

Adaptation Co-Creation Series

Webinar 5: Bridging the Partisan Divide through Resilience Solutions



NEMAC+FernLeaf



AMERICAN SOCIETY OF
ADAPTATION PROFESSIONALS

Tech Check!



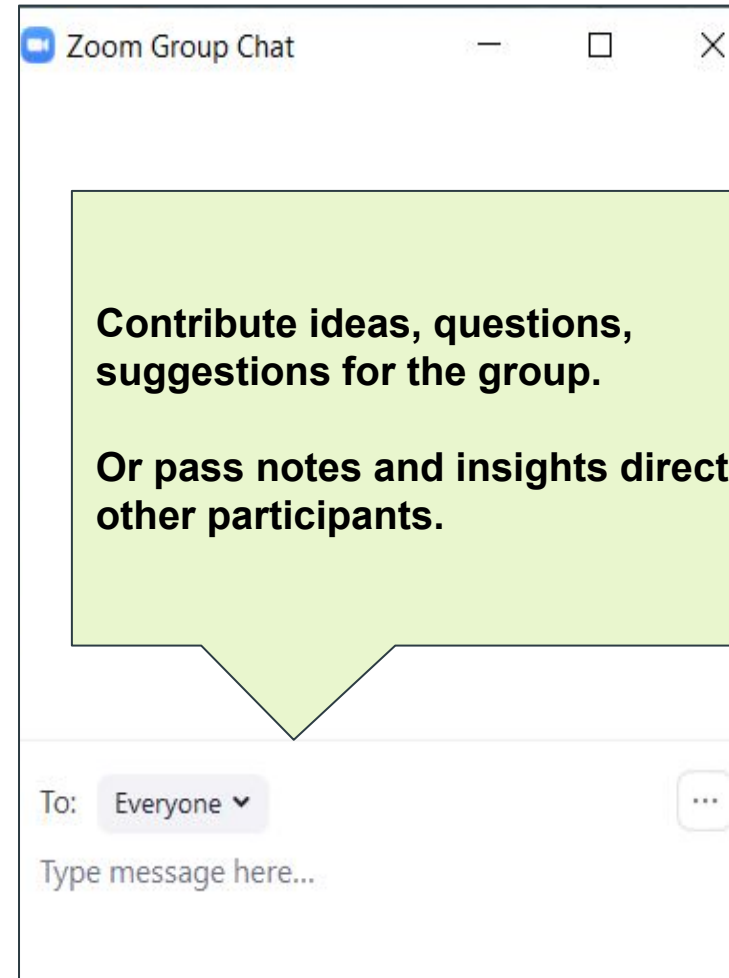
- ▶ Microphones Off



- ▶ Cameras off or on



- ▶ Questions posted in chat



ASAP Mission

Connect and support climate change adaptation professionals to advance innovation and excellence in the field of climate change adaptation.





American Society of Adaptation Professionals

▶ ASAP Connects

Bringing members together on critical topics including: Professional education, Climate Migration, Public Policy, and Justice Equity, Diversity & Inclusion

▶ Adaptation Voices

Share member accomplishments, best practices in the adaptation and resilience field, and lift diverse stories of leadership and expertise.

▶ Adaptation Careers

Assisting members to excel in their current jobs through mentorship and access to peer learning; explore new opportunities through weekly jobs and boards

www.adaptationprofessionals.org

American Society of Adaptation Professionals Code of Conduct (2017)

Living Guide on the Principles of Climate Change Adaptation (2018)

Knowledge & Competencies Framework for Adaptation and Resilience Professionals (2019)

American Society of Adaptation Professionals Justice Equity Diversity & Inclusion Statement (2020)

Adaptation Co-Creation Series

June 2020 - June 2021

What to Expect

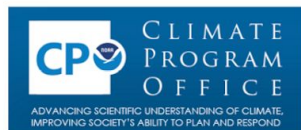
- Innovative & Effective Adaptation Practices
- Diverse project teams
- Justice and equity throughout

Previous Webinars

- ❖ Reducing flooding through updated design codes & standards
- ❖ Innovations in Adaptation Finance
- ❖ Practicing Racial & Environmental Justice in Climate Adaptation
- ❖ TCFD Journey: Corporate Climate Leadership

www.adaptationprofessionals.org/adaptation-co-creation-series z

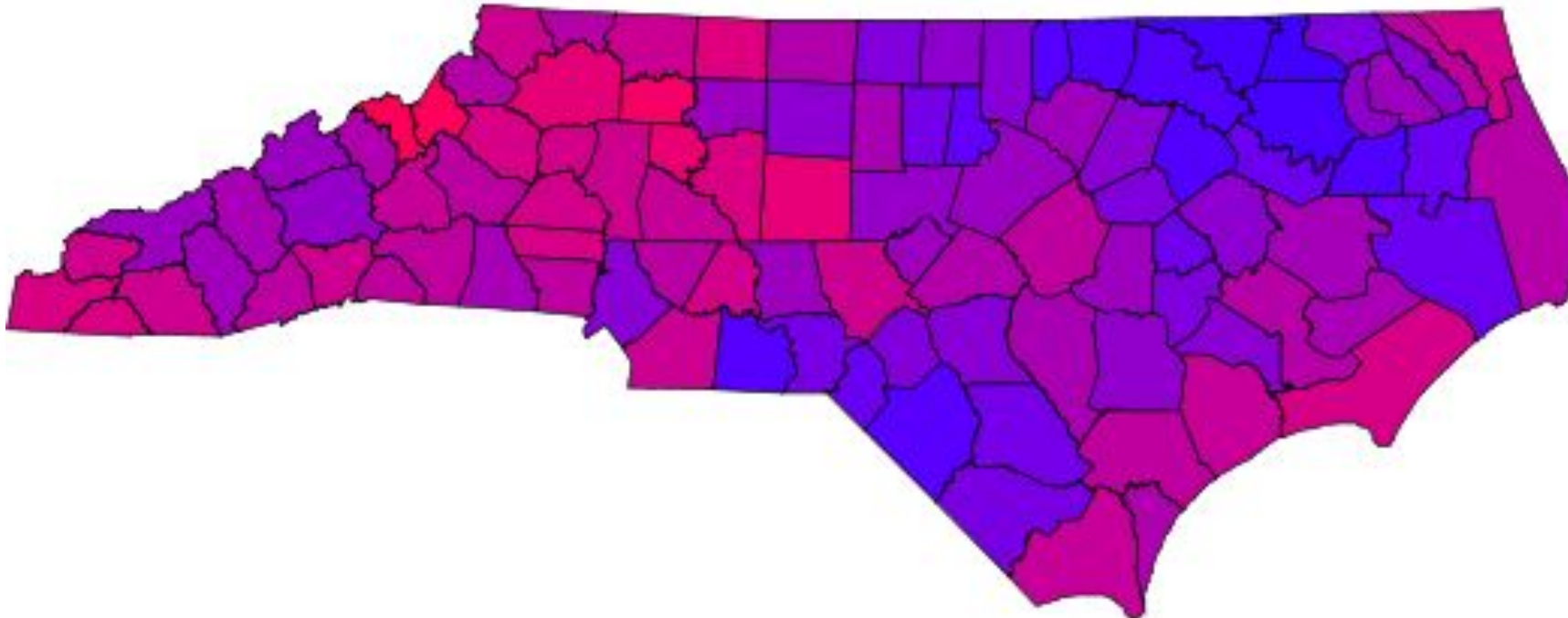
THE
KRESGE
FOUNDATION



Transforming Adaptation & Resilience

Bridging the Partisan Divide *with Resilience Solutions*

Relative strength of Democratic and Republican parties in NC counties



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share
successes and
failures

Something for
Everyone
Not everything
for everyone

Reciprocating
You give, you
get, everyone
benefits



**Jim Fox, Senior Resilience
Associate
NEMAC+Fernleaf**

Resilience = Social Equity + Mitigation + Adaptation

Asheville, NC: “...where weather data goes to retire...”



NEMAC+FernLeaf



Applied research center
Founded in 2003



FERNLEAF
INTERACTIVE

Small business spinoff
Founded in 2014



NATIONAL CENTERS FOR
ENVIRONMENTAL INFORMATION

THE COLLIDER

Steps to Resilience

- ✓ Data-informed process
- ✓ Transparent & defensible priorities
- ✓ Increased capacity



U.S. Climate
Resilience Toolkit

toolkit.climate.gov

1

Explore Hazards

2

Assess Vulnerability & Risk



3

Investigate Options

4

Prioritize & Plan

5

Take Action



Localized climate vulnerability



Values-based lenses



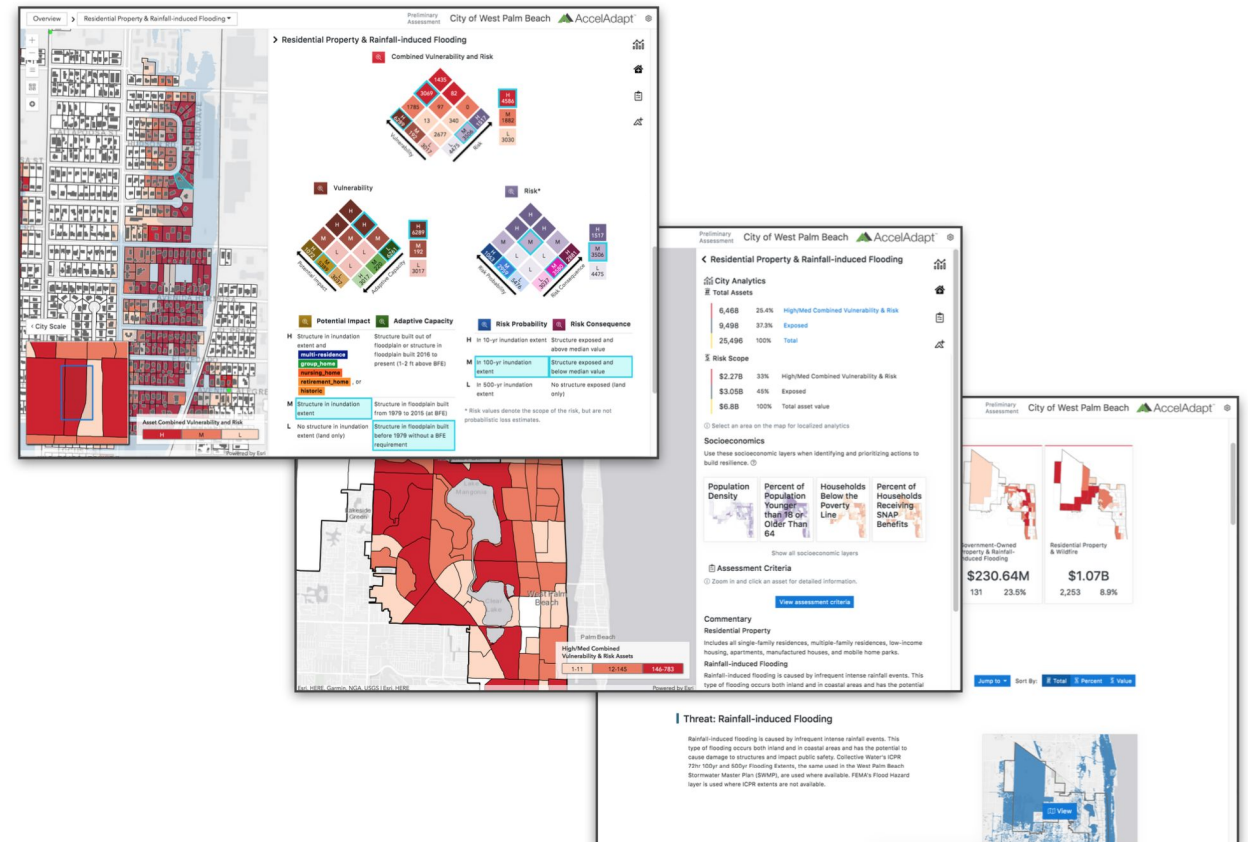
Rapid and affordable



Easily-accessible data

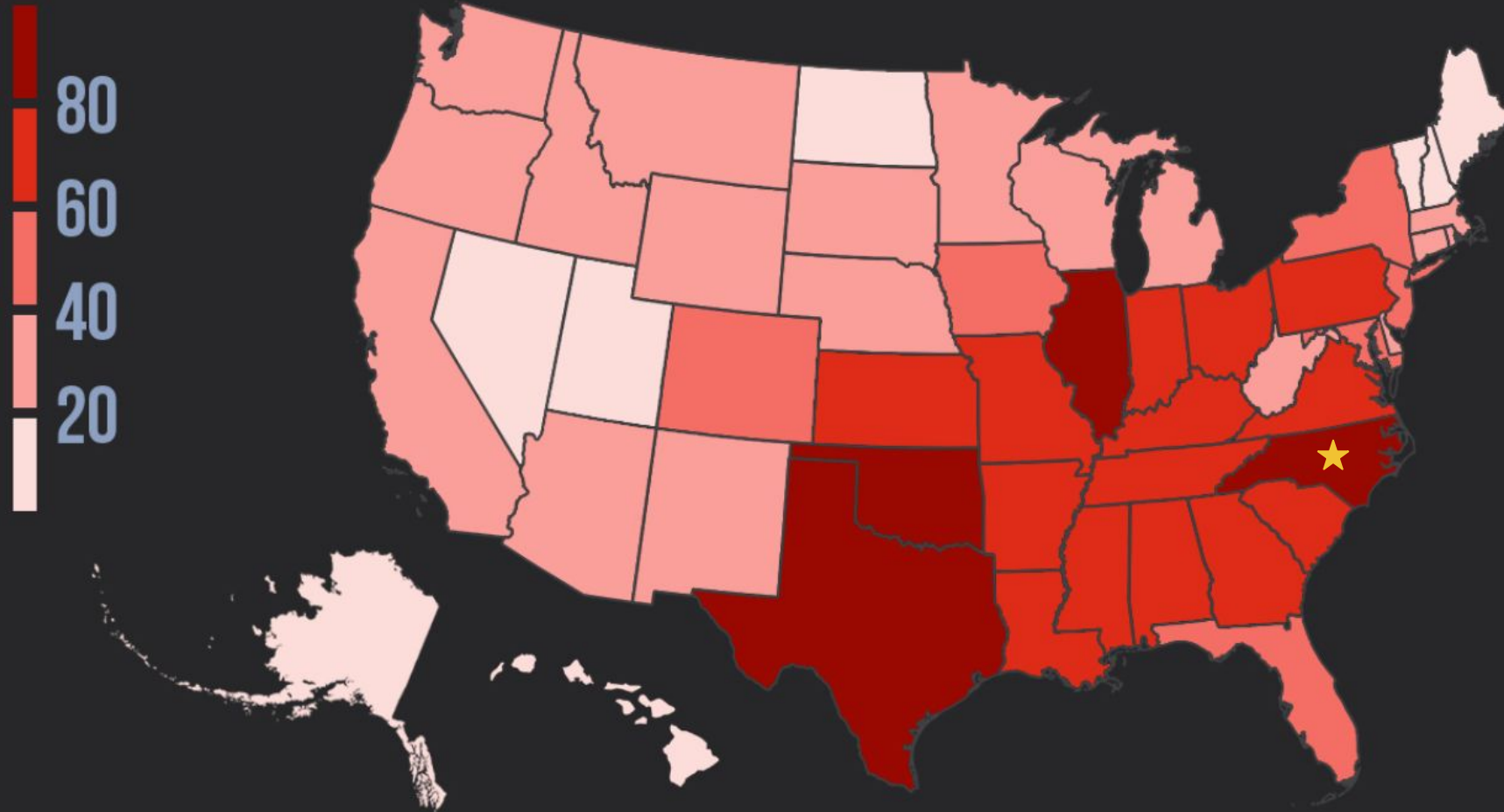


Living assessment



BILLION-DOLLAR DISASTERS

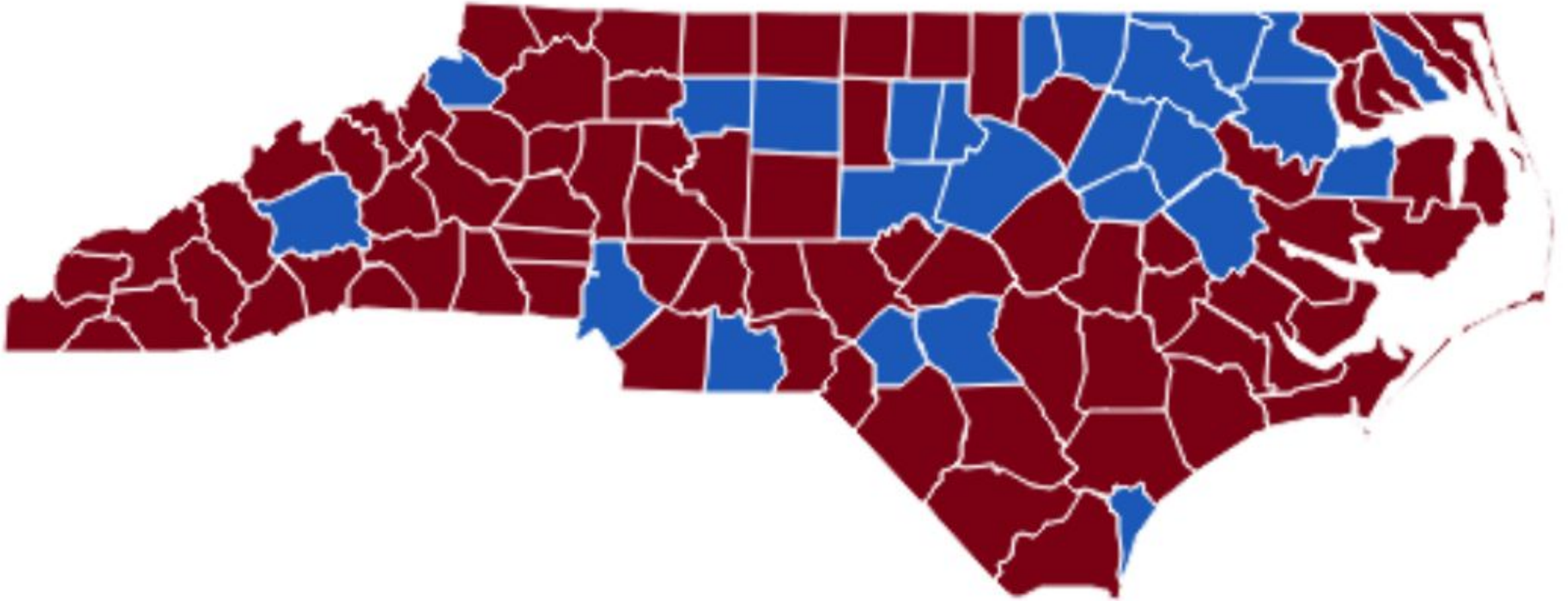
WEATHER & CLIMATE EVENTS



1980-2019 billion-dollar weather and climate disasters (CPI-adjusted).
Source: NOAA/NCEI. Produced 2/12/2020

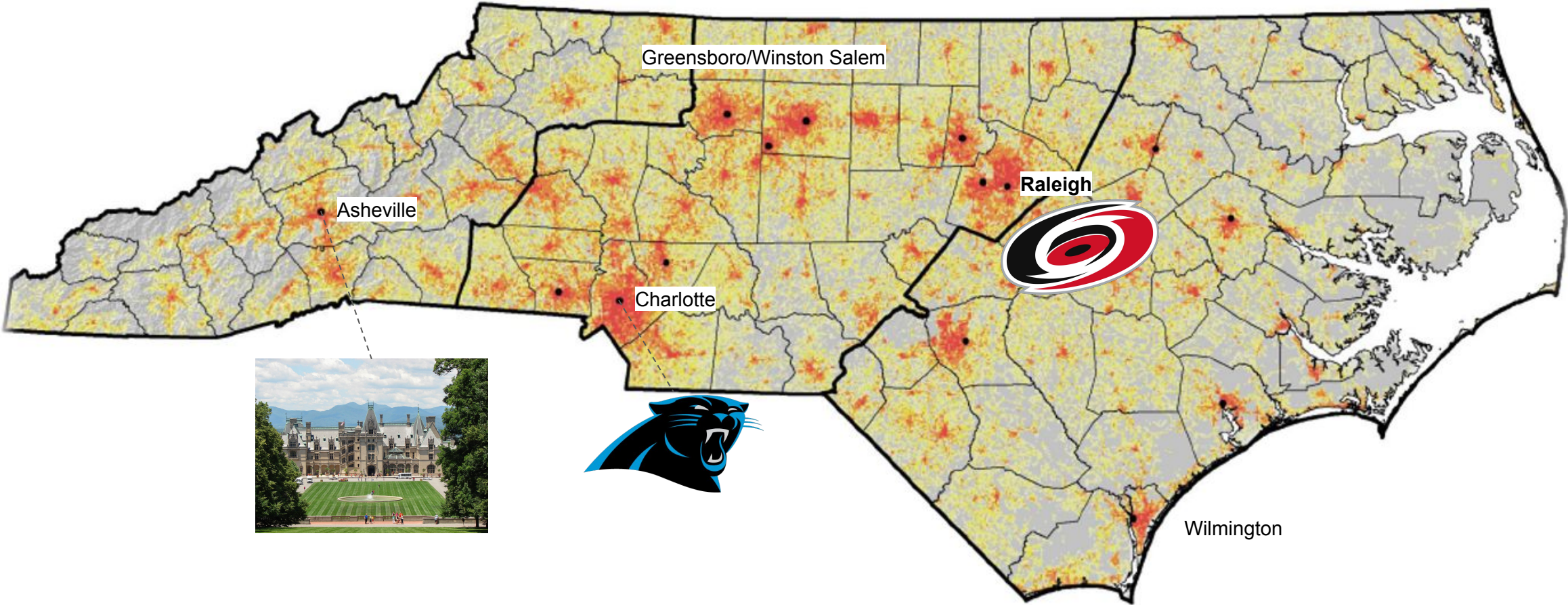
CLIMATE  CENTRAL

2020 Presidential Election Results

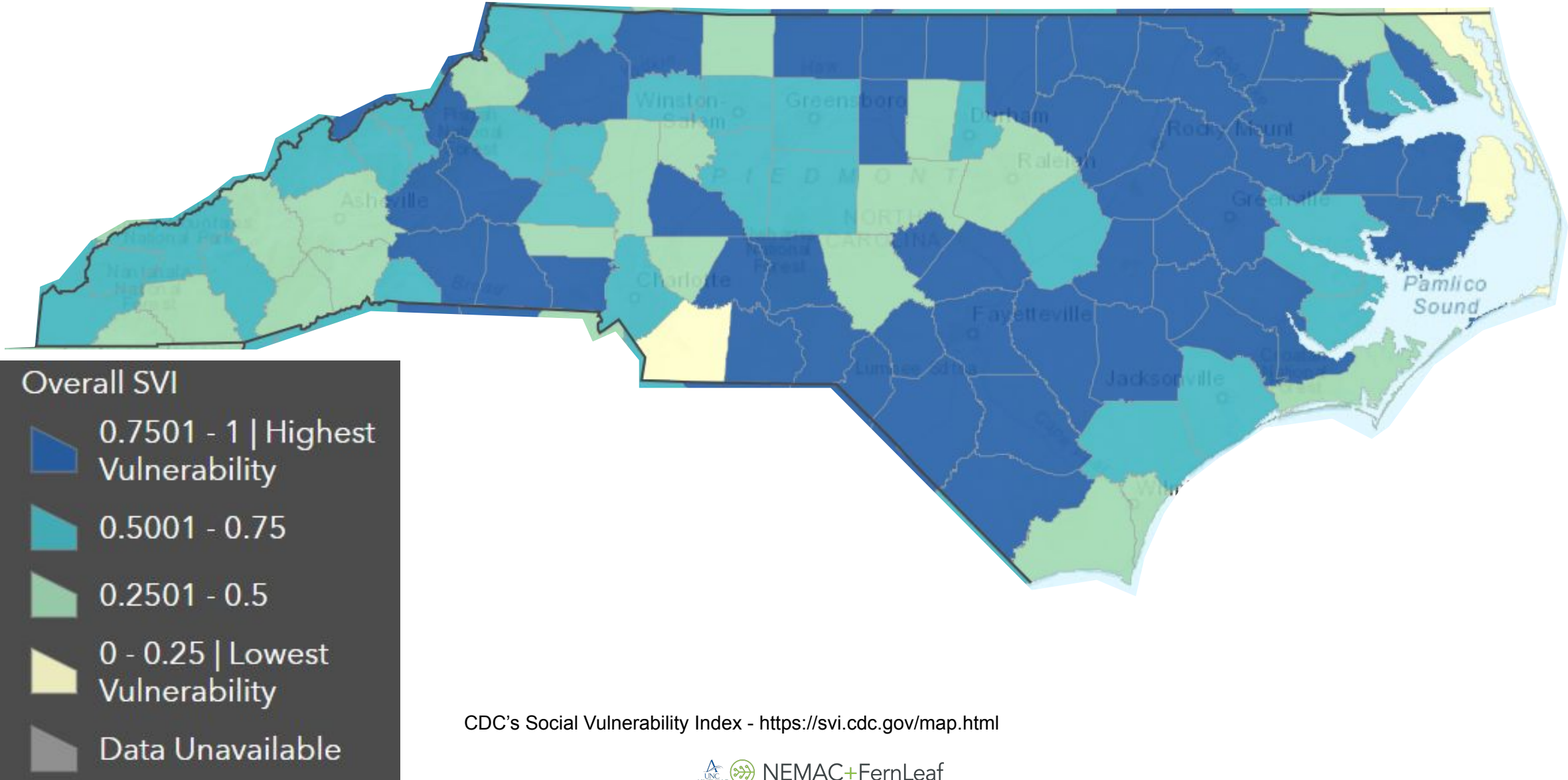


<https://www.wxii12.com/article/north-carolina-election-results-2020-county-map/34934633#>; Election results 2020: How North Carolina voted in the presidential election; Source: Hearst Television, Instagram

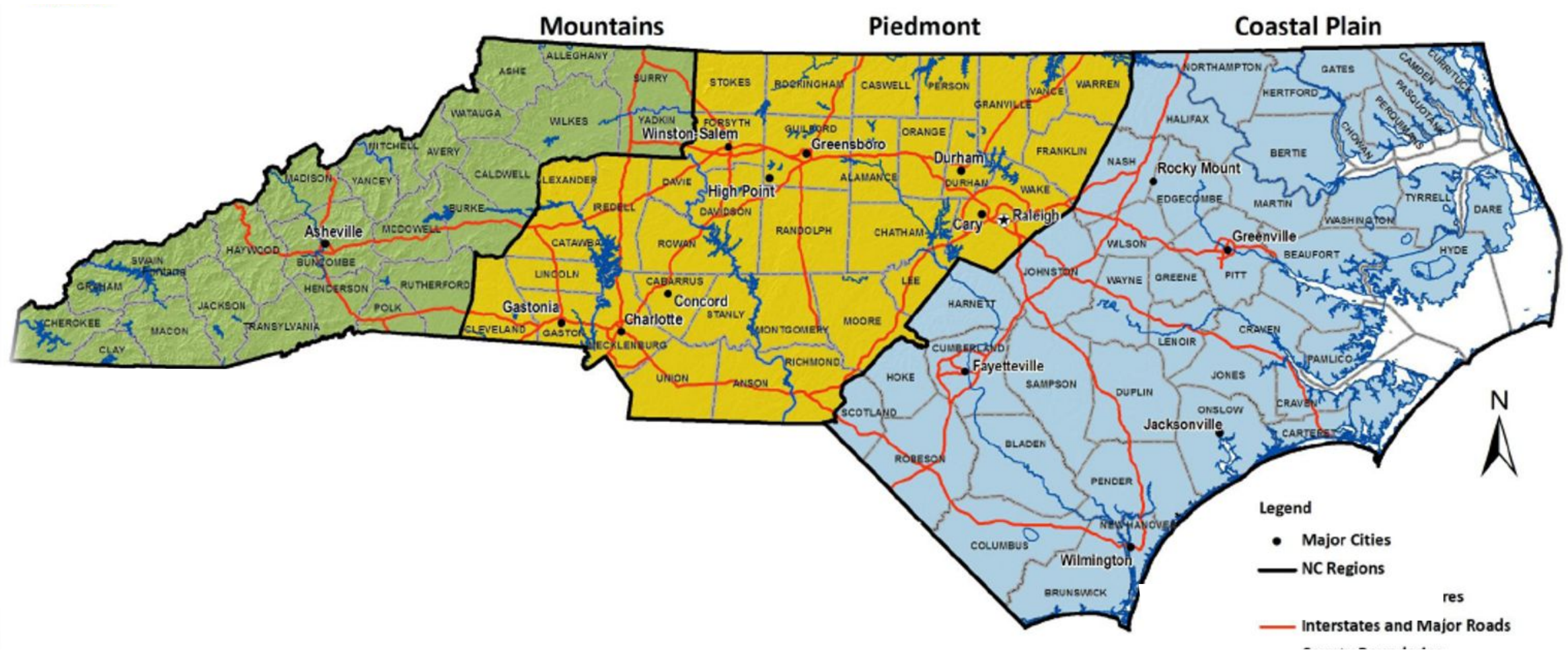
North Carolina Population Density



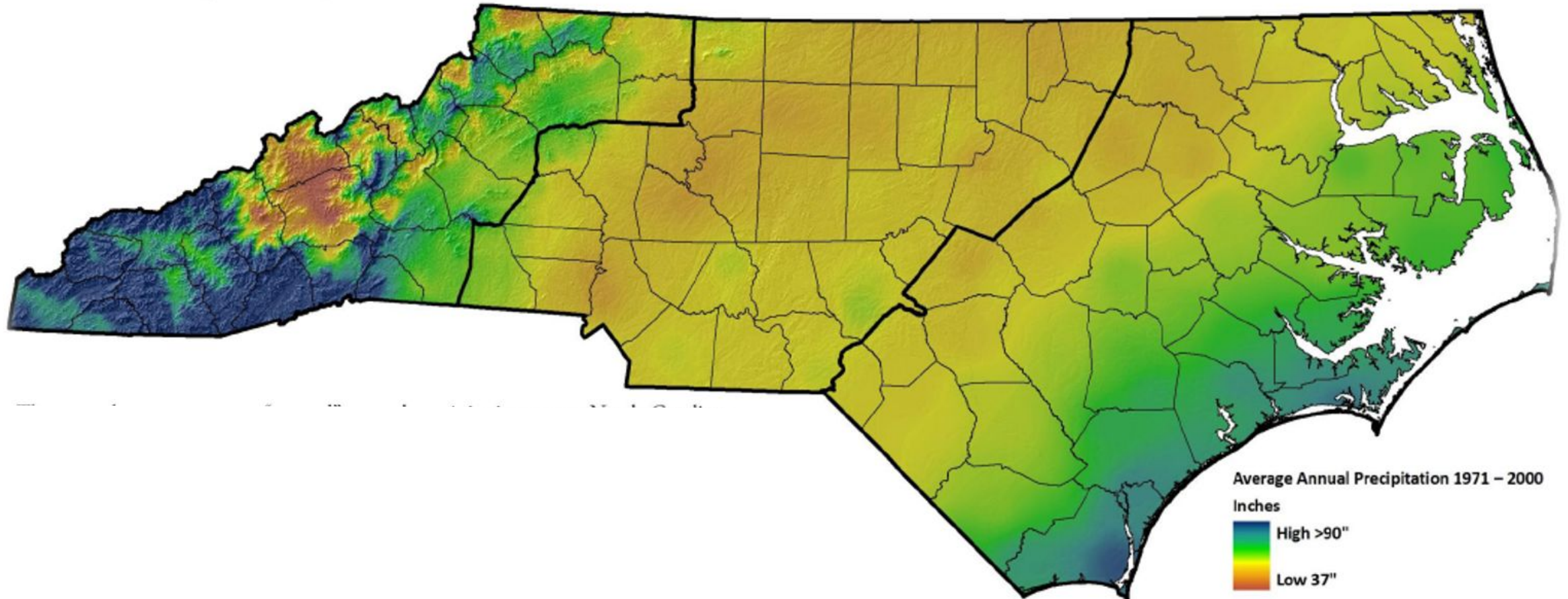
CDC Social Vulnerability Index



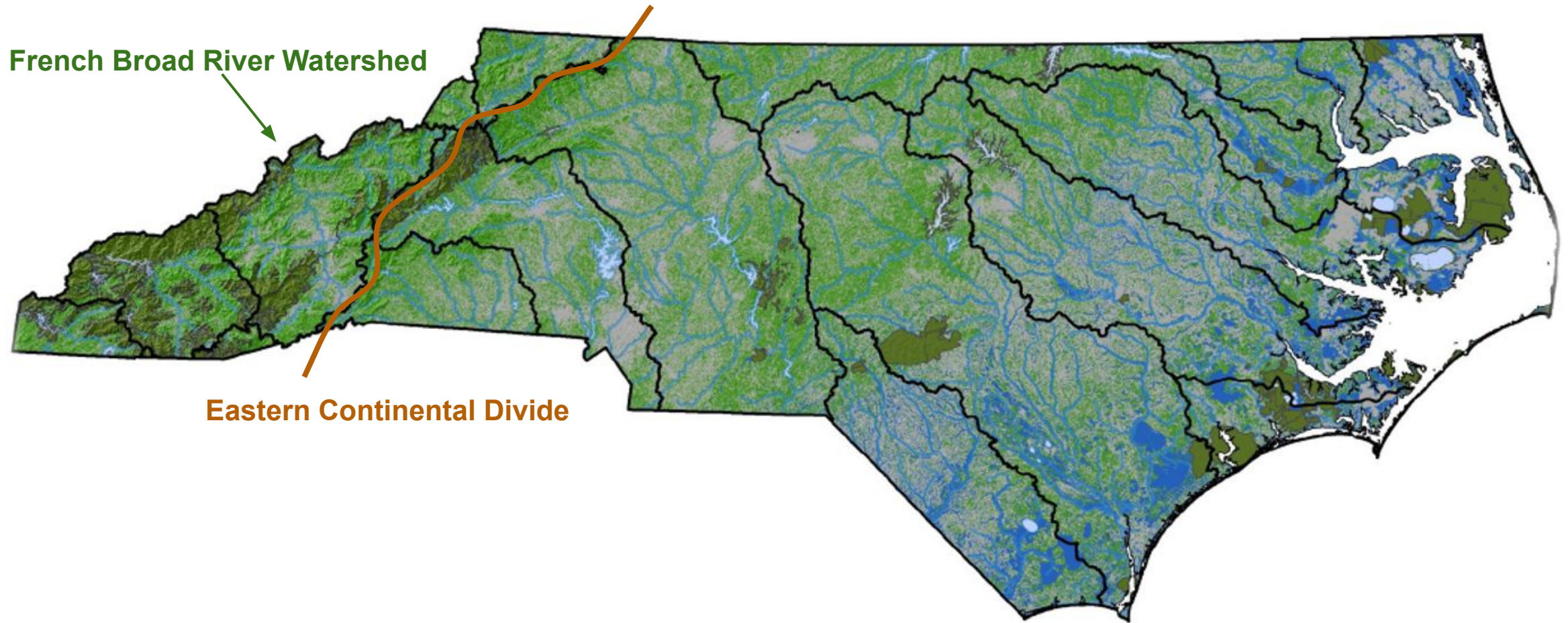
North Carolina Regions



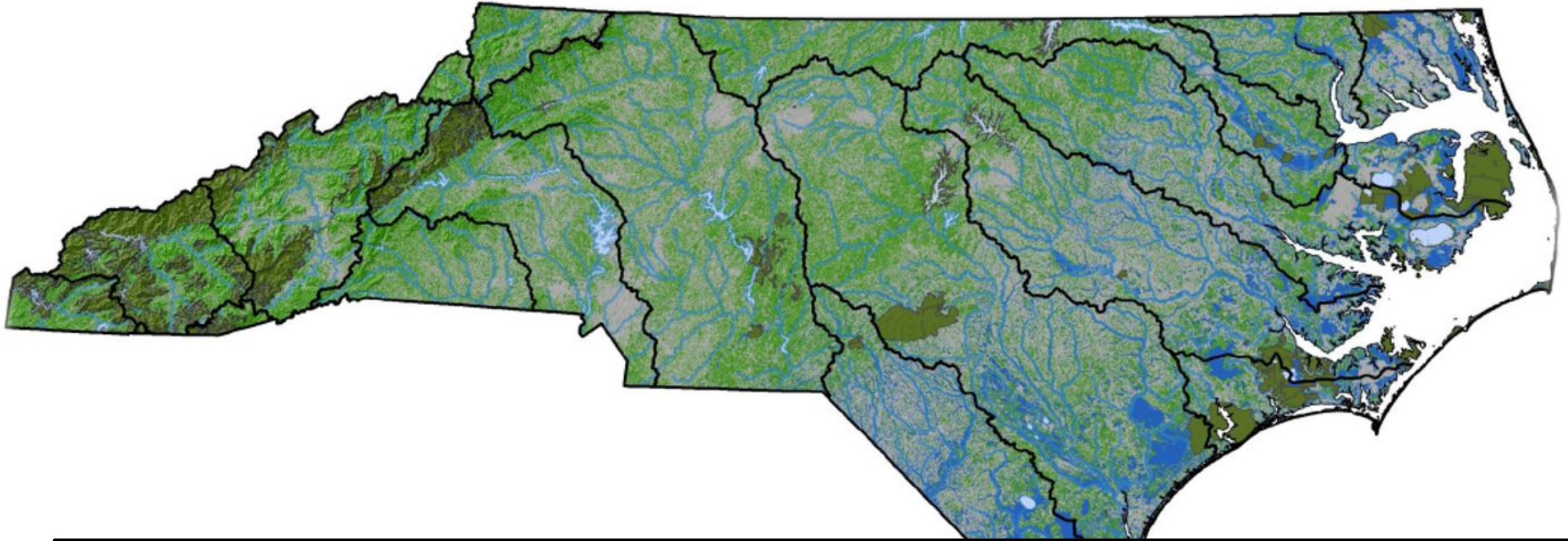
Average Annual Precipitation



Environment and Watersheds

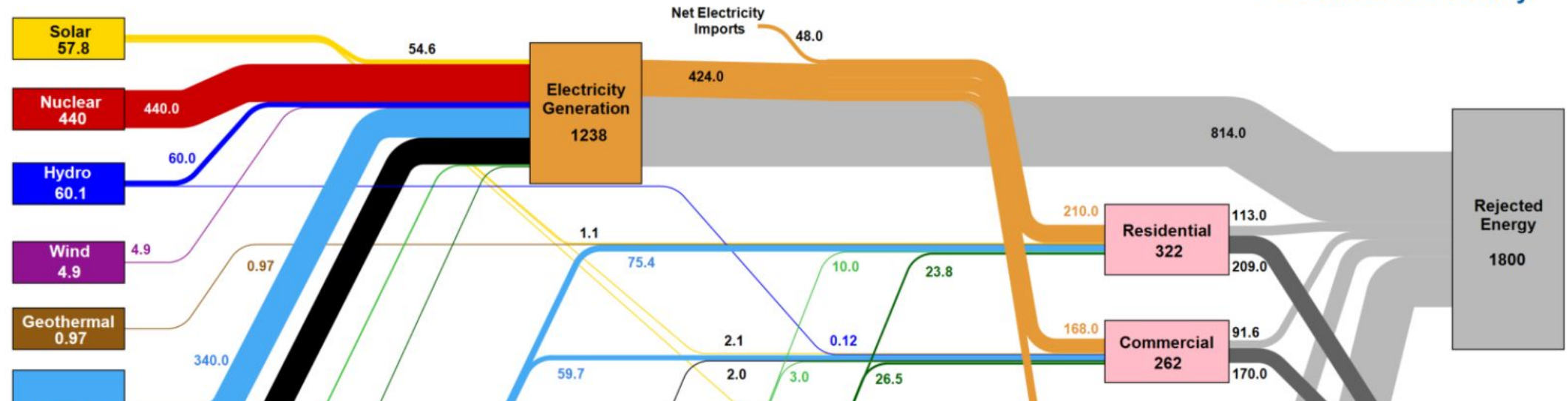


Environment and Watersheds

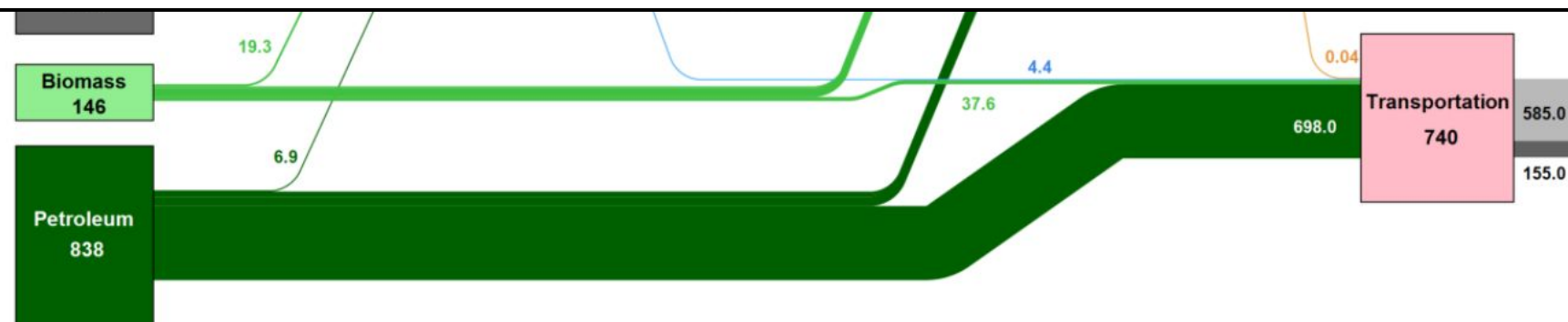


North Carolina uses about 10 Billion Gallons of Water per Day
90% of that is from Surface Water
We use 80% of that for Power Plant Cooling

Estimated North Carolina Energy Consumption in 2018: 2,524 Trillion BTU



\$10 to \$15 Billion per year leaves our state for energy fuel imports
(Climate Mitigation and moving to alternative fuels makes good business sense)



Source: LLNL June, 2020. Data is based on DOE/EIA SEDS (2019). If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents only retail electricity sales and does not include self-generation. EIA reports consumption of renewable resources (i.e., hydro, wind, geothermal and solar) for electricity in BTU-equivalent values by assuming a typical fossil fuel plant heat rate. The efficiency of electricity production is calculated as the total retail electricity delivered divided by the primary energy input into electricity generation. End use efficiency is estimated as 65% for the residential sector, 65% for the commercial sector, 49% for the industrial sector, and 21% for the transportation sector. Totals may not equal sum of components due to independent Rounding. LLNL-MI-410527

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**Amanda Martin, Ph.D.
Deputy Chief Resilience
Officer, North Carolina
Office of Recovery and
Resiliency**

ReBUILD NC



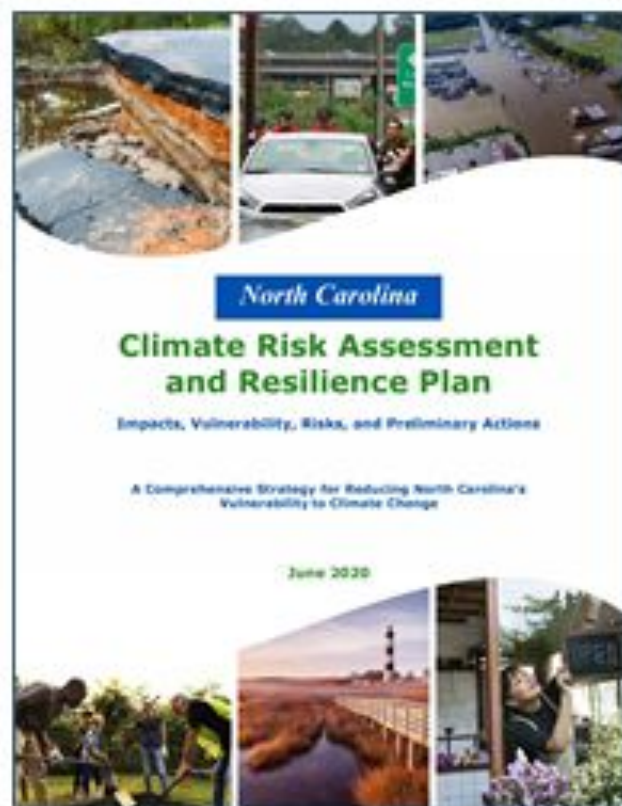
N.C. State Government Perspective

North Carolina Climate Risk Assessment and Resilience Plan

Amanda Martin, Ph.D.
Deputy Chief Resilience Officer



N.C. Climate Risk Assessment and Resilience Plan



The state gratefully acknowledges:

- Analysis and planning assistance from NOAA and the National Environmental Modeling and Analysis Center (NEMAC)
- Input from the DEQ Secretary's Environmental Justice and Equity Advisory Board, Climate Change and Extreme Weather Subcommittee

A. Climate change does not affect everyone equally

Climate justice:

An analysis of the deep inequities posed by climate change impacts

A social and political movement to address the needs of disadvantaged populations in greenhouse gas mitigation and climate change adaptation efforts

B. Why does climate change impact some more than others?



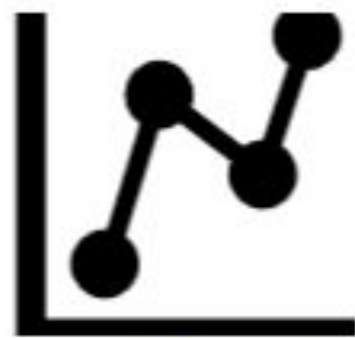
Social vulnerability



Unequal exposure to climate hazards



Infrastructure and housing disparities



Inequalities in resilience policy and programming

C. Climate justice spotlight issues



Resilience Plan Implementation

Resilient
Communities
Program

Hazard Mitigation
Plans

Interagency
Resilience Team

CDBG-Mitigation

Agency Resilience
Strategy Reports

Social Equity and Bridging the Partisan Divide

Climate Resilience Work

**Physical
Impacts**

**Societal
Impacts**

Science

Business
recovery

Infrastructure

Unhealthy
conditions

Land use

Housing
insecurity

THANK YOU

AMANDA MARTIN, Ph.D.

AMANDA.MARTIN@NCDPS.GOV | (919) 741-9786



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Mary Roderick, Ph.D.
Regional Planner,
Land of Sky Regional
Council

Flooding

May 30, 2018 – Asheville, NC



- > heavy precipitation
- > frequency and severity of flooding

Flooding is the most well-known hazard in our region, but not the only one.



Landslides

June 5, 2018

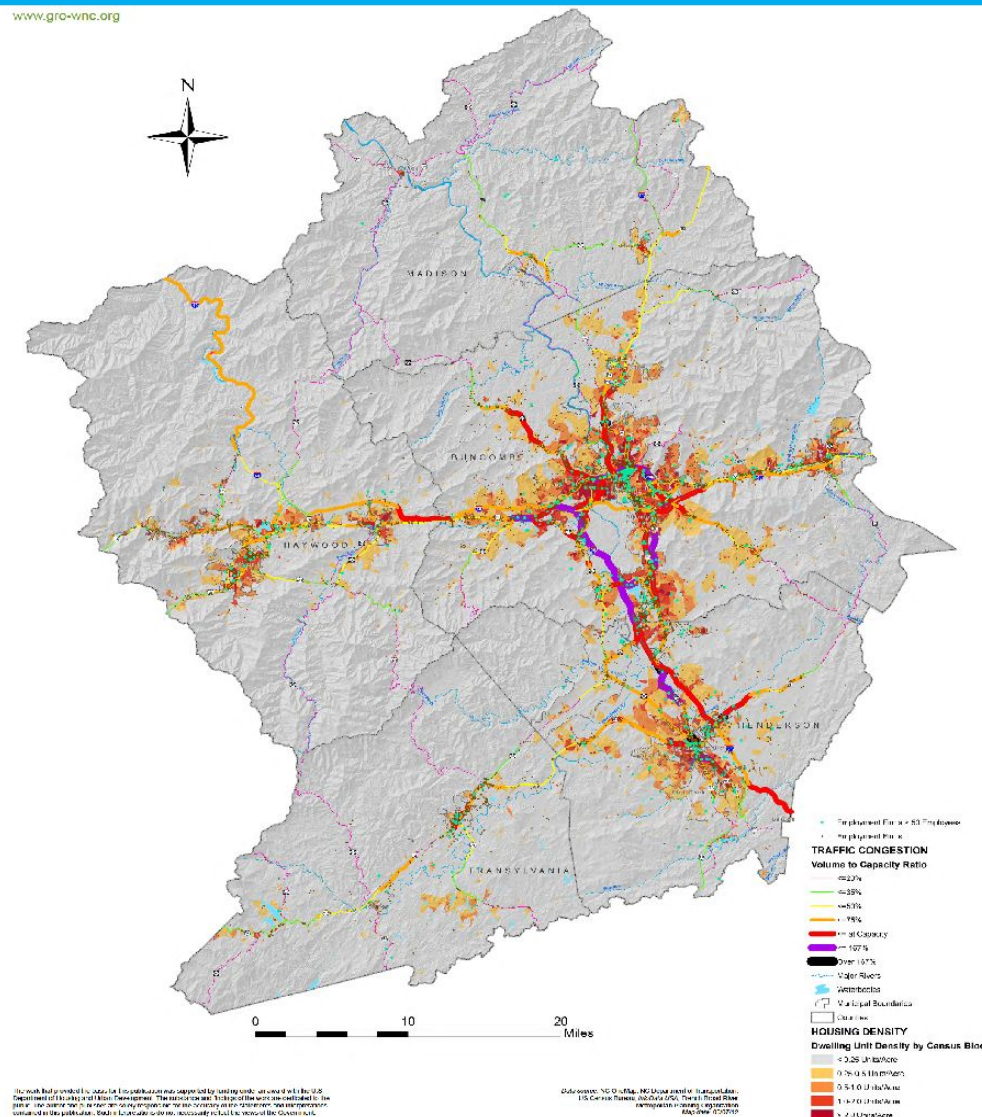
Henderson County, NC



Major landslide on NC 9, 110,000 cubic yards of debris – closed for nearly 2 months causing a 50-mile detour.

It is not only the climate that is changing

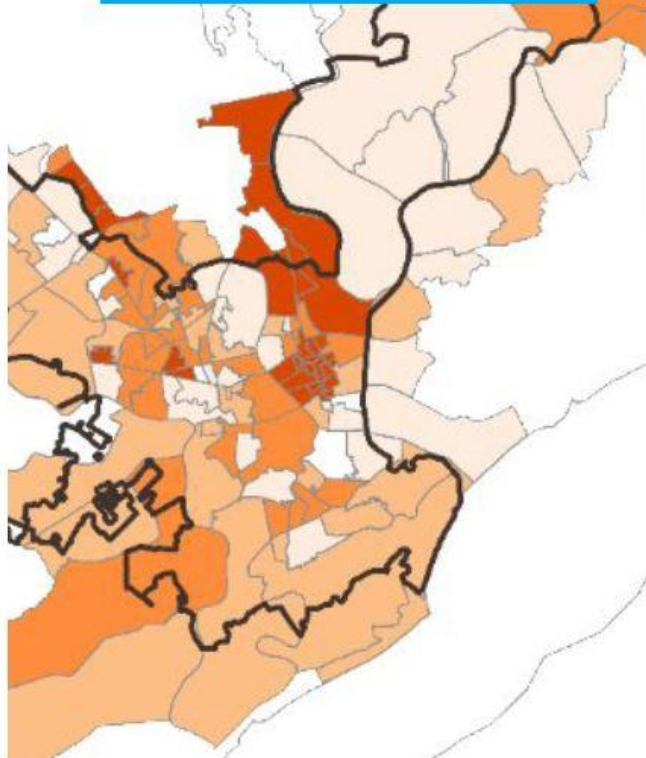
- +21% population (2010-2018)
- +20% construction jobs (Buncombe 2016-2020)
- Infill and sprawl
- Farmland and forest conversion



Integrating multiple factors



Social vulnerability



Sam's Club
Employees: 200
Ann. Sales Volume: \$37,118,000

WalMart Supercenter
Employees: 335
Ann. Sales Volume: \$62,173,000

Impact on employees and sales

Road access and mobility

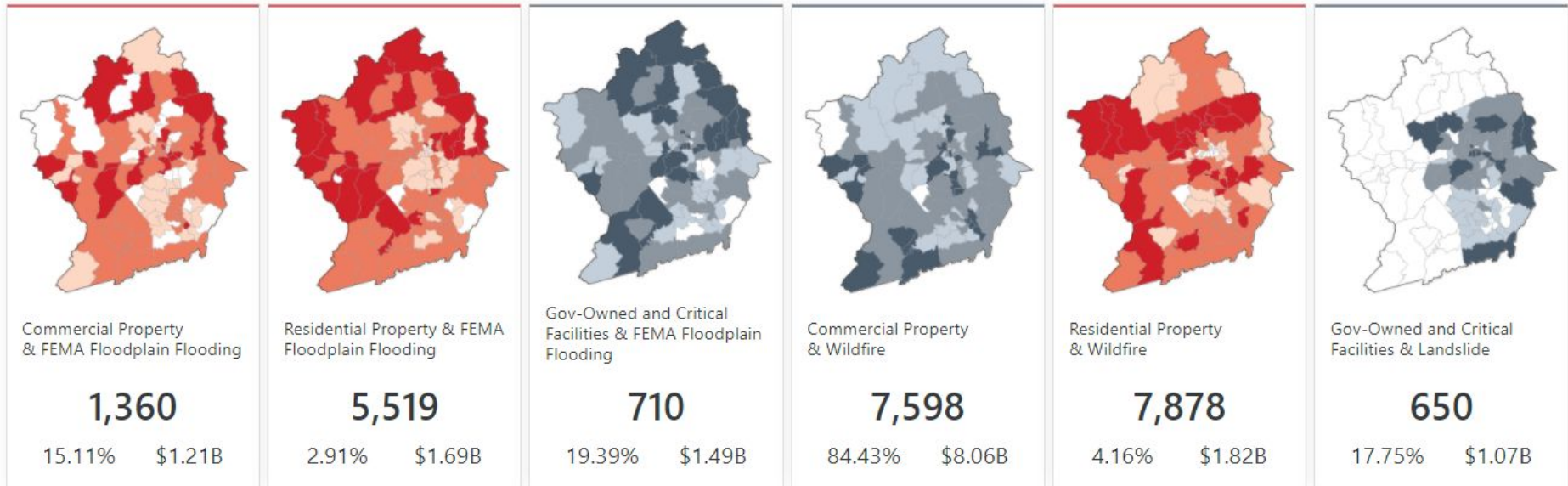


Land Of Sky Region Resilience Assessment



Overview: Region-wide analytics

Most Affected Asset / Threat Pairs ⓘ

[Show all](#)

Commercial & Flooding

- 26% of the vulnerability and risk in two main areas.
- Nearly a **third** of all commercial properties in two rural counties are highly vulnerable and at risk to flooding.
- High percentages of vulnerability in smaller communities.

EXPOSED:
2,050 parcels exposed

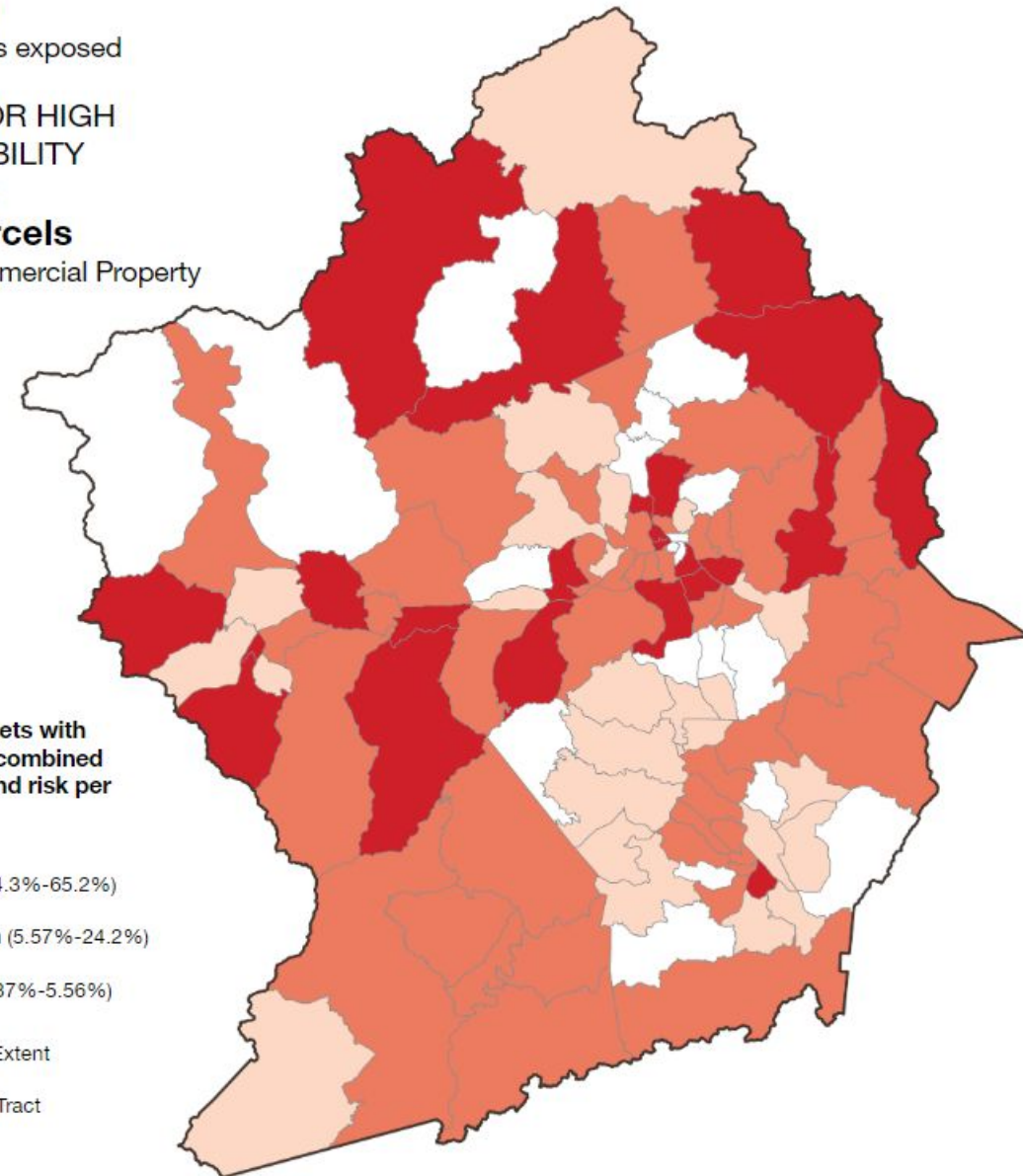
MEDIUM OR HIGH
VULNERABILITY
AND RISK:
1,360 parcels
15% of Commercial Property

Percent of assets with
medium-high combined
vulnerability and risk per
census tract



— Region Extent

— Census Tract



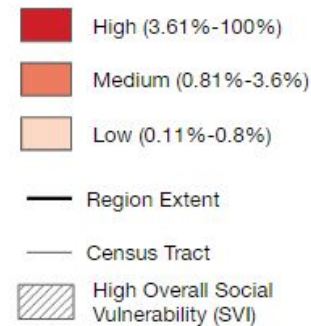
Residential & Flooding

- Many of the most vulnerable census tracts coincide with high overall social vulnerability.

EXPOSED:
13,502 parcels exposed

MEDIUM OR HIGH
VULNERABILITY
AND RISK:
5,519 parcels
3% of Residential Property

Percent of assets with
medium-high combined
vulnerability and risk per
census tract



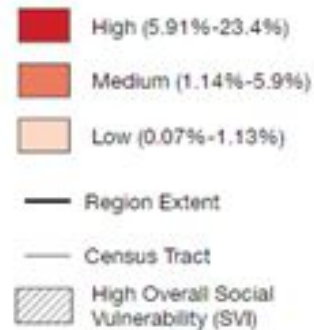
Residential & Landslides

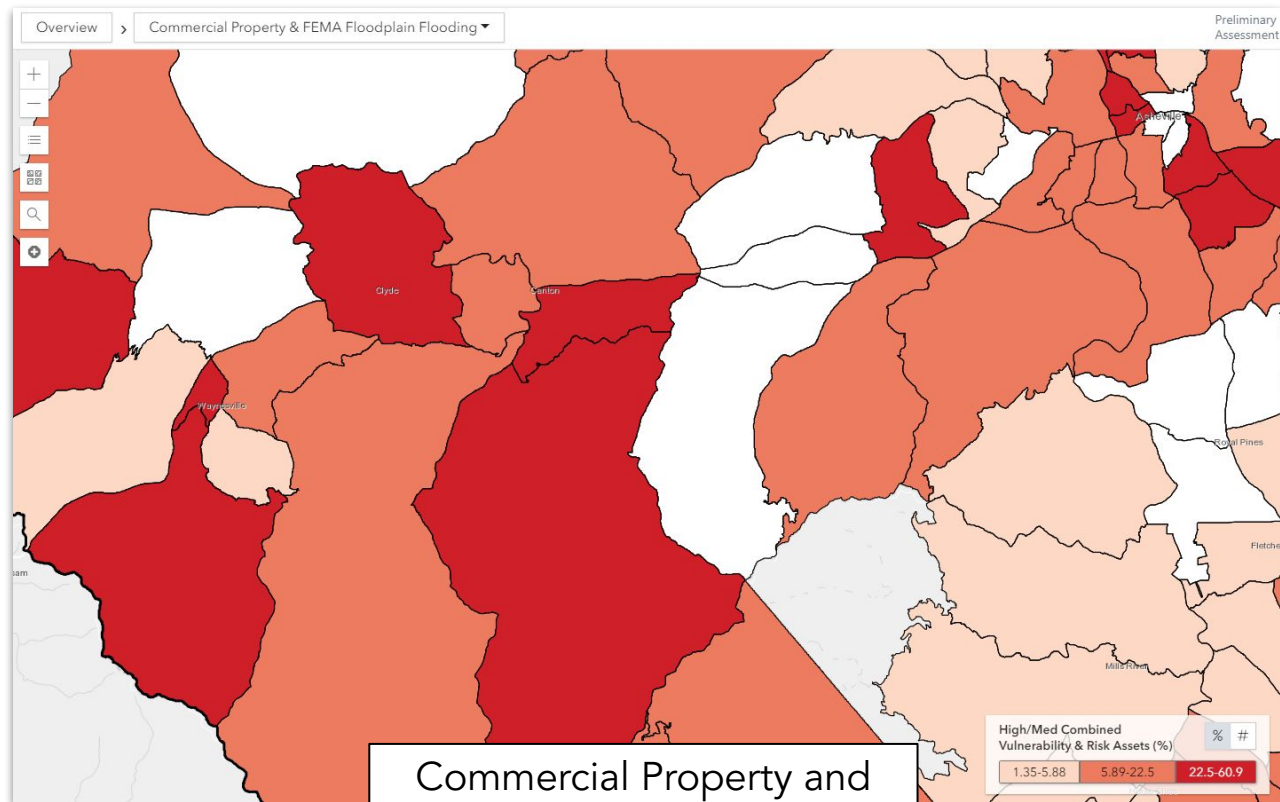
- Fewer areas coincide directly with high social vulnerability.
- Landslides often affect transportation infrastructure which has a broader socio-economic impact.

EXPOSED:
17,242 parcels exposed

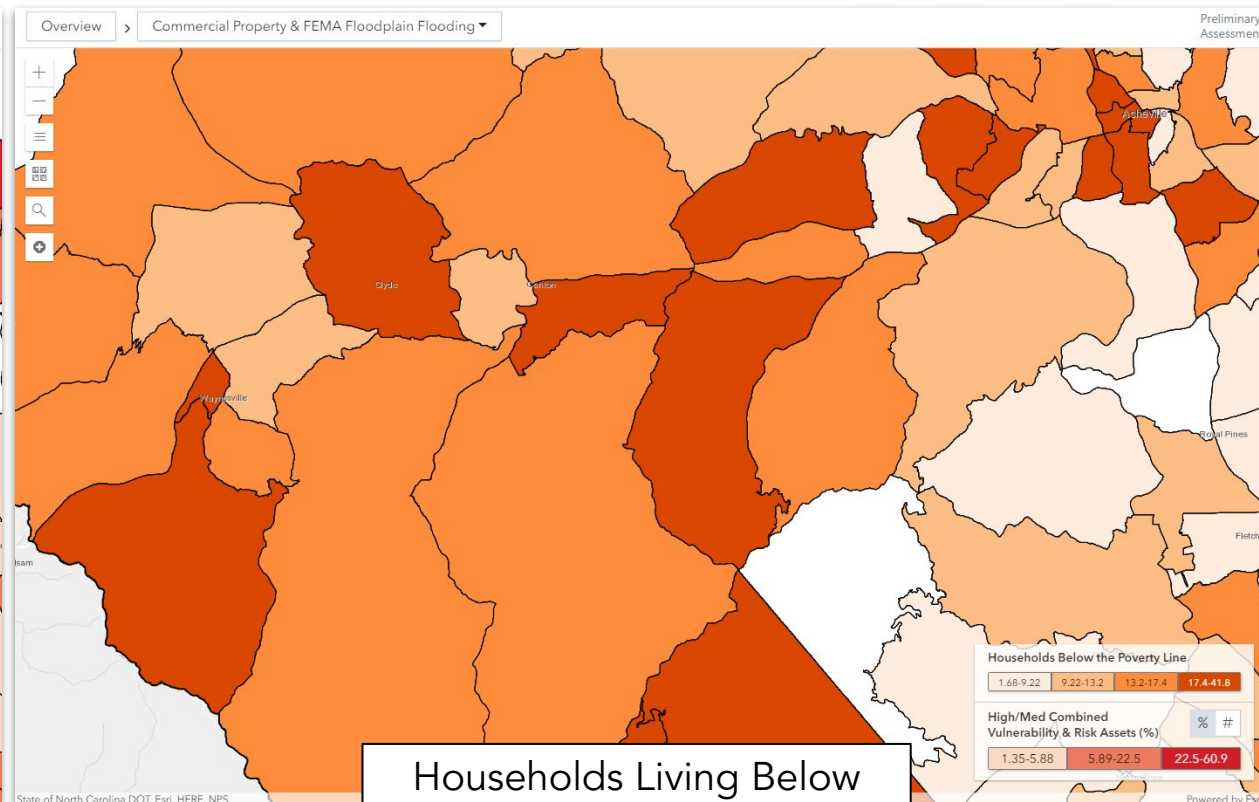
MEDIUM OR HIGH
VULNERABILITY
AND RISK:
5,596 parcels
4% of Residential Property

Percent of assets with
medium-high combined
vulnerability and risk per
census tract





Commercial Property and Flooding



Households Living Below Poverty Line

Neighborhood-level summaries and socioeconomic metrics highlight the strong link between infrastructure vulnerability and social vulnerability

From Assessment to Action



- Regional **partnerships** are critical
- Building resilience needs **holistic approach**
 - Resources
 - Governance
 - Land Use
 - Infrastructure
 - Social Justice



FEMA BRIC Grant

Building Resilient Infrastructure and Communities (BRIC) grant program

Guiding Principles

Support community capability and capacity building



Enable large infrastructure projects



Encourage and enable innovation



Maintain flexibility



Promote partnerships



Provide consistency



Partnered with FernLeaf, ESP Associates & member governments (multiple depts: planning, EM, public works, comm dev)

Regional to local planning scope

1. Watershed-based V/R assessment to scale up resilience building actions across jurisdictions (bipartisan focus)
2. Integration with HMPs, Metropolitan Transportation Plan, comprehensive plans, stormwater management plans, building codes, and steep slope, E & SC, and landscaping ordinances
3. Mitigation & adaptation strategy analysis across plans and ordinances



Adaptive capacity by design





THANK YOU!

Questions:

mary@landofsky.org



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**Geoffrey Habron,
Ph.D.
Professor of
Sustainability
Sciences,
Furman University**

ASAP MicroGrant - Engage local residents in a Climate Equity dialogue to enhance the local Climate Resilience Assessment plan

Climate Equity Dialogue Goals

1. Increase diversity of voices involved in climate action deliberations
2. Provide overview of possible climate actions and gather public concerns
3. Develop shared understanding of issues, histories and possible actions
4. Contribute to ongoing city resilience efforts
5. Explore efficacy of engagement strategies

Actions

1. Develop a series of grounded engagement experiences with different city stakeholders using the Asheville climate resilience plan as the focus to explore questions and issues that matter.

Contextualize and align questions, issues and narratives with relevant climate resilience approaches.

Narratives

World Cafe

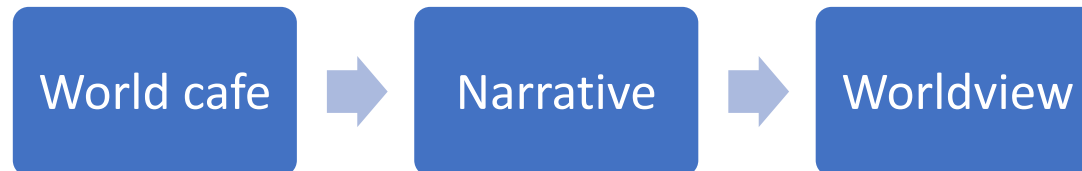
Worldviews

Bridging Through Listening

“Listening is a gift we give to one another. The quality of our listening is perhaps the most important factor determining the success of a Café. Through practicing shared listening and paying attention to themes, patterns and insights, we begin to sense a connection to the larger whole. Encourage people to listen for what is not being spoken along with what is being shared...The opportunity to move between tables, meet new people, actively contribute your thinking, and link the essence of your discoveries to ever-widening circles of thought is one of the distinguishing characteristics of the Café.” <http://www.theworldcafe.com/key-concepts-resources/design-principles/>

	Context A	Context B	Context C
Narrative			
World Cafe			
Worldview			

Design Options



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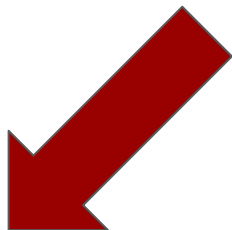
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**Aashka Patel,
Resilience Specialist,
NEMAC+Fernleaf**

Community-identified needs



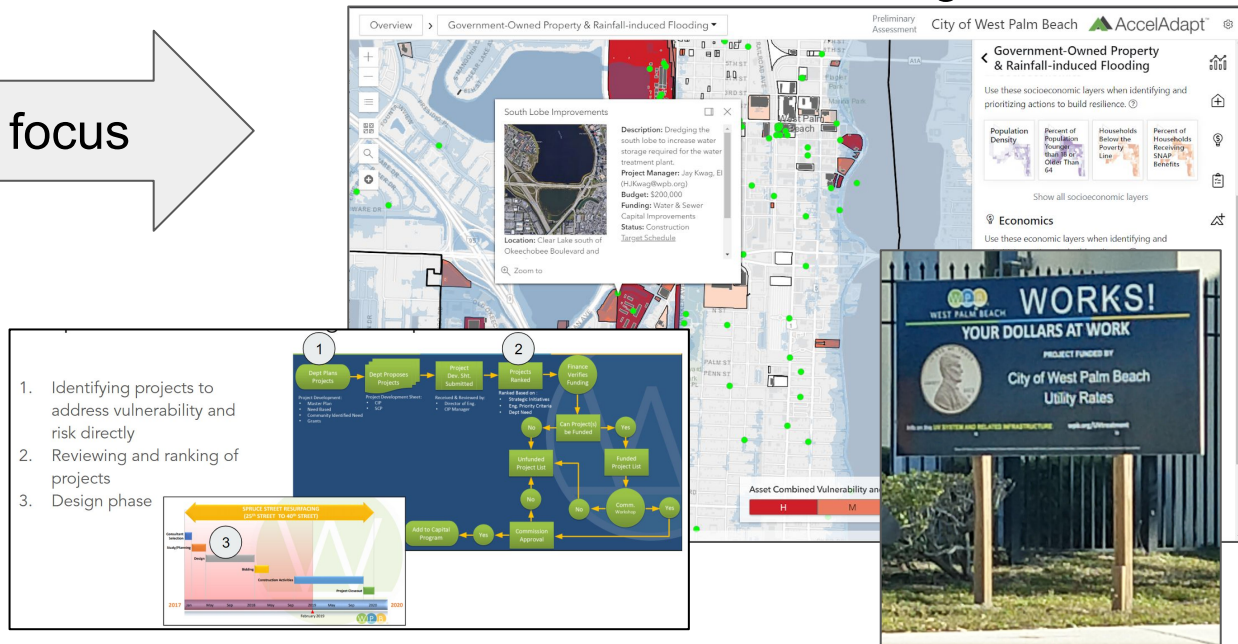
Buried in report



NF innovation focus



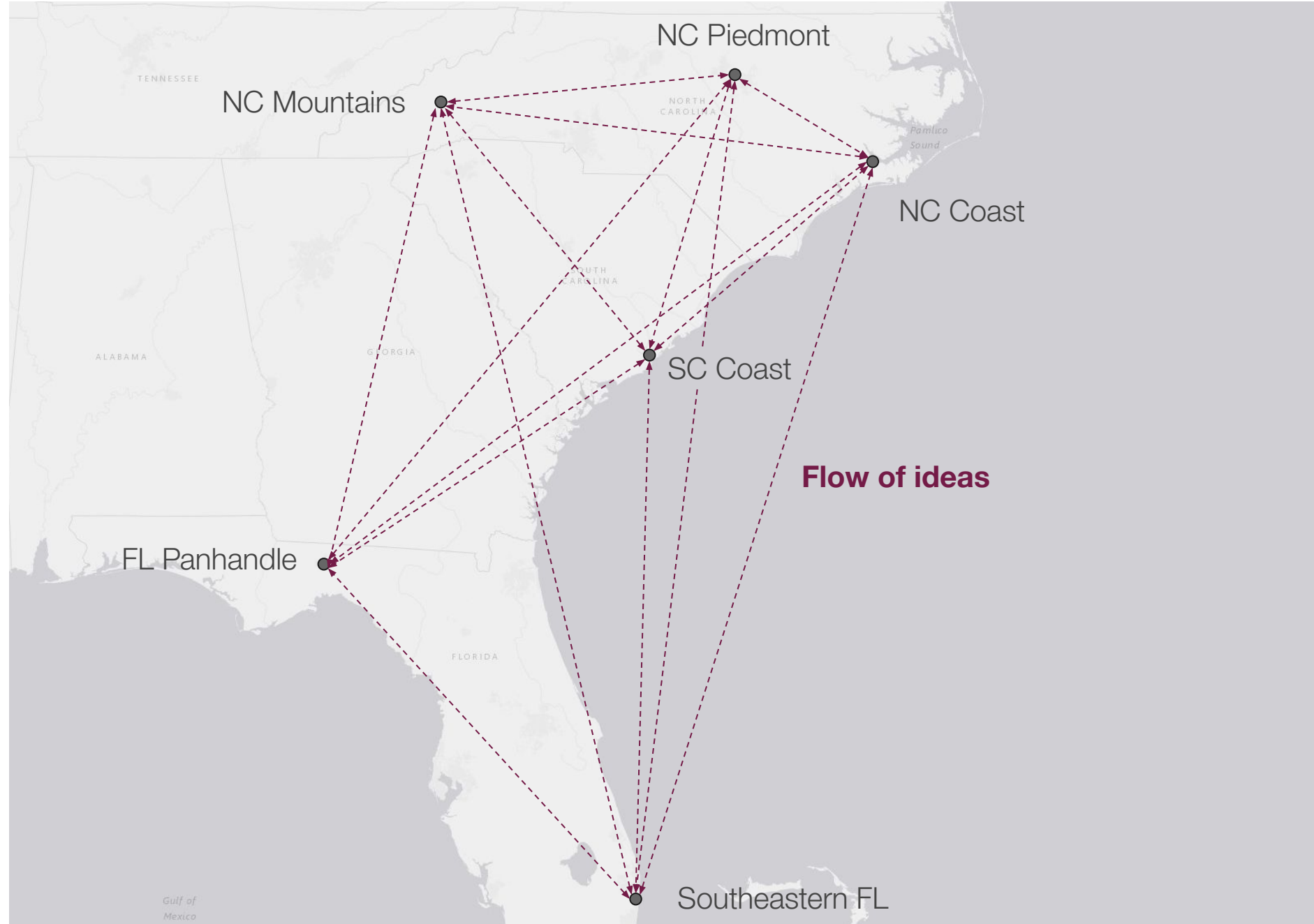
Process for informing action



Dozens of improvements
from 60+ jurisdictions

Network of local gov staff
aligned on approach

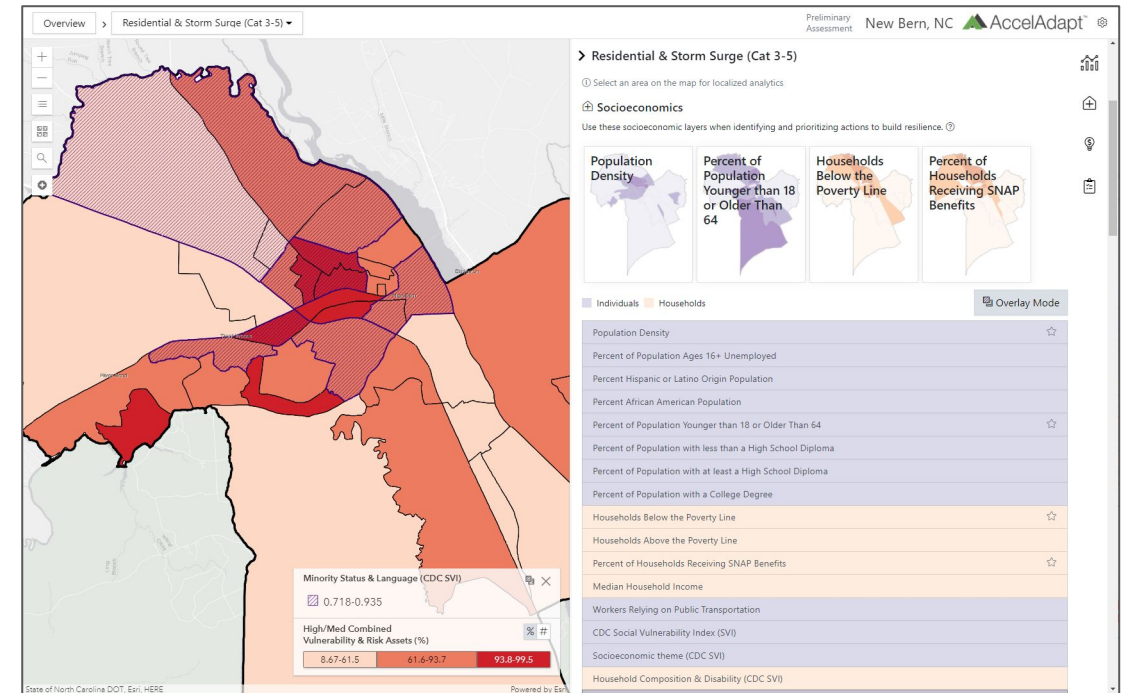
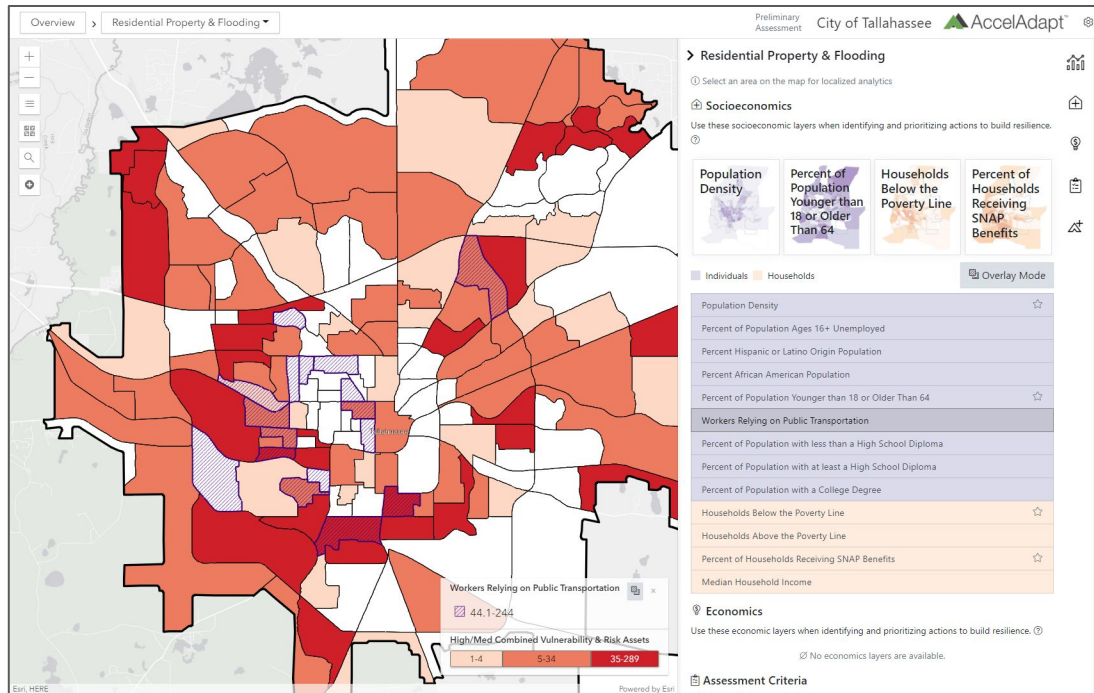
Still lots to do!



What if?



That's helpful!



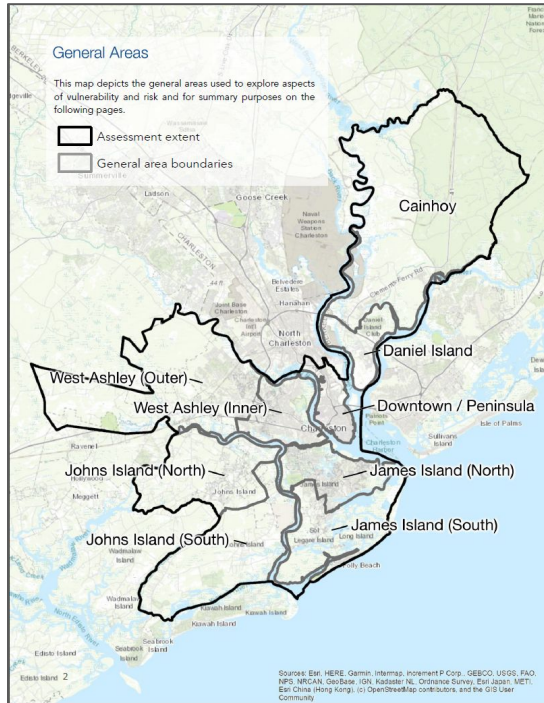
What if?



City of Charleston
South Carolina

That's helpful!

LAND of SKY
REGIONAL COUNCIL

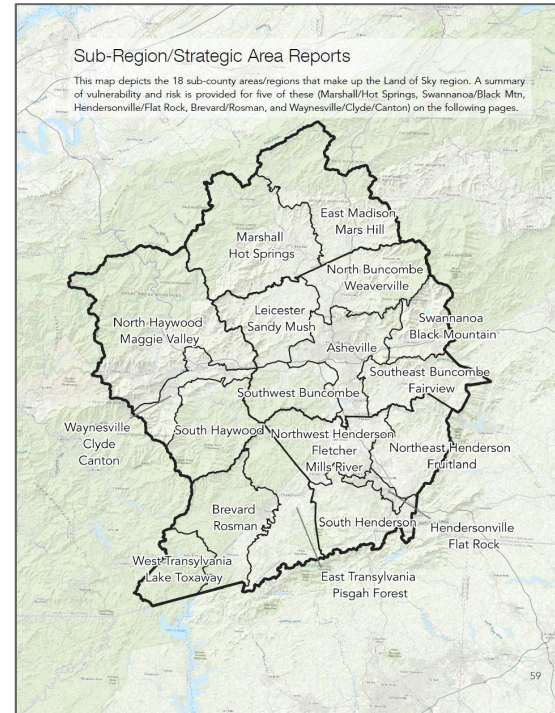


Daniel Island Area Report

Daniel Island	Asset Total (% of citywide)	FEMA Flooding	Storm Surge	Tidal Flooding	Sea Level Rise / Future Tidal Flooding	Earthquake	Dam Failure	Hazmat
Theme / Asset		3 ft + MHHW	5 ft + MHHW					
Property & Public Services								
Commercial	126 (4%)	116 (92%)	116 (92%)	0 (0%)	1 (1%)	13 (10%)	36 (29%)	115 (91%)
Residential	3,720 (6%)	3,438 (92%)	3,490 (94%)	35 (1%)	114 (3%)	1,685 (45%)	714 (19%)	3,395 (91%)
Critical Facilities	11 (3%)	8 (73%)	9 (82%)	0 (0%)	0 (0%)	4 (36%)	8 (73%)	9 (82%)
Government-Owned	5 (3%)	1 (20%)	1 (20%)	0 (0%)	0 (0%)	5 (100%)	5 (100%)	1 (20%)
Parks and Cultural	18 (3%)	11 (61%)	11 (61%)	0 (0%)	1 (6%)	11 (61%)	16 (89%)	9 (50%)
Roads & Mobility								
Major Roads Inaccessible (lane miles)	29 (5%)	16.2 (55%)	27.7 (94%)	3.6 (12%)	4.1 (14%)	6.3 (21%)	5 Bridges	N/A
Minor Roads Inaccessible (lane miles)	128 (4%)	121.2 (95%)	127.7 (100%)	5.9 (5%)	15.4 (12%)	84.4 (66%)		
Inaccessible Property	4,697 (7%)	4,592 (98%)	4,691 (100%)	489 (10%)	1,330 (28%)	3,329 (71%)		
Economic								
Annual Sales Volume	225M (2%)	225M (100%)	225M (100%)	0M (0%)	6M (3%)	35M (16%)	N/A	N/A
Jobs / Employees	2,192 (3%)	2,192 (100%)	2,192 (100%)	0 (0%)	20 (1%)	290 (13%)		
People & Socioeconomics								
Overall SVI	Low (area has among the lowest social vulnerability in the City)							
Public Housing	1 (100%)	1 (100%)	0 (0%)	0 (0%)	1 (100%)	N/A	N/A	N/A
SNAP Retailers	1 (100%)	1 (100%)	0 (0%)	0 (0%)	0 (0%)	N/A	N/A	N/A

Appendix D: General Area Reports

3



Marshall, Hot Spring Area Report

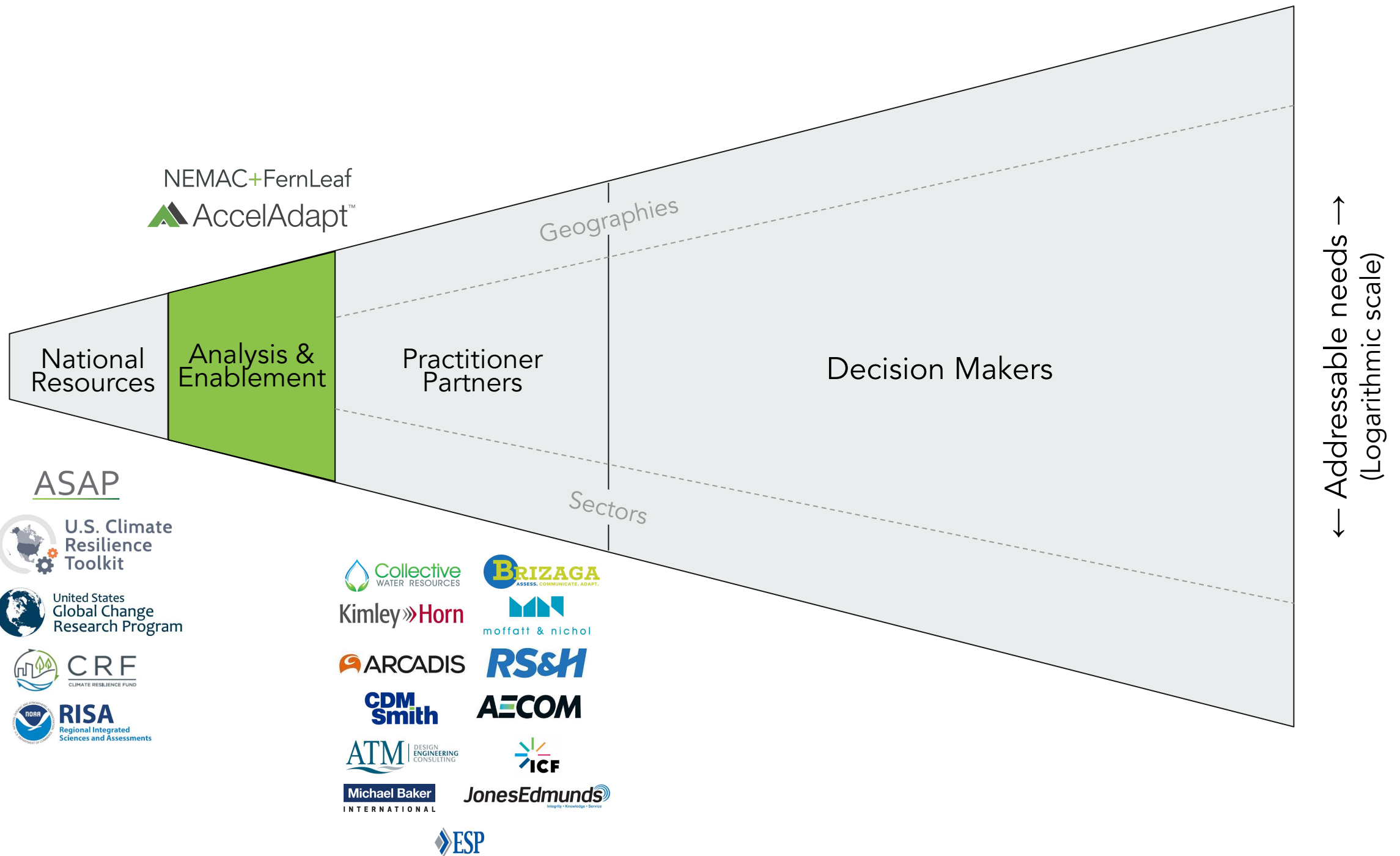
Marshall, Hot Springs	Asset Total (% of region)	FEMA Floodplain Flooding	Wildfire	Landslide
Theme / Asset				
Property & Public Services				
Commercial	136 (2%)	59 (43%)	133 (98%)	N/A
Residential	2,631 (1%)	166 (6%)	28 (1%)	N/A
Gov-owned & Critical Facilities	98 (3%)	32 (33%)	98 (100%)	N/A
Natural Property	1,585 (13%)	324 (20%)	1,483 (94%)	N/A

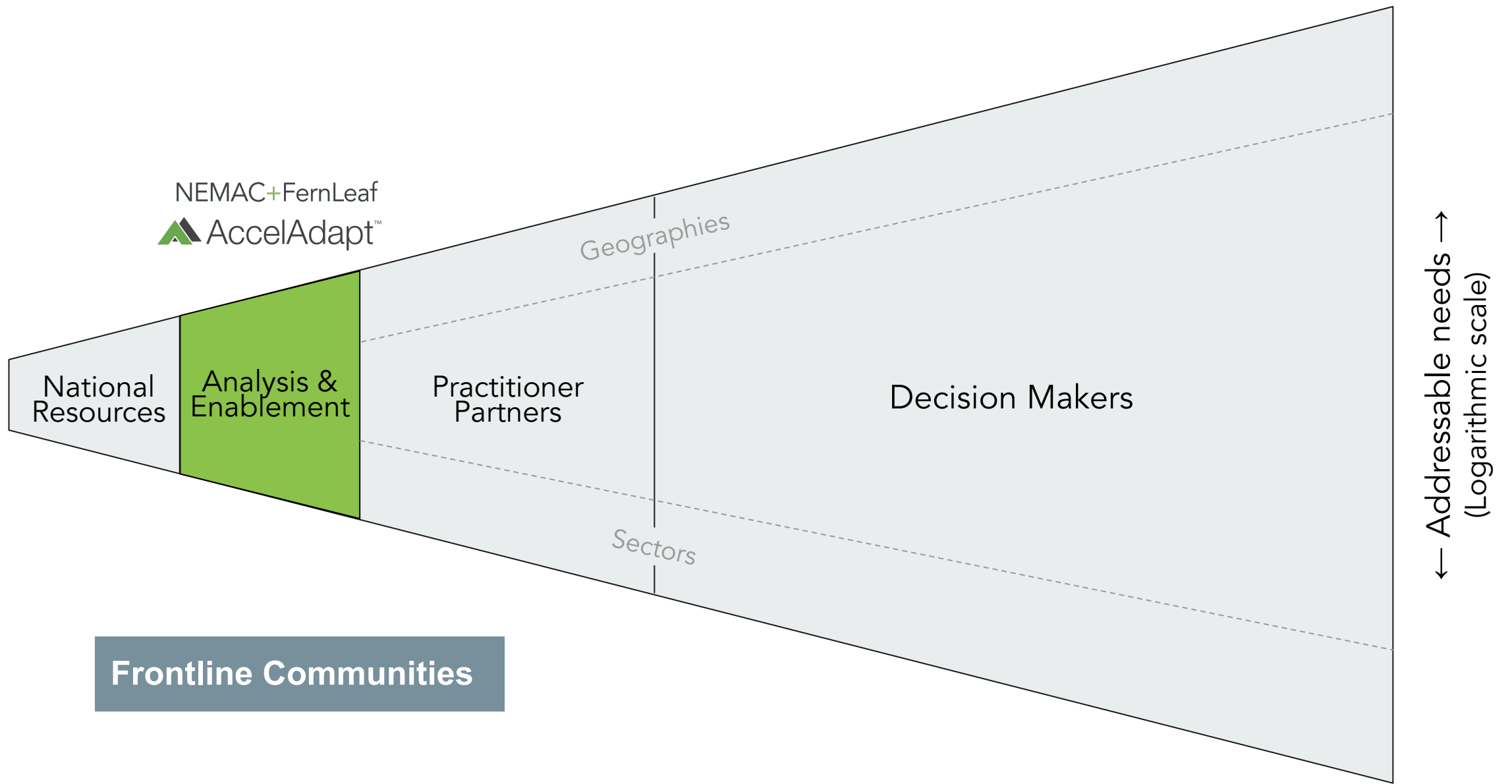
Swannanoa, Black Mountain Area Report

Swannanoa, Black Mountain	Asset Total (% of region)	FEMA Floodplain Flooding	Wildfire	Landslide
Theme / Asset				
Property & Public Services				
Commercial	433 (5%)	83 (19%)	424 (98%)	60 (14%)
Residential	8,323 (4%)	130 (4%)	112 (1%)	795 (10%)
Gov-owned & Critical Facilities	295 (8%)	77 (26%)	294 (100%)	116 (39%)
Natural Property	430 (4%)	57 (13%)	383 (89%)	278 (65%)

Note: Asset total column percentages reflect percent region-wide. All other percentages reflect the percent of assets within the area that are vulnerable and at risk.

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Reflection & Discussion

Beth Gibbons, ASAP Executive Director
Jeff Hicks, NEMAC + Fernleaf

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Thank you to our presenters, discussant & moderator!

- ▶ Jim Fox, Senior Resilience Associate, NEMAC+FernLeaf
- ▶ Geoffrey Habron, Ph.D., Professor of Sustainability Sciences, Furman University
- ▶ Amanda Martin, Ph.D. Deputy Chief Resilience Officer, North Carolina Office of Recovery and Resiliency
- ▶ Aashka Patel, Resilience Specialist, NEMAC+Fernleaf
- ▶ Mary Roderick, Ph.D. Regional Planner, Land of Sky Regional Council
- ▶ Jeff Hicks, CEO, NEMAC+FernLeaf

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Assisting members to excel in their current jobs through mentorship and access to peer learning; explore new opportunities through weekly jobs and boards

Co-Creation Webinar Series *Webinar 6*

April 2021

TBD

Contact Beth Gibbons
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