize the loss of life and other economic losses in Rockdale County and the City of Conyers due to hazardous materials.

Objective 12.1: Increase public awareness and level of protection to the local population in Rockdale County and the City of Conyers from the effects of hazardous materials.

Mitigation Actions: The 2018 Rockdale HMP included 5 mitigation actions for this objective, including such projects as improving response to incidents related to hazardous material and acquiring additional equipment to assist in prevention and response to sewage spills. For the 2023 Plan update the number of actions for this objective has remained the same. The actions are described in detail in Table 3.19 below.

Special Multi-Jurisdictional Strategy and considerations. Hazardous materials can affect all areas of Rockdale County. As a result, any mitigation steps taken related to hazardous material should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this Plan update, the HMPC recommends steps be taken to increase public awareness of hazardous materials release in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this HMP.

Modified, cancelled or removed Mitigation Actions from 2018 HM Plan update: See tables 3.25 and 3.26.

Table 3.25 Rockdale County – Hazardous Materials Strategies

HAZARDOUS MATERIALS								
GOAL: 12 **OBJECTIVE: 12.1 Increase public awareness and level of protection to the local population from the effects of hazardous materials.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
12.1.1	**11.1.1**	Provide replacement response equipment. Provide training and refresher training.	Rockdale County Fire and Rescue	TBD	Public and private grants, and/or government budgets	Ongoing		Ongoing
12.1.2	**11.1.2**	Reestablish and utilize the LEPC Update and utilize the LEOP	Rockdale County Fire and Rescue; EMA	Staff time and in house efforts	There may be no additional cost.	2 Years	1	Restarting
12.1.3	**11.1.3**	Purchase equipment to assist in the prevention and response of sewage spills (additional alarm system & vacuum truck)	Rockdale Water Resources	$300,000 (estimated)	Public and private grants,	Ongoing		Ongoing
12.1.4	**11.1.4**	Implement continuous maintenance program designed to clear easements and allow for proper drainage.	Stormwater & Water Resources	In-house work	Capital investment to allow for in-house work	Ongoing		Ongoing
12.1.5	**11.1.5**	Install or retrofit all older residential water meters with dual check valves.	Rockdale Water Resources	TBD	Public and Private grants, and or government budget	Ongoing		Ongoing

Table 3.26 Rockdale County – Updated Mitigated Actions for 2018 HM Plan Hazardous Materials

MITIGATION ACTION	STATUS FROM 2013 UPDATE	NOTES
HAZARDOUS MATERIALS		
GOAL: 12 OBJECTIVE: 12.1		
Provide replacement response equipment. Provide training and refresher training.	Relabeled from 11.1.1 to 12.1.1	Action ongoing
Continue to utilize and support the LEPC and LEOP	Relabeled from 11.1.2 to 12.1.2	Restarting the LEPC Updating the LEOP Time frame adjusted
Purchase equipment to assist in the prevention and response of sewage spills (additional alarm system & vacuum truck)	Relabeled from 11.1.3 to 12.1.3	Action is ongoing Cost remains TBD
Implement continuous maintenance program designed to clear easements and allow for proper drainage	Relabeled from 11.1.4 to 12.1.4	Modified timeframe to ongoing
Install or retrofit all older residential water meters with dual check valves.	Relabeled from 11.1.5 to 12.1.5	Action ongoing

3.3.3 Major Utility Failure Mitigation Strategy

Community Mitigation Goals. A major utility failure has the potential to cause injury, loss of life, and widespread damage and contamination to public and private property. The single mitigation goal for this threat within Rockdale County is to minimize the loss of life and property. The 2023 Rockdale County HMPC has identified one action item that both local officials and citizens can use to mitigate the effects of a major utility failure.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented across the County, and more targeted steps to protect specific areas affecting the vulnerable populations within the County. Specific strategies could result in alterations to current policies if approved.

Major Utility Failure - Mitigation Strategy and Recommendation

Mitigation Goal 13: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to a major utility failure.

Objective 13.1: Increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of major utility failure.

Mitigation Actions: The 2018 Plan did not include actions for this hazard; the 2023 HMPC added this hazard. The 2023 Plan update includes a single mitigation action, aimed at development of emergency planning and evaluation of effectiveness of public works response procedures.

Special Multi-Jurisdictional Strategy and considerations. A major utility failure can affect all areas of Rockdale County. As a result, any mitigation steps taken related to railroad derailment should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this Plan update, the HMPC recommends steps be taken to increase public awareness of major utility failure to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this HMP.

Modified, cancelled or removed Mitigation Actions from 2018 HM Plan update: None; See tables 3.27 and 3.28.

Table 3.27 Rockdale County – Railroad Derailment Strategies

MAJOR UTILITY FAILURE								
GOAL: 13 **OBJECTIVE: 13.1 Increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of major utility failure.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
N-13.1.1		Develop and regularly update a comprehensive emergency response plan; work in conjunction with utility companies to create a detailed emergency response plan that outlines procedures for responding to different types of utility failures, such as power outages, gas leaks, or water main breaks.	EMA, Water, Stormwater, Snapping Shoals EMC, Walton EMC, GA Power,	Staff time; presumed cost-effective as part of the jurisdictions' ongoing response capabilities.	General budget	5 Years	1	Ongoing

Table 3.28 Rockdale County – Updated Mitigated Actions for 2018 HM Plan Railroad Derailment

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
MAJOR UTILITY FAILURE		
GOAL: 13 **OBJECTIVE: 13.1**		
Develop and regularly update a comprehensive emergency response plan; work in conjunction with utility companies to create a detailed emergency response plan that outlines procedures for responding to different types of utility failures, such as power outages, gas leaks, or water main breaks.	Relabeled 13.1.1	Action is new Timeframe set at 5 years. Review this action annually with local EMC companies and County Departments

3.3.4 Railroad Derailment Mitigation Strategy

Community Mitigation Goals. Railroad derailment has the potential to cause injury, loss of life, and widespread damage and contamination to public and private property. The single mitigation goal for this threat within Rockdale County is to minimize the loss of life and property. The 2023 Rockdale County HMPC has identified one action item that both local officials and citizens can use to mitigate the effects of railroad derailment.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented across the County, and more targeted steps to protect specific areas affecting road traffic and vulnerable traffic population within the County. Specific strategies could result in alterations to current policies if approved.

Radiological Emergency - Mitigation Strategy and Recommendation

Mitigation Goal 14: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to Railroad Derailment.

Objective 14.1: Increase level of protection to the local population in Rockdale County and the City of Conyers from the effects of Railroad Derailment.

Mitigation Actions: The 2018 Plan defined one mitigation action to achieve this goal. The 2023 Plan update includes the same single mitigation action, aimed at development of emergency plan, traffic control planning and a mass-casualty situational training. These actions are described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Railroad Derailment can affect all areas of Rockdale County. As a result, any mitigation steps taken related to Radiological Emergency should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this Plan update, the HMPC recommends steps be taken to increase public awareness of radiological emergency to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this HMP.

Modified, cancelled or removed Mitigation Actions from 2018 HM Plan update: See tables 3.29 and 3.30.

Table 3.29 Rockdale County – Radiological Emergency Strategies

RAILROAD DERAILMENT								
GOAL: 14 **OBJECTIVE: 14.1 Increase level of protection to the local population in Rockdale County and the City of Conyers from the effects of Railroad Derailment.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
14.1.1	**13.1.1**	Develop and practice emergency plan involving designation of detour roads, traffic control planning and mass-casualty situational training.	EMA/Fire and Rescue (HazMat), Rockdale DOT, and Conyers Public Works	Staff time; presumed cost-effective as part of the jurisdictions' ongoing response capabilities.	General Budget	5 Years	1	Ongoing

Table 3.30 Rockdale County – Updated Mitigated Actions for 2018 HM Plan Radiological Emergency

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
RADIOLOGICAL EMERGENCY		
GOAL: 14 **OBJECTIVE: 14.1**		
Develop and practice emergency plan involving designation of detour roads, traffic control planning and mass-casualty situational training.	Modified; relabeled from 13.1.1 to 14.1.1	Action is ongoing Changed timeframe to 5 years

3.3.5 Public Safety Emergency

Community Mitigation Goals. Railroad derailment has the potential to cause injury, loss of life, and widespread damage and contamination to public and private property. The single mitigation goal for this threat within Rockdale County is to minimize the loss of life and property. The 2023 Rockdale County HMPC has identified one action item that both local officials and citizens can use to mitigate the effects of railroad derailment.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented across the County, and more targeted steps to protect specific areas affecting road traffic and vulnerable traffic population within the County. Specific strategies could result in alterations to current policies if approved.

Public Safety Emergency – Mitigation Strategy and Recommendation

Mitigation Goal 13: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to Public Safety Emergency.

Objective 13.1: Increase level of protection to the local population in Rockdale County and the City of Conyers from the effects of public safety emergencies.

Mitigation Actions: The 2023 Plan update includes a single mitigation action, aimed at development of emergency plan and situational training. These actions are described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Railroad derailment can affect all areas of Rockdale County. As a result, any mitigation steps taken related to railroad derailment should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this Plan update, the HMPC recommends steps be taken to increase public awareness of railroad derailment to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this HMP.

Modified, cancelled or removed Mitigation Actions from 2018 HM Plan update: See tables 3.31 and 3.32

Table 3.31 Rockdale County – Public Safety Emergency Strategies

PUBLIC SAFETY EMERGENCY								
GOAL: 15 **OBJECTIVE: 15.1 Increase level of protection to the local population in Rockdale County and the City of Conyers from the effects of public safety emergencies.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
N-15.1.1		Emergency planning and training for incidents of significance; develop and practice an emergency plan for handling incidents of significance involving all City and County public safety.	EMA, Fire and Rescue, Sherriff, Conyers Police, EMS,	Staff time; presumed cost-effective as part of the jurisdictions' ongoing response capabilities.	General budget	5 Years	1	Ongoing

Table 3.32 Rockdale County - Updated Mitigation Actions for 2023 HM Plan Public Safety Emergency

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
PUBLIC SAFETY EMERGENCY		
GOAL: 15 **OBJECTIVE: 15.1**		
Emergency planning and training for incidents of significance; develop and practice an emergency plan for handling incidents of significance involving all City and County public safety.	New; labeled N-15.1.1	New Hazard Action is ongoing

3.3.6 Radiological Emergency

Community Mitigation Goals. Radiological Emergency has the potential to cause injury, loss of life, and widespread damage and contamination to public and private property, utilities, crops, and livestock. Although such events cannot be predicted, advanced planning and safety measures can help limit their frequency and severity. The single mitigation goal for this threat within Rockdale County is to minimize the loss of life and property. The 2023 Rockdale County HMPC has identified one action item that both local officials and citizens can use to mitigate the deadly effects of Radiological Emergency.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. Specific strategies could result in alterations to current policies if approved.

Radiological Emergency - Mitigation Strategy and Recommendation

Mitigation Goal 16: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to Radiological Emergency.

Objective 16.1: Increase the level of protection to the local population in Rockdale County and the City of Conyers from the effects of Radiological Emergency.

Mitigation Actions: The HMPC identified one action related to Radiological Emergency. This action is described in detail below.

Special Multi-Jurisdictional Strategy and considerations. Radiological Emergency can affect all areas of Rockdale County. As a result, any mitigation steps taken related to Radiological Emergency should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this Plan update, the HMPC recommends steps be taken to increase public awareness of radiological emergency to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this HMP.

Modified, cancelled or removed Mitigation Actions from 2018 HM Plan update: See tables 3.33 and 3.34.

Table 3.33 Rockdale County – Radiological Emergency Strategies

RADIOLOGICAL EMERGENCY								
GOAL: 16 **OBJECTIVE: 16.1 Increase public awareness and level of protection to the local population from the effects of pandemic emergencies.**								
2023 HMP Number	**2018 HMP Number**	**Action Item Description**	**Responsible Department**	**Anticipated Cost**	**Existing and Potential Funding Sources**	**Timeframe**	**Priority**	**Status as of 2023**
16.1.1	**14.1.1**	Emergency Planning for Transportation Routes; develop and practice an emergency plan for handling transit transportation accidents involving spent nuclear fuel from power plants in Georgia.	Rockdale Fire & Rescue with support of Rockdale DOT and City of Conyers Public Works	Staff time; presumed cost-effective as part of the jurisdictions' ongoing response capabilities.	General Budget	Ongoing	1	Ongoing

Table 3.34 Rockdale County – Updated Mitigated Actions for 2023 HM Plan Radiological Emergency

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
RADIOLOGICAL EMERGENCY		
GOAL: 16 **OBJECTIVE: 16.1**		
Emergency Planning for Transportation Routes; develop and practice an emergency plan for handling transit transportation accidents involving spent nuclear fuel from power plants in Georgia.	Modified; deferred; relabeled from T-3.1.1 to 14.1.1	Responsible agency changed to RC Fire & Rescue, with DOT in a supporting role; time frame changed to "ongoing"

3.3.7 All Hazards Mitigation Strategy

Community Mitigation Goals. The purpose of this section, although not necessarily related to technological hazards, is to allow the HMPC to recommend mitigation measures within this Plan that transcend individual hazards. Certain common mitigation measures are needed regardless of the specific hazard. Rather than list these multiple times within each different hazard category, the HMPC decided to list these "all-hazards" mitigation measures within a separate section of the Plan. As part of the 2023 Plan update, the single goal identified for all hazards category is to minimize the loss of life and property and other economic losses. The 2023 Rockdale County HMPC has identified six action items that both local officials and citizens can use to mitigate the effects from all hazards.

Identification and Analysis of Range of Mitigation Options. The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. These vulnerable populations include senior citizens, children, and citizens who live in manufactured homes or unsafe homes. Mitigation strategies include both structural and non-structural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modifications to older structures. Specific strategies could result in alterations to current policies if approved.

All Hazards - Mitigation Strategy and Recommendation

Mitigation Goal 17: Minimize the loss of life and property and other economic losses in Rockdale County and the City of Conyers due to all hazards.

Objective 17.1: Increase public awareness and increase the level of protection to the local population in Rockdale County and the City of Conyers from the combined effects of all hazards.

Mitigation Actions: The 2023 HMP includes six mitigation actions that were subdivided into two specific objectives. For Objective 17.1, the HMPC identified two actions that cover all hazards.

Objective 17.2: Increase the level of redundancy to ensure continuance of emergency operations in Rockdale County and the City of Conyers.

Mitigation Actions: For objective 17.2 the HMPC identified and agreed that the same actions identified in the 2018 plan are ongoing and good actions for the 2023 HM Plan Update. All are ongoing as of the 2023 HM Plan update.

Special Multi-Jurisdictional Strategy and considerations. All hazards can affect all areas of Rockdale County. As a result, any mitigation steps taken related to all hazards should be undertaken on a countywide basis and include the City of Conyers.

Local public information and awareness strategy. As with all potential hazards identified within this Plan update, the HMPC recommends steps be taken to increase public awareness of all hazards to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles or advertisements detailing specific hazard mitigation techniques, distribution of informational materials, and countywide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this HMP.

Table 3.35 Rockdale County – All-Hazards Strategies

2023 HMP Number	2018 HMP Number	Action Item Description	Responsible Department	Anticipated Cost	Existing and Potential Funding Sources	Timeframe	Priority	Status as of 2023
ALL HAZARDS								
GOAL: 17 **OBJECTIVE: 17.1 Increase public awareness and increase the level of protection to the local population from the combined effects of all hazards.**								
17.1.1	**15.1.2**	Provide training program focused on how County and City Employees should respond to various emergency situations	Rockdale County Emergency Management Agency	Staff time; presumed cost-effective as part of the ongoing response capabilities.	Local government budgets	Ongoing	2	Ongoing
17.1.2	**15.1.3**	Comply fully with the presidential directive requiring NIMS compliance for all department heads	Rockdale County Emergency Management Agency	Staff time; presumed cost-effective as part of the ongoing response capabilities.	No Significant Cost	Ongoing	1	Ongoing
GOAL: 17 **OBJECTIVE: 17.2 Increase level of redundancy to ensure continuance of emergency operations in Rockdale County and the City of Conyers.**								
17.2.1	**15.2.1**	Install fuel tanks at every fire station	Rockdale County Fire and Rescue	$40,000	Public and private grants, and/or government budgets	Ongoing	6	Completed on nine out of ten FS
17.2.2	**15.2.2**	Install fixed emergency generators at each of the ten Rockdale County Fire Stations	Rockdale County Fire Department	$80,000 for Fire Station #4	Public and private grants, and/or government budgets	Ongoing	5	Ongoing
17.2.3	**15.2.3**	Establish off- site location to record and archive 911 CAD information	Rockdale County Fire Department	$45,000	Public and private grants, and/or government budgets	Ongoing	3	Ongoing
17.2.4	**15.2.5**	Install fixed generators for highest priority sewer lift stations Install surge and lightning protection for 28 lift stations	Rockdale Water Resources	$1,250,000 (Generators) $1,120,000 (Lift Stations)	Public and private grants, and/or government budgets	Ongoing	4	Ongoing; list of lift stations reviewed

Table 3.36 Rockdale County – Updated Mitigated Actions for 2018 HM Plan All Hazards

MITIGATION ACTION	STATUS FROM 2018 UPDATE	NOTES
ALL HAZARDS		
GOAL: 17 OBJECTIVE: 17.1		
Provide training program focused on how County and City Employees should respond to various emergency situations	Relabeled from 15.1.1 to 17.1.1	No modifications; ongoing
Comply fully with the presidential directive requiring NIMS compliance for all department heads	Relabeled from 15.1.2 to 17.1.2	No modifications; ongoing
GOAL: 17 OBJECTIVE: 17.2		
Install fuel tanks at every fire station	Modified; deferred; relabeled from 15.2.1 to 17.2.1	Remaining work (one fire station) estimated at $40,000 Timeframe changed to ongoing
Install fixed emergency generators at each of the ten Rockdale County Fire Stations	Modified; deferred; relabeled from 15.2.2 to 17.2.2	Remaining work (Fire Station #4) estimated at $80,000 Timeframe changed to ongoing
Establish off- site location to record and archive 911 CAD information	Deferred; relabeled from 15.2.3 to 17.2.3	Timeframe changed to “ongoing”
Install fixed generators for highest priority sewer lift stations Install surge and lightning protection for 28 lift stations	Modified; deferred; relabeled from A-1.2.5 to 15.2.4	Modified anticipated costs, extended timeframe to “ongoing”

Chapter 4
Plan Execution and Maintenance

Chapter 4 of this Plan update discusses how the Mitigation Strategies will be implemented by Rockdale County and the City of Conyers and how the overall updated Hazard Mitigation Plan will be evaluated and enhanced over time. This chapter also describes how the public and participating stakeholders will continue to be involved in the hazard mitigation planning process.

Table 4.1
Overview of updates to Chapter 4: Plan Execution and Maintenance

2023 HMP – Chapter 4	SECTION UPDATES
4.1 Implementation Action Plan	Update text
4.2 Evaluating, Monitoring and Updating	Update text
4.3 Plan Update and Maintenance.	Update text

4.1 Implementation Action Plan

The planning process for the 2023 Plan update was overseen by the Rockdale County Emergency Management Agency (EMA). Upon completion of the final draft, the 2023 Plan update will be submitted to the Georgia Emergency Management Agency. Once GEMA completes its initial review of the Plan update, changes will be integrated into the Plan updated and submitted to the Federal Emergency Management Agency for approval pending adoption.

4.1.1 Incorporation into Other Local Planning Mechanisms

As required by the FEMA Interim Final Rule (IFR) that governs mitigation planning, actions and strategies from the Rockdale County mitigation plan must be incorporated into other planning mechanisms, as applicable, during the routine re-evaluation and update of the County HMP. Both the County and the City of Conyers will use specific actions from Chapter 3 of this Plan update as part of their capital budgeting processes, in particular when projects require local match for federal grants. The County will also look for opportunities to use the updated HMP in conjunction with drainage plans.

Where applicable, portions of the 2023 Rockdale County Hazard Mitigation Plan update will be considered for incorporation into other local plans and programs. This includes some form of incorporation into the Rockdale County Comprehensive Plan at the next scheduled update.

The Comprehensive Plan, which focuses on land use and community development, is required of all local governments by the Georgia Department of Community Affairs (DCA). Portions of the HMP may also be integrated into the Rockdale County Local Emergency Operations Plan (LEOP), emergency plans for the City of Conyers, and other existing or future public safety-related plans.

Where applicable, action items related to the flood hazard from the Plan update will be incorporated into the County's Floodplain Management Ordinance, discussed previously in Section 2.3.6 of this Plan.
Table 4.2 lists hazard mitigation goals and actions that can be incorporated into five most significant long-term plans by Rockdale County and the City of Conyers. The mitigation goals and actions listed in Table 4.2 correspond to mitigation strategies listed in Chapter 3 of this Plan, and, more concisely, to mitigation actions summarized in Table 3.2.

Table 4.2
Incorporation of hazard mitigation strategies into other planning mechanisms

Plans	Jurisdiction	Mitigation actions from 2018 HMP that can be incorporated into pertinent plan
Comprehensive Master Plan	Rockdale County City of Conyers	*Mitigation goal 2: 2.1.1* *Mitigation goal 3: 3.1.1* *Mitigation goal 5: 5.1.1, 5.1.2* *Mitigation goal 7: 7.1.1* *Mitigation goal 8: 8.1.1, 8.1.2, 8.2.2* *Mitigation goal 9: 9.1.2* *Mitigation goal 12: 12.1.2* *Mitigation goal 13: 13.1.1* *Mitigation goal 14: 14.1.1* *Mitigation goal 15: 15.1.1* *Mitigation goal 16: 16.1.1*
Local Emergency Operations Plan	Rockdale County and City of Conyers (joint)	*Mitigation goal 1: 1.1.1–1.2.1* *Mitigation goal 2: 2.1.1* *Mitigation goal 3: 3.1.1* *Mitigation goal 4: 4.1.1* *Mitigation goal 5: 5.1.1, 5.1.2* *Mitigation goal 6: 6.1.1. 6.1.2* *Mitigation goal 7: 7.1.1* *Mitigation goal 8: 8.1.1 – 8.2.2* *Mitigation goal 9: 9.1.1, 9.1.2* *Mitigation goal 10: 10.1.1* *Mitigation goal 11: 11.1.1* *Mitigation goal 12: 12.1.1 – 12.1.5* *Mitigation goal 13: 13.1.1* *Mitigation goal 14: 14.1.1* *Mitigation goal 15: 15.1.1* *Mitigation goal 16: 16.1.1* *Mitigation goal 17: 17.1.1 – 17.2.4*
Transportation Plan	Rockdale County and City of Conyers (joint)	*Mitigation goal 3: 3.1.1* *Mitigation goal 4: 4.1.1* *Mitigation goal 5: 5.1.1, 5.1.2* *Mitigation goal 7: 7.1.1* *Mitigation goal 8: 8.1.1, 8.2.1* *Mitigation goal 12: 12.1.1 – 12.1.3* *Mitigation goal 13: 13.1.1* *Mitigation goal 14: 14.1.1* *Mitigation goal 16: 16.1.1*
Community Wildfire Protection Plan	Rockdale County and City of Conyers (joint)	*Mitigation goal 6: 6.1.1, 6.1.2* *Mitigation goal 9: 9.1.1, 9.1.2* *Mitigation goal 17: 17.2.1, 17.2.2*

4.1.2 Review and Incorporation of Existing plans, Studies, Reports and Technical Information

Other planning documents can be used as a valuable resource for integrating information related to hazard mitigation into the HMP.

Presented herein is a list of plans, studies and other documents that were considered during the 2023 Rockdale County Plan update. This HMP Plan update has been made available to each committee leader responsible for updating these other Plans. This list includes plans such as Rockdale County 2018 Comprehensive Plan as well as studies such as the March 2016 Flood Insurance Study (FIS), and Flood Insurance Rate Maps (FIRMs). The specific plans, studies and reports are listed below along with a discussion on how they were incorporated into the Plan update. A more detailed description of some of the comprehensive plans and updates for Rockdale County and City of Conyers are presented in Appendix B of this Plan.

- **State of Georgia Hazard Mitigation Strategy**: The update of the 2014 Plan became effective March 18, 2019. The updated definitions of natural and technological hazards in the 2019 State Plan and corresponding mitigation goals and strategies were considered by the HMPC as the planning team updated the Rockdale County Plan, and to the extent possible the team patterned the update to reflect the spirit and details of the State document.
- **Conyers-Rockdale County Emergency Operations Plan.** This plan describes the management and coordination of resources and personnel during periods of major emergency. The Rockdale EOP was reviewed to understand the incident management structure in Rockdale County.
- **Rockdale County 2025 Comprehensive Plan: 2018 Update**. This Plan was used to identify land use patterns, future population projections, and future development trends in Rockdale County.
- **Update of the Comprehensive Plan, City of Conyers, Georgia, 2018**. This Plan was used to identify land use patterns, future population projections, and future development trends in the City of Conyers.
- **Rockdale County Comprehensive Transportation Plan Update, September 2018.** The Comprehensive Transportation Plan was reviewed and elements incorporated into the Plan update.
- **Rockdale County (And Incorporated Areas) Flood Insurance Study (FIS), December 8, 2016**. The FIS compiles all previous flood information and includes data collected on numerous waterways. The current FISs was used to identify flood-prone areas of the County and historical flood events. The FIS was also used to describe the major rivers and drainage system within Rockdale County. The existing flood-prone areas were confirmed with the HAZUS-MH-generated flood maps.
- **FEMA Risk MAP Flood Risk Report for Upper Ocmulgee Watershed for five Georgia Counties, including Rockdale County, June 4, 2014**
- **Rockdale County Hazard Risk Analyses**, **Carl Vinson Institute of Government, University of Georgia, May 2023**
- **Rockdale County Community Wildfire Protection Plan, 2016**

4.2 Evaluation, Monitoring, and Updating

Monitoring, evaluating, and updating this plan is critical to maintaining its value and success in Rockdale County's hazard mitigation efforts. Ensuring effective implementation of mitigation activities paves the way for continued momentum in the planning process and gives direction for the future. This section explains who will be responsible for maintenance activities and what those responsibilities entail. It also provides a methodology and schedule of maintenance activities including a description of how the public will be involved on a continued basis. While the methodology and schedule are similar to what is outlined

in the 2018 Rockdale County Hazard Mitigation Plan, slight revisions were made based on the County's experience with actually maintaining the existing plan between 2013 and 2023.

The Rockdale County Mitigation Planning Committee established for this 2023 Plan update is designated to lead plan maintenance processes of monitoring, evaluation and updating with support and representation from all participating municipalities. The Mitigation Planning Committee will coordinate maintenance efforts, but the input needed for effective periodic evaluations will come from community representatives, local emergency management coordinators and planners, the general public, and other important stakeholders. In addition, the committee will serve in an advisory capacity to the Rockdale County Board of Commissioners and the Rockdale County Emergency Management Agency.

Each municipality will designate a community representative to monitor implementation of mitigation activities and hazard events within their respective communities. This individual will be asked to work with the Rockdale County Mitigation Planning Committee to provide updates on applicable mitigation actions and feedback on changing hazard vulnerabilities within their community.

In addition, the municipal monitor will be responsible for reviewing the planning and land use regulatory element of the municipality's capability assessment to identify potential opportunities for incorporating appropriate elements of this Plan into local planning mechanisms and will also identify locally generated plans, information, reports, etc.

The Mitigation Planning Committee will oversee the progress made on the implementation of action items identified and modify actions, as needed, to reflect changing conditions. The Rockdale County Mitigation Planning Committee will meet annually to evaluate the plan and discuss specific coordination efforts that may be needed with participating jurisdictions and other stakeholders. The annual evaluation may include the participation of individual municipal monitors, or at least will include reports prepared by them.

The annual evaluation of the 2023 Hazard Mitigation Plan will not only include an investigation of whether mitigation actions were completed, but also an assessment of how effective those actions were in mitigating losses. A review of the qualitative and quantitative benefits (or avoided losses) of mitigation activities will support this assessment. Results of the evaluation will then be compared to the goals and objectives established in the plan and decisions will be made regarding whether actions should be discontinued or modified in any way in light of new developments in the community. Progress will be documented by the Mitigation Planning Committee for use in the next Hazard Mitigation Plan update and submitted to the Rockdale County Emergency Management Agency. Finally, the Mitigation Planning Committee will monitor and incorporate elements of this Plan into other planning mechanisms such as the county's comprehensive land use plan and flood mitigation plan. The annual reviews will be coordinated by the Director of the Rockdale County Emergency Management Agency, or his assignee.

This Plan will be updated by the FEMA approved five-year anniversary date, as required by the Disaster Mitigation Act of 2000, or following a disaster event. Future plan updates will account for any new hazard vulnerabilities, special circumstances, or new information that becomes available. During the five-year review process, the following questions will be considered as criteria for assessing the effectiveness of the Rockdale County Hazard Mitigation Plan.

- Has the nature or magnitude of hazards affecting the County changed?
- Are there new hazards that have the potential to impact the County?
- Do the identified goals and actions address current and expected conditions?
- Have mitigation actions been implemented or completed?
- Has the implementation of identified mitigation actions resulted in expected outcomes?
- Are current resources adequate to implement the plan?
- Should additional local resources be committed to address identified hazards?

Issues that arise during monitoring and evaluation which require changes to the local hazard, risk and vulnerability summary, mitigation strategy, and other components of the plan will be incorporated during future updates.

Update process for plan prior to 5-year update. Any interested party wishing for an update of the Plan sooner than the 5-year update will submit such a request to the Rockdale County Emergency Management

Agency for consideration through the Director and Planning Specialist of Rockdale County Emergency Management Agency and/or project lead for Rockdale County Hazard Mitigation Plan, or their assignees. The request shall be accompanied by a detailed rationale. The Rockdale County Emergency Management Agency will evaluate all such requests and determine whether the update request should be acted upon. If the decision is in the affirmative, an assignment will be made for an individual to author the update. The draft updated section along with a detailed rationale will be submitted to the Rockdale County Mitigation Planning Committee. The committee will circulate the draft updated section to every jurisdiction participating in the plan for comment and after an appropriate period of time, the committee shall make a decision to update the plan at least partially based on the feedback received from the other jurisdiction. County and municipal adoptions will then occur.

Where applicable, action items related to the flood hazard from the Plan update will be incorporated into the County's Floodplain Management Ordinance. The most recent version of the County's Floodplain Management Ordinance was adopted on October 25, 2016. The current floodplain regulations within the ordinance prevent new development within the Special Flood Hazard area (SFHA). The ordinance states that for residential buildings, "new construction of principal buildings (residential or non-residential), including manufactured homes, shall not be allowed within the limits of the floodplain." The ordinance also states that "substantial improvement of any structure or manufactured home shall have the lowest floor, including basement, elevated no lower than three feet above the base flood elevation adjacent to the building or at least as high as the regulatory flood elevation, whichever is highest."[21]

4.3 Plan Update and Maintenance

As was done during the development of the 2013 Hazard Mitigation Plan, the Rockdale County Mitigation Planning Committee will involve the public during the evaluation and update of this Plan through any workshops and meetings. The public will have access to the current Plan through their local municipal office and the Rockdale County Emergency Management Agency. Information on upcoming events related to this Plan or solicitation for comments will be announced via newsletters, newspapers, mailings, and the County website which can be accessed at:

https://rockdalecountyga.gov

Or Rockdale County EMA at:
https://www.rockdalecountyga.gov/emergency-management-agency/

The public is encouraged to submit comments on the Plan at any time. The Rockdale County Mitigation Planning Committee will review and determine relevant comments to include during the next update of the hazard mitigation plan.

[21] Rockdale County Floodplain Ordinance

Chapter 5 Conclusion

5.3 Conclusion Summary

Rockdale County has gained a great deal of knowledge relating to the County's disaster history and future potential for disaster as a result of the hazard mitigation planning process. This includes an extensive hazard history of recorded hazard events from the past sixty years, a detailed critical facilities database with valuable information on some of most critical County and city structures, as well as some valuable ideas from the community abroad concerning measures that should be considered for future hazard mitigation opportunities. Community involvement has been at the heart of this effort. The 2018 planning process included re-establishing the HMPC with representatives from a variety of backgrounds and disciplines. The process also included involving the public, by conducting public meetings to provide all Rockdale County citizens with the opportunity to comment on, and offer suggestions concerning potential hazard mitigation measures within the community. As part of the 2018 Plan update, Rockdale County, the City of Conyers all worked in concert to ensure a broad range of citizens were represented. Elected officials, local government employees, public safety officials, Red Cross representatives, GA Forestry representatives, businesspersons, media, and other volunteers and interested parties provided important varying viewpoints to create and develop the Plan update. GEMA and FEMA provided valuable assistance as well. These efforts have all had the effect of better protecting the planning area from the threats from both natural and technological hazards. While it would be naïve to believe this Plan provides complete protection to Rockdale County and its residents, it is the hope of all parties involved in this planning process that the recommended mitigation measures contained within the Plan update will provide some level of increased preparedness as well as spur further discussion and planning related to the important subject of Hazard Mitigation.

5.1 References

The following resources assisted with the development of the 2018 Rockdale County Hazard Mitigation Plan update.

5.1.1 Publications

- American Planning Association. Godschalk D. R. (2009, October). Safe Growth Audits. Available online at http://www.planning.org/zoningpractice/2009/pdf/oct.pdf
- City of Conyers. Conyers - Rockdale Economic Development Council. January, 2012. Available online at http://www.credcga.org/
- City of Conyers. Partial Update of the Comprehensive Plan, City of Conyers, Georgia September, 2008. Available online at http://www.jjg.com/conyerslci/Documents/Partial_Plan_Update_Conyers_9-19-08_2009224345.pdf
- Department of the Interior – Geological Survey, *Floods of February- March, 1961 in the Southeastern United States,* Geologic Survey Circular 452. Harry Barnes and William Somers, Washington, 1961.
- The Disaster Mitigation Act of 2000
- FEMA Pre-Disaster Mitigation *How-to Guides #1, 2, 3, 7*
- Fire in The South 2, The Southern Wildfire Risk Assessment. Available online at http://www.southernwildfirerisk.com/reports/FireInTheSouth.html
- 2011 Georgia Hazard Mitigation Strategy. Available online at http://www.gema.ga.gov/gemao/georgia hazard mitigation strategy
- GEMA Supplements to FEMA Pre-Disaster Mitigation How-to Guides
- *Georgia Tornado Database 1808 – 2002* (Westbrook)
- *Georgia State Rail Plan,* 2015
- Report on Homelessness, September 2017, Georgia DCA
- Robert T. Stafford Disaster Relief and Emergency Assistance Act
- *Rockdale County Comprehensive Plan Update*, 2018
- Rockdale County CWPP, October 2016
- Rockdale County, Georgia, Area Labor Profile. July, 2012.
- Rockdale County *Flood Insurance Study (FIS)* - Rockdale County, Georgia, December 8, 2016.
- *Rockdale County/City of Conyers Comprehensive Transportation Plan*. September 2018.
- Rockdale County Local Emergency Operation Plan

5.1.2 Web Sites

- FEMA. NFIP Statistics, March, 2012. http://www.fema.gov/policy-claim-statistics-flood-insurance/policy-claim-statistics-flood-insurance/policy-claim-13
- FEMA. Disaster Declaration Database. http://www.fema.gov/disasters
- FEMA. Wind Zones in the United States. http://www.fema.gov/safe-rooms/wind-zones-united-states
- Georgia Emergency Management Agency: www.gema.state.ga.us
- Georgia Forestry Commission. www.gfc.state.ga.us
- Hazards and Vulnerability Research Institute (HVRI). Georgia – Economic Losses: http://webra.cas.sc.edu/hvri/
- HVRI. Spatial Hazard Events and Losses Database for the United States (SHELDUS): http://webra.cas.sc.edu/hvri/products/sheldus.aspx
- National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center (NCDC), Storm Events Database: http://www.ncdc.noaa.gov/stormevents/
- NOAA. Drought Severity Index. www.cpc.ncep-noaa.gov
- NOAAs Drought Information Center. Palmer Drought Severity Index. http://www.drought.noaa.gov/palmer.html
- NOAA. Historical Hurricane Tracks Database. http://www.csc.noaa.gov/hurricanes/#
- NOAA. US Drought Monitor. http://droughtmonitor.unl.edu/
- NOAAs *Severe Weather* page located at http://www.noaawatch.gov/themes/severe.php.
- Tornado History Project. Rockdale County. http://www.tornadohistoryproject.com/tornado/Georgia/Rockdale/map
- United States Census Bureau State and County Quick Facts. 2006 – 2010 American Community Survey. Rockdale County. http://quickfacts.census.gov/qfd/states/13/13247lk.html
- United States Geological Society (USGS). Earthquake probability Maps: http://earthquake.usgs.gov/hazards/products/
- USGS. Earthquake Hazards Program – Georgia. Available online at http://earthquake.usgs.gov/earthquakes/states/georgia/seismicity.php

5.1.3 Other Sources

- American Red Cross
- American Society of Civil Engineers
- Rockdale County
- Rockdale County Chamber of Commerce
- City of Conyers
- Federal Emergency Management Agency
- Georgia Department of Natural Resources
- Georgia Emergency Management Agency
- Georgia Forestry Commission
- Georgia Safe Dams Program
- National Oceanic & Atmospheric Administration
- National Weather Service
- U.S. Army Corps of Engineers
- U.S. Fire Administration
- U.S. Forest Service
- U.S. Geological Survey

Appendices

A Hazard Identification, Risk Assessment and Vulnerability (HRV)
B Growth and Development Trends / Community Information
C Other Planning documents
D Worksheets used in planning process
E Copies of Required Planning Documentation
F Glossary
G Local Capabilities Assessment

Appendix A

Hazard Identification, Risk Assessment and Vulnerability (HRV)

The HMPC ranked the natural hazards Severe Weather, Severe Winter Weather and Dam Failure as the greatest risk to the planning area. For the technological hazards, the HMPC ranked Hazardous Material and Pandemic Emergency as the top two hazards. HMPC members reviewed Federal, State, Regional, and Local data sources to develop the profile process and completed the analysis to reach the hazard ranking determination.

Loss Estimation Methodology: Overview and Limitations of HAZUS Methodology

The Georgia Department of Emergency Management partnered with the Carl Vinson Institute of Government at the University of Georgia to develop a detailed risk assessment focused on defining hurricane, riverine flood, and tornado risks in Rockdale County. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets.

Hazus-MH Version 2.2 SP1 was used to perform the analyses for Rockdale County. The Hazus-MH application includes default data for every county in the US. This Hazus-MH data was derived from a variety of national sources and in some cases the data are also several years old. Whenever possible, using local provided data is preferred. Rockdale County provided building inventory information from the county's property tax assessment system. This section describes the changes made to the default Hazus- MH inventory and the modeling parameters used for each scenario.

The default Hazus-MH site-specific point inventory was updated using data compiled from the Georgia Emergency Management Agency (GEMA). The default Hazus-MH aggregate inventory (General Building Stock) was also updated prior to running the scenarios. Reported losses reflect the updated data sets.

The GBS records for Rockdale County were replaced with data derived from parcel and property assessment data obtained from Rockdale County. The county provided property assessment data was current as of May 2023 and the parcel data current as of May 2023. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary; then, each parcel point was linked to an assessor record based upon matching parcel numbers. The parcel assessor match-rate for Rockdale County is 89.8%. The generated building inventory represents the approximate locations (within a parcel) of structures. The building inventory was aggregated by census block. Both the tract and block tables were updated. Table 1 shows the results of the changes to the GBS tables by occupancy class.

Additionally, HAZUS 2.1 was used to ascertain the seismic risk analysis. Due to technical problems related to newer HAZUS 2.2 and relatively low seismic hazard in study area, the results form 2018 HMP were used in this update again. The resulting economic losses and functional down time should be used at a rough order of magnitude, for very broad orientation purposes only.

For the seismic risk analysis, the HAZUS model used the default facility data in Rockdale County (Level I analysis). Some of the facility data may be outdated or missing. For Rockdale, it has been recognized that some of the critical facility information in HAZUS database is inadequate. For this HM Plan update, all local critical facility data was identified, cataloged and entered into GEMA GMIS (Georgia Management Information System) database, as stipulated by the State and Federal regulations. The updated data was not used for HAZUS analysis, for it requires additional detailed structural survey of the facilities' vulnerability to all three hazards. Even with the limitations of the existing data, the HAZUS loss estimates in Rockdale County are realistic, due to advanced analytical abilities of the software.

Hazard Risk Analyses Supplement to the Rockdale County Joint Hazard Mitigation Plan

Carl Vinson Institute of Government
UNIVERSITY OF GEORGIA

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Introduction

The Federal Disaster Mitigation Act of 2000 (DMA2K) requires state, local, and tribal governments to develop and maintain a mitigation plan to be eligible for certain federal disaster assistance and hazard mitigation funding programs.

Mitigation seeks to reduce a hazard's impacts, which may include loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation must be based on a sound risk assessment that quantifies the potential losses of a disaster by assessing the vulnerability of buildings, infrastructure, and people.

In recognition of the importance of planning in mitigation activities, FEMA Hazus-MH, a powerful disaster risk assessment tool based on geographic information systems (GIS). This tool enables communities of all sizes to predict estimated losses from floods, hurricanes, earthquakes, and other related phenomena and to measure the impact of various mitigation practices that might help reduce those losses.

In 2023, the Georgia Department of Emergency Management partnered with the Carl Vinson Institute of Government at the University of Georgia to develop a detailed risk assessment focused on defining hurricane, riverine flood, and tornado risks in Rockdale County, Georgia. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets.

Risk Assessment Process Overview

Hazus-MH Version 2.2 SP1 was used to perform the analyses for Rockdale County. The Hazus-MH application includes default data for every county in the US. This Hazus-MH data was derived from a variety of national sources and in some cases the data are also several years old. Whenever possible, using local provided data is preferred. Rockdale County provided building inventory information from the county's property tax assessment system. This section describes the changes made to the default Hazus-MH inventory and the modeling parameters used for each scenario.

County Inventory Changes

The default Hazus-MH site-specific point inventory was updated using data compiled from the Georgia Emergency Management Agency (GEMA). The default Hazus-MH aggregate inventory (General Building Stock) was also updated prior to running the scenarios. Reported losses reflect the updated data sets.

General Building Stock Updates

General Building Stock (GBS) is an inventory category that consists of aggregated data (grouped by census geography — tract or block). Hazus-MH generates a combination of site-specific and aggregated loss estimates based on the given analysis and user input.

The GBS records for Rockdale County were replaced with data derived from parcel and property assessment data obtained from Rockdale County. The county provided property assessment data was current as of March 2023 and the parcel data current as of March 2023. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary; then, each parcel point was linked to an assessor record based upon matching parcel numbers. The parcel assessor match-rate for Rockdale County is 98.4%. The generated building inventory represents the approximate locations (within a parcel) of structures. The building inventory was aggregated by

census block. Both the tract and block tables were updated. Table 1 shows the results of the changes to the GBS tables by occupancy class.

Table 1: GBS Building Exposure Updates by Occupancy Class*

General Occupancy	Default Hazus-MH Count	Updated Count	Default Hazus-MH Exposure	Updated Exposure
Agricultural	28	41	$1,420,000	$2,082,000
Commercial	1,306	1,586	$401,741,000	$980,164,000
Education	72	61	$288,365,000	$299,853,000
Government	45	82	$35,332,000	$62,345,000
Industrial	569	657	$292,459,000	$413,280,000
Religious	159	0	$68,249,000	$0
Residential	27,234	31,587	$5,991,153,000	$6,923,854,000
Total	**29,413**	**34,014**	**$7,078,719,000**	**$8,681,578,000**

*The exposure values represent the total number and replacement cost for all Rockdale County Buildings

For Rockdale County, the updated GBS was used to calculate hurricane wind losses. The flood losses and tornado losses were calculated from building inventory modeled in Hazus-MH as User-Defined Facility (UDF)[2], or site-specific points. Figure 1 shows the distribution of buildings as points based on the county provided data.

[2] The UDF inventory category in Hazus-MH allows the user to enter site-specific data in place of GBS data.

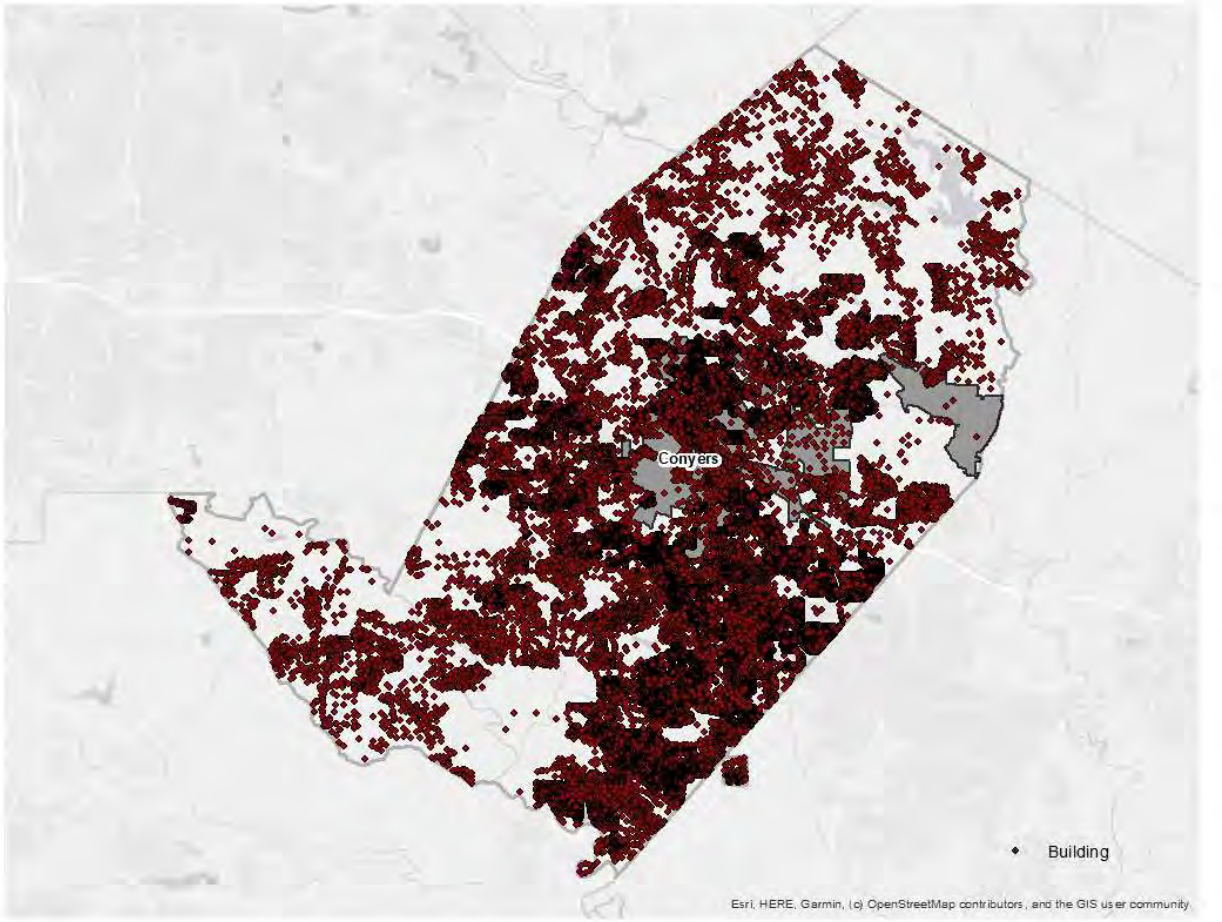

Figure 1: Rockdale County Overview

Essential Facility Updates

The default Hazus-MH essential facility data was updated to reflect improved information available in the Georgia Mitigation Information System (GMIS) as of February 2023. For these risk analyses, only GMIS data for buildings that Hazus-MH classified as Essential Facilities was integrated into Hazus-MH because the application provides specialized reports for these five facilities. Essential Facility inventory was updated for the analysis conducted for this report. The following table summarizes the counts and exposures, where available, by Essential Facility classification of the updated data.

Essential facilities include:
- Care facilities
- EOCs
- Fire stations
- Police stations
- Schools

Table 2: Updated Essential Facilities

Classification	Updated Count	Updated Exposure
Conyers		
EOC	1	$2,207,000
Care	1	$3,965,000
Fire	3	$1,501,000
Police	1	$2,719,000

School	4	$51,968,000
Total	**10**	**$62,360,000**

Unincorporated Areas of Rockdale County		
EOC	0	$0
Care	1	$32,460,000
Fire	7	$5,504,000
Police	3	$29,867,000
School	15	$152,535,000
Total	**26**	**$220,366,000**

Assumptions and Exceptions

Hazus-MH loss estimates may be impacted by certain assumptions and process variances made in this risk assessment.

- The Rockdale County analysis used Hazus-MH Version 2.2 SP1, which was released by FEMA in May 2015.
- County provided parcel and property assessment data may not fully reflect all buildings in the county. For example, some counties do not report not-for-profit buildings such as government buildings, schools and churches in their property assessment data. This data was used to update the General Building Stock as well as the User Defined Facilities applied in this risk assessment.
- Georgia statute requires that the Assessor's Office assign a code to all of the buildings on a parcel based on the buildings primary use. If there is a residential or a commercial structure on a parcel and there are also agricultural buildings on the same parcel Hazus-MH looks at the residential and commercial "primary" structures first and then combines the value of all secondary structures on that parcel with the value of the primary structure. The values and building counts are still accurate but secondary structures are accounted for under the same classification as the primary structure. Because of this workflow, the only time that a parcel would show a value for an agricultural building is when there are no residential or commercial structures on the parcel thus making the agricultural building the primary structure. This is the reason that agricultural building counts and total values seem low or are nonexistent.
- GBS updates from assessor data will skew loss calculations. The following attributes were defaulted or calculated:

  Foundation Type was set from Occupancy Class

First Floor Height was set from Foundation Type
Content Cost was calculated from Replacement Cost

- It is assumed that the buildings are located at the centroid of the parcel.
- The essential facilities extracted from the GMIS were only used in the portion of the analysis designated as essential facility damage. They were not used in the update of the General Building Stock or the User Defined Facility inventory.

The hazard models included in this risk assessment included:

- Hurricane assessment which was comprised of a wind only damage assessment.
- Flood assessment based on the 1% annual chance event that includes riverine assessments.
- Tornado assessment based on GIS modeling.

Hurricane Risk Assessment

Hazard Definition

The National Hurricane Center describes a hurricane as a tropical cyclone in which the maximum sustained wind is, at minimum, 74 miles per hour (mph)[3]. 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. Hurricanes in the Atlantic Ocean, Gulf of Mexico, and Caribbean form between June and November with the peak of hurricane season occurring in the middle of September. Hurricane intensities are measured using the Saffir-Simpson Hurricane Wind Scale (Table 3). This scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time.
Hurricanes bring a complex set of impacts. The winds from a hurricane produce a rise in the water level at landfall called storm surge. Storm surges produce coastal flooding effects that can be as damaging as the hurricane's winds. Hurricanes bring very intense inland riverine flooding. Hurricanes can also produce tornadoes that can add to the wind damages inland. In this risk assessment, only hurricane winds, and coastal storm surge are considered.

Table 3: Saffir-Simpson Hurricane Wind Scale

Category	Wind Speed (mph)	Damage
1	74 - 95	Very dangerous winds will produce some damage
2	96 - 110	Extremely dangerous winds will cause extensive damage
3	111 - 130	Devastating damage will occur
4	131 -155	Catastrophic damage will occur
5	> 155	Catastrophic damage will occur

The National Oceanic and Atmospheric Administration's National Hurricane Center created the HURDAT database, which contains all of the tracks of tropical systems since the mid-1800s. This database was used to document the number of tropical systems that have affected Rockdale County by creating a 20-mile buffer around the county to include storms that didn't make direct landfall in Rockdale County but impacted the county. Note that the storms listed contain the peak sustained winds, maximum pressure and maximum attained storm strength for the entire storm duration. Since 1859, Rockdale County has had 11 tropical systems within 20 miles of its county borders (Table 4).

Table 4: Tropical Systems affecting Rockdale County[4]

YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1859	September 15-18	UNNAMED	81	0	H1
YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1887	July 20-28	UNNAMED	98	0	H2
1893	September 27 - October 05	UNNAMED	132	948	H4
1900	September 11-15	UNNAMED	52	0	TS
1903	September 09-16	UNNAMED	92	988	H1

[3] National Hurricane Center (2011). "Glossary of NHC Terms." National Oceanic and Atmospheric Administration. http://www.nhc.noaa.gov/aboutgloss.shtml#h. Retrieved 2012-23-02.

[4] Atlantic Oceanic and Meteorological Laboratory (2012). "Data Center." National Oceanic and Atmospheric Administration. http://www.aoml.noaa.gov/hrd/data_sub/re_anal.html. Retrieved 7-20-2015.

1911	August 23-31	UNNAMED	98	972	H2
1912	June 07-17	UNNAMED	69	0	TS
1940	August 05-14	UNNAMED	98	1008	H2
1994	June 30 - July 07	ALBERTO	63	1014	TS
1994	August 14-19	BERYL	58	1013	TS
1995	August 22-28	JERRY	40	1010	TS

Category Definitions:
TS – Tropical storm
TD – Tropical depression
H1 – Category 1 (same format for H2, H3, and H4)
E – Extra-tropical cyclone

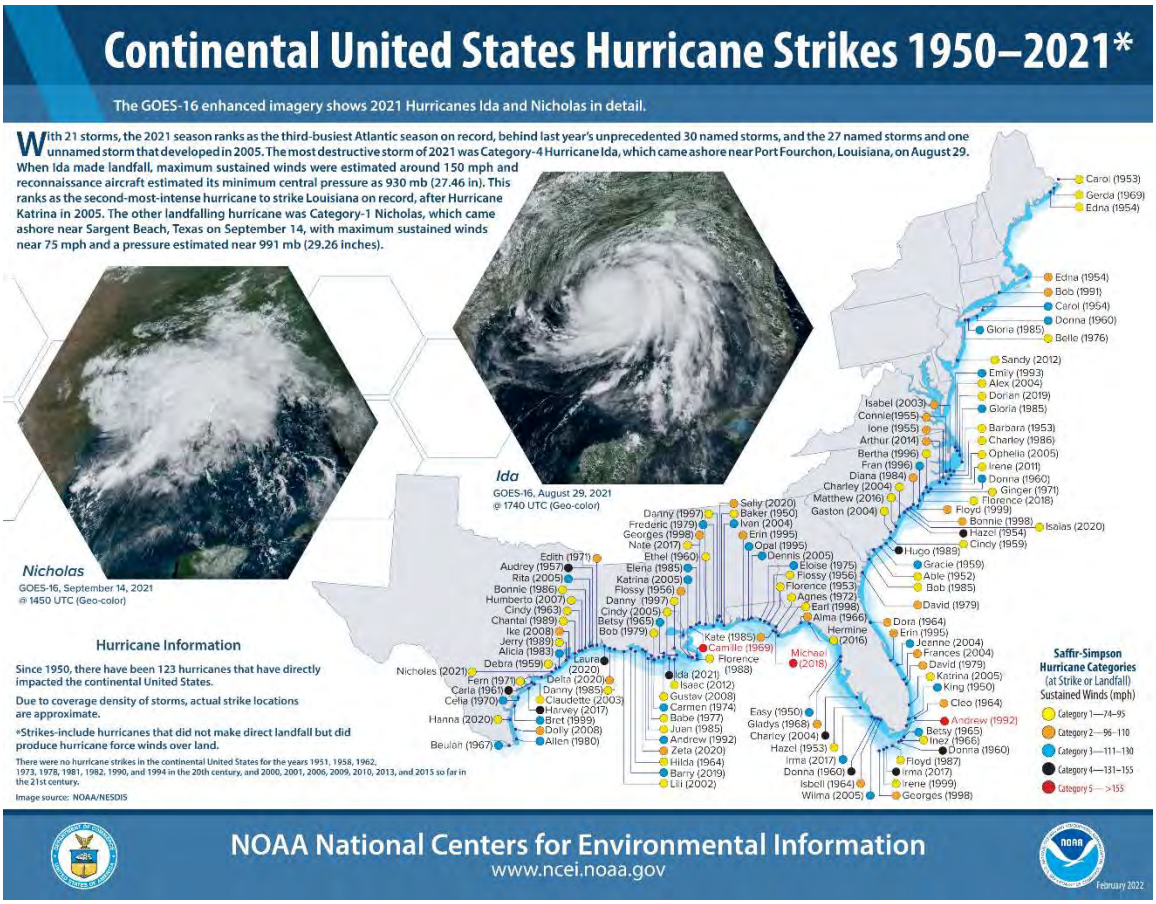

Figure 2: Continental United States Hurricane Strikes: 1950 to 2021[5]

Probabilistic Hurricane Scenario

The following probabilistic wind damage risk assessment modeled a Tropical Storm with maximum winds of 67 mph.

[5] Source: NOAA National Centers for Environmental Information

Wind Damage Assessment

Separate analyses were performed to determine wind and hurricane storm surge related flood losses. This section describes the wind-based losses to Rockdale County. Wind losses were determined from probabilistic models run for the Tropical Storm which equates to the 1% chance storm event. Figure 3 shows wind speeds for the modeled Tropical Storm.

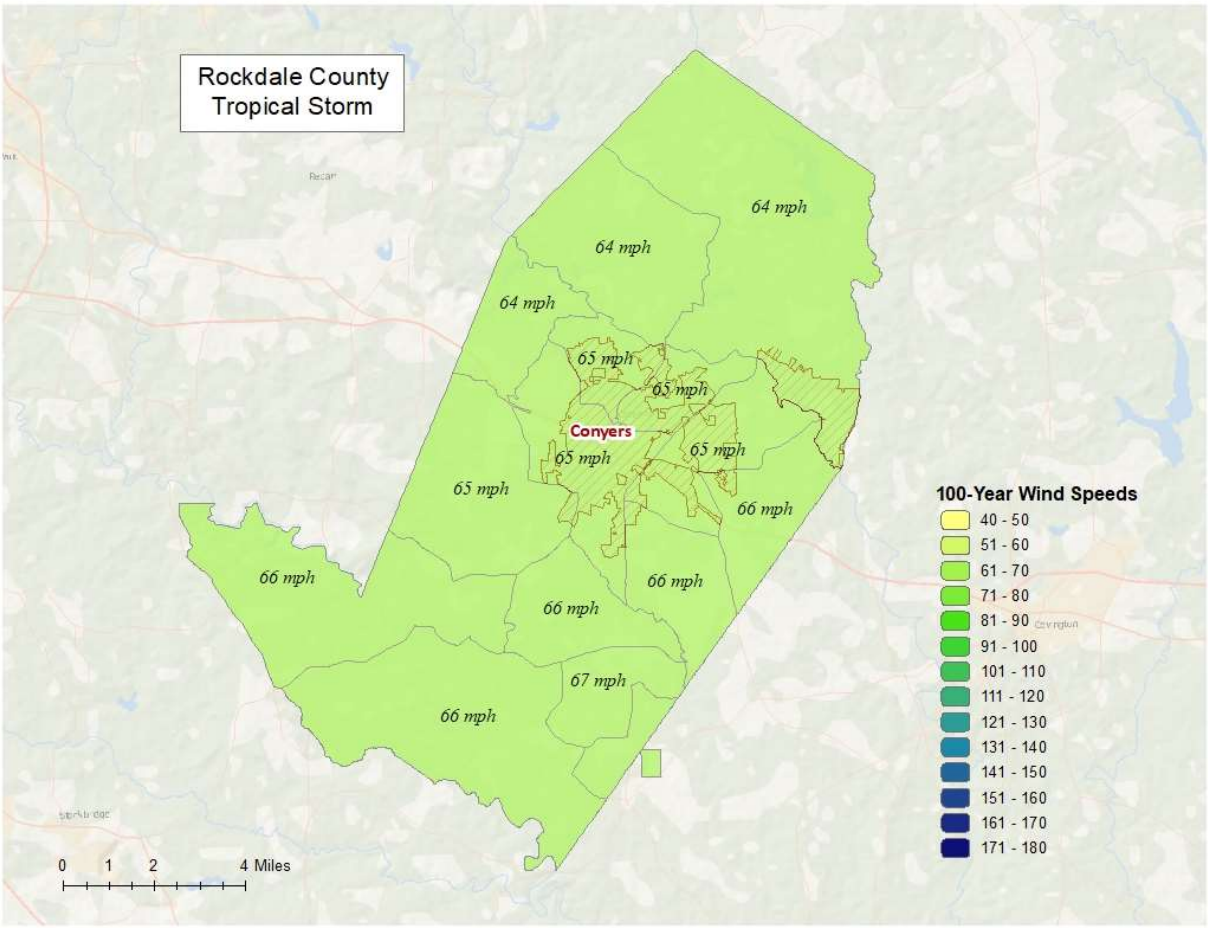

Figure 3: Wind Speeds by Storm Category

Wind-Related Building Damages

Buildings in Rockdale County are vulnerable to storm events, and the cost to rebuild may have significant consequences to the community. The following table shows a summary of the results of wind-related building damage in Rockdale County for the Tropical Storm (100 Year Event). The loss ratio expresses building losses as a percentage of total building replacement cost in the county. Figure 4 illustrates the building loss ratios of the modeled Tropical Storm.

Table 5: Hurricane Wind Building Damage

Classification	Number of Buildings Damaged	Total Building Damage	Total Economic Loss[6]	Loss Ratio

[6] Includes property damage (infrastructure, contents, and inventory) as well as business interruption losses.

Tropical Storm	29	$5,246,020	$7,750,370	0.06%

Note that wind damaged buildings are not reported by jurisdiction. This is due to the fact that census tract boundaries – upon which hurricane building losses are based – do not closely coincide with jurisdiction boundaries.

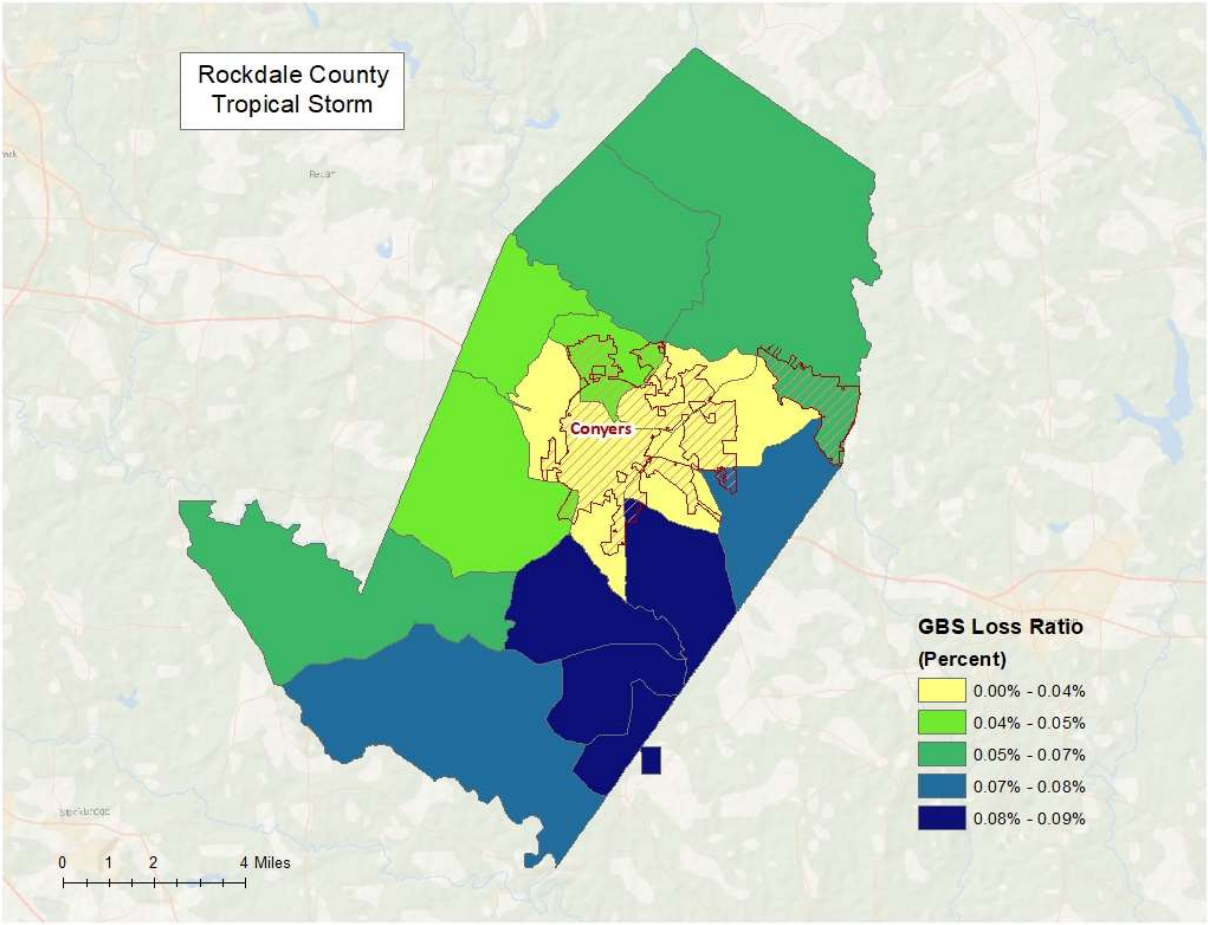

Figure 4: Hurricane Wind Building Loss Ratios

Essential Facility Losses

Essential facilities are also vulnerable to storm events, potential loss of functionality may have significant consequences to the community. Hazus-MH identified essential facilities that may be moderately or severely damaged by winds. The results are compiled in Table 6.

There are 36 essential facilities in Rockdale County.

Classification	Number
EOCs	1
Fire Stations	10
Care Facilities	2
Police Stations	4
Schools	19

and the

the

Table 6: Wind-Damaged Essential Facility Losses

Classification	Facilities At Least Moderately Damaged > 50%	Facilities Completely Damaged > 50%	Facilities with Expected Loss of Use (< 1 day)

Tropical Storm	1	0	36

Shelter Requirements

Hazus-MH estimates the number of households evacuated from buildings with severe damage from high velocity winds as well as the number of people who will require short-term sheltering. Since the 1% chance storm event for Rockdale County is a Tropical Storm, the resulting damage is not enough to displace Households or require temporary shelters as shown in the results listed in Table 7.

Table 7: Displaced Households and People

Classification	# of Displaced Households	# of People Needing Short-Term Shelter
Tropical Storm	0	0

Debris Generated from Hurricane Wind

Hazus-MH estimates the amount of debris that will be generated by high velocity hurricane winds and quantifies it into three broad categories to determine the material handling equipment needed:

- Reinforced Concrete and Steel Debris
- Brick and Wood and Other Building Debris
- Tree Debris

Different material handling equipment is required for each category of debris. The estimates of debris for this scenario are listed in Table 8. The amount of hurricane wind related tree debris that is estimated to require pick up at the public's expense is listed in the eligible tree debris column.

Table 8: Wind-Related Debris Weight (Tons)

Classification	Brick, Wood, and Other	Reinforced Concrete and Steel	Eligible Tree Debris	Other Tree Debris	Total
Tropical Storm	179	0	1,304	3,463	4,946

Figure 5 shows the distribution of all wind related debris resulting from a Tropical Storm. Each dot represents 20 tons of debris within the census tract in which it is located. The dots are randomly distributed within each census tract and therefore do not represent the specific location of debris sites.

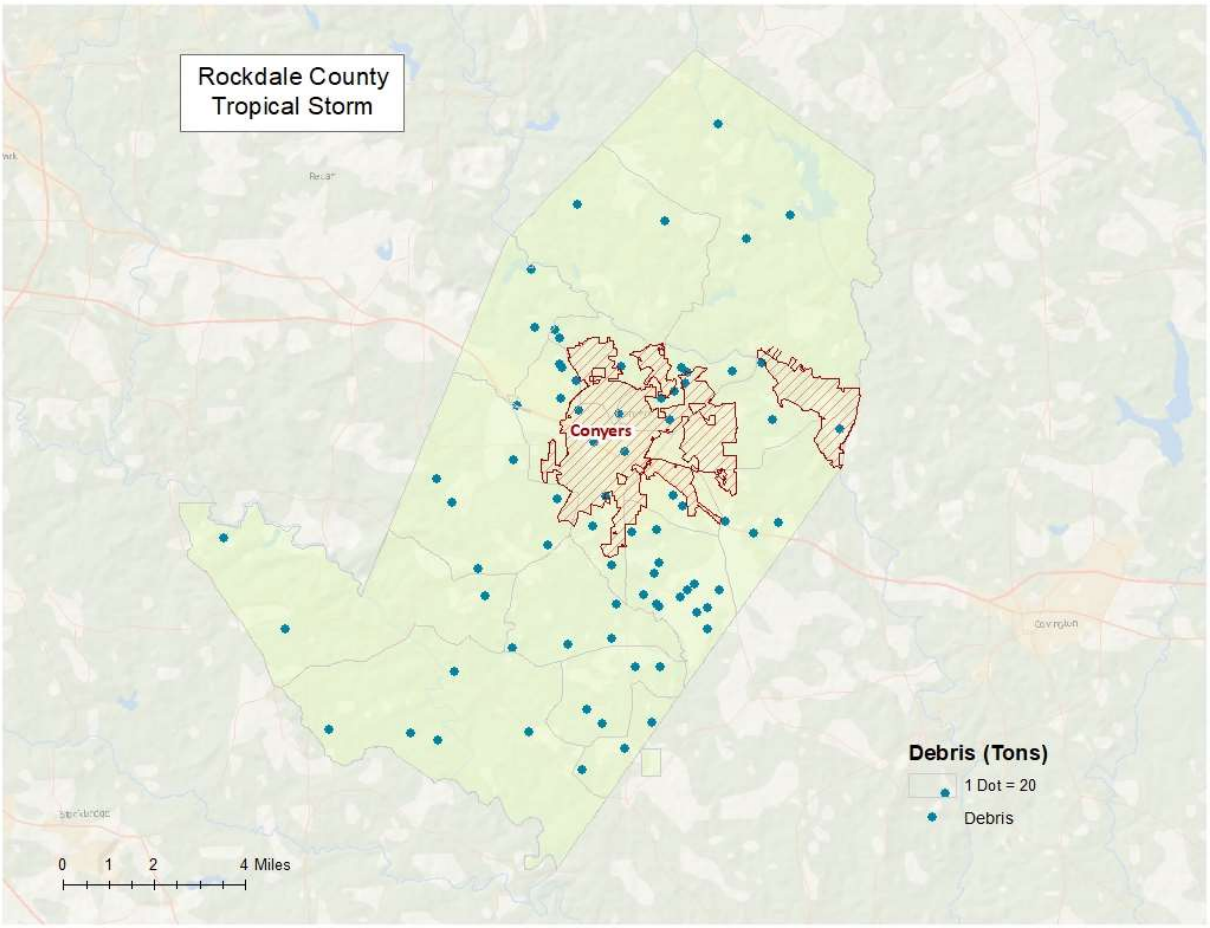

Figure 5: Wind-Related Debris Weight (Tons)

Flood Risk Assessment

Hazard Definition

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the amount and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. Floods can be classified as one of three types: upstream floods, downstream floods, or coastal floods. Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; another 18 inches might carry off a car. Generally, upstream floods cause damage over relatively localized areas, but they can be quite severe in the local areas in which they occur. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can be the result of inadequate drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at any time of the year in Georgia, but they are most common in the spring and summer months.

Downstream floods, also called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage.

Coastal floods occurring on the Atlantic and Gulf coasts may be related to hurricanes or other combined offshore, nearshore, and shoreline processes. The effects of these complex interrelationships vary significantly across coastal settings, leading to challenges in the determination of the base (1-percent-annual-chance) flood for hazard mapping purposes. Land area covered by floodwaters of the base flood is identified as a Special Flood Hazard Area (SFHA). The Rockdale County flood risk assessment analyzed at risk structures in the SFHA.

> The SFHA is the area where the National Flood Insurance Program's (NFIP) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The owner of a structure in a high-risk area must carry flood insurance, if the owner carries a mortgage from a federally regulated or insured lender or servicer.

The following probabilistic risk assessment involves an analysis of a 1% annual chance riverine flood event (100-Year Flood) and a 1% annual chance coastal flood.

Riverine 1% Flood Scenario

Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in March 2023. The flood boundaries were overlaid with the USGS 10 meter DEM using the Hazus-MH Enhanced Quick Look tool to generate riverine depth grids. The riverine flood depth grid was then imported into Hazus-MH to calculate the riverine flood loss estimates. Figure 6 illustrates the riverine inundation boundary associated with the 1% annual chance.

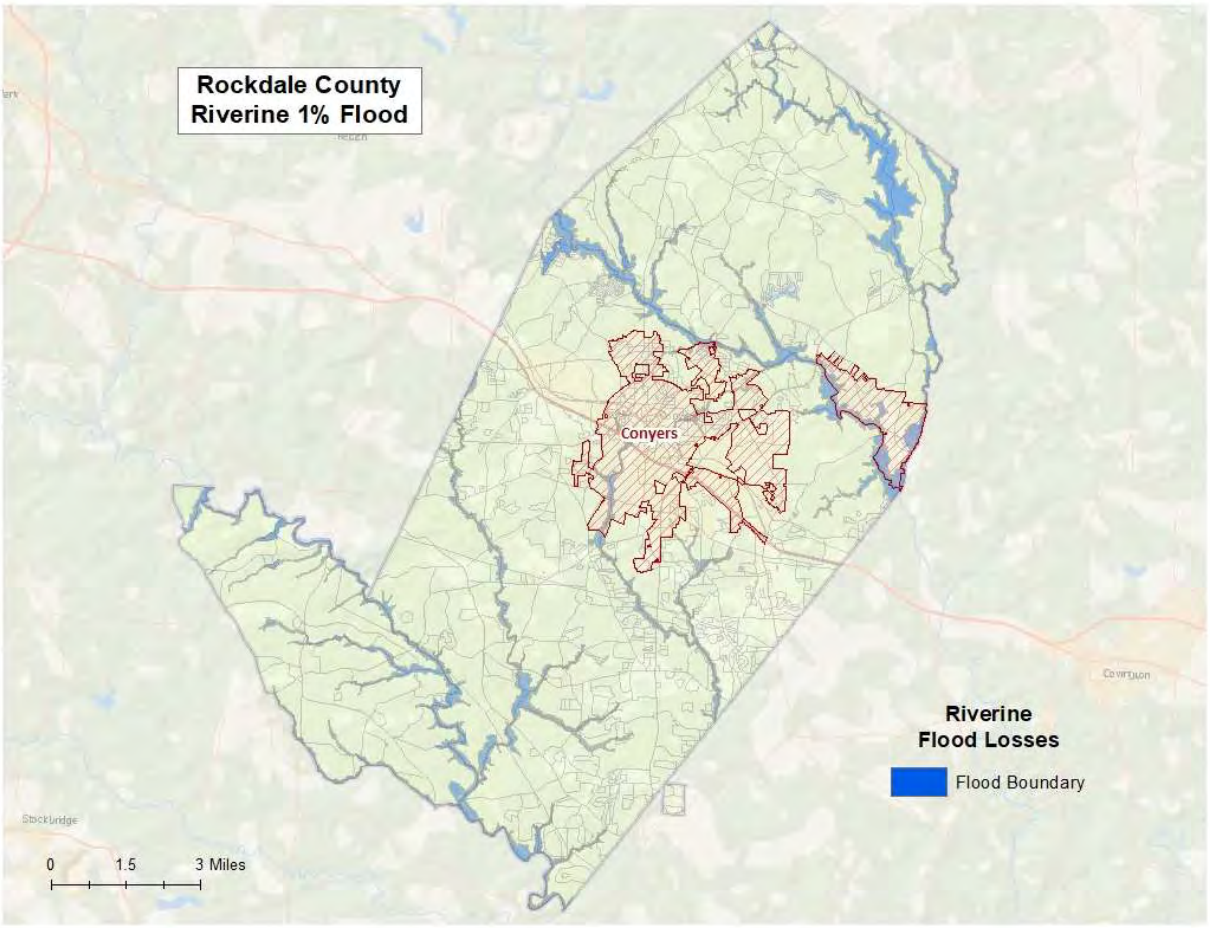

Figure 6: Riverine 1% Flood Inundation

Riverine 1% Flood Building Damages

Buildings in Rockdale County are vulnerable to flooding from events equivalent to the 1% riverine flood. The economic and social impacts from a flood of this magnitude can be significant. Table 9 provides a summary of the potential flood-related building damage in Rockdale County by jurisdiction that might be experienced from the 1% flood. Figure 7 maps the potential loss ratios of total building exposure to losses sustained to buildings from the 1% flood by 2010 census block and Figure 8 illustrates the relationship of building locations to the 1% flood inundation boundary.

Table 9: Rockdale County Riverine 1% Building Losses

Occupancy	Total Buildings in the Jurisdiction	Total Buildings Damaged in the Jurisdiction	Total Building Exposure in the Jurisdiction	Total Losses to Buildings in the Jurisdiction	Loss Ratio of Exposed Buildings to Damaged Buildings in the Jurisdiction
Conyers					
Commercial	769	1	$378,983,756	$52,694	0.01%
Industrial	227	1	$143,172,761	$24,421	0.02%
Residential	4,447	17	$914,058,914	$950,040	0.10%
Unincorporated					
Commercial	817	11	$601,225,218	$77,949	0.01%
Government	38	1	$25,729,573	$369	0.00%
Agricultural	32	1	$1,402,827	$741	0.05%
Residential	27,140	352	$6,009,827,287	$21,846,554	0.36%
Education	46	1	$223,091,742	$532,541	0.24%
County Total					
	33,516	**385**	**$8,297,492,078**	**$23,485,309**	

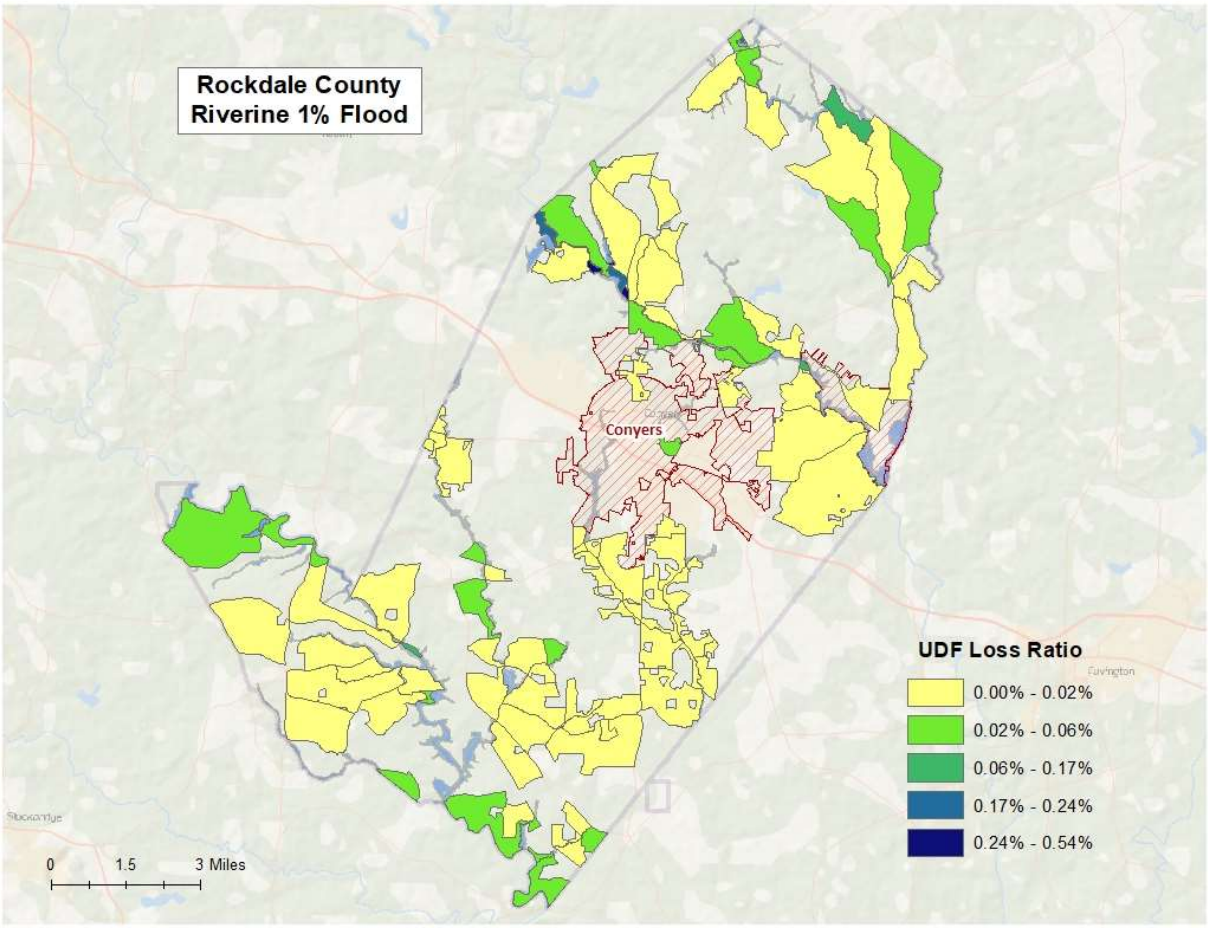

Figure 7: Rockdale County Potential Loss Ratios of Total Building Exposure to Losses Sustained to Buildings from the 1% Riverine Flood by 2010 Census Block

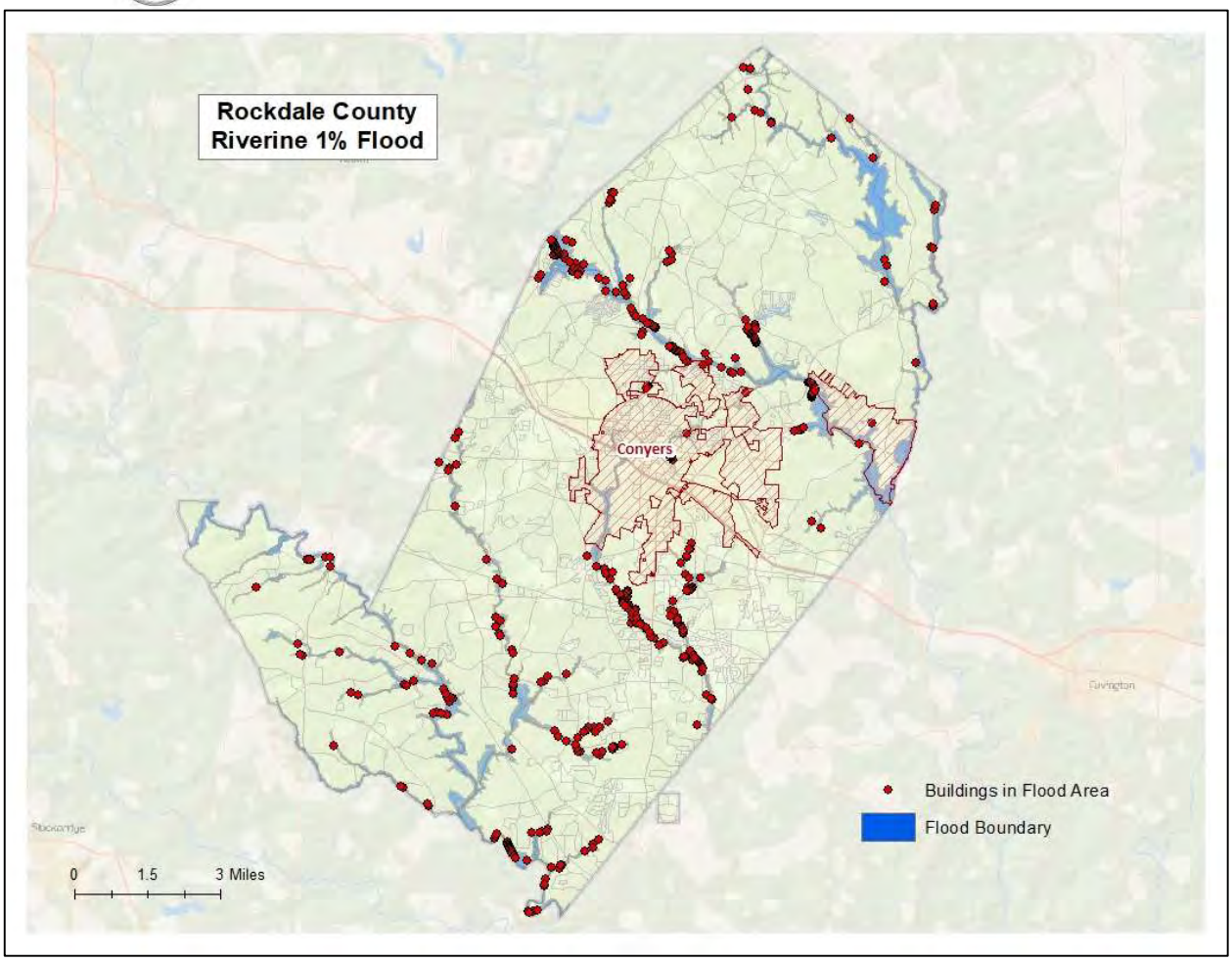

Figure 8: Rockdale County Damaged Buildings in Riverine Floodplain (1% Flood)

Riverine 1% Flood Essential Facility Losses

An essential facility may encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). The analysis identified no essential facility that were subject to damage in the Rockdale County riverine 1% probability floodplain.

Riverine 1% Flood Shelter Requirements

Hazus-MH estimates that the number of households that are expected to be displaced from their homes due to riverine flooding and the associated potential evacuation. The model estimates 1,258 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 3,774 individuals, of which 2,901 may require short term publicly provided shelter. The results are mapped in Figure 9.

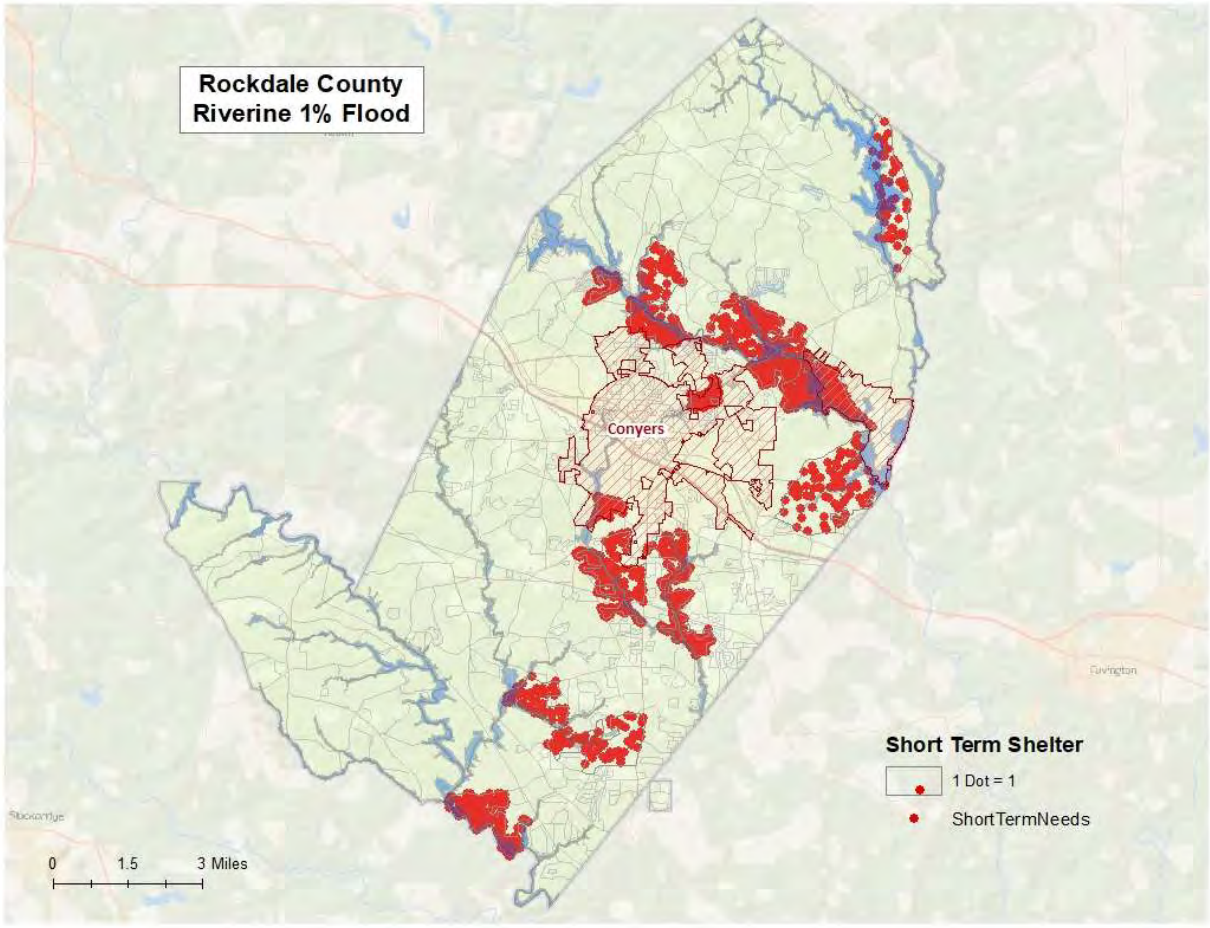

Figure 9: Riverine 1% Estimated Flood Shelter Requirements

Riverine 1% Flood Debris

Hazus-MH estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories:

- Finishes (dry wall, insulation, etc.)
- Structural (wood, brick, etc.)
- Foundations (concrete slab, concrete block, rebar, etc.)

Different types of material handling equipment will be required for each category. Debris definitions applied in Hazus-MH are unique to the Hazus-MH model and so do not necessarily conform to other definitions that may be employed in other models or guidelines.
The analysis estimates that an approximate total of 15,448 tons of debris might be generated:
1) Finishes- 5,161 tons; 2) Structural – 4,996 tons; and 3) Foundations- 5,292 tons. The results are mapped in Figure 10.

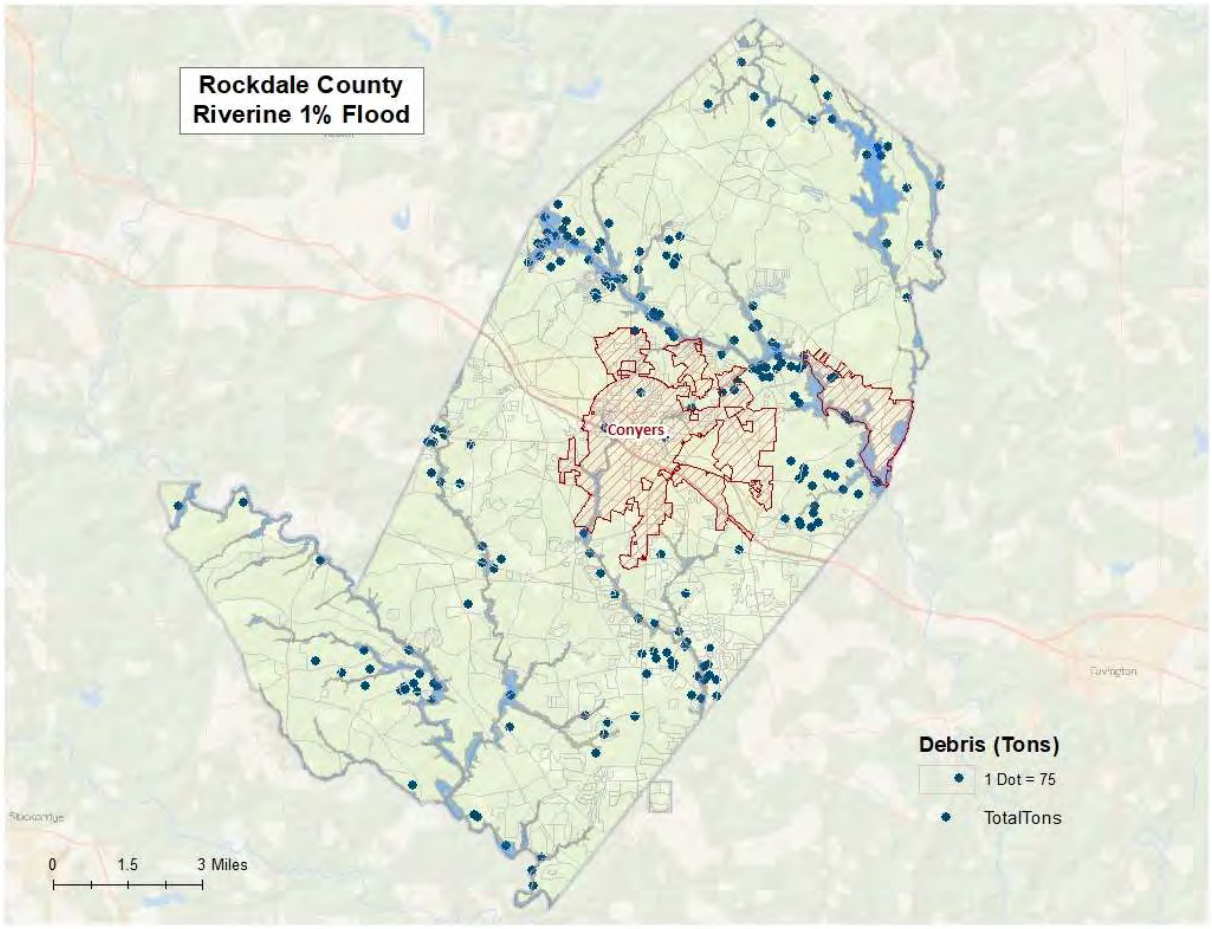

Figure 10: Riverine 1% Flood Debris Weight (Tons)

Tornado Risk Assessment

Hazard Definition

Tornadoes pose a great risk to the state of Georgia and its citizens. Tornadoes can occur at any time during the day or night. They can also happen during any month of the year. The unpredictability of tornadoes makes them one of Georgia's most dangerous hazards. Their extreme winds are violently destructive when they touch down in the region's developed and populated areas. Current estimates place the maximum velocity at about 300 miles per hour, but higher and lower values can occur. A wind velocity of 200 miles per hour will result in a wind pressure of 102.4 pounds per square foot of surface area—a load that exceeds the tolerance limits of most buildings. Considering these factors, it is easy to understand why tornadoes can be so devastating for the communities they hit.
Tornadoes are defined as violently-rotating columns of air extending from thunderstorms and cyclonic events. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently-rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.
Tornadoes are classified according to the Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in Table 10.

Table 10: Enhanced Fujita Tornado Rating

Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
EF0 *Gale*	65-85 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, sign boards damaged, shallow-rooted trees blown over.
EF1 Moderate	86-110 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
EF2 Significant	111-135 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
EF3 Severe	136-165 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
EF4 Devastating	166-200 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
EF5 Incredible	> 200 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

Source: http://www.srh.noaa.gov

Hypothetical Tornado Scenario

For this report, an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis used a hypothetical path based upon an EF3 tornado event running along the predominant direction of historical tornados (southeast to northwest). The tornado path was placed to travel through Conyers. The selected widths were modeled after a re-creation of the Fujita-Scale guidelines based on conceptual wind speeds, path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these categories. Table 11 depicts tornado path widths and expected damage.

Table 11: Tornado Path Widths and Damage Curves

Fujita Scale	Path Width (feet)	Maximum Expected Damage
EF-5	2,400	100%
EF-4	1,800	100%
EF-3	1,200	80%
EF-2	600	50%
EF-1	300	10%
EF-0	300	0%

Within any given tornado path there are degrees of damage. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. After the hypothetical path is digitized on a map, the process is modeled in GIS by adding buffers (damage zones) around the tornado path. Figure 11 describes the zone analysis.

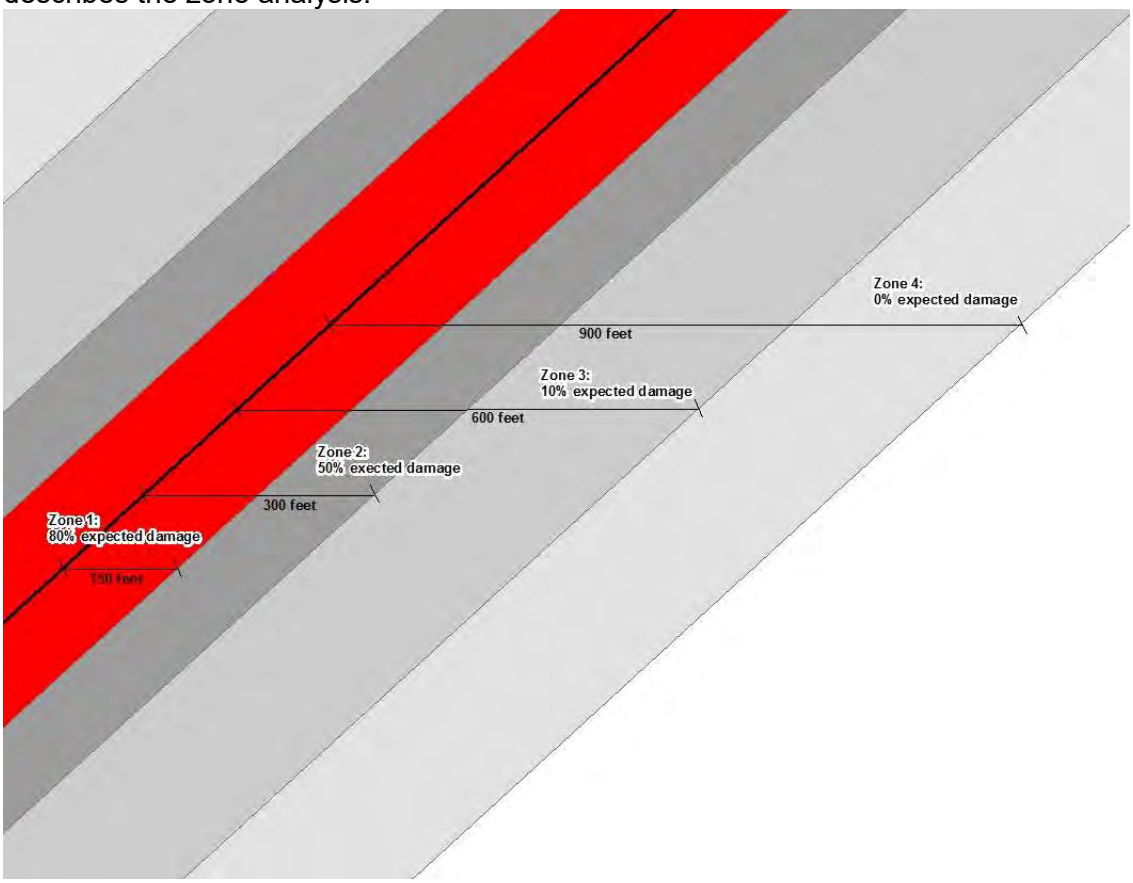

Figure 11: EF Scale Tornado Zones

An EF3 tornado has four damage zones, depicted in Table 12. Major damage is estimated within 150 feet of the tornado path. The outer buffer is 900 feet from the tornado path, within which buildings will not experience any damage. The selected hypothetical tornado path is depicted in Figure 12 and the damage curve buffer zones are shown in Figure 13.

Table 12: EF3 Tornado Zones and Damage Curves

Zone	Buffer (feet)	Damage Curve
1	0-150	80%
2	150-300	50%
3	300-600	10%
4	600-900	0%

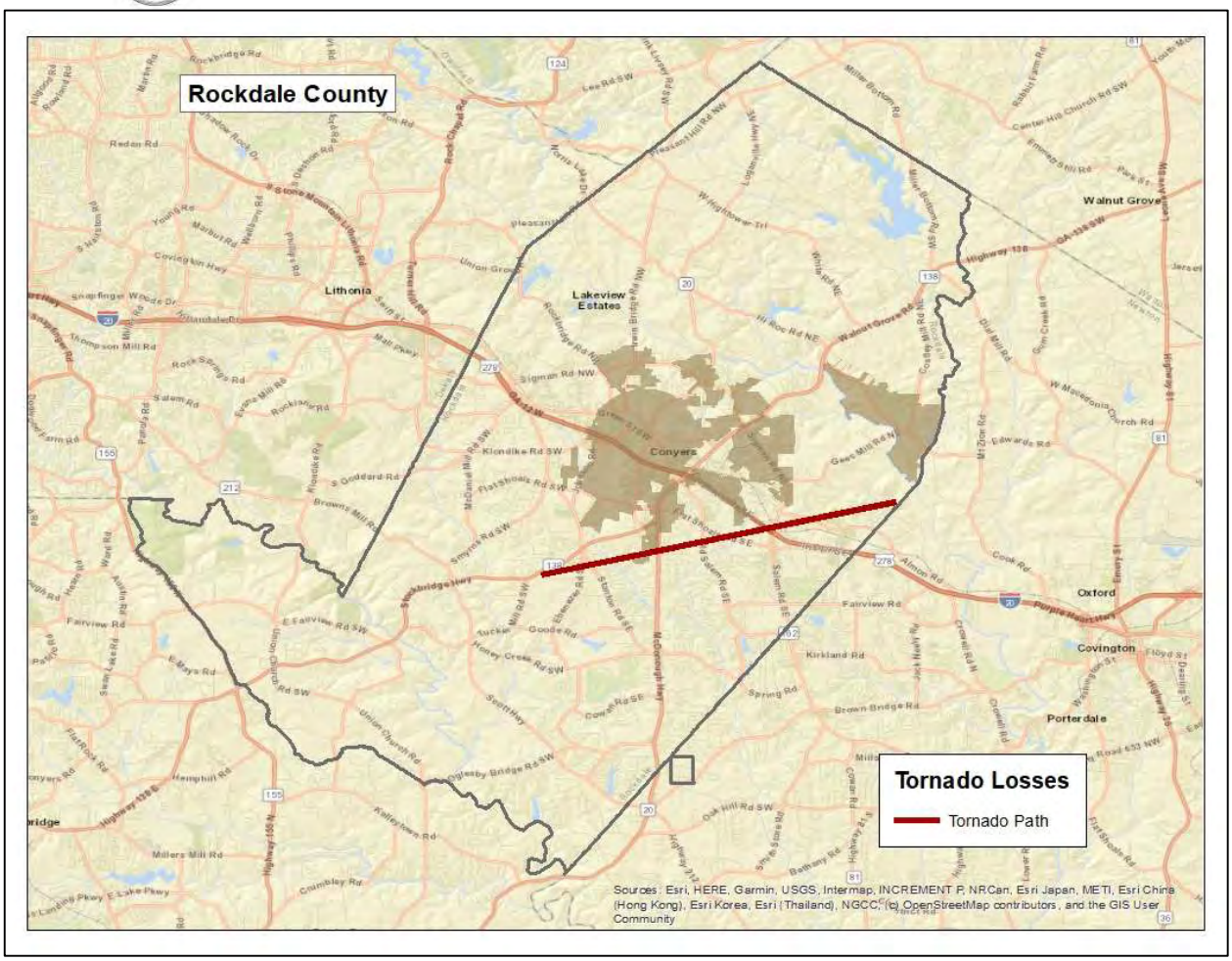

Figure 12: Hypothetical EF3 Tornado Path in Rockdale County

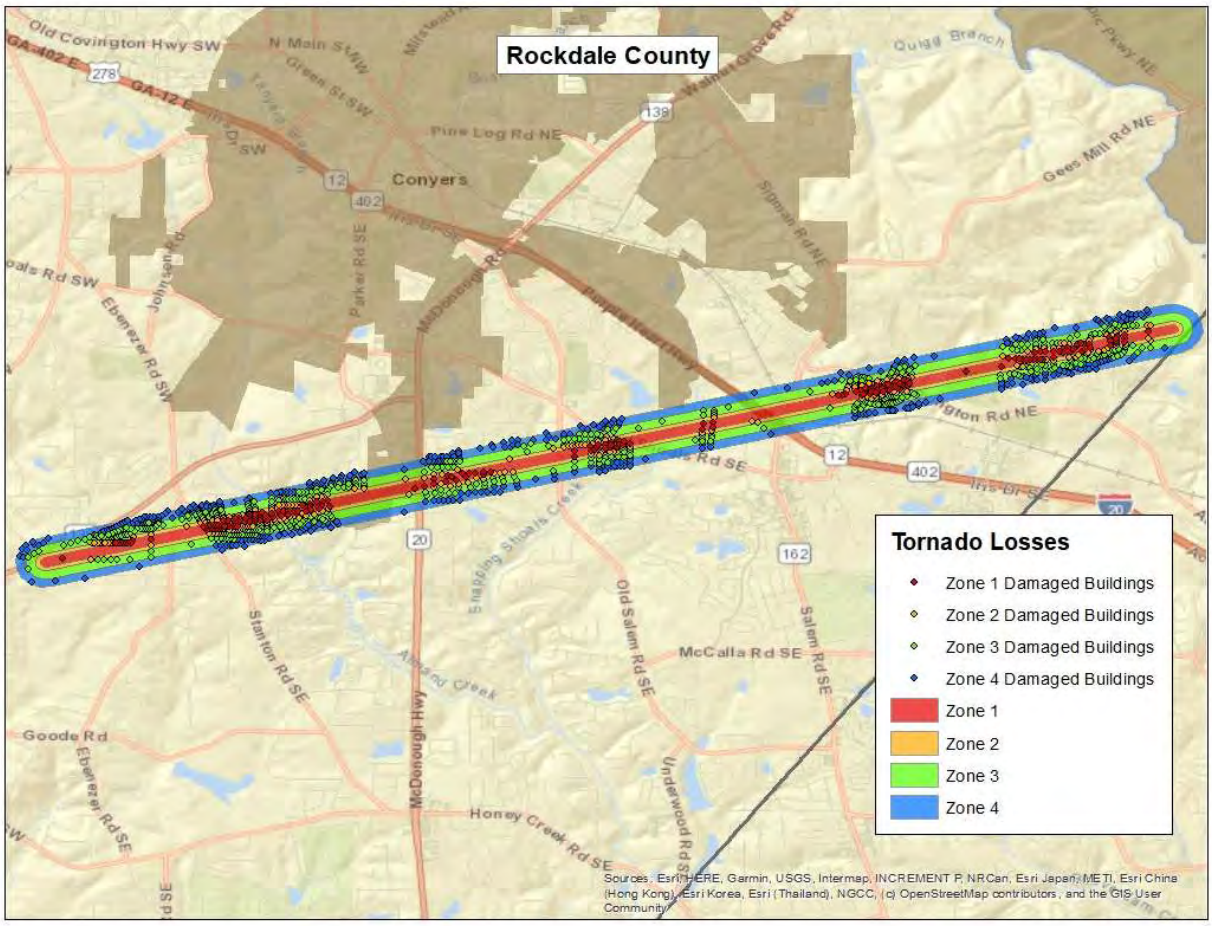

Figure 13: Modeled EF3 Tornado Damage Buffers in Rockdale County

EF3 Tornado Building Damages

The analysis estimated that approximately 1,207 buildings could be damaged, with estimated building losses of $75 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Rockdale County that were joined with Assessor records showing estimated property replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are depicted in Table 13.

Table 13: Estimated Building Losses by Occupancy Type

Occupancy	Buildings Damaged	Building Losses
Residential	1,170	$68,878,510
Commercial	21	$605,341
Industrial	9	$163,901
Education	5	$4,972,565
Government	2	$13,104
Total	**1,207**	**$74,633,421**

EF3 Tornado Essential Facility Damage

There were four essential facilities located in the tornado path – three schools and one fire station. Table 14 outlines the specific facility and the amount of damage under the scenario.

Table 14: Estimated Essential Facilities Damaged

Facility	Amount of Damage
Sims Elementary School	Major Damage
Edwards Middle School	Minor Damage
Flat Shoals Elementary School	Minor Damage
Rockdale County Fire Station 9	Minor Damage

According to the Georgia Department of Education, Sims Elementary School's enrollment was approximately 486 students, Edwards Middle School's enrollment was approximately 943 students and Flat Shoals Elementary School's enrollment was approximately 578 students as of October 2022. Depending on the time of day, a tornado strike as depicted in this scenario could result in significant injury and loss of life. In addition, arrangements would have to be made for the continued education of the students in another location.
The location of the damaged Essential Facility is mapped in Figure 14.

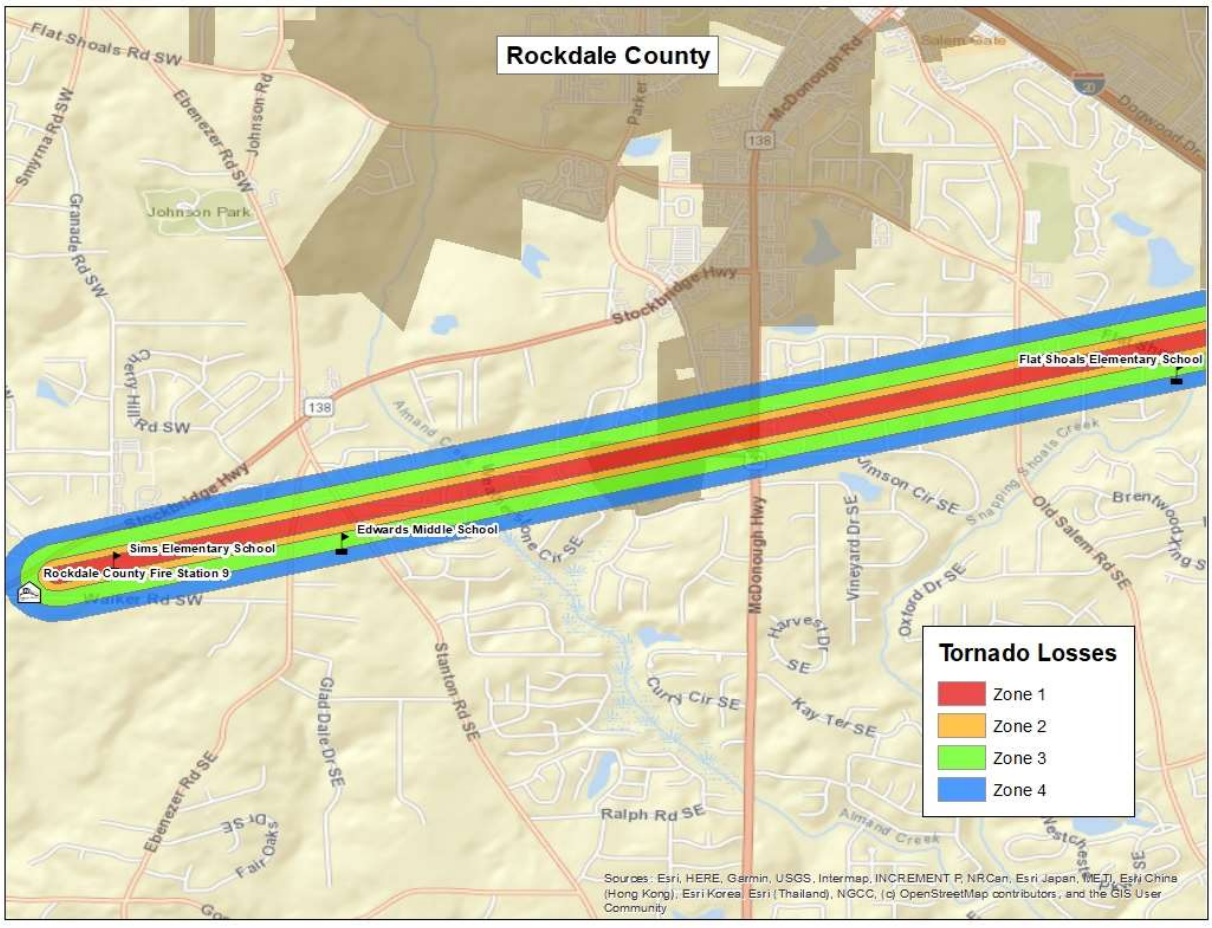

Figure 14: Modeled Essential Facility Damage in Rockdale County

Exceptions Report

Hazus Version 2.2 SP1 was used to perform the loss estimates for Rockdale County, Georgia. Changes made to the default Hazus-MH inventory and the modeling parameters used to setup the hazard scenarios are described within this document.

Reported losses reflect the updated data sets. Steps, algorithms and assumptions used during the data update process are documented in the project workflow named PDM_GA_Workflow.doc.

Statewide Inventory Changes

The default Hazus-MH Essential Facility inventory was updated for the entire state prior to running the hazard scenarios for Rockdale County.

Updates to the Critical Facility data used in GMIS were provided by Rockdale County in February 2023. These updates were applied by The Carl Vinson Institute of Government at the University of Georgia. Table 15 summarizes the difference between the original Hazus-MH default data and the updated data for Rockdale County.

Table 15: Essential Facility Updates

Site Class	Feature Class	Default Replacement Cost	Default Count	Updated Replacement Cost	Updated Count
EF	Care	$237,733,000	21	$36,425,000	2
EF	EOC	$1,995,000	1	$2,207,000	1
EF	Fire	$7,692,000	9	$7,005,000	10
EF	Police	$69,266,000	5	$32,586,000	4
EF	School	$367,658,000	22	$204,503,000	19

County Inventory Changes

The GBS records for Rockdale County were replaced with data derived from parcel and property assessment data obtained from Rockdale County. The county provided property assessment data was current as of March 2023 and the parcel data current as of March 2023.

General Building Stock Updates

The parcel boundaries and assessor records were obtained from Rockdale County. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary. Each parcel point was linked to an assessor record based upon matching parcel numbers. The generated Building Inventory represents the approximate locations (within a parcel) of building exposure. The Building Inventory was aggregated by Census Block and imported into Hazus-MH using the Hazus-MH Comprehensive Data Management System (CDMS). Both the 2010 Census Tract and Census Block tables were updated.

The match between parcel records and assessor records was based upon a common Parcel ID. For this type of project, unless the hit rate is better than 85%, the records are not used to update the default aggregate inventory in Hazus-MH. The Parcel-Assessor hit rate for Rockdale County was 98.4%.

Adjustments were made to records when primary fields did not have a value. In these cases, default values were applied to the fields. Table 16 outlines the adjustments made to Rockdale County records.

Table 16: Building Inventory Default Adjustment Rates

Type of Adjustment	Building Count	Percentage
Area Unknown	59	0%
Construction Unknown	898	3%
Condition Unknown	3	0%
Foundation Unknown	900	3%
Year Built Unknown	811	2%
Total Buildings	**34,016**	**2%**

Approximately 2% of the CAMA values were either missing (<Null> or '0'), did not match CAMA domains or were unusable ('Unknown', 'Other', 'Pending'). These were replaced with 'best available' values. Missing YearBuilt values were populated from average values per Census Block. Missing Condition, Construction and Foundation values were populated with the highest-frequency CAMA values per Occupancy Class. Missing Area values were populated with the average CAMA values per Occupancy Class.

The resulting Building Inventory was used to populate the Hazus-MH General Building Stock and User Defined Facility tables. The updated General Building Stock was used to calculate flood and tornado losses. Changes to the building counts and exposure that were modeled in Rockdale County are sorted by General Occupancy in Table 1 at the beginning of this report. If replacements cost or building value were not present for a given record in the Assessor data, replacement costs were calculated from the Building Area (sqft) multiplied by the Hazus-MH RS Means ($/sqft) values for each Occupancy Class.

Differences between the default and updated data are due to various factors. The Assessor records often do not distinguish parcels by occupancy class when the parcels are not taxable; therefore, the total number of buildings and the building replacement costs for government, religious/non-profit, and education may be underestimated.

User Defined Facilities

Building Inventory was used to create Hazus-MH User Defined Facility (UDF) inventory for flood modeling. Hazus-MH flood loss estimates are based upon the UDF point data. Buildings within the flood boundary were imported into Hazus-MH as User Defined Facilities and modeled as points.

Table 17: User Defined Facility Exposure

Class	Hazus-MH Feature	Counts	Exposure
BI	Building Exposure	34,014	$8,681,681,950
Riverine UDF	Structures Inside 1% Annual Chance Riverine Flood Area	416	$95,727,307

Assumptions

- Flood analysis was performed on Building Inventory. Building Inventory within the flood boundary was imported as User Defined Facilities. The point locations are parcel centroid accuracy.
- The analysis is restricted to the county boundary. Events that occur near the county boundary do not contain loss estimates from adjacent counties.
- The following attributes were defaulted or calculated:
  First Floor Height was set from Foundation Type
  Content Cost was calculated from Building Cost

Appendix B

Growth and Development Trends / Community Information

I. Local Comp Plan Executive Summary

Rockdale County Comprehensive Plan: 2023 Update

The Rockdale Comprehensive Plan provides County officials, staff, and residents with a blueprint to guide growth and development over the next 20 years. This plan addresses a wide range of elements including demographics, economic development, natural and historic resources, housing, community facilities, and land use. This official statement will be used as the basis for zoning, transportation planning, and utility system decisions in the future.

Updates to the Comprehensive Plan shall occur, at a minimum, every 10 years. However, after five years, community leaders should determine if the Comprehensive Plan needs a major update, based upon the degree of change in the community. If little has changed, minor revisions to the plan may be sufficient, in the form of plan amendments. If major changes have occurred or if the data upon which the plan is based has become dated, a complete update of the comprehensive plan should be initiated.

The Plan serves as a major revision to the current plan, *The City of Conyers and Rockdale Comprehensive Plan: 1991 – 2010*, adopted in March 1991. Data gathering and public involvement efforts related to this update began in February 2023.

Partial Update of the Comprehensive Plan, City of Conyers, Georgia, June 20, 2018

The City of Conyers Comprehensive Plan includes an assessment of the 15 quality community objectives (QCOs) promulgated by the Georgia Department of Community Affairs. The partial update of the comprehensive plan is required to provide an assessment as to how policies and development patterns of the local government either meet, or do not meet, these objectives. This assessment lists a particular QCO, and then an assessment of each objective follows. Where applicable, the assessment describes existing policies adopted in the comprehensive plan, regulations (City of Conyers Code), and existing development patterns based on some analysis in the field.

The assessment is useful in terms of identifying additional issues and opportunities that need to be addressed in the city's implementation program. In some cases, similar QCOs are grouped and discussed together.

II. Statistics/tables from Local Comp Plan

Section 1.8.6, Commerce, provides a list of the top five employers in Rockdale County. The following two tables provide additional detail about employment in the County by sector. For comparison purposes, this table is followed by employment by sector in Georgia.

Table B-1
Rockdale County Residents Employment by Sector
(Source: 2018 Rockdale County Comprehensive Plan / Future Land Use Plan)

Job Sector	Number of Rockdale County Residents Employed in that Sector
Construction	1830
Manufacturing	2990
Information	1010
Wholesale Trade	1496
Transportation and Warehousing	1855
Retail Trade	3981
Finance and Insurance	1137
Administration & Support, Waste Management	2632
Educational Services	2344
Professional, Scientific, and Technical Services	1647
Health Care and Social Assistance	4133
Accommodation and Food Service	3049
Public Administration	2100
Other Service	822

III. Community Information (Character Areas)

Table B-2
Rockdale County Industry Mix, 2022
(Source: Rockdale County, Area Labor Profile)

Industry Mix - 4th Quarter of 2022

	Rockdale				Rockdale Area			
	NUMBER	EMPLOYMENT		WEEKLY	NUMBER	EMPLOYMENT		WEEKLY
INDUSTRY	OF FIRMS	NUMBER	PERCENT	WAGE	OF FIRMS	NUMBER	PERCENT	WAGE
Goods-Producing	**359**	**9,214**	**25.4**	**1,611**	**7,597**	**103,051**	**11.8**	**1,468**
Agriculture, Forestry, Fishing and Hunting	3	9	0.0	1,003	81	759	0.1	996
Mining, Quarrying, and Oil and Gas Extraction	1	*	*	*	29	430	0.0	1,583
Construction	262	3,514	9.7	1,492	5,357	44,753	5.1	1,555
Manufacturing	9	*	*	*	352	10,786	1.2	1,121
Food	5	*	*	*	198	7,812	0.9	1,150
Textile Product Mills	2	*	*	*	58	592	0.1	1,010
Apparel	2	*	*	*	33	501	0.1	806
Wood Product	3	*	*	*	65	2,542	0.3	1,308
Paper	9	1,206	3.3	1,352	48	3,504	0.4	1,343
Printing and Related Support Activities	7	60	0.2	781	247	2,839	0.3	1,303
Chemical	13	542	1.5	1,338	190	5,280	0.6	1,465
Plastics and Rubber Products	5	231	0.6	1,595	76	4,908	0.6	1,282
Nonmetallic Mineral Product	2	*	*	*	102	2,597	0.3	1,397
Primary Metal	4	*	*	*	25	428	0.0	1,487
Fabricated Metal Product	14	361	1.0	1,196	219	5,226	0.6	1,177
Machinery	3	*	*	*	164	4,095	0.5	1,526
Computer and Electronic Product	4	*	*	*	127	3,443	0.4	2,247
Electrical Equipment, Appliance, and Component	7	*	*	*	64	4,062	0.5	2,098
Furniture and Related Product	6	*	*	*	140	2,496	0.3	1,177
Miscellaneous	7	38	0.1	1,051	254	2,780	0.3	1,374
Leather and Allied Product	0	0	0.0	0	6	*	*	*
Petroleum and Coal Products	0	0	0.0	0	9	*	*	*
Textile Mills	0	0	0.0	0	17	464	0.1	1,627
Beverage and Tobacco Product	0	0	0.0	0	40	1,233	0.1	980
Transportation Equipment	0	0	0.0	0	48	1,987	0.2	1,266
Service-Providing	**1,974**	**22,189**	**61.2**	**1,042**	**52,210**	**656,090**	**75.4**	**1,205**
Utilities	5	141	0.4	1,427	57	3,032	0.3	1,884
Wholesale Trade	126	1,581	4.4	1,530	4,200	70,238	8.1	1,252
Retail Trade	145	2,709	7.5	818	2,863	54,407	6.2	984
Transportation and Warehousing	99	614	1.7	1,182	1,746	19,039	2.2	1,294
Information	19	570	1.6	1,719	1,251	20,871	2.4	2,027
Finance and Insurance	129	1,076	3.0	1,415	3,100	31,206	3.6	1,643
Real Estate and Rental and Leasing	85	849	2.3	1,993	2,936	14,120	1.6	1,454
Professional, Scientific, and Technical Services	208	1,601	4.4	1,665	8,729	56,893	6.5	1,910
Management of Companies and Enterprises	7	68	0.2	1,138	286	13,899	1.6	2,337
Administrative and Support and Waste Management and Remediation Services	166	2,259	6.2	921	4,360	65,644	7.5	1,057
Educational Services	34	307	0.8	702	910	28,188	3.2	1,938
Health Care and Social Assistance	340	3,531	9.7	1,391	6,677	103,314	11.9	1,192
Arts, Entertainment, and Recreation	26	111	0.3	452	962	8,529	1.0	614
Accommodation and Food Services	204	3,368	9.3	385	5,291	74,521	8.6	494
Other Services (except Public Administration)	190	805	2.2	880	4,455	21,446	2.5	1,012
Unclassified - industry not assigned	**404**	**158**	**0.4**	**1,216**	**12,127**	**6,095**	**0.7**	**1,546**
Total - Private Sector	**2,737**	**31,561**	**87.1**	**1,209**	**71,934**	**765,237**	**87.9**	**1,243**
Total - Government	**56**	**4,683**	**12.9**	**1,054**	**939**	**105,299**	**12.1**	**1,238**
Federal Government	7	190	0.5	1,578	148	17,448	2.0	1,850
State Government	22	559	1.5	914	234	12,903	1.5	902
Local Government	27	3,934	10.9	1,049	557	74,948	8.6	1,153
ALL INDUSTRIES	**2,793**	**36,245**	**100.0**	**1,189**	**72,873**	**870,537**	**100.0**	**1,242**
ALL INDUSTRIES - Georgia					**395,301**	**4,821,292**		**1,280**

Note: *Denotes confidential data relating to individual employers and cannot be released. These data use the North American Industrial Classification System(NAICS) categories. Average weekly wage is derived by dividing gross payroll dollars paid to all employees - both hourly and salaried - by the average number of employees who had earnings; average earnings are then divided by the number of weeks in a reporting period to obtain weekly figures. Figures in other columns may not sum accurately due to rounding. All figures are 4th Quarter of 2022.

Source: Georgia Department of Labor. These data represent jobs that are covered by unemployment insurance laws.

Appendix C

Other Planning Documents

I. Executive Summary from any applicable Local plan (Stormwater management)

Rockdale County (And Incorporated Areas) Flood Insurance Study, December 8, 2016.

The Countywide Flood Insurance Study (FIS) investigates the existence and severity of floods in, or revises and updates previous FIS/Flood Insurance Rate Maps (FIRMS) for, the geographic area of Rockdale County, Georgia, including the City of Conyers and the unincorporated areas of Rockdale County. This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the County that will be used to establish actuarial flood insurance rates. This information will also be used by Rockdale County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal Regulations (CFR) at 44 CFR, 60.3.

Conyers-Rockdale County Emergency Operations Plan, February 17, 2009 (Revised June 10, 2009)

This Emergency Operations Plan (EOP) describes the management and coordination of resources and personnel during periods of major emergency. This comprehensive local emergency operations plan is developed to ensure mitigation and preparedness, appropriate response and timely recovery from natural and man-made hazards which may affect residents of Rockdale County.

This plan supersedes the Emergency Operations Plan dated from old eLEOP. It incorporates guidance from the Georgia Emergency Management Agency (GEMA) as well as lessons learned from disasters and emergencies that have threatened Rockdale County. The Plan will be updated at the latest, every four years. The plan:

- Defines emergency response in compliance with the State-mandated Emergency Operations Plan process.
- Establishes emergency response policies that provide Departments and Agencies with guidance for the coordination and direction of municipal plans and procedures.
- Provides a basis for unified training and response exercises.

The purpose of the EOP is to establish a comprehensive, Countywide, all-hazards approach to incident management across a spectrum of activities including prevention, preparedness, response, and recovery. The EOP incorporates best practices and procedures from various incident management disciplines - homeland security, emergency management, law enforcement, firefighting, hazardous materials response, public works, public health, emergency medical services, and responder and recovery worker health and safety - and integrates them into a unified coordinating structure. The EOP provides the framework for interaction with municipal governments; the private sector; and NGOs in the context of incident prevention, preparedness, response, and recovery activities. It describes capabilities and resources and establishes responsibilities, operational processes, and protocols to help protect from natural and manmade hazards; save lives; protect public health, safety, property, and the environment; and reduce adverse psychological consequences and disruptions. Finally, the EOP serves as the foundation for the development of detailed supplemental plans and procedures to effectively and efficiently implement incident management activities and assistance in the context of specific types of incidents.

Rockdale County Floodplain Ordinance, adopted October 15, 2016.

An ordinance amending Chapter 106 of the Code of Ordinances of Rockdale County, Georgia providing for the regulation of floodplain management and flood damage prevention, and for other purposes.

The purpose of the article is to establish the procedures where by Rockdale County will protect, maintain and enhance the public health, safety, environment and general welfare and to minimize public and private losses due to flood conditions in flood hazard areas, as well as to protect the beneficial uses of floodplain areas for water quality protection, stream bank and stream corridor protection, wetlands preservation and ecological and environmental protection

II. Executive Summary from any applicable Local plan (Green space)

III. Executive Summary from any applicable Regional plan

Atlanta Regional Evacuation Coordination Plan – Rockdale County Annex, October, 2011.

The purpose of the annex is to provide Rockdale County specific results that can be used to prepare for, respond to, and recover from an incident requiring evacuation of Rockdale County or neighboring jurisdictions in the metropolitan Atlanta region. This annex is not intended to be an operational document but rather a planning document. Decision-making response and recovery plans and procedures are found in the Rockdale County Local Emergency Operations Plan (LEOP), the Georgia Emergency Management Agency (GEMA) Georgia Emergency Operations Plan (GEOP), in the base Atlanta

Regional Evacuation Coordination Plan (RECP), and in other supporting documentation. This annex is intended to provide Rockdale County with the data and research to help identify the resources, capabilities, and equipment needed to prepare for, respond to, and recover from an incident requiring evacuation protective actions.

Rockdale County/City of Conyers Comprehensive Transportation Plan, September, 2018.

The purpose of the Rockdale County Comprehensive Transportation Plan (CTP) is to identify existing and future transportation needs, to provide a framework of recommendations that address identified transportation needs, and to determine what resources may be necessary and available to successfully implement those recommendations.

The format of the CTP, and the process by which it was developed, is prescribed by Federal legislation known as the Safe, Accountable, Flexible, Efficient, Transportation Equity Act – A Legacy for Users (SAFETEA-LU). CTPs are required to have a planning horizon of 20 or more years. This time frame provides a basic structure and overall goal for meeting the long-term transportation needs for the community. Since many factors influencing the development of the CTP, such as demographics, forecasted revenue, and project costs, change over time, it is recommended that CTPs are updated at least every five years.

Rockdale County has experienced sustained growth over the last decade, resulting in increased travel demand in the County. Rockdale County initiated the Rockdale Comprehensive Transportation Plan to assess needs and identify multi-modal transportation improvement opportunities to help the County address transportation issues through the plan's horizon year of 2030. The transportation plan developed as part of this study builds upon previous plans and studies conducted in Rockdale County. The plan is intended as a mechanism for guiding transportation decision-making as development pressures increase throughout the County.

The purpose of this document is to identify existing and future operating conditions for the multi-modal transportation system (roadways, bridges, bicycle and pedestrian facilities, freight, transit, rail, and airports) within the County, and to utilize that information to identify improvements and prioritize projects for implementation. As part of this effort, a travel demand model was developed for the County to represent the transportation network of the study area and to assist with the analysis of future operating conditions. Additionally, a comprehensive and interactive public involvement program was conducted to establish plan goals and objectives, identify issues and opportunities, and to identify potential improvements to Rockdale County's transportation network. This process ensured that transportation improvements were not only coordinated with the leadership of Rockdale County and the City of Conyers but afforded individual citizens and interested groups the opportunity to provide their input.

Ultimately, study efforts will produce a comprehensive transportation planning document that, if implemented, will help to guide the efficient movement of people and goods within and through the study area through the study horizon year (2030).

Appendix D

Worksheets used in planning process

Completed GEMA/local worksheets

GEMA Worksheet 1 copies not attached;
GEMA Worksheet 2 - not applicable; data obtained directly from Rockdale County (attached);
GEMA Worksheet 3a – copies not attached;
GEMA Worksheets 4 – not applicable; data obtained directly from Rockdale County

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Appendix E

Copies of Required Planning Documentation

- Public Announcements
- Regional Statements
- HMPC Meetings
    - Agenda
    - Sign-in Sheets
    - Minutes
    - Presentations
- Adoption Resolutions
    - Rockdale County (to be inserted)
    - City of Conyers (to be inserted)

Meeting Announcement to Update Hazard Mitigation Plan

| Published on: | |

ROCKDALE COUNTY PRESS RELEASE

For Immediate Release

September 30, 2022

Meeting Announcement to Update Hazard Mitigation Plan

ROCKDALE COUNTY, Ga. – The Rockdale County Emergency Management Agency (EMA) announces the kick-off meeting regarding the Hazard Mitigation Plan Update (HMP). This public meeting is required for the planning committee and will be open to the public to provide input for our Hazard and Mitigation solutions.

The Rockdale County HMP update is prepared to address the risk to life and property resulting from a wide range of natural and technological hazards. This plan update will provide homes, businesses, and communities with safeguards to mitigate the impacts of hurricanes, floods, tornadoes, hazardous materials, and other natural and technological hazards.

The public meeting will take place on Nov. 9 from 10 a.m. to 1 p.m. at J.P. Carr Community Center. Rockdale County Citizens are urged to attend this public meeting to learn more about HMP update, and for citizens to provide necessary feedback to solution strategies that will affect Rockdale County.

For more information about this meeting email gerald.woodridge@rockdalecountyga.gov or call EMA at 470-313-1563

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HMP Update Kickoff Meeting Agenda – November 11 & 14, 2022

Agenda

Hazard Mitigation Planning Committee Meeting
November 16, 2022
Tech Services Training Room
Start Time: 10 AM
End Time: Noon

1. Establish the Hazard Mitigation Planning Committee **(HMPC)**
2. Identified Hazards
    a. Added new technological hazards
3. Briefly explained the Hazard Ranking and the surveys
4. Discuss the HMPC survey
5. Update on the Plan Update timeline
6. Explain Hazard Ranking
7. **Chapter 1 Rough Draft 50% complete.**

Minutes

Established who wanted to be a committee member; RCSO agreed. TSD: GIS asked to be kept on the fringes and disclosed they would help with maps and other information as needed.
Discussed the Hazards from 2018, and determined they are okay.
Gerald suggested the addition of two technological hazards:
Public Safety Emergency, due to the growing concern of active threats in the United States and Georgia.
Major Utility Failure, due to how vulnerable to an attack things like transformers, power stations, and compounding utility failures from natural disasters such as down power lines, water pump failures.
Determined a second/repeat of this meeting was needed after the New Year to provide more comments from all of the committee members/those who wanted to participate in the planning process.
Discussed Hazard Ranking and how that process will go. It will involve 2 surveys; first survey will look at associated concern, probability and severity. The Second survey looks at risk and this was achieved through the questions on Probability, Impact, Spatial Extent, Warning Time, and Duration.
Set future meeting dates and presented a tentative timeline for the HMP Update.
Ended the meeting at noon and determined that a date in January after the new year was a great point to repeat this meeting.

Agenda

Hazard Mitigation Planning Committee Meeting #2 (repeat from November 16)
January 11, 2023
Microsoft Teams
Start Time: 10 AM
End Time: 10:30 AM

Old Business

1. Established the Hazard Mitigation Planning Committee **(HMPC)**
2. Identified Hazards
    a. Added new technological hazards
3. Briefly explained the Hazard Ranking and the surveys
4. Discussed the HMPC survey

New Business

1. Update on the Plan Update timeline
2. Explain Hazard Ranking
    a. Risk Factor Scoring
3. Chapter 1 Rough Draft
4. Chapter 3 – Mitigation Actions
    a. Explain STAPLEE
    b. Explain the Criteria Worksheet
    c. Review some of the Mitigation Actions from 2018

Minutes from the Meeting

Agenda and sign-in were conducted prior to the start of the meeting.

Meeting was called to order at 10:01AM by Gerald Woodridge. He opened with a brief update on the HMP timeline so far and some expected due dates.

Under the heading of old business, it was discussed that the HMPC Committee had officially been established. With the members making up the initial committee; Gerald Woodridge, Michael Camp, Harrison Cotter, Kim Lucas, Gary Morris, and Meredith Barnum, Elizabeth White, Sharon Webb, LeJohn Tate, William Brown.

Next, the identified hazards from the previous meetings were discussed and why they were selected. Talked about the 4 new technological hazards that were identified, Public Safety Emergency, Industrial Accident, Major Utility Failure, Large Transportation Incident.
Agreed upon2 technological hazards: Public Safety Emergency and Major Utility Failure.

Then, there was an explanation provided on the Survey and what the 2 different survey represented and how the data was being processed and analyzed. Then explained how the hazards that were identified were going to be ranked and explained the formula that is being used to determine the ranking.

Under the heading of New Business, we walked through Chapter 1 kind of explaining each section and heading and the initial content in each section. The Community Profile and what data was used.

Finally, Gerald began to discuss Chapter 3 and the mitigation actions. We got so far as using the STAPLEE worksheet to verify the mitigation actions set out in the 2018 HMP update. Gerald defined how STAPLEE would be used to determine the effectiveness of 2023 mitigation actions.

Meeting was ended at 10:30

Hazard Mitigation Plan Update Meeting – Mitigation Strategies: April 10th 10am – noon

Minutes
Meeting started at 10am

Presented the results from Surveys, Risk Factor and Hazard Survey.

Presented the ranking of the hazards that were identified. Shared the hazard profiles with the HMP Committee.

Mitigation Actions – Chapter 3

Discussed and agreed upon which mitigation actions were good and needed to stay.

Kim Lucas agreed to ask and follow up about the 2018 action of putting a dredge in Big Haynes Creek.

Discussed and determined the actions for Natural Hazards are subject to annual renewal and to implement an annual review and progress report on these actions to properly support the plan.

They entire HMPC agreed to develop, plan, and train, as mitigation actions, for the two new technological hazards Public Safety Emergency and Major Utility Failure.

Meeting was concluded at 11pm.


Help us plan for potential disasters and hazards by providing feedback!
ROCKDALE
EM
EMERGENCY MANAGEMENT AGENCY
Hazard Mitigation Planning
Public Feedback Session
Monday, June 26, 2013
10 am - 12 PM
JP Carr Community Center
JP Carr Community Center
981 Taylor St., Conyers, GA 30012
ROCKDALE COUNTY
GEORGIA

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