Bladen, Columbus, Robeson Regional HMP Update: Hazard ID & Risk Assessment (HIRA)

Hazard Mitigation Planning Committee Meeting

April 17, 2025

Agenda

- Where we are in the planning process
  - Step 4 & Step 5
  - Organization in the plan

- Hazard Identification
  - State plan & existing Bladen Columbus Robeson Regional Hazard Mitigation Plan
  - Major Disaster Declarations
- Asset Inventory
  - Building Exposure
  - Critical Facilities
- Hazard Profiles: Risk & Vulnerability Assessment

- Discuss Objectives & Actions
- Next Steps and Questions

Planning Process

- Step 1: Organize to Prepare the Plan
- Step 2: Involve the Public – *ongoing*
- Step 3: Coordinate – *ongoing*
- **Step 4: Assess the Hazard**
- **Step 5: Assess the Problem**
- Step 6: Set Goals
- Step 7: Review Possible Activities
- Step 8: Draft an Action Plan
- Step 9: Adopt the Plan
- Step 10: Implement, Evaluate, & Revise the Plan

Hazard Identification & Risk Assessment (HIRA)

- **Step 4: Assess the Hazard**
- **Step 5: Assess the Problem**

Risk is a combination of hazard, vulnerability, and exposure; each is assessed to determine a hazard's potential impact and overall priority

HIRA Organization

Data collected through this process has been incorporated into the following sections of this plan:

- **Section 4**: **Hazard Identification** identifies the natural and human-caused hazards that threaten the planning area.
- **Section 5**: **Hazard Profiles** discusses the threat to the planning area, describes previous occurrences of hazard events and the likelihood of future occurrences, and assesses the planning area's exposure to each hazard profiled; considering assets at risk, critical facilities, and future development trends.
- **Section 5.10: Hazard Profile Summary** summarizes the results from the Hazard Profiles and defines each hazard as Low, Medium, or High-Risk hazard.
- **Section 6: Vulnerability Assessment** details the population, buildings, and critical facilities at risk within the planning area.


Hazard
Identification

Major Disaster Declarations (BCR Region)

Disaster #	Dec. Date	Incident Type	Event Title
699	3/30/1984	Tornado	Severe Storms and Tornadoes
724	9/11/1984	Hurricane	Hurricane Diana
1127	7/8/1996	Hurricane	Hurricane Bertha
1134	9/6/1996	Hurricane	Hurricane Fran
1200	1/15/1998	Flooding	Flooding
1240	8/27/1998	Hurricane	Hurricane Bonnie
1292	9/16/1999	Hurricane	Hurricane Floyd
1490	9/18/2003	Hurricane	Hurricane Isabel
1546	9/10/2004	Hurricane	Tropical Storm Frances
1969	4/19/2011	Severe Storm(s)	Severe Storms, Tornadoes, and Flooding
4019	8/31/2011	Hurricane	Hurricane Irene
4285	10/10/2016	Hurricane	Hurricane Matthew
4393	9/4/2018	Hurricane	Hurricane Florence
4465	10/4/2019	Hurricane	Hurricane Dorian
4487	3/25/2020	Pandemic	COVID-19 Pandemic
4568	10/14/2020	Hurricane	Hurricane Isaias
4588	3/3/2021	Hurricane	Tropical Storm Eta

17 Total Declarations

- 13 hurricane events
- 3 severe weather events (including flooding and tornadoes)
- 1 pandemic event

Review of Hazards in Existing Plans

Hazard	Included in State Plan?	Included in 2020 Bladen-Columbus-Robeson Plan?	Identified as a significant hazard to be included in the Plan?
Coastal Hazards (coastal flooding, coastal erosion, storm surge & sea level rise)	Yes	No	No
Dam/Levee Failure	Yes	Yes	Yes
Drought	Yes	Yes	Yes
Earthquake	Yes	Yes	Yes
Erosion	No	No	No
Extreme Heat	Yes	No	No
Hurricane/Tropical Storm	Yes	Yes	Yes
Inland Flooding: 100-/500-year	Yes	Yes	Yes
Severe Weather (thunderstorm wind, lightning, & hail)	Yes	Yes	Yes
Tornado	Yes	Yes	Yes
Wildfire	Yes	Yes	Yes
Winter Weather	Yes	Yes	Yes
Geological: Landslides/Sinkholes	Yes	No	No
Infectious Disease	Yes	No	No
Hazardous Substances	Yes	No	No
Radiological Emergency	Yes	No	No
Cyber Threat	Yes	No	No
Terrorism	Yes	No	No
Civil Disturbance	Yes	No	No
Electromagnetic Pulse	Yes	No	No
Food Emergency	Yes	No	No

Hazard Identification

Hazards Not Included

- **Coastal Hazards:** The 2020 BCR plan did not address this hazard as it is only applicable to coastal areas that are not part of the region.
- **Erosion:** The 2020 BCR plan did not address this hazard and past plan updates found the risk occurrence to be unlikely in the region.
- **Landslide:** The 2020 BCR plan did not address this hazard. Past plan updates found that risk for landslides is low, and occurrence is unlikely in the region.
- **Sinkholes:** The 2020 BCR plan did not address this hazard. USGS data shows little to no geological basis for sinkhole risk in the region.
- **Extreme Heat:** The 2020 BCR plan did not address this hazard. There were no past events in or near the planning area.
- **Infectious Disease:** The State HMP reports the entire State is equally at risk, but vulnerability is low.
- **Hazardous Substances:** The 2020 BCR plan did not address this hazard. Hazardous substances will be addressed through emergency operations planning.

Hazard Identification (continued)

Hazards Not Included

- **Radiological Emergency:** The 2023 State plan addresses this hazard. The region considers this hazard more appropriately address at the State level.
- **Cyber Threat:** The region considers this hazard more appropriately addressed through emergency operations planning and local staff training.
- **Terrorism:** The 2020 BCR plan did not address this hazard while the 2023 State plan did address this hazard. This hazard is better handled through state level mitigation and local emergency operations planning.
- **Civil Disturbance:** The 2023 State plan addresses this hazard. The region considers this hazard more appropriately address at the State level.
- **Electromagnetic Pulse:** The 2023 State plan addresses this hazard. The region considers this hazard more appropriately addressed at the State level.
- **Food Emergency:** The 2020 BCR plan did not address this hazard. This hazard is better handled through state level mitigation and local emergency operations planning.

Hazards Profiled

- Dam & Levee Failure
- Drought
- Earthquake
- Hurricane/Tropical Storm
- Inland Flooding: 100-/500-Year
- Severe Weather (thunderstorm wind, lightning, & hail)
- Tornado
- Wildfire
- Winter Weather

Asset Inventory

Asset Inventory

Population

Jurisdiction (including municipalities in County #)	2020 Census Population	Elderly (Age 65 and Over)	Children (Age 5 and Under)
Bladen County	29,606	6,523	1,522
Columbus County	50,623	10,606	2,466
Robeson County	116,530	19,090	7,087
Total	**196,759**	**36,219**	**11,075**

Asset Inventory

Building Exposure

Jurisdiction (including municipalities in County #)	Building Count	Building Value
Bladen County	23,111	$3,756,205,017
Columbus County	37,013	$6,680,483,824
Robeson County	60,664	$12,289,136,864
Total	**120,788**	**$22,725,827,705**

Critical Infrastructure & Key Resources (including municipalities with County)

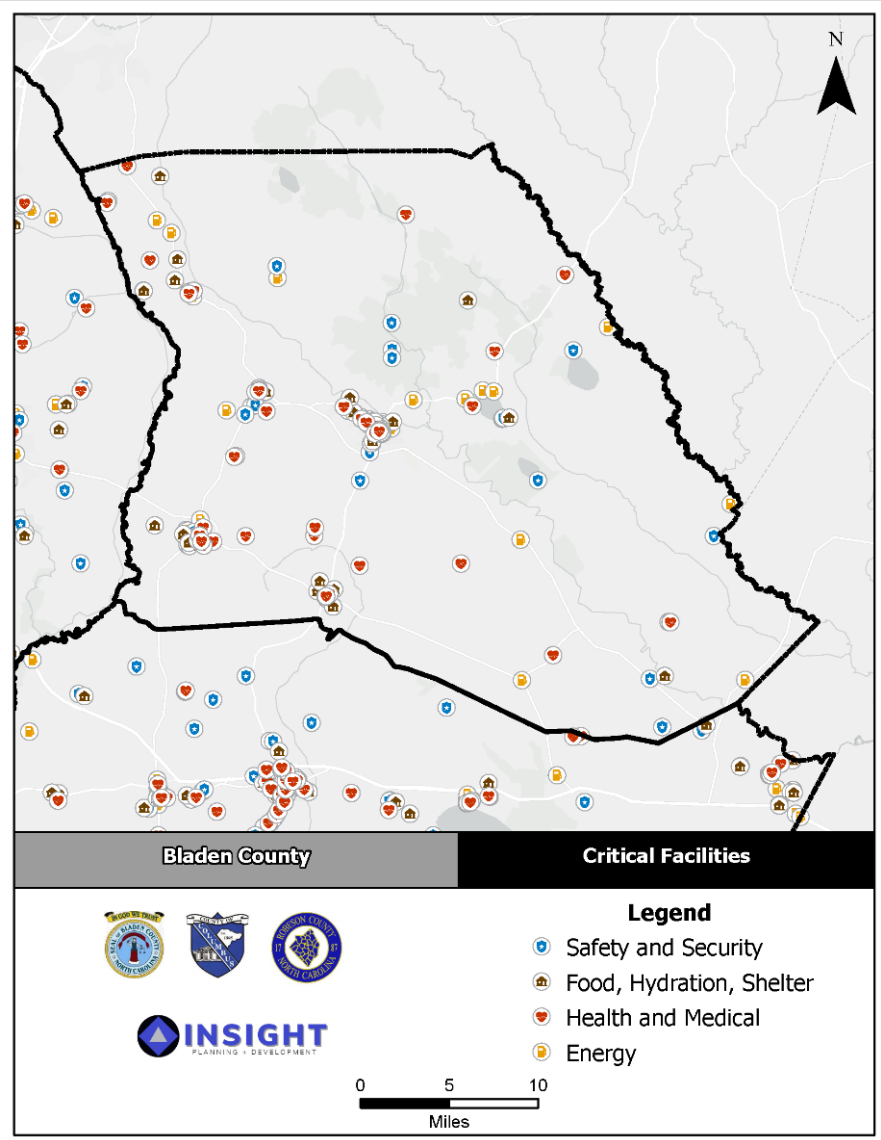
Infrastructure Type	Bladen Co.	Columbus Co.	Robeson Co.
Chemical & Hazardous	1	1	0
Communications	0	1	1
Defense Industrial Base	1	0	1
Nuclear Reactors and Materials	0	0	1
Transportation Systems	6	9	10
Energy	3	2	5
Emergency Services	7	9	12
Water	1	1	7
TOTAL	19	23	37

What are Critical Facilities?

- FEMA defines Critical Facilities as being assets that are community lifelines. The buildings and infrastructure that enable the continuous operation of critical business and government functions that are essential to human health and safety or economic security.

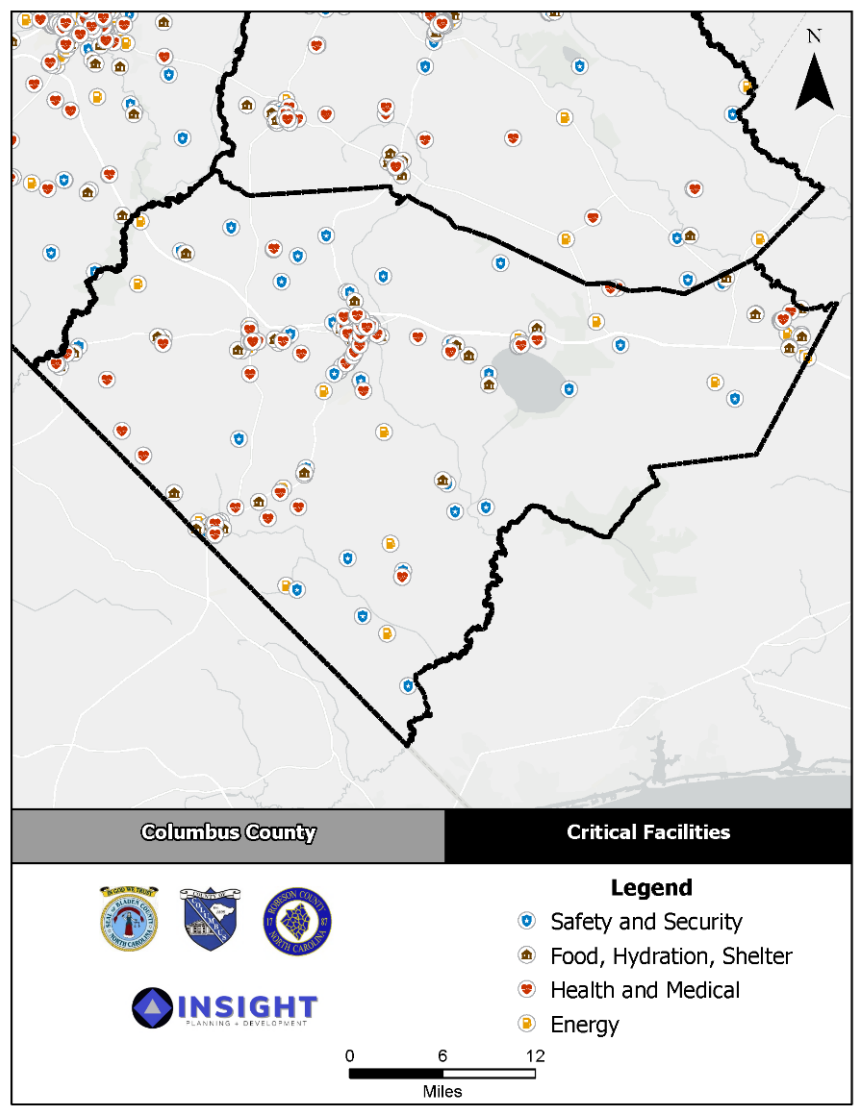
Critical Facilities (Bladen County)

- 42 Safety & Security critical facilities
- 27 Food, Hydration, & Shelter critical facilities
- 54 Health & Medical critical facilities
- 31 Energy critical facilities



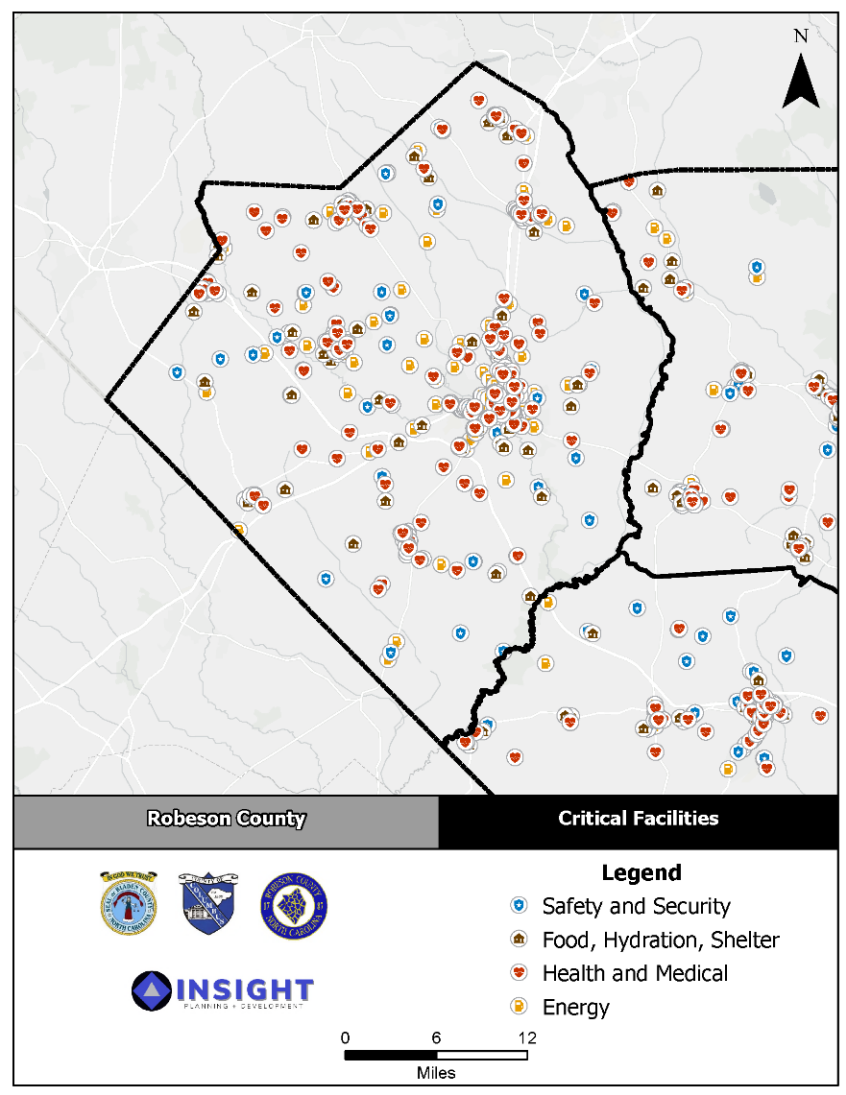
Critical Facilities (Columbus County)

- 68 Safety & Security critical facilities
- 39 Food, Hydration, & Shelter critical facilities
- 83 Health & Medical critical facilities
- 45 Energy critical facilities



Critical Facilities (Robeson County)

- 112 Safety & Security critical facilities
- 67 Food, Hydration, & Shelter critical facilities
- 171 Health & Medical critical facilities
- 134 Energy critical facilities



Agriculture Risk & Exposure

Jurisdiction	Number of Farms	Acreage in Farms	Proportion of Total Land Area in Farms	Market Value of Agricultural Products	Average Value of Farm & Buildings
Bladen	423	146,195	26.1%	$615,976,000	$598,422,000
Columbus	447	125,177	20.8%	$221,838,000	$489,003,000
Robeson	732	263,080	43.4%	$638,375,000	$1,025,228,000

Hazard Profiles

What is PRI?

The Priority Risk Index is used to compare all hazards. It is a numerical value assigned to a hazard based upon **Probability, Impact, Warning, Spatial Extent, Time, Duration.** The sum of all scores is the PRI for the hazard. The purpose of the PRI is to determine what are high, moderate, and low hazards within the Bladen-Columbus-Robeson Region. The PRI will serve as an asset in determining mitigation strategies.

The existing plan served as the baseline PRI for the update, the existing PRI will be updated to reflect any change in risk.

PRI SCALE

High Risk (> 2.5)	Severe Weather Hurricane/Tropical Storm Wildfire Drought Inland Flooding: 100-/500-year Tornado
Moderate Risk (2.0 – 2.5)	Winter Storm Earthquake
Low Risk (< 2.0)	Dam/Levee Failure

Hazard Profile Summary

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Dam/Levee Failure	Unlikely	Limited	Small	Less than 6 hrs	Less than 6 hrs	1.8
Drought	Highly Likely	Minor	Large	More than 24 hrs	More than 1 week	2.8
Earthquake	Possible	Limited	Moderate	Less than 6 hrs	Less than 6 hrs	2.3
Hurricane/Tropical Storm	Likely	Critical	Large	More than 24 hrs	Less than 24 hrs	2.9
Inland Flooding: 100-/500-year	Possible	Critical	Moderate	6 to 12 hours	Less than 1 week	2.7
Severe Weather (thunderstorm wind, lightning, & hail)	Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs	3.1
Tornado	Likely	Critical	Small	Less than 6 hrs	Less than 6 hrs	2.7
Wildfire	Highly Likely	Limited	Small	Less than 6 hrs	Less than 1 week	2.9
Winter Storm	Highly Likely	Minor	Moderate	More than 24 hrs	Less than 1 week	2.5

Excluded Hazards

The following hazards have been excluded from this plan but are addressed in the State of North Carolina plan. The primary reason for exclusion is due to the fact that these hazards are mitigate more efficiently through local emergency management and state level mitigation:

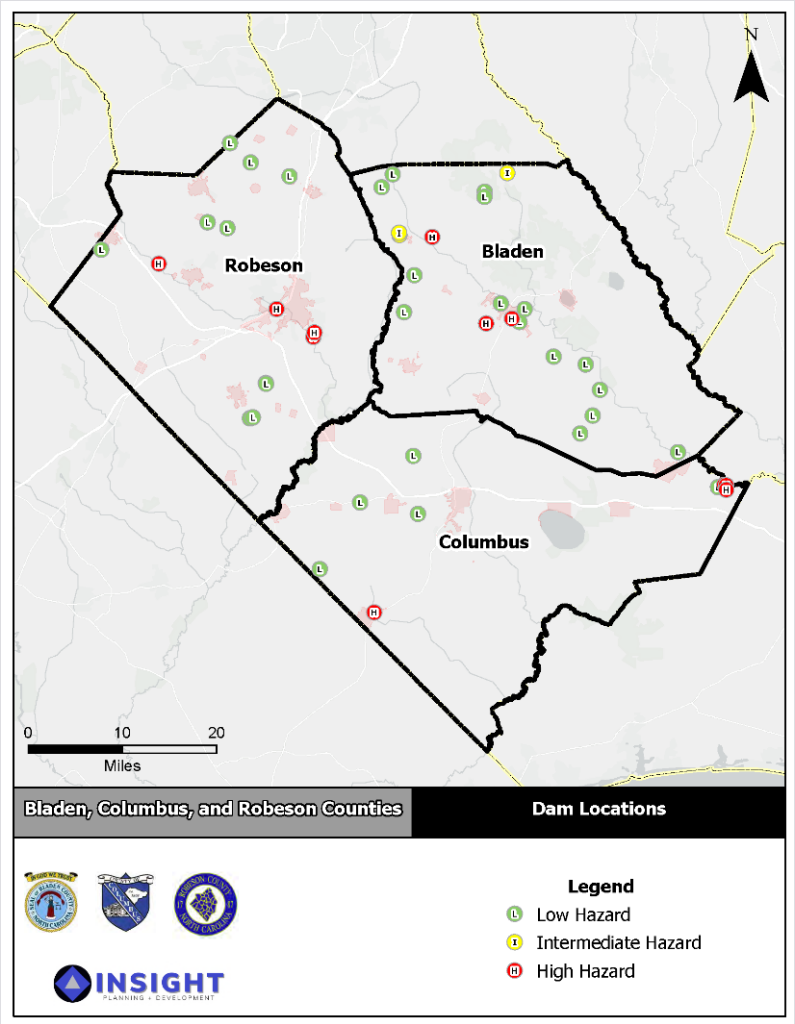
- Infectious Disease
- Hazardous Substances
- Radiological Emergency
- Cyber Threat
- Terrorism
- Civil Disturbance
- Electromagnetic Pulse
- Food Emergency

Climate Change Effect

Data has shown that climate change is influencing multiple hazards. Increasing temperatures are influencing the severity and frequency of hazardous events. The effects of climate change must be considered when reviewing the hazards that have been identified in this risk assessment and when developing mitigation strategies.

Dam/Levee Failure

Probability	Impact	Spatial Extent	Warning Time	Duration
Unlikely	Limited	Small	Less than 6 hrs	Less than 6 hrs



NC Dam Inventory (2025):

- 41 dams in BCR Region
  - 27 low hazard
  - 3 intermediate hazard
  - 11 high hazard
- 1 levee in BCR Region

Hazard Classification	Description	Quantitative Guidelines
Low	Interruption of road service, low volume roads	Less than 25 vehicles per day
	Economic damage	Less than $30,000
Intermediate	Damage to highways, interruption of service	25 to less than 250 vehicles per day
	Economic damage	$30,000 to less than $200,000
	Loss of human life*	Probable loss of 1 or more human lives
High	Economic damage	More than $200,000
	*Probable loss of human life due to breached roadway or bridge on or below the dam	250 or more vehicles per day

Dam Failure

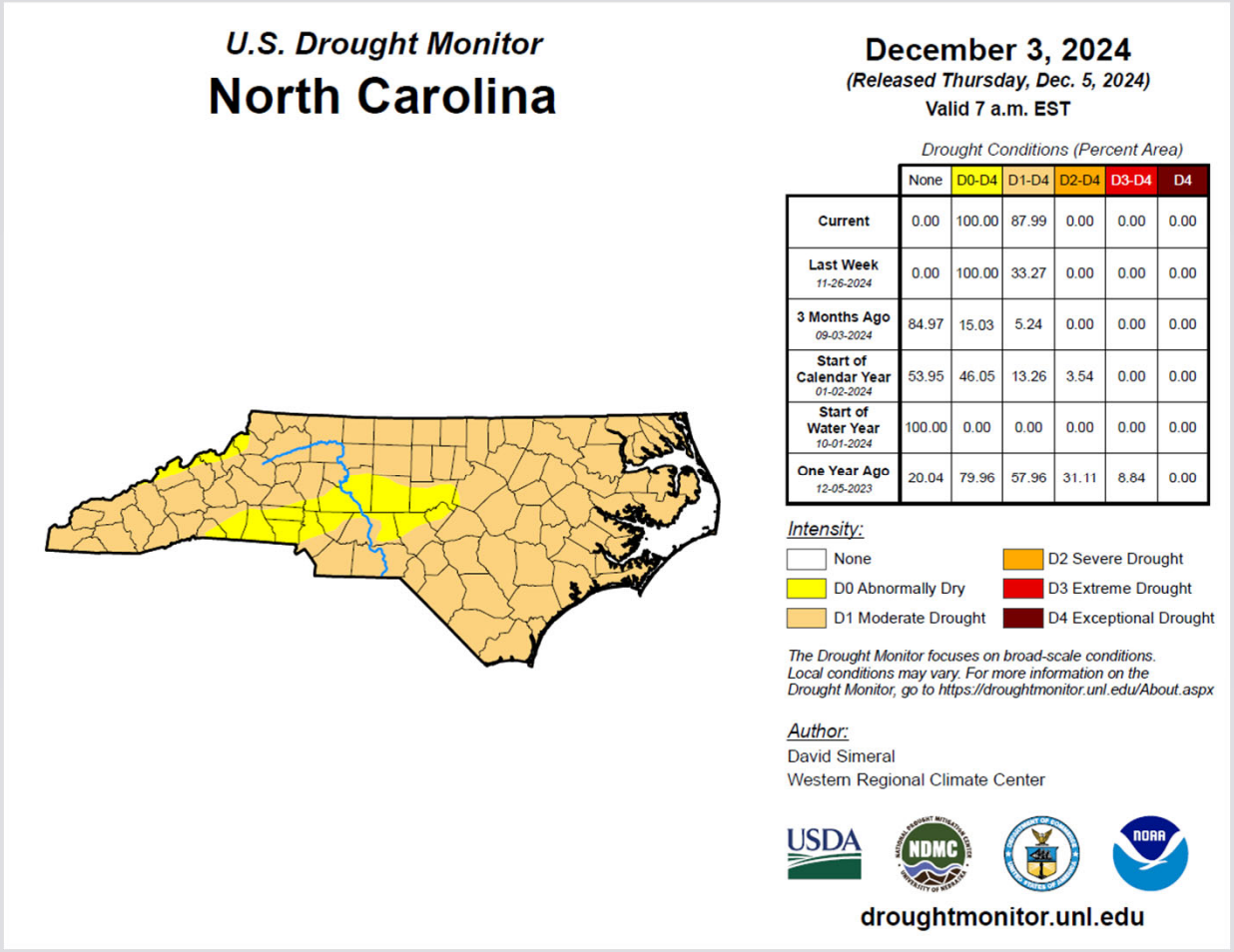
Probability	Impact	Spatial Extent	Warning Time	Duration
Unlikely	Limited	Small	Less than 6 hrs	Less than 6 hrs

Historical Occurrences

- Floodwaters circumvented the Lumberton Levee during the October 2016 Hurricane Matthew event.
- The White Oak Dike also experienced failure days after catastrophic rainfall from Hurricane Florence (2018).

Drought

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Minor	Large	More than 24 hrs	More than 1 week



- All of the BCR Region is susceptible
- Most significant impacts are related to agriculture, wildland fire protection, municipal usage, commerce, tourism, recreation, and wildlife preservation
- Can increase susceptibility to flooding due to soil compaction
- Can cause a reduction in electric power regeneration and deteriorate water quality

Drought

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Minor	Large	More than 24 hrs	More than 1 week

- According to the US Drought Monitor, the BCR Region experienced some level of drought condition, ranging from abnormally dry to exceptional drought over the last 24 years (2000-2024).

Category	Description	Possible Impacts
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
D1	Moderate Drought	• Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested
D2	Severe Drought	• Crop or pasture losses likely • Water shortages common • Water restrictions imposed
D3	Extreme Drought	• Major crop/pasture losses • Widespread water shortages or restrictions
D4	Exceptional Drought	• Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies

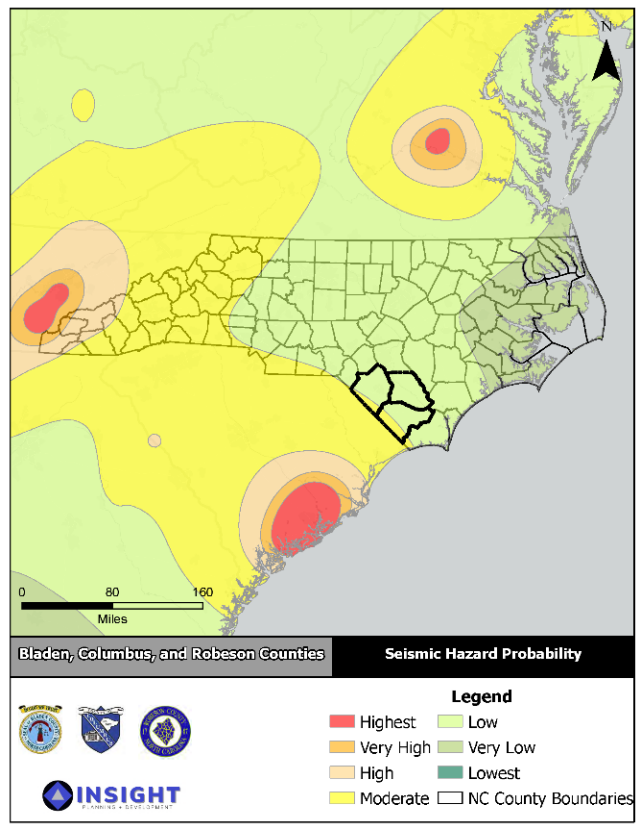
Source: US Drought Monitor

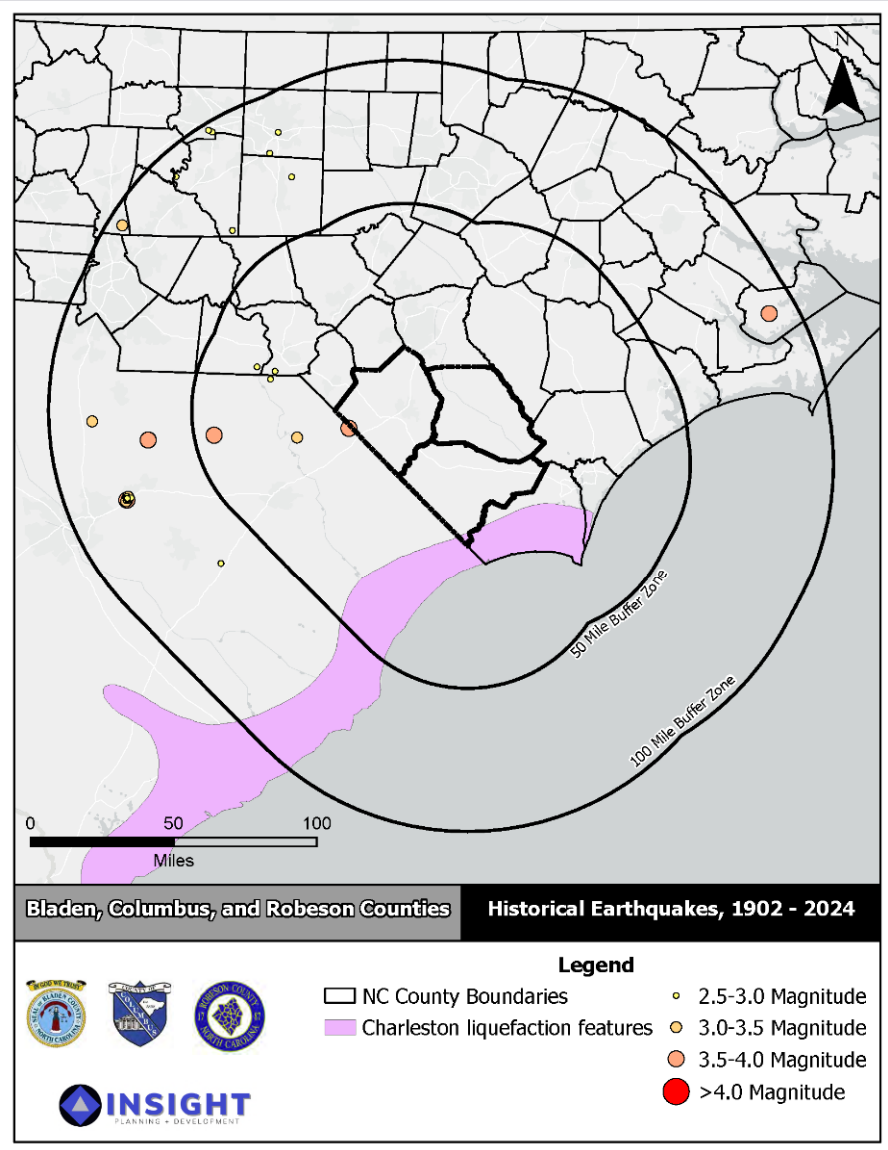
The BCR Region averages **$49,453,510.79** in crop losses due to drought annually according to USDA Crop Insurance data.

Earthquake

Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Limited	Moderate	Less than 6 hrs	Less than 6 hrs

- North Carolina has experienced 5 earthquakes with discernible impacts since 1989, none of these have resulted in impacts in the BCR region





Earthquake

Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Limited	Moderate	Less than 6 hrs	Less than 6 hrs

Estimated Building Damages from 250-Year Earthquake Event:

Jurisdiction	All Buildings	Number of Pre-FIRM Buildings at Risk		Residential Buildings at Risk			Commercial Buildings at Risk			Public Buildings at Risk			Total Buildings at Risk		
	Num	Num	% of Total	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages	Num	% of Total	Estimated Damages
Subtotal Bladen	*23,111*	*10,803*	*46.7%*	*6,665*	*28.8%*	*$22,723*	*3,651*	*15.8%*	*$174,302*	*487*	*2.1%*	*$56,190*	*10,803*	*46.7%*	*$253,217*
Subtotal Columbus	*37,013*	*21,436*	*57.9%*	*22,110*	*59.7%*	*$108,338*	*3,097*	*8.4%*	*$273,664*	*702*	*1.9%*	*$141,169*	*25,909*	*70%*	*$523,170*
Subtotal Robeson	*60,664*	*55,272*	*91.1%*	*51,639*	*85.1%*	*$413,283*	*6,626*	*10.9%*	*$780,126*	*1,206*	*2%*	*$350,318*	*59,471*	*98%*	*$1,543,732*
TOTAL PLAN	**120,788**	**87,511**	**72.5%**	**80,414**	**66.6%**	**$544,344**	**13,374**	**11.1%**	**$1,228,092**	**2,395**	**2%**	**$547,677**	**96,183**	**79.6%**	**$2,320,119**

*County numbers include municipalities.

Hurricane

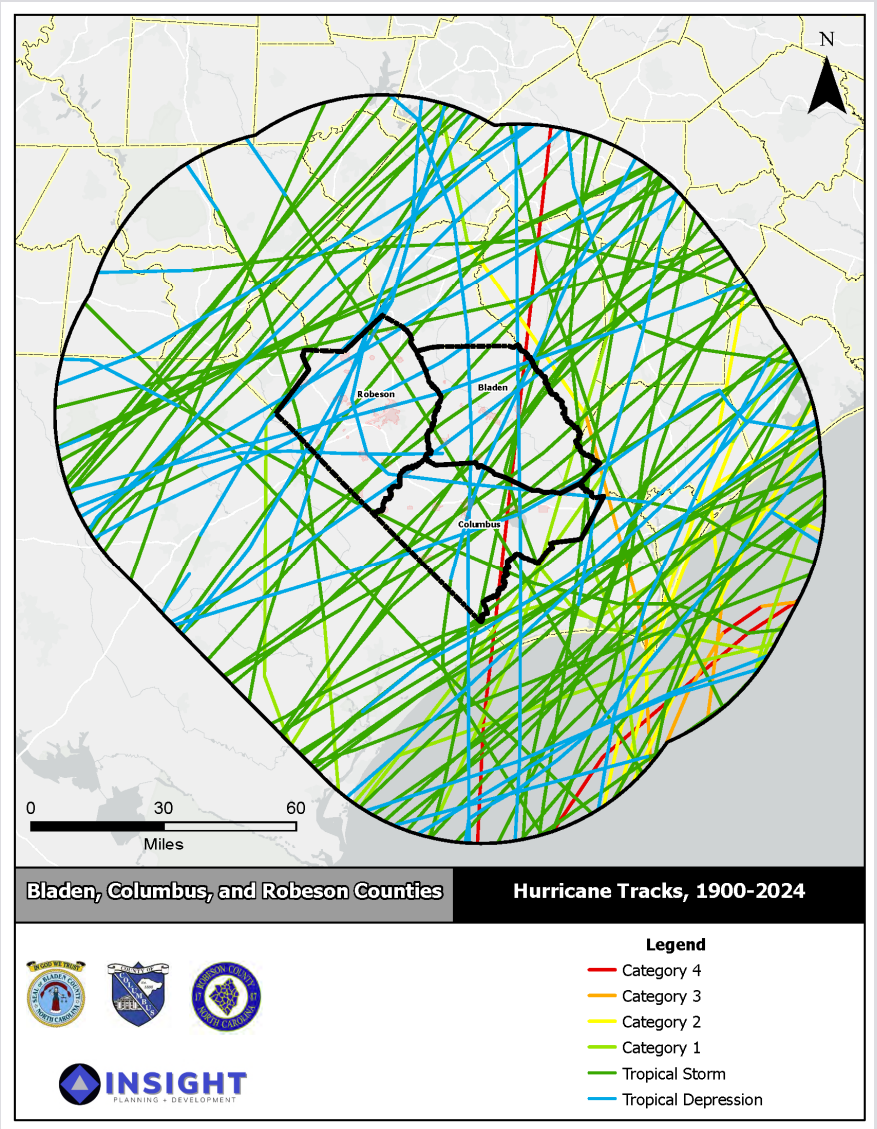
Probability	Impact	Spatial Extent	Warning Time	Duration
Likely	Critical	Large	More than 24 hrs	Less than 24 hrs

Storm Category	Damage Level	Description of Damages	Photo Example
1	MINIMAL	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal flooding and minor pier damage.	
2	MODERATE	Some roofing material, door, and window damage. Considerable damage to vegetation, mobile homes, etc. Flooding damages piers and small craft in unprotected moorings may break their moorings.	
3	EXTENSIVE	Some structural damage to small residences and utility buildings, with a minor amount of curtainwall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures, with larger structures damaged by floating debris. Terrain may be flooded well inland.	
4	EXTREME	More extensive curtainwall failures with some complete roof structure failure on small residences. Major erosion of beach areas. Terrain may be flooded well inland.	
5	CATASTROPHIC	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Flooding causes major damage to lower floors of all structures near the shoreline. Massive evacuation of residential areas may be required.	

Hurricane

Probability	Impact	Spatial Extent	Warning Time	Duration
Likely	Critical	Large	More than 24 hrs	Less than 24 hrs

- 93 hurricanes and tropical storms have passed within 50 miles of the BCR region since 1900.



Hurricane

Probability	Impact	Spatial Extent	Warning Time	Duration
Likely	Critical	Large	More than 24 hrs	Less than 24 hrs

Building loss estimate from 25-Yr Hurricane Winds

Jurisdiction*	Total Buildings at Risk	Estimated Damages
Bladen Co.	23,110	$14,907,191
Columbus Co.	36,973	$35,865,005
Robeson Co.	60,618	$21,329,585

*Includes municipalities.

Inland Flooding

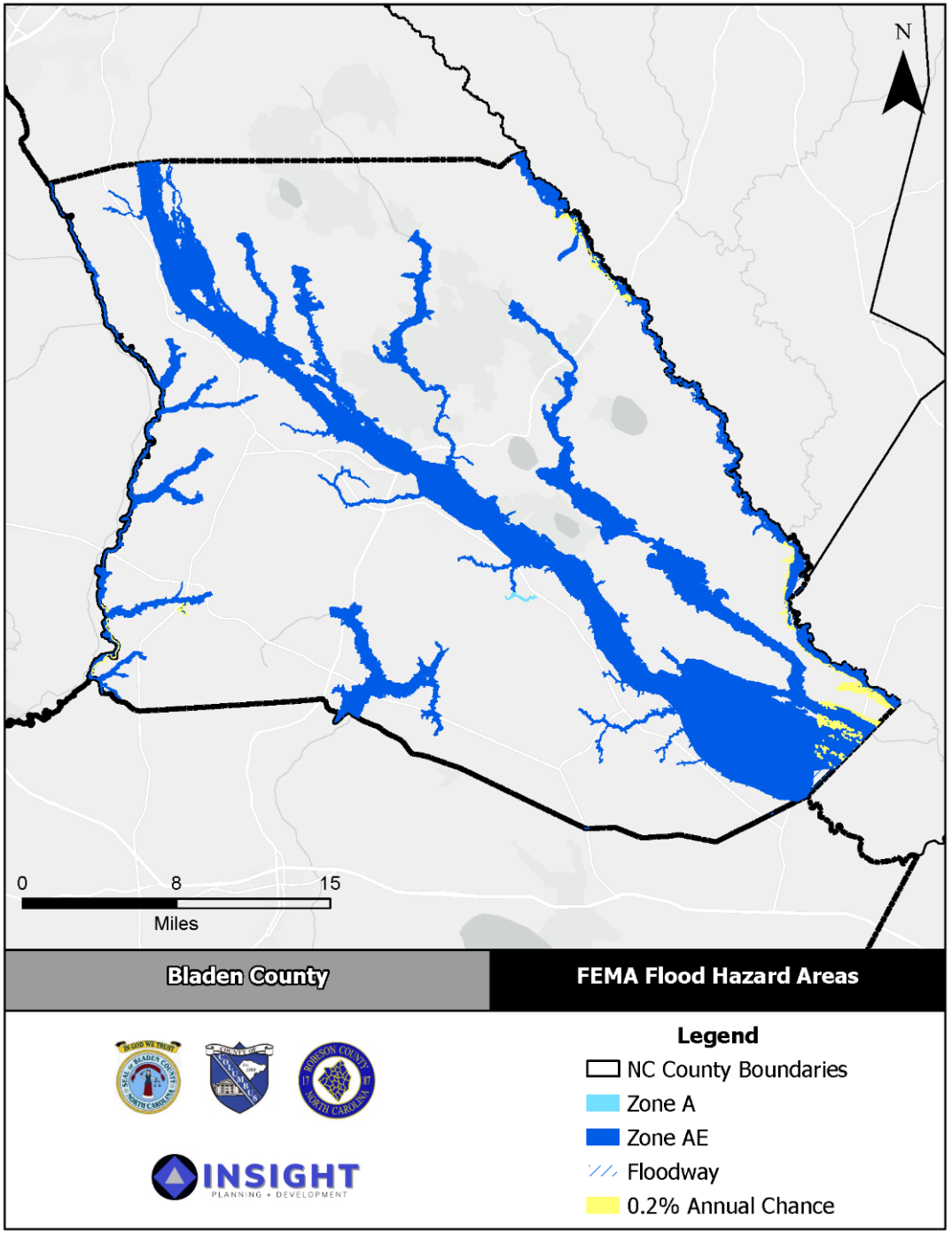
Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Critical	Moderate	6 to 12 hours	Less than 1 week

- Flooding types: Riverine Flooding, Flash Flooding

Flood Zone	Bladen	Columbus	Robeson	BCR Region Total
A	72.37	16,572.70	496.13	17,141.20
AE	93,772.43	155,379.68	131,551.19	380,703.30
X (500-year)	1,026.84	4,407.35	9,225.43	14,659.62
X Unshaded	477,268.15	430,379.99	466,799.15	1,374,447.20

Structures located in a Special Flood Hazard Area Have a 26% Chance of Flooding During the Life of a 30-Year Mortgage

Flood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Miles
Bladen County
FEMA Flood Hazard Areas
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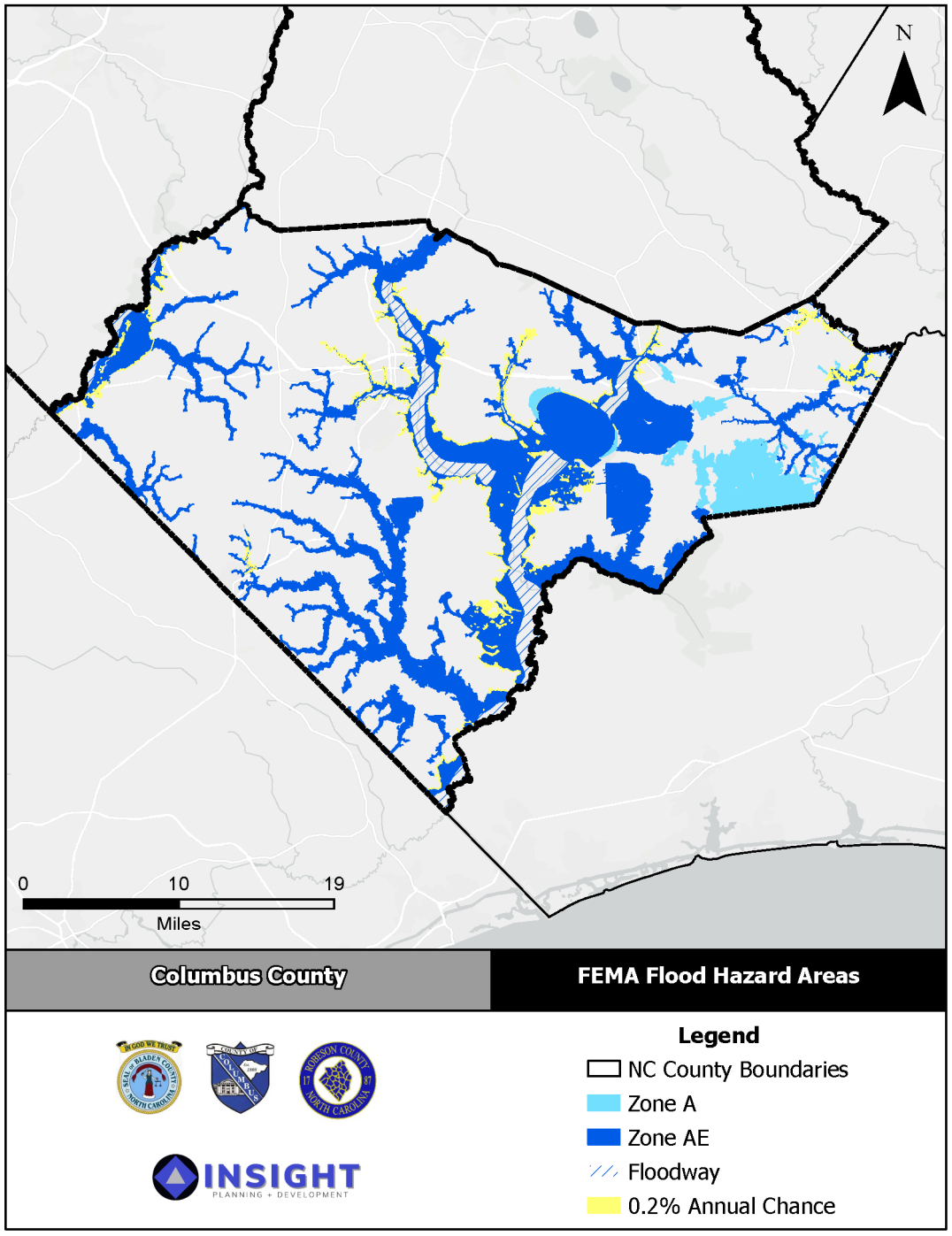
PLANNING + DEVELOPMENT
Legend
NC County Boundaries
Zone A
Zone AE
Floodway
0.2% Annual Chance

Flood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Zone A
Zone AE
Floodway
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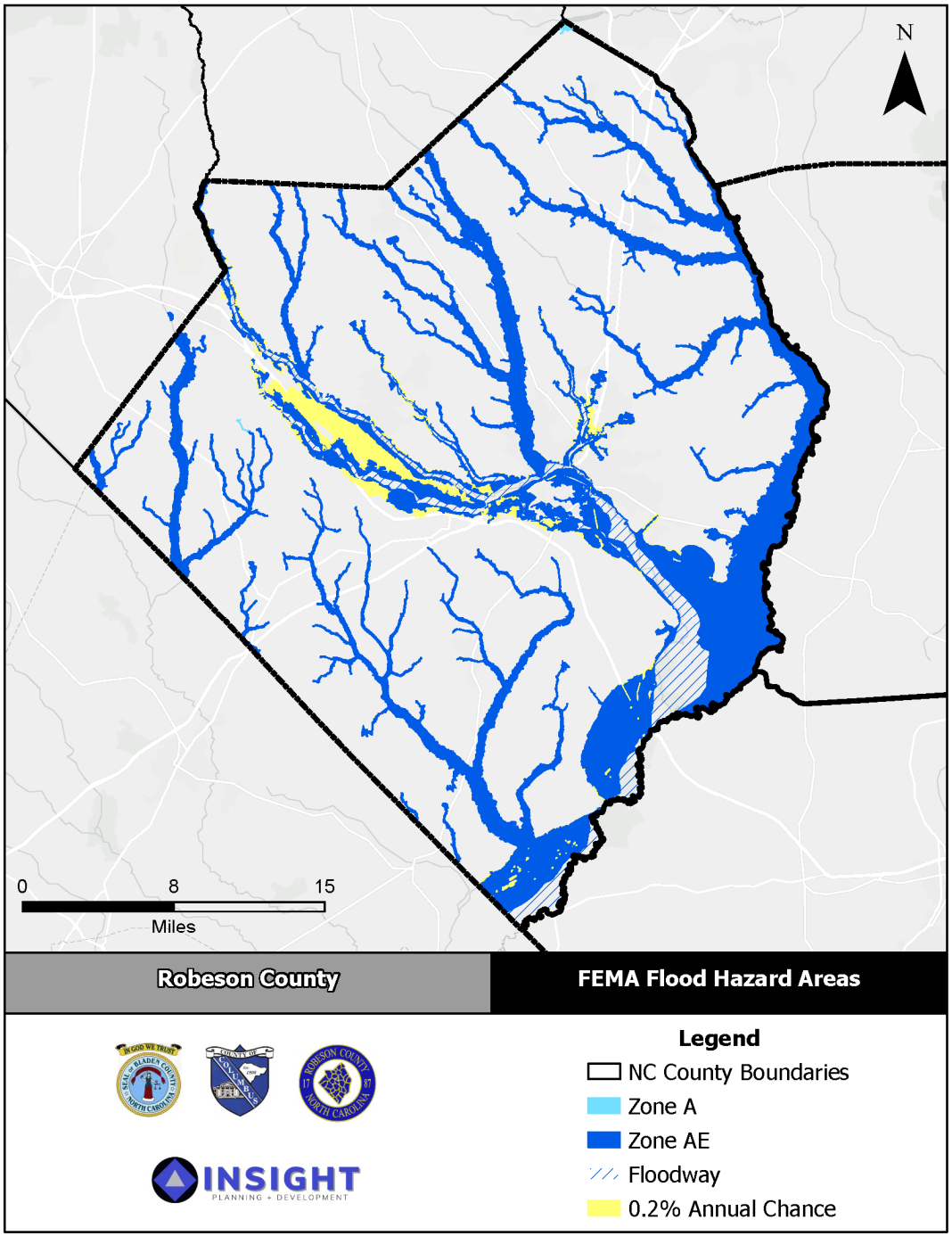
Flood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Flood

Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Critical	Moderate	6 to 12 hours	Less than 1 week

Population Impacted by the 100 Year Flood Event

Jurisdiction	Total Population	Population at Risk		All Elderly Population	Elderly Population at Risk		All Children Population	Children at Risk	
		Number	Percent		Number	Percent		Number	Percent
Subtotal Bladen	*35,157*	*1,514*	*4.3%*	*5483*	*236*	*4.3%*	*2132*	*91*	*4.3%*
Subtotal Columbus	*58,099*	*1,493*	*2.6%*	*8830*	*227*	*2.6%*	*3514*	*90*	*2.6%*
Subtotal Robeson	*134,318*	*9,357*	*7%*	*15077*	*1050*	*7%*	*10223*	*712*	*7%*
TOTAL PLAN	**227,574**	**12,364**	**5.4%**	**29390**	**1513**	**5.1%**	**15869**	**893**	**5.6%**

*County numbers include municipalities.

Flood

Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Critical	Moderate	6 to 12 hours	Less than 1 week

Critical Infrastructure and Buildings at Risk to 100-year flood

Sector	Number of Buildings at Risk	Estimated Damages
Banking and Finance	72	$5,410,459
Chemical	2	$150,028,735
Commercial Facilities	6,917	$498,000,627
Communications	8	$332,798
Critical Manufacturing	881	$87,753,021
Defense Industrial Base	4	$623,176
Emergency Services	46	$1,841,760
Energy	65	$331,413,258
Food and Agriculture	1,353	$10,208,563
Government Facilities	513	$37,721,921
Healthcare and Public Health	163	$14,620,171
Nuclear Reactors, Materials and Waste	1	$60,907
Transportation Systems	500	$52,052,118
Water	92	$841,873,887

Severe Weather

(Thunderstorm Wind)

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs

- The average single cell thunderstorm is approximately 15 miles in diameter and lasts for less than 30 minutes at a single location. However, thunderstorms especially when organized in clusters or lines, can travel for distances exceeding 600 miles
- Between 1996 and 2024, the NCEI recorded 773 separate incidents of thunderstorm winds, strong winds and high winds across the three counties. These events caused $69,855,000 in recorded property damage, 27 injuries, and 2 fatalities.

Severe Weather

(Thunderstorm Wind)

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs

Building loss estimate from 50-Yr Thunderstorm Winds:

Jurisdiction (includes municipalities)	Total Buildings at Risk	Estimated Damages
Bladen Co.	23,110	$11,155,728
Columbus Co.	36,973	$22,259,060
Robeson Co.	60,618	$35,088,427
Total	120,701	$68,503,215

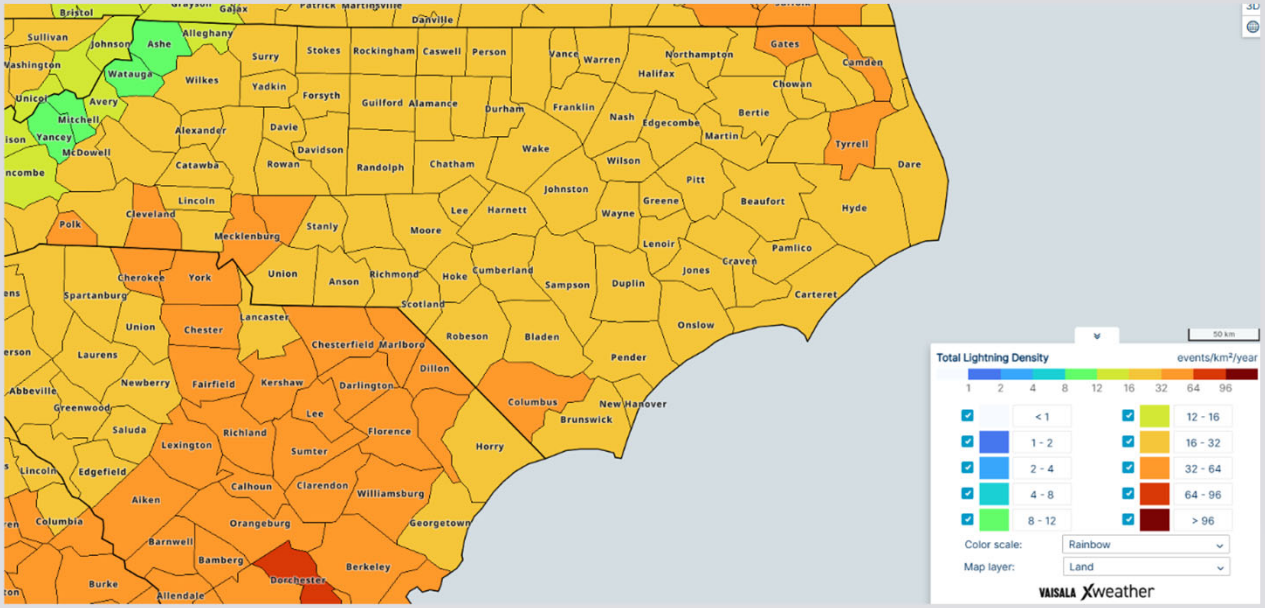
Severe Weather

(Lightning)

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs

- NCEI records 37 lightning incidents causing 7 injuries, 2 fatalities, and $1,040,000 in property damages.
- The BCR region experiences an average of 27.5 lightning events per square km per year.

Average Lightning Frequency per sq. km



Source: Vaisala Interactive Global Lightning Density Map.

Severe Weather

(Hail)

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs

Jurisdiction	Number of Occurrences	Average Hail Diameter
Bladen Co.	144	1.09"
Columbus Co.	136	1.09"
Robeson Co.	137	1.08"

- NCEI records 417 separate hail incidents across 178 days between 1996 and 2024 in the BCR Region.
- These events were reported to have caused an estimated $357,100 in property damage and $50,000 in crop damage.

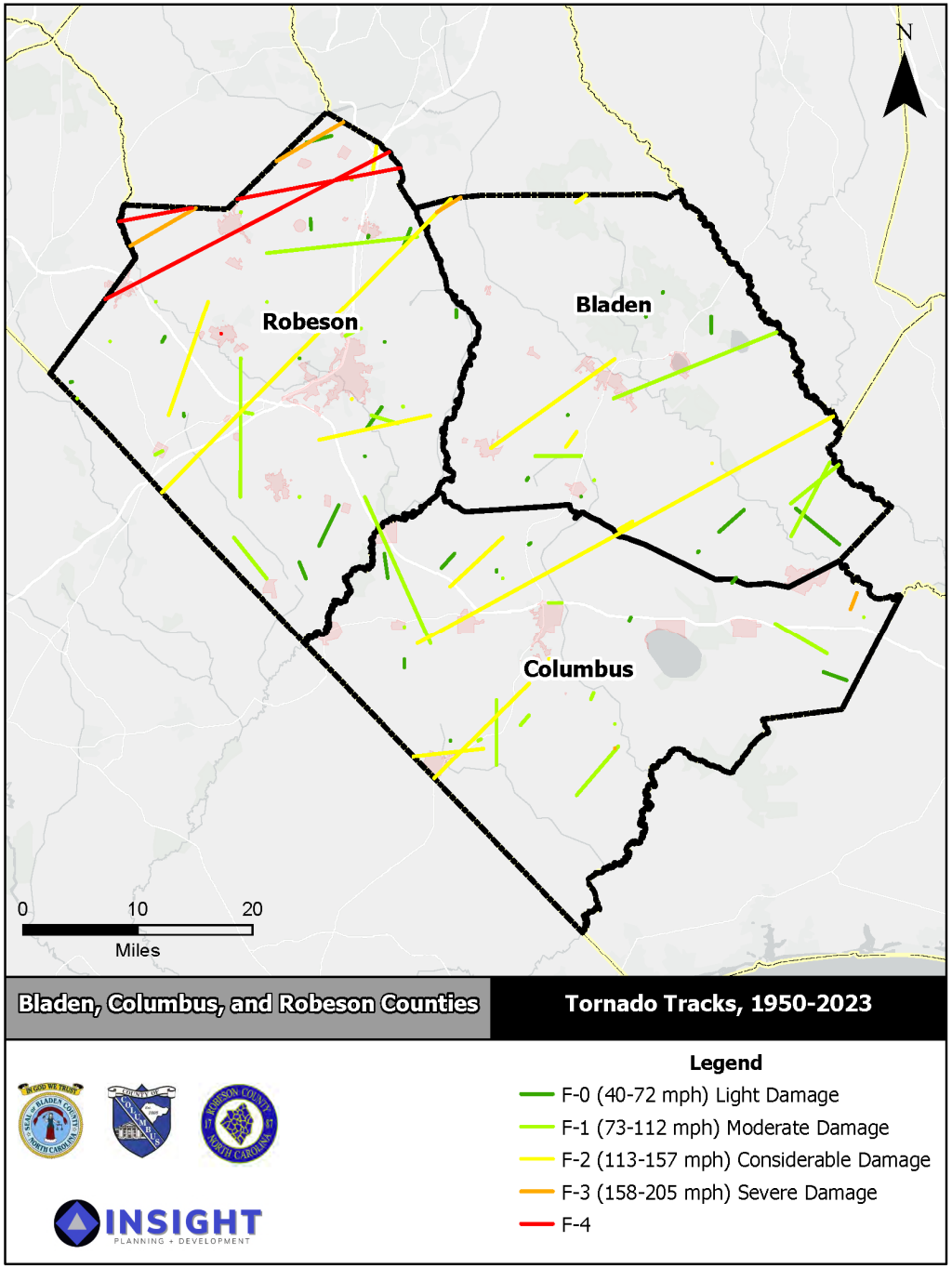
Tornado

Probability	Impact	Spatial Extent	Warning Time	Duration
Likely	Critical	Small	Less than 6 hrs	Less than 6 hrs

- The BCR region has experienced 120 tornado incidents between 1950-2024:
  - 19 deaths
  - 382 injuries
  - $46.7M in property damage
  - $13.5K in crop damage

County	Total Recorded Occurrences	Recorded Deaths	Recorded Injuries	Total Reported Property Damage	Total Reported Crop Damage
Bladen	31	5	8	$30.5M	$13K
Columbus	35	8	40	$6.6M	$500
Robeson	54	6	334	$9.6M	$0
Total	120	19	382	$46.7M	$13.5K

Tornado


N
Robeson
Bladen
Columbus
0
10
20
Miles
Bladen, Columbus, and Robeson Counties
Tornado Tracks, 1950-2023
Legend
F-0 (40-72 mph) Light Damage
F-1 (73-112 mph) Moderate Damage
F-2 (113-157 mph) Considerable Damage
F-3 (158-205 mph) Severe Damage
F-4
INSIGHT
PLANNING + DEVELOPMENT

Wildfire

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Limited	Small	Less than 6 hrs	Less than 1 week

- From 1984-2021, the BCR region experienced 7 wildfire events.
- Above count does not include fires managed by local departments; actual fire count is likely higher

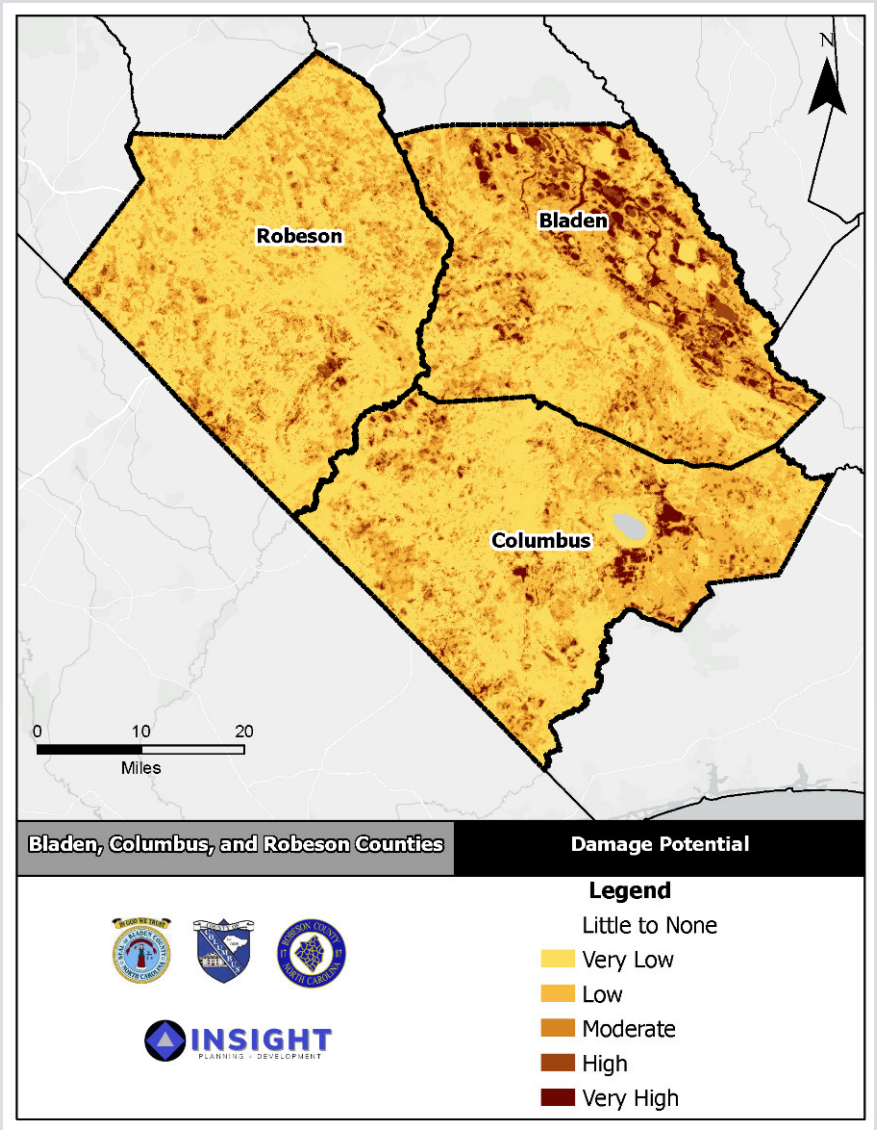
Wildfire Damage Potential

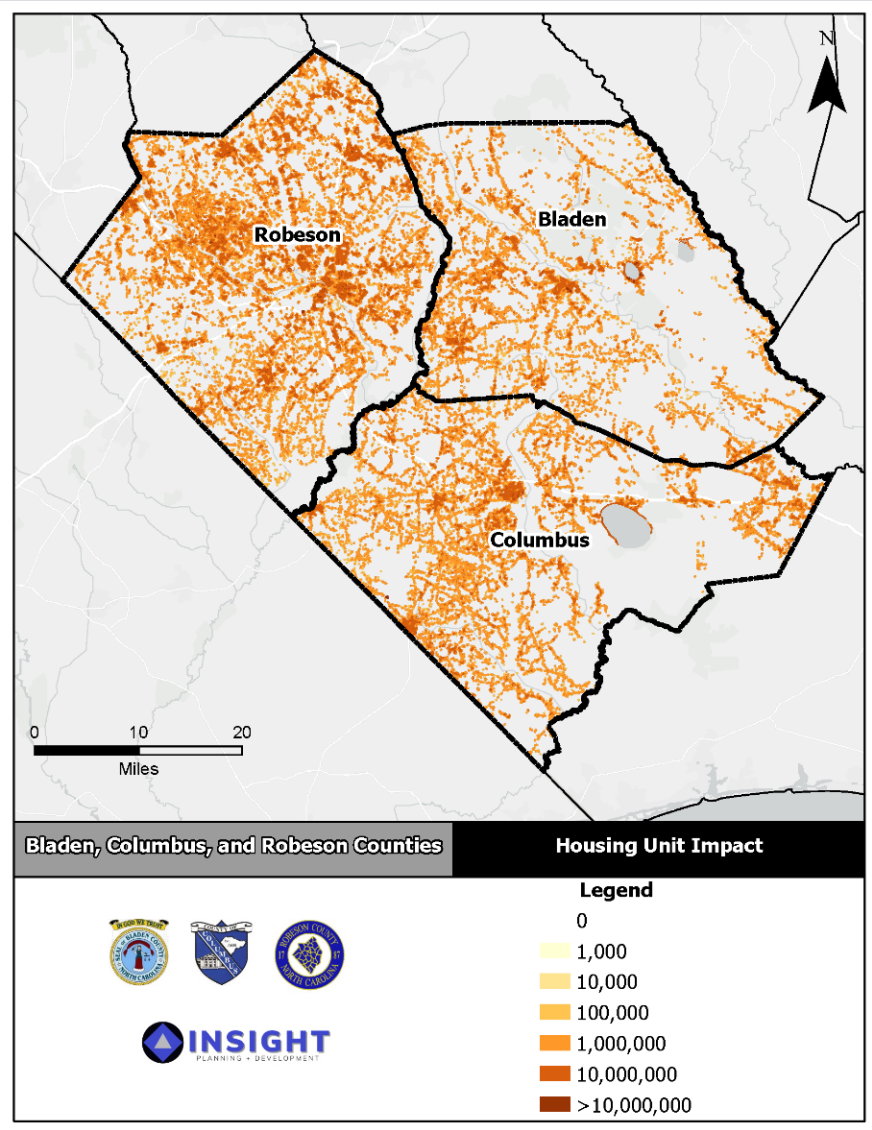
Class	Description
1, Very Low	Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.
2, Low	Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.
3, Moderate	Flames up to 9 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.
4, High	Large Flames, up to 40 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
5, Very High	Flames exceeding 200 feet in length; expect extreme fire behavior.

Source: Southern Wildfire Risk Assessment

Wildfire

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Limited	Small	Less than 6 hrs	Less than 1 week





Winter Storm

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	Minor	Moderate	More than 24 hrs	Less than 1 week

Past Occurrences, 1996-2024

Hazard	Bladen	Columbus	Robeson
Frost/Freeze	3	3	3
Heavy Snow	5	4	5
Ice Storm	6	1	5
Winter Storm	7	5	10
Winter Weather	6	5	5

Major risks include:

- icy roadways
- cost of snow and debris removal
- power outages
- indirect losses such as lost productivity

Priority Risk Index (PRI)

Risk Assessment Category	Level	Degree of Risk Criteria	Index	Weight
PROBABILITY What is the likelihood of a hazard event occurring in a given year?	Unlikely	Less than 1% Annual probability	1	30%
	Possible	Between 1 & 10% Annual probability	2	
	Likely	Between 10 &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	Very few injuries, if any. Only minor property damage & minimal disruption on quality of life. Temporary shutdown of critical facilities.	1	30%
	Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for > 1 day.	2	
	Critical	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for > 1 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 > 30 days.	4	

Risk Assessment Category	Level	Degree of Risk Criteria	Index	Weight
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?	More than 24 Hrs	Self-Defined	1	10%
	12 to 24 Hrs	Self-Defined	2	
	6 to 12 Hrs	Self-Defined	3	
	Less than 6 Hrs	Self-Defined	4	
DURATION How long does the hazard event usually last?	Less than 6 Hrs	Self-Defined	1	10%
	Less than 24 Hrs	Self-Defined	2	
	Less than 1 week	Self-Defined	3	
	More than 1 week	Self-Defined	4	

PRI Results

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Dam/Levee Failure	Unlikely	Limited	Small	Less than 6 hrs	Less than 6 hrs	1.8
Drought	Highly Likely	Minor	Large	More than 24 hrs	More than 1 week	2.8
Earthquake	Possible	Limited	Moderate	Less than 6 hrs	Less than 6 hrs	2.3
Hurricane/Tropical Storm	Likely	Critical	Large	More than 24 hrs	Less than 24 hrs	2.9
Inland Flooding: 100-/500-year	Possible	Critical	Moderate	6 to 12 hours	Less than 1 week	2.7
Severe Weather (thunderstorm wind, lightning, & hail)	Highly Likely	Critical	Moderate	6 to 12 hours	Less than 6 hrs	3.1
Tornado	Likely	Critical	Small	Less than 6 hrs	Less than 6 hrs	2.7
Wildfire	Highly Likely	Limited	Small	Less than 6 hrs	Less than 1 week	2.9
Winter Storm	Highly Likely	Minor	Moderate	More than 24 hrs	Less than 1 week	2.5

Continue to . . .

- Reach out to stakeholders within your community including members of underserved populations so that they can provide input and involve themselves in the hazard mitigation planning process.
- Review the existing HMP and provide a status update on implementation.
- Begin brainstorming for new mitigation strategies for the hazards that have been identified today.
- Think of actions to implement projects, reduce damage, increase resilience!

Next Steps

- Develop Goals & Objectives
- Develop New Mitigation Actions
- Review Draft Plan

FINAL MEETING DATE TBD (May)


Questions or
Comments?