



Town of
Leland

Growing our future. Nourishing our roots.

Resilient Coastal Communities Program



Introductions



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Community
Outreach



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Environmental
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Overview and Objective

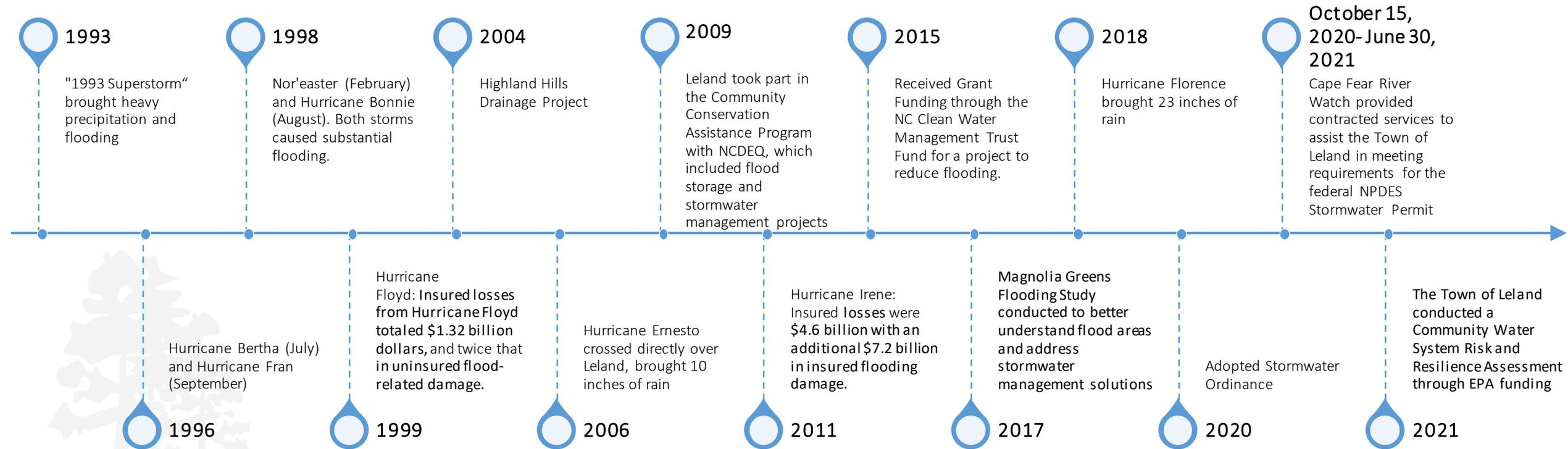
- The RCCP aims to advance the Town’s coastal resilience efforts by: 1) overcome barriers to adaptation planning, boost local government capacity, and support a proactive, sustainable and equitable approach.

Program Objectives:

- Address barriers to coastal resilience at the local level, such as limited capacity, economic constraints, and social inequities;
- Assist communities with risk and vulnerability assessments and developing a portfolio of planned and prioritized projects;
- Advance coastal resilience projects to “shovel-ready” status; and
- Link communities to funding streams for project implementation.



History of Resiliency



Review of Tasks to Date

Moffatt & Nichol



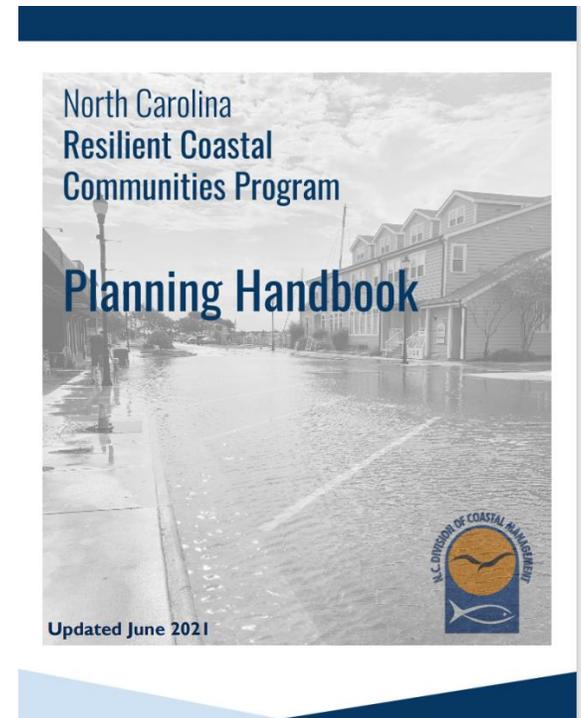
Program Steps and Requirements

- **Phase 1: Community Engagement and Risk/Vulnerability Assessment**

- ✓ **Step 1: Develop a Community Action Team**
- ❖ Step 2: Set Vision and Goals
- ✓ **Step 3: Review Existing Local Plans & Efforts**
- ✓ **Step 4: Develop a Community Engagement Strategy**
- ✓ **Step 5: Map Critical Assets and Natural Infrastructure**
- ❖ Step 6: Conduct a Risk and Vulnerability Assessment

- **Phase 2: Planning, Project Identification, and Prioritization**

- ❖ Step 1: Identify a Suite of Potential Solutions
- ❖ Step 2: Consolidate and Prioritize Projects





Deliverables and Project Duration

- **Deliverables**

- Risk and Vulnerability Assessment Report
 - Quantitative and qualitative risk assessment performed
 - Vulnerability of critical assets, natural infrastructure, and vulnerable populations
- Project Portfolio
 - Series of options aimed at reducing exposure and sensitivity and increasing adaptive capacity to hazards
- GIS Products
 - Maps provided in map package format

- **Project Duration**

- Aim to complete deliverables by January 31, 2022.



Schedule

Phase	Step	Task	Schedule
1	1	Develop a Community Action Team	May 2021
	2	Set Vision and Goals	July 2021
	2a	CAT meeting #1	July 7, 2021
	3	Review Existing Local Plans	May – July 2021
	4	Develop Community Engagement Strategy	June 2021
	5	Map Critical Assets/Natural Infrastructure	June – July 2021
	5a	Public Meeting	August 2021
	6	Conduct a Risk and Vulnerability Assessment	July – September 2021
			Community Action Team Meeting #2
2	1	Identify a Suite of Potential Solutions	October 2021
	1a	Community Action Team meeting #3	November 2021
	2	Consolidate and Prioritize Projects	November 2021
	3	Finalize Report	January 2022

Results

Public Survey



What We've Heard . . . from 145 participants

1. What is your relationship to Leland?

- 87% I live in Leland
- 50% I own residential property in Leland
- 45% I patronize businesses and participate in activities occurring in Leland
- 17% I work in Leland
- 1% I own a business in Leland
- 0% I own commercial property in Leland

2. Have you ever experienced or been impacted by a disaster caused by a natural hazard (flooding, storm surge, erosion, etc.)?

- 51% Yes
- 49% No

1.99 Riverine erosion

1.97 Sea level rise

1.77 Flooding caused by tidal surge

5. Which of the following asset types are most susceptible to natural hazards in your community?
(Answers ranked in order of most to least vulnerable)

1. People
2. Infrastructure
3. Emergency/Medical Services
4. Environmental
5. Economic
6. Governance
7. Experiences
8. Community
9. Cultural/Historic

7. How important is each of the following statements?
(Answers shown as total weighted average)

- 4.72 Protecting critical facilities
- 4.60 Preventing development in flood hazard areas
- 4.56 Protecting and reducing damage to utilities
- 4.45 Strengthening emergency services
- 4.41 Protecting private property
- 4.06 Enhancing the function of natural features
- 3.96 Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses
- 3.42 Addressing socio-economic disparity in economically distressed neighborhoods & business districts
- 3.16 Protecting historic and cultural landmarks and districts

3. If yes, which of these types of natural hazards have you experienced or been impacted by while living or working in Leland or its vicinity?

60%	Flooding caused by thunderstorms and intense rainfall
59%	Flooding caused by storm surge and/or rainfall from tropical systems
44%	Stormwater
19%	Other
7%	Flooding caused by tidal surge
5%	Riverine flooding
0%	Riverine erosion
0%	Sea level rise

4. How concerned are you about the possibility of your community being impacted by each of these hazards? *(Answers shown as total weighted average)*

2.54	Flooding caused by storm surge and/or rainfall from tropical systems
2.52	Flooding caused by thunderstorms and intense rainfall
2.47	Stormwater
2.02	Riverine flooding

6. How important is each of the following specific community assets to you? *(Answers shown as total weighted average)*

4.85	Emergency Medical Services Facilities
4.80	Fire Stations
4.80	Major Bridges
4.71	City/County Emergency Operations Centers
4.62	Doctor's Offices and Medical Facilities
4.52	Police Stations
4.36	Emergency Shelters
4.33	Small Businesses
4.00	Major Employers
4.00	Schools
3.66	Elder Care Facilities
3.65	Parks
3.64	Town Hall/Courthouse
3.41	Historic Buildings/Districts
2.98	Day Care Facilities

8. What are some steps that you would like to see your local government take to reduce or eliminate the risk of future damages to your property from natural hazards?

88%	Restrict new development
82%	Regulate new construction
72%	Incentivize developers to practice smart growth tools and strategies
66%	Design and construct permanent structural protection systems
66%	Design and construct nature-based barriers
48%	Create an economic incentive educational program to educate property owners on floodproofing strategies
32%	Fund temporary storm protection systems
11%	Other

9. How important do you think each of these community-wide activities is for your community to consider pursuing? *(Answers shown as total weighted average)*

- 2.91 Prevention
- 2.88 Emergency Services
- 2.75 Natural Resource Protection
- 2.69 Structural Projects
- 2.57 Public Education and Awareness
- 2.44 Property Protection
- 2.14 Historic Preservation

10. Rank the places you are most interested in protecting in order of importance. *(Answers shown as total weighted score)*

- 4.95 Home/Neighborhood
- 4.89 Emergency Services
- 4.42 Utilities
- 2.76 Business/Work
- 2.51 Schools
- 1.51 Places of Worship

15. How educated do you consider yourself to be in understanding environmental and climate related hazards and their impacts to communities such as the Town of Leland?

- 44% I am somewhat knowledgeable
- 42% I am knowledgeable
- 14% I do not fully understand

16. What are the most effective ways for you to receive information about how to make your home and neighborhood more resilient to natural hazards?

- 63% Internet (Web Pages)
- 53% Internet (Social Media)
- 41% Mail
- 33% Mobile Messages/Alerts
- 29% Public Meetings/Workshops
- 15% Newspaper
- 14% Word of mouth
- 11% Brochures or Flyers in Public Buildings
- 5% Automated Phone Calls
- 4% Door Hangers
- 4% Church Bulletins

20. How long have you lived in Leland?

- 45% 1-5 years
- 19% Less than one year
- 17% 6-9 years
- 13% 10-19 years
- 7% 20 years or more

21. What is your living situation?

- 94% I own my home
- 5% I rent my home
- 1% Other
- 0% I live with family or friends

22. What best describes your employment situation?

- 42% I am employed at a business/corporation
- 33% I am retired
- 16% I am unemployed
- 9% I am a business owner/self-employed

11. Please rank the areas in which you feel the community demonstrates the most need in order of priority. (Answers shown as total weighted score)

- 5.86 Technical
- 5.79 Environmental
- 5.47 Economic
- 4.82 Social
- 4.67 Administrative
- 3.42 Legal
- 3.39 Political
- 2.93 Other

12. "A changing climate and the frequency of increased storm events concerns me most when it impacts..."

My home, safety, neighborhood, my livelihood

13. We would like to understand your thoughts on existing projects or programs that you would like to see continued or further enhanced in the future.

Impact of development, infrastructure, roads

14. In what ways could the Town of Leland promote representation and equitable outcomes for marginalized communities and vulnerable populations?

Public engagement opportunities, work with the community, work with leaders, equity opportunities, all have representation

17. How satisfied are you with the level of public involvement in decision-making in Leland?

- 52% Somewhat satisfied
- 17% Unsatisfied
- 14% Very satisfied

18. What is your age range?

- 34% 65+
- 29% 55-64
- 21% 35-44
- 9% 45-54
- 6% 25-34
- 0% 18-24
- 0% Under 18

19. How many people live in your household?

- 76% 0 to 2
- 22% 3 to 4
- 1% 5 to 6
- 1% 7 or more



Please check the [Town of Leland's environmental resiliency webpage](#) to stay updated on the latest news.

Vision and Goals

Vision Statement Development



Vision Statement Development

Vision: aspirational statement for where the community wants to be in the future.

Example:

Create a coastal resilience plan for the Town of Leland to establish a resilient community where: structures and critical infrastructure in the flood zone are adapted to withstand hazards and protected by healthy ecosystems.



Vision Statement Development

- Questions to get us started:
 1. What two things would you do to improve community resilience?
 2. If you had \$50,000 today, what projects would you fund to improve community resilience?





Align Goals

Goals: specific, measurable goals to help identify steps that can be taken to achieve the vision.

Examples:

1. Improve digital resources to communicate risk and help with planning efforts.
2. Increase staff capacity to support training and analyze stormwater management system.
3. Complete a comprehensive watershed plan.

Overview

Risk and Vulnerability Assessment



What is a Risk and Vulnerability Assessment?

- A Risk and Vulnerability Assessment addresses **exposure**, **vulnerability** and **risk**
- Our primary focus is on natural hazards, specifically the flood hazard, consisting of:
 1. Coastal and riverine flooding (floodplain inundation)
 2. Storm surge
 3. Sea level rise
 4. Increased precipitation
 5. Stormwater

Goal of the assessment is to show the potential impacts of these hazard types on community assets and the built environment

Another goal is to think not only about current conditions, but future conditions as well



Hazard Mitigation Planning

- Hazard mitigation planning has long been a foundational element in North Carolina's resilience to natural hazards
- This program will build upon, but go beyond, "traditional" hazard mitigation planning practices
- This means we will utilize existing hazard mitigation resources and principles, but enhance and expand our resiliency efforts for the Town of Leland



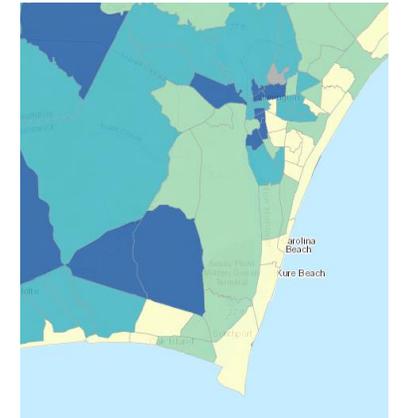
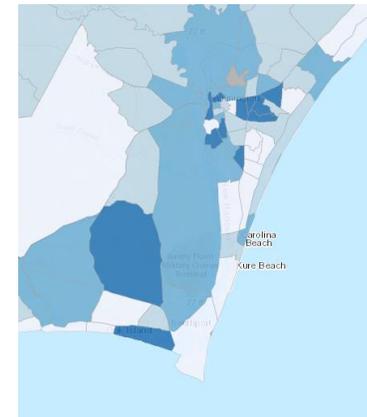
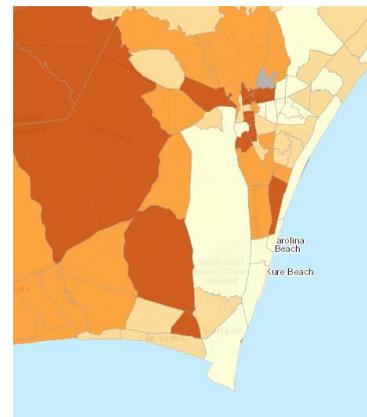
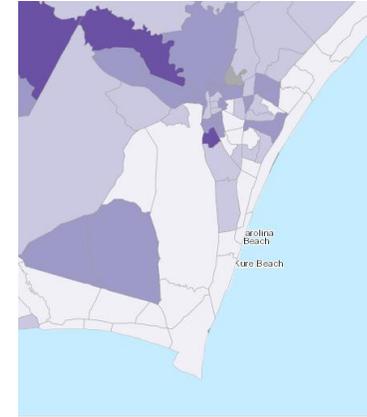
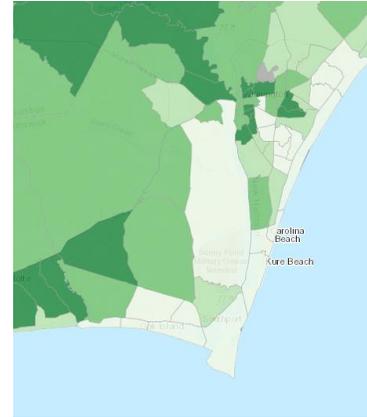


How is Social Vulnerability Assessed?

CDC Social Vulnerability Index

Overall Vulnerability	Socioeconomic Status	Below Poverty
		Unemployed
		Income
		No High School Diploma
	Household Composition & Disability	Aged 65 or Older
		Aged 17 or Younger
		Civilian with a Disability
		Single-Parent Households
	Minority Status & Language	Minority
		Aged 5 or Older who Speaks English "Less than Well"
	Housing Type & Transportation	Multi-Unit Structures
		Mobile Homes
		Crowding
		No Vehicle
		Group Quarters

Source: CDC SVI



Preliminary Results

Risk and Vulnerability Assessment



Available Data

Data Collected:

Natural Infrastructure:

- Streams
- Wetlands

Critical Features:

- Fire Stations
- Government Buildings
- Schools

Parcels:

- Commercial
- Residential
- Industrial
- Parks/Open Space

Flood Zones:

- Minimal Risk
- 100-year Flood
- 500-year Flood

Natural Hazards:

- Storm Surge
- Sea Level Rise
- Previous Hurricanes

Vulnerabilities:

- Income Ratio
- Percent Under Poverty
- Percent Over Age 65
- Percent Under Age 5
- Percent Under Age 18

Data Layers to Include:

Community Assets:

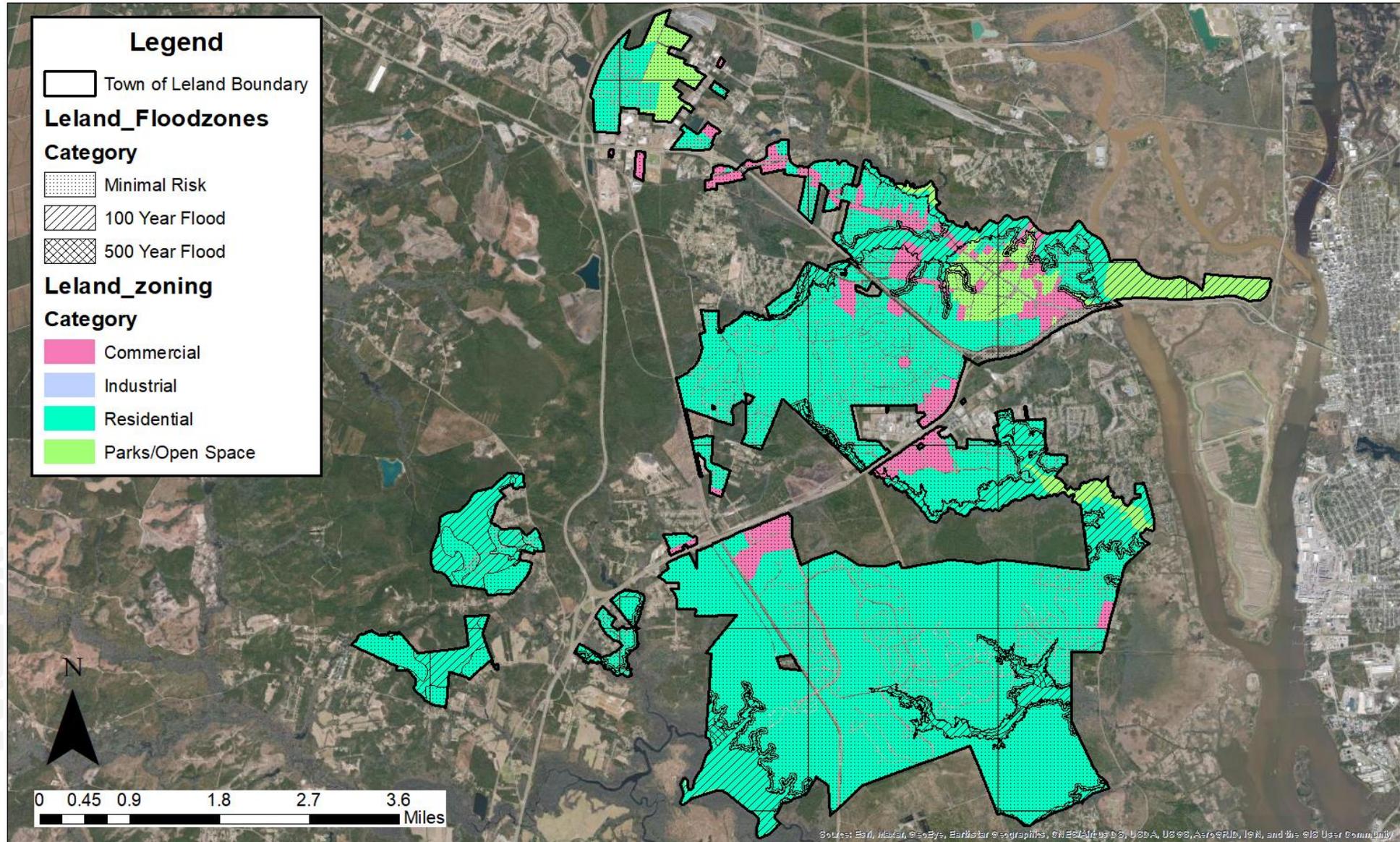
- Museums
- Places of Worship
- Cemeteries

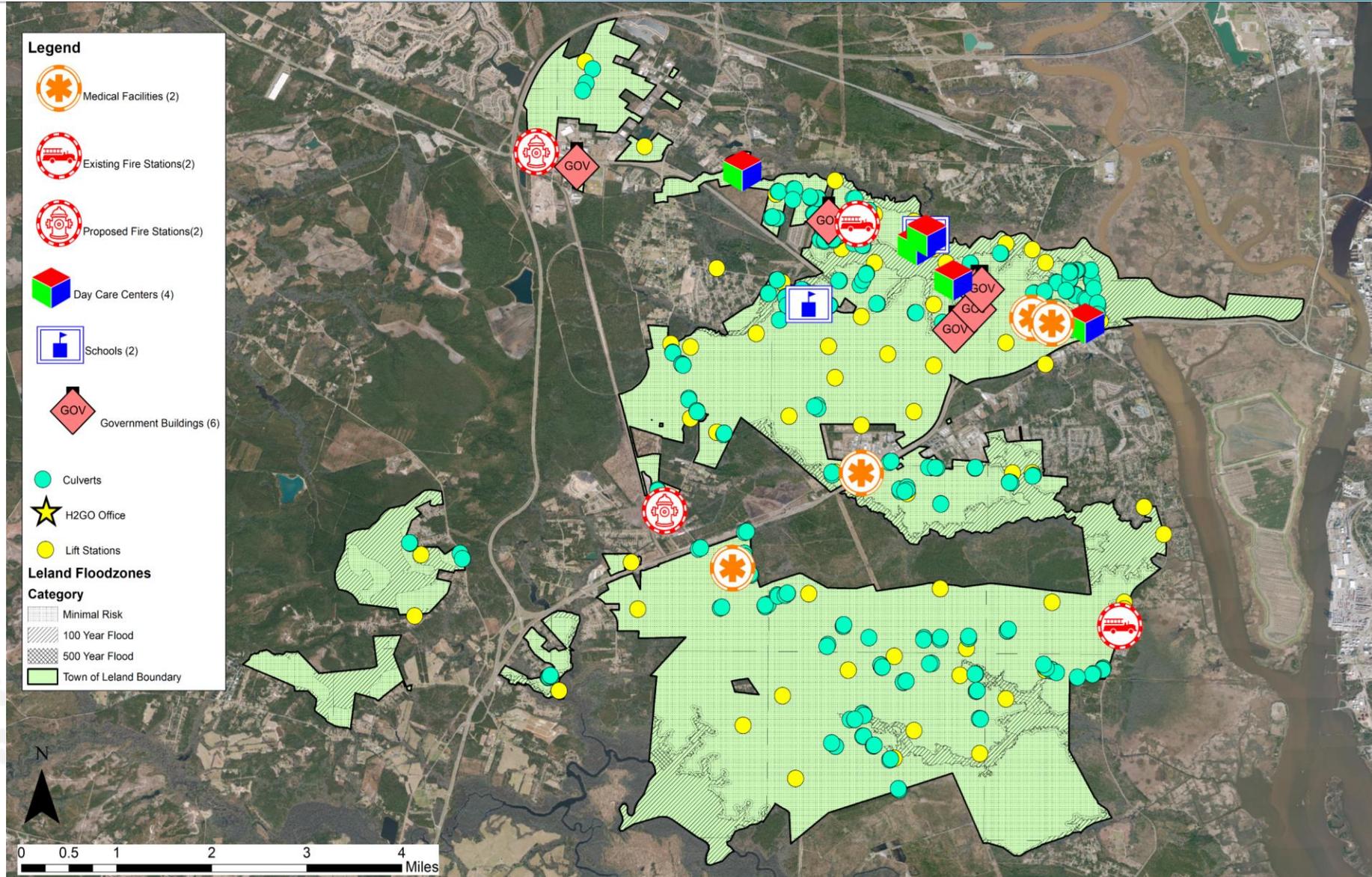
Emergency Preparedness:

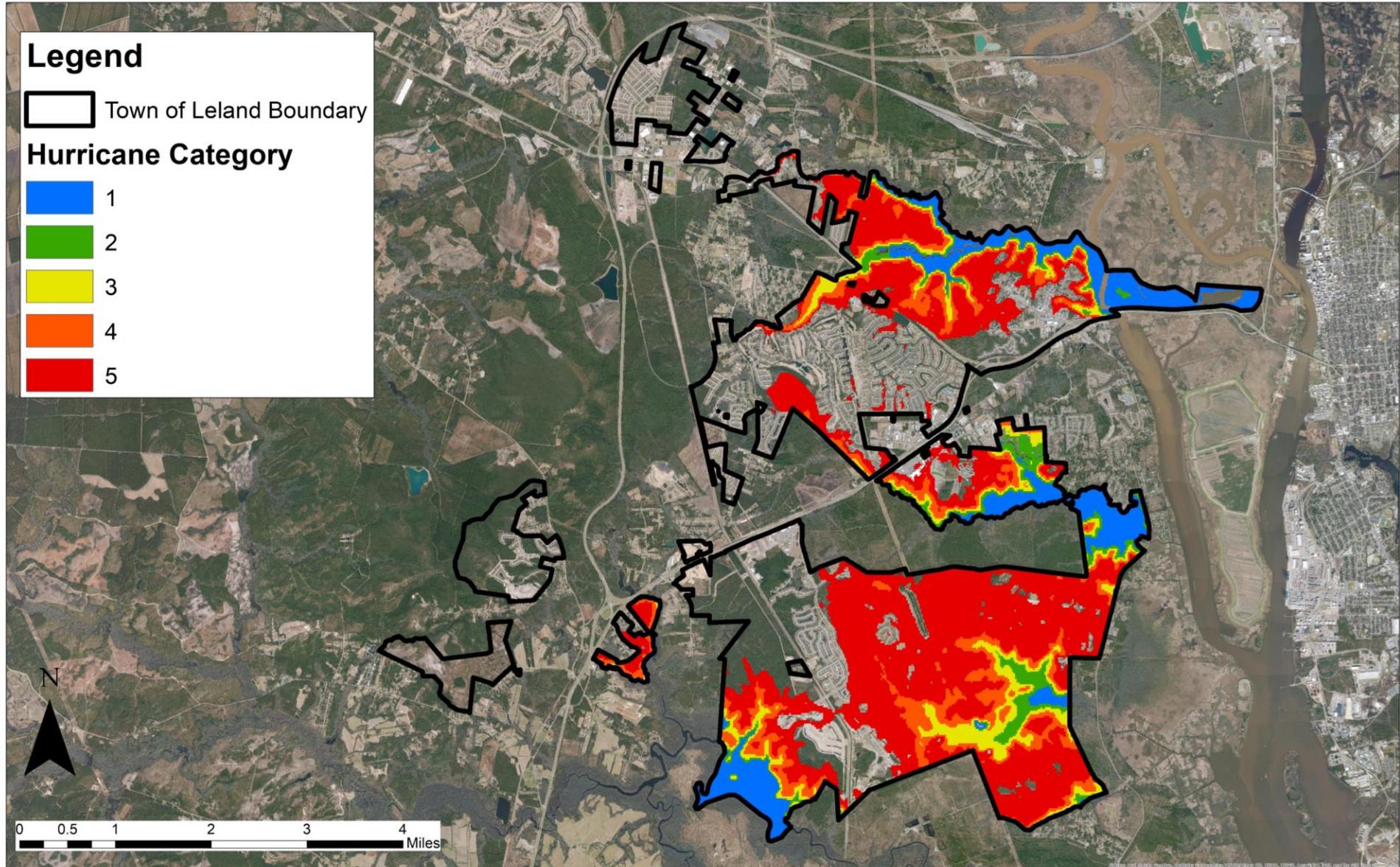
- Emergency Shelters
- Evacuation Routes
- Population Density

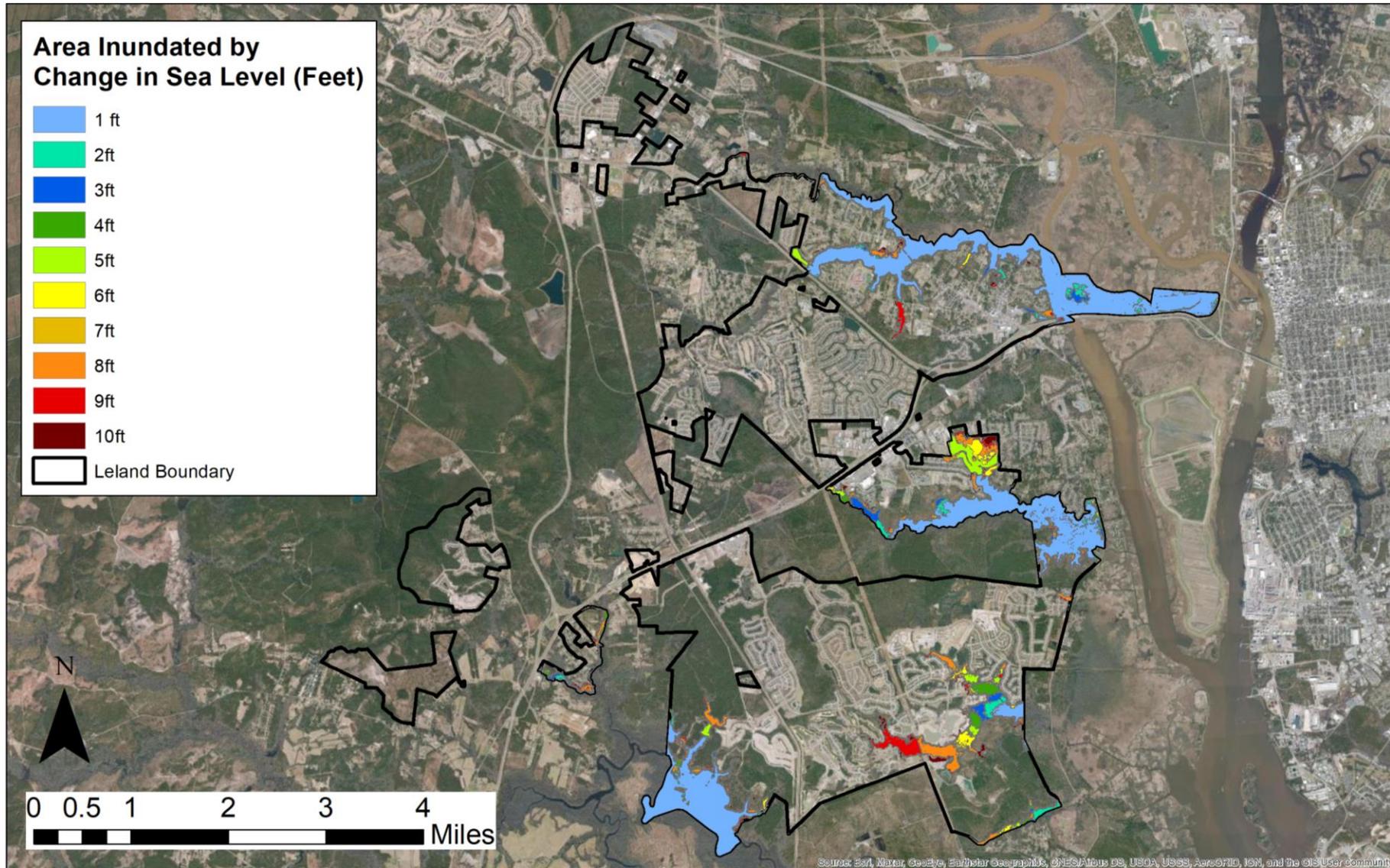
Other:

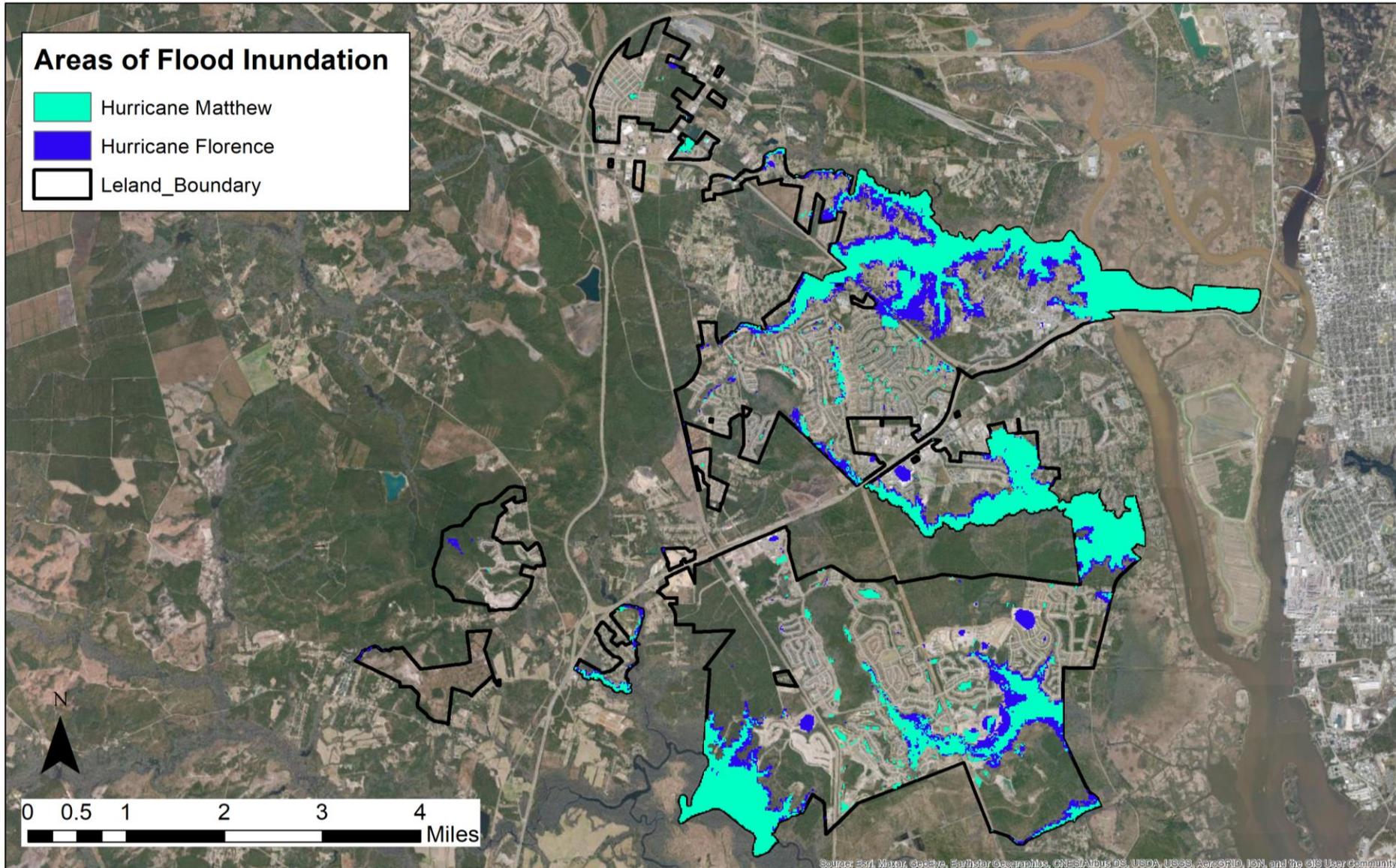
- Suggestions?

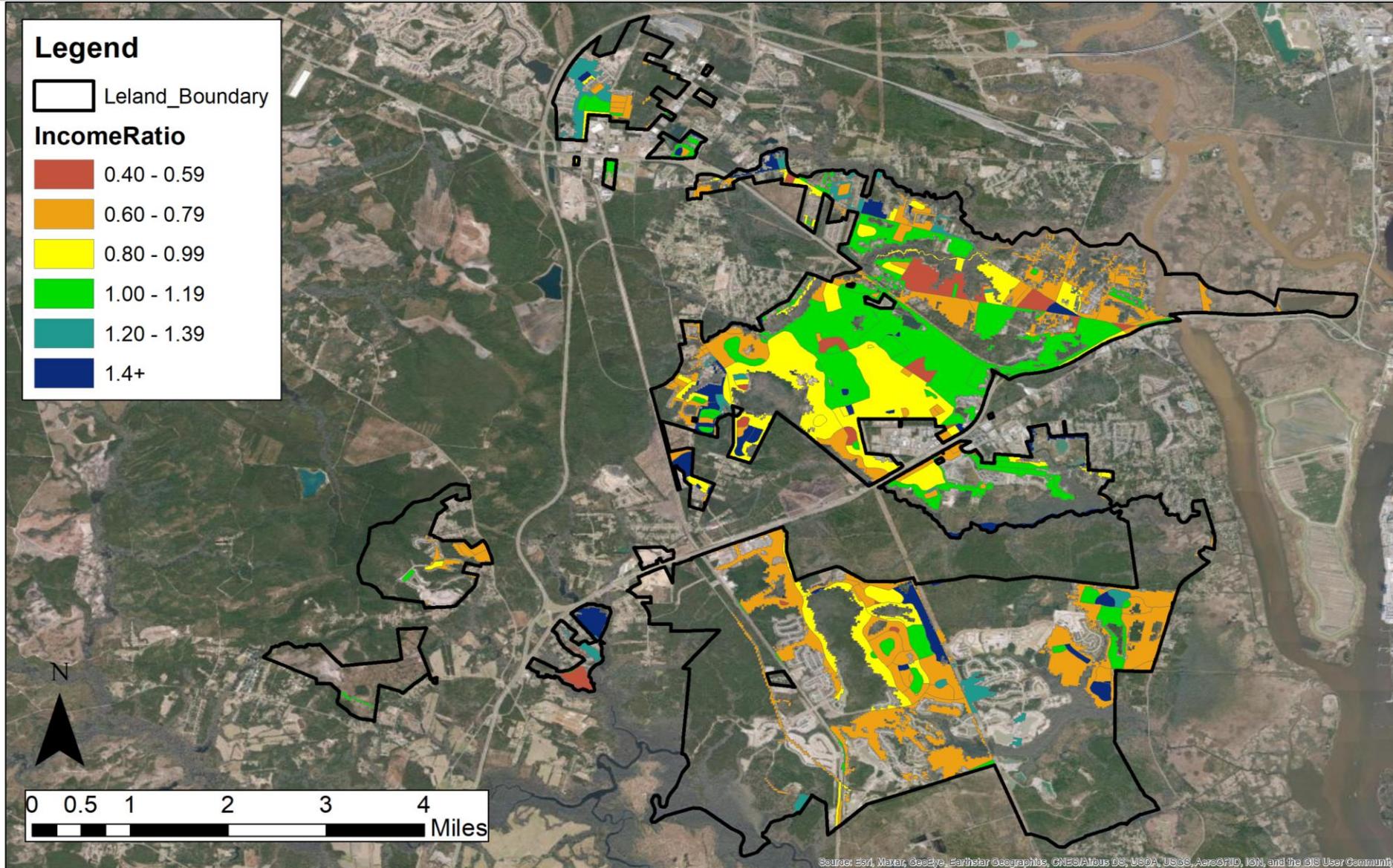


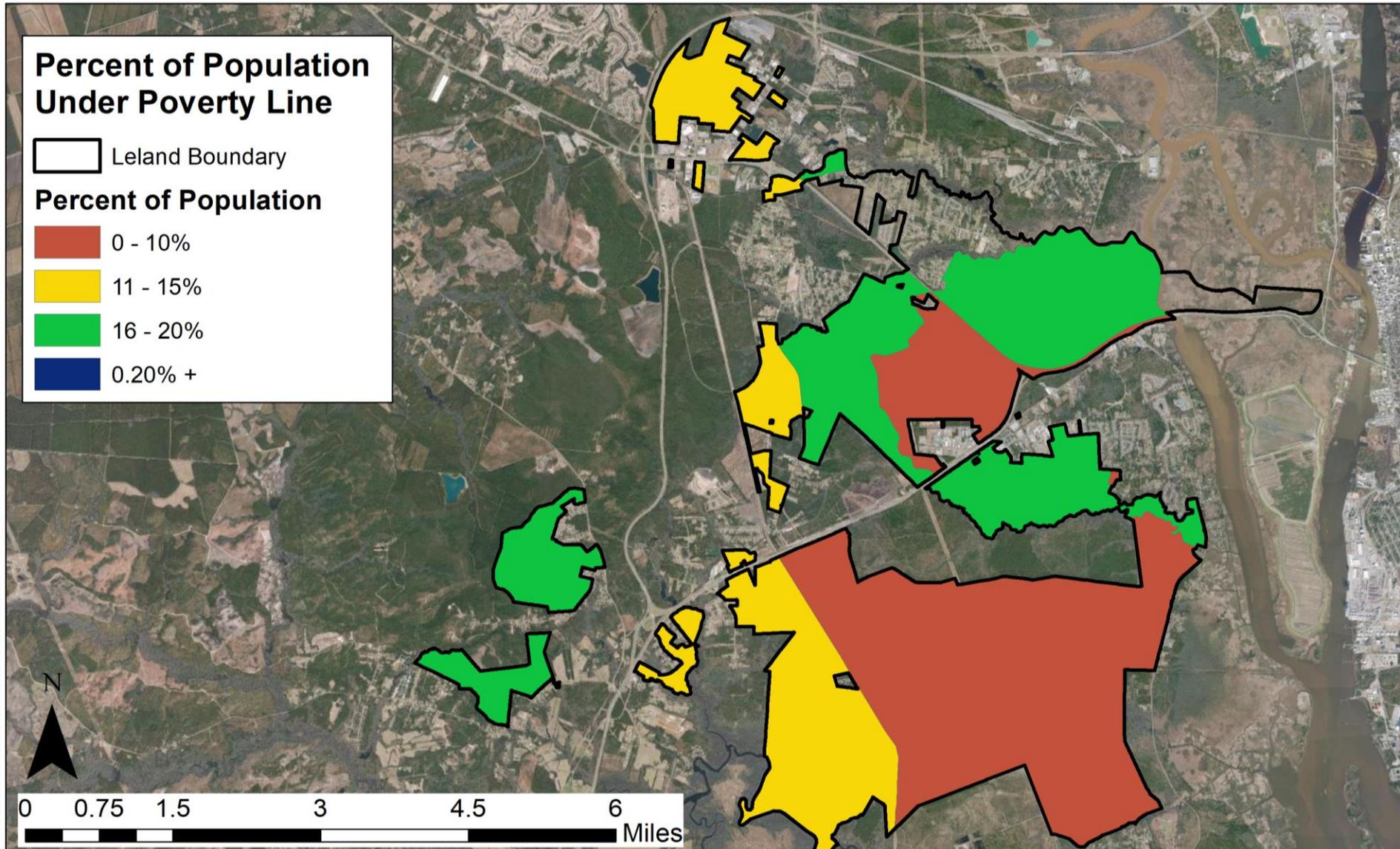


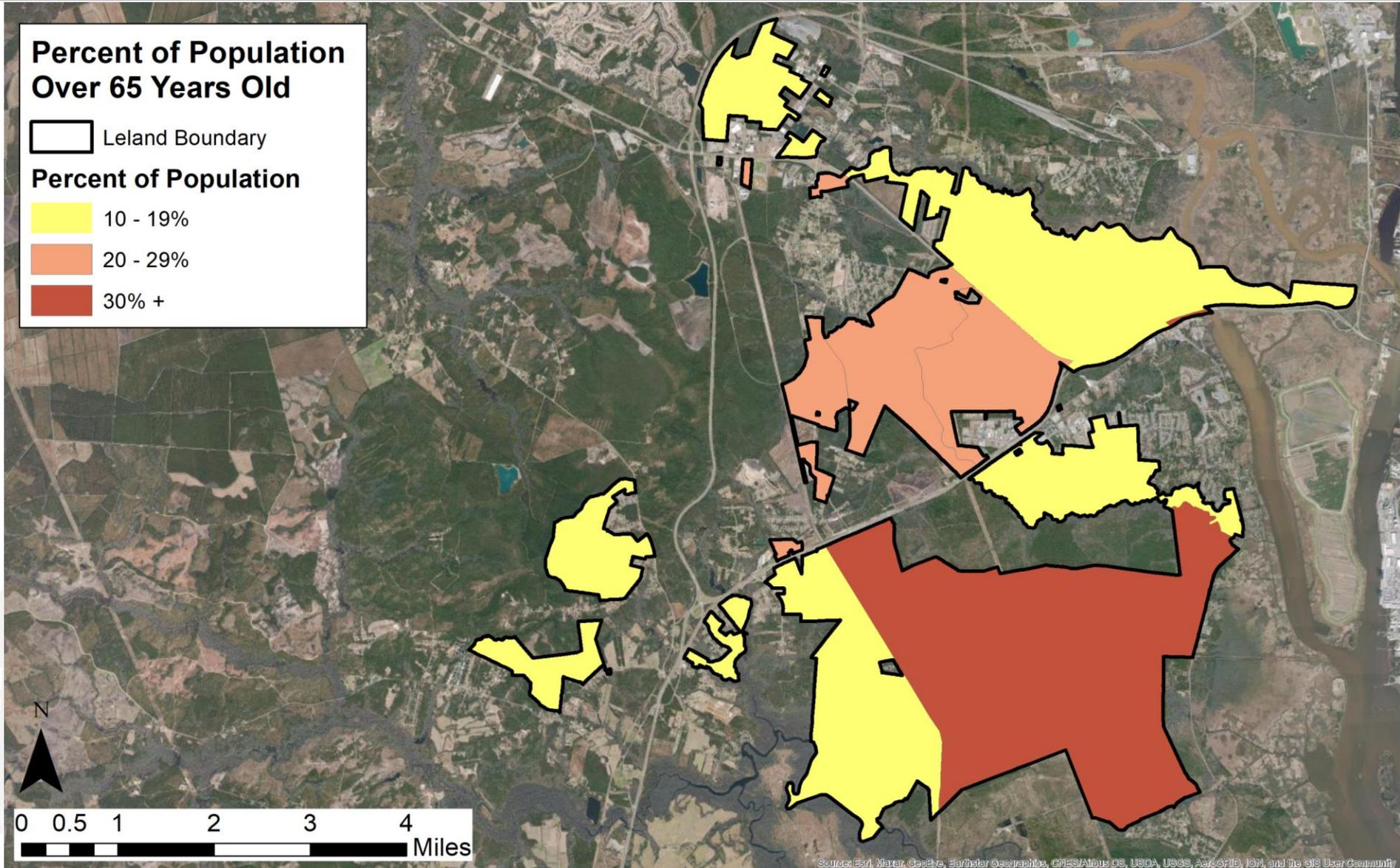


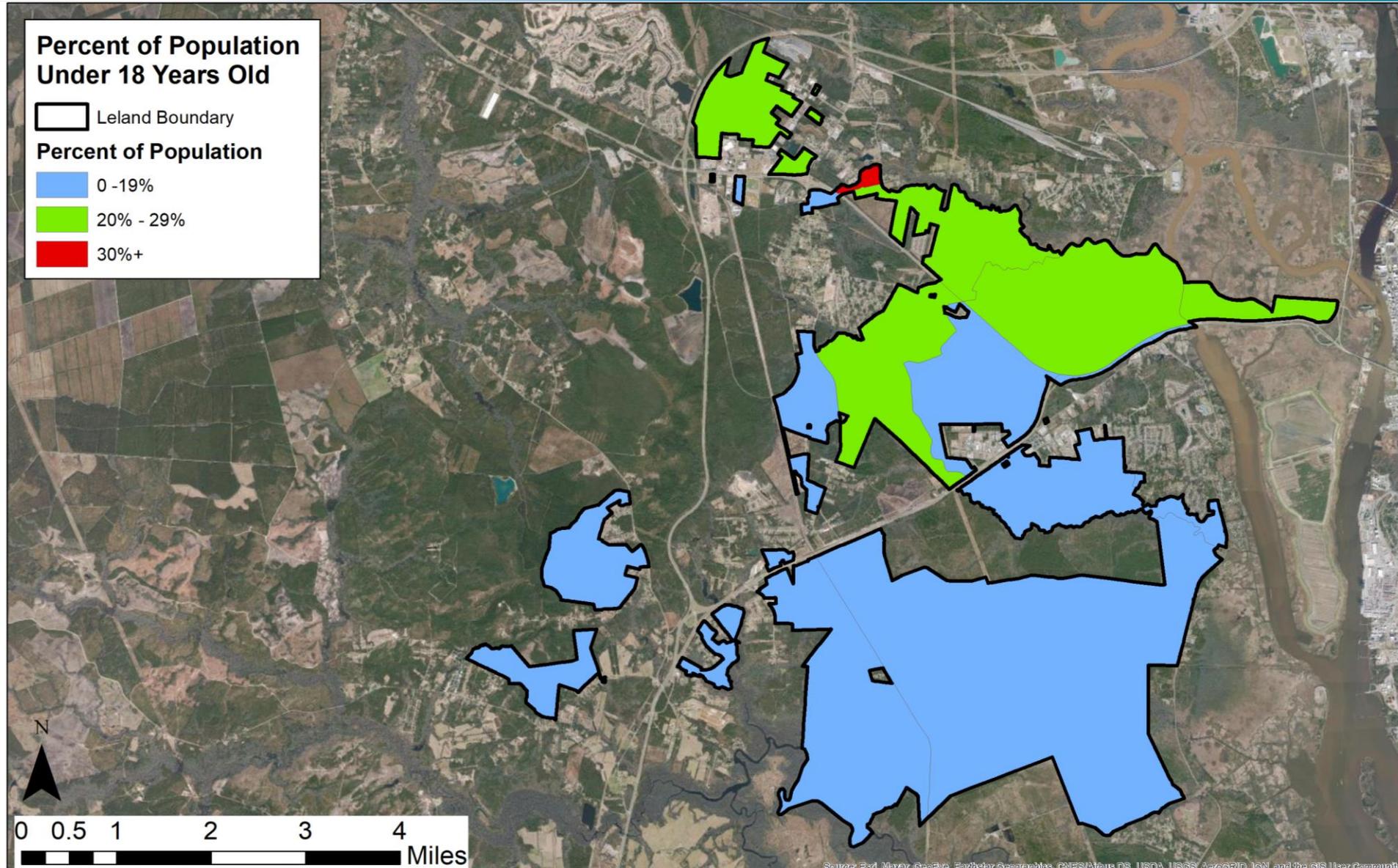


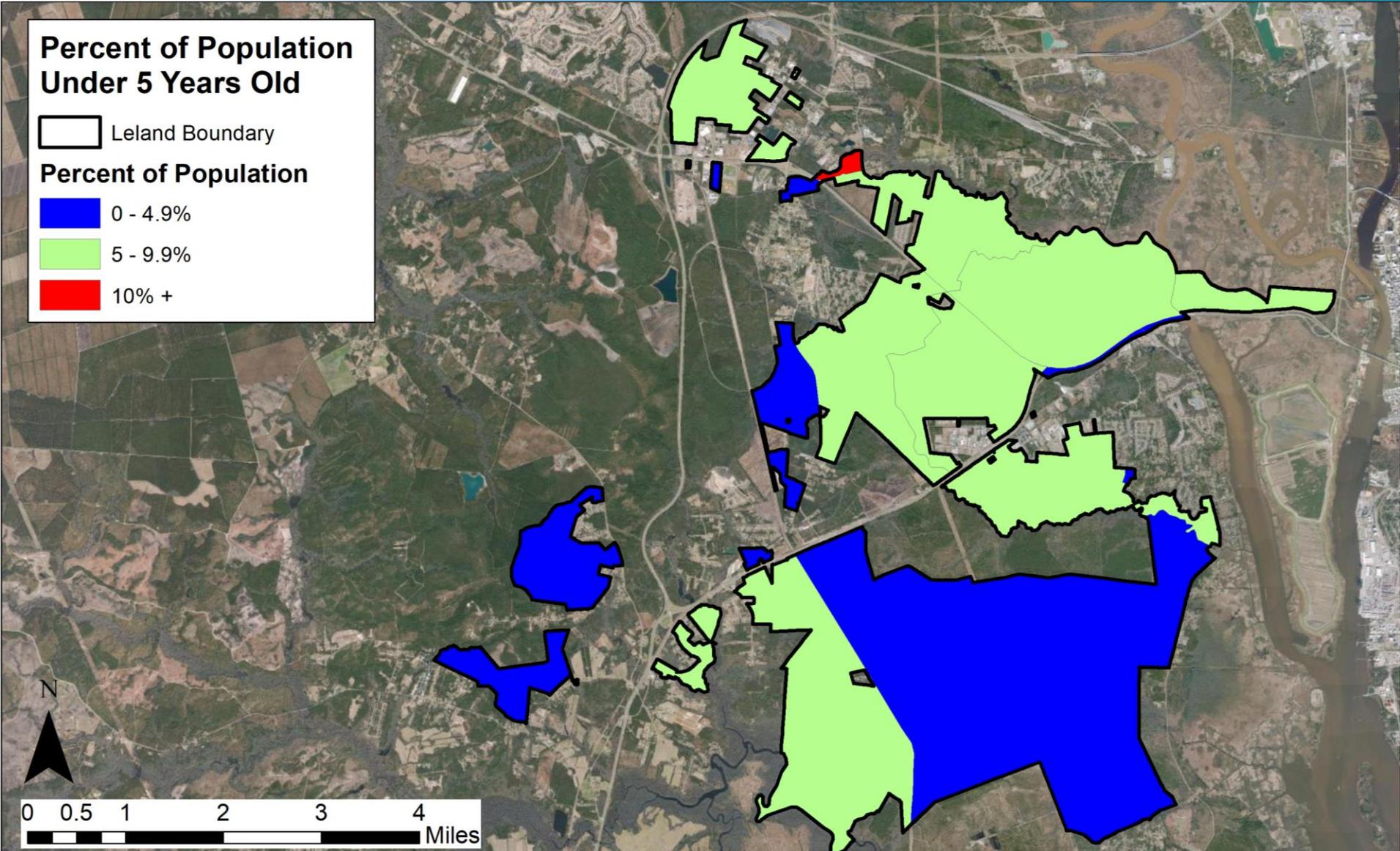












Next Steps

Discussion



What's Next?

1) Assess Vulnerability

- a. Build upon the CDC's Social Vulnerability Index in the Hazard Mitigation Plan
- b. Compile the CDC Social Vulnerability Index and create new maps
- c. Develop a vulnerability index to measure exposure, sensitivity, and adaptive capacity for critical assets and natural infrastructure

2) Estimate Risk

- a. Work with the CATs to determine what levels of risk call for actions
- b. Quantify risk for critical assets, and estimated cost of damages for selected scenarios
- c. Review locations of vulnerable populations that may need targeted assistance and potential clusters that allow for neighborhood-scale strategies



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