

Gwinnett County Sustainability Commission**Wednesday, May 15, 2024 at 5:30pm**

Gwinnett Justice and Administration Center, Second Floor,
Facilities Management Conference Room B,
75 Langley Drive, Lawrenceville, Georgia 30046

Present: Robert Blatecky, Dr. Marshall Shepherd, Krupesh Patel, Dr. Candace Timpte

Absent: Daniel Hilton

Resident Attendees: In person: 1

Employee Attendees: In person: 3

1. Call to Order

Robert Blatecky, Chairperson, called the meeting to order and welcomed everyone at 5:30pm.

2. Approval of Agenda

{Action: Approved: Shepherd; Second: Timpte; Vote: 4-0; Blatecky-Yes; Patel-Yes; Shepherd-Yes; Timpte-Yes}

3. Approval of Minutes

- April 17, 2024 meeting

{Action: Approved: Timpte; Second: Patel; Vote: 4-0; Blatecky-Yes; Patel-Yes; Shepherd-Yes; Timpte-Yes}

4. Sustainability Officer and GCSC member updates

Mendie White provided updates on attendance and topics discussed at the Southeast Sustainability Directors Workshop, highlighting upcoming potential federal grant funding opportunities. Krupesh provided an update on his meeting with Commissioner Ku. Candace provided an update on business survey topics. Robert discussed potential business collaborators. The group discussed using the meeting in June to further discuss the business survey.

5. Speaker Presentation – Dr. Jairo Garcia, of Ga Tech, on Sustainability Urban Environments

Dr. Garcia provided an overview of the GA Tech's program to conduct and provide climate vulnerability assessments for local governments (see attached presentation).

Dr. Shepherd requested a motion for the County to move forward and utilize Dr. Garcia and GA Tech's program to complete the assessment.

{Action: Approved: Shepherd; Second: Timpte; Vote: 4-0; Blatecky-Yes; Patel-Yes; Shepherd-Yes; Timpte-Yes}

6. Public Comments

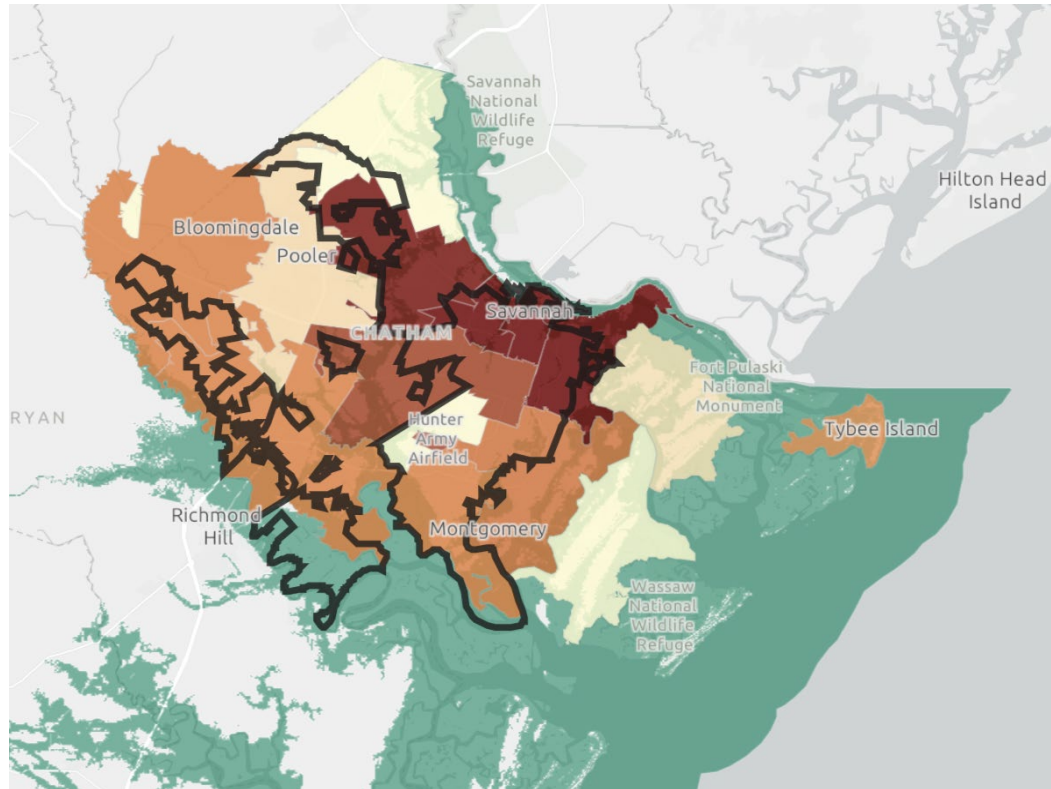
Dr. Scott Presson commented on the availability of federal grant funding opportunities to address climate change.

7. Adjournment

The meeting was adjourned at 6:35pm.

{Action: Approved: Shepherd; Second: Timpte; Vote: 4-0; Blatecky-Yes; Patel-Yes; Shepherd-Yes; Timpte-Yes}

Climate Vulnerability Assessments in Georgia Using Spatial Analysis



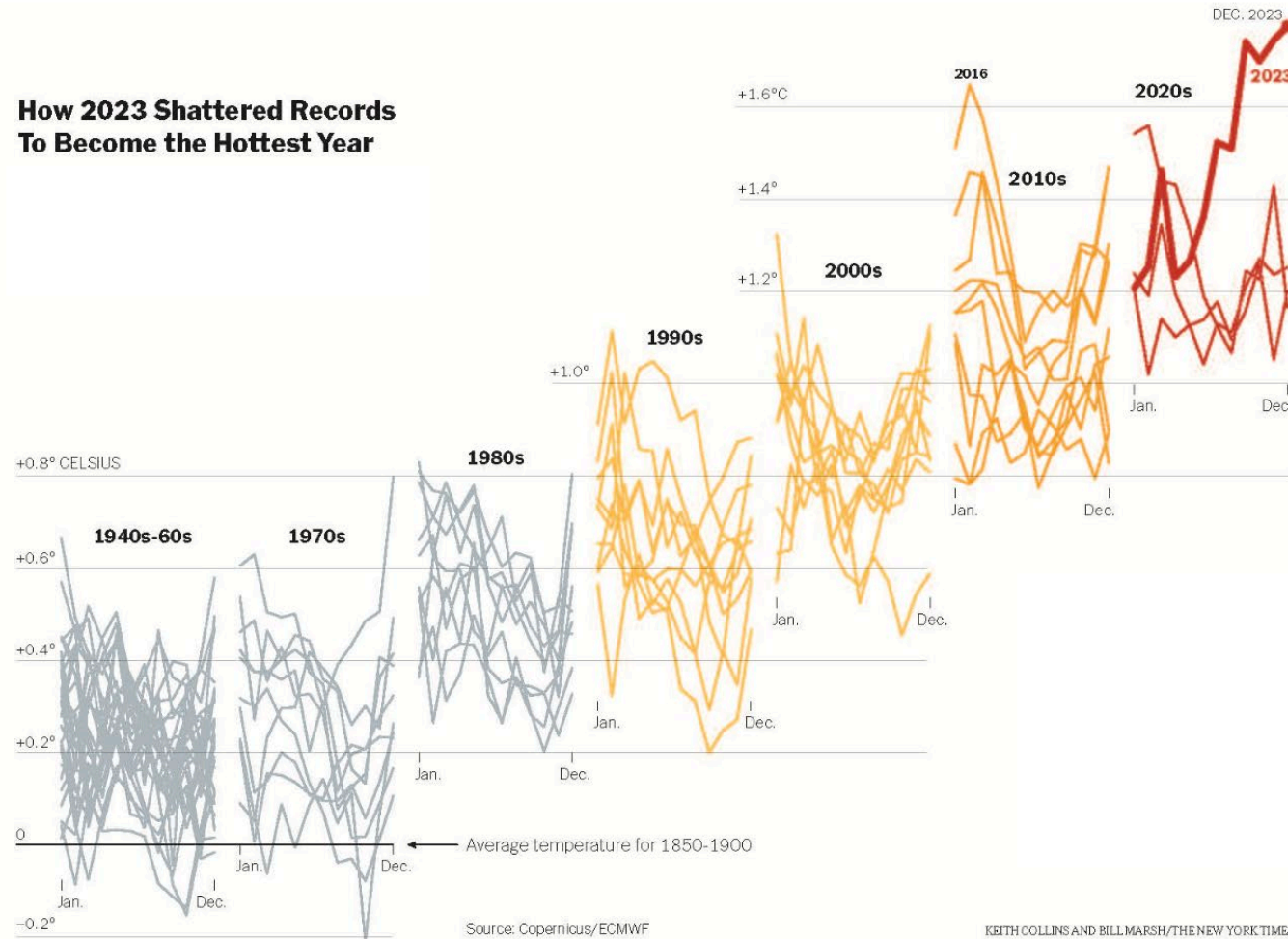
Dr. Jairo Garcia
2024

What's Going On in This Graph? | 2023 Global Temperatures

How has the temperature changed over the past decades?

Share full article 406

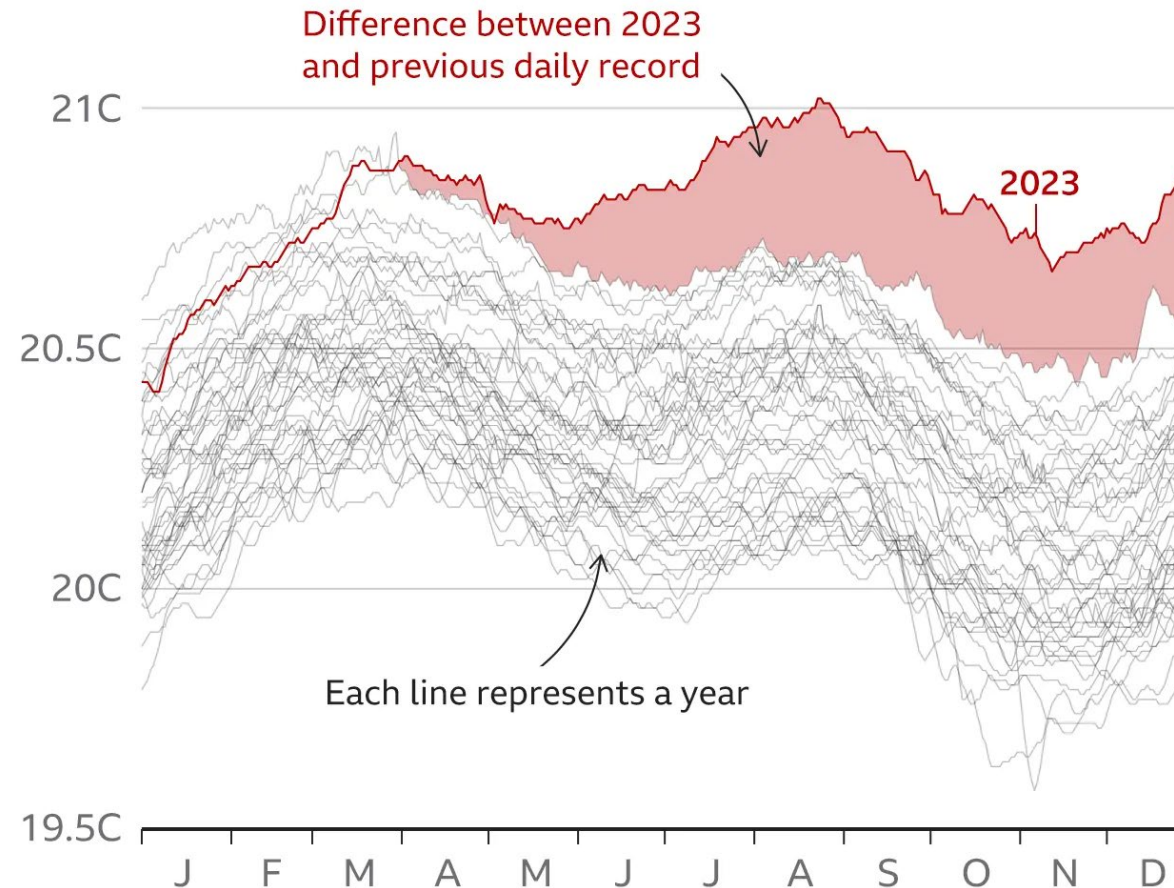
How 2023 Shattered Records To Become the Hottest Year



Note: One degree Celsius equals 1.8 degrees Fahrenheit.

Ocean temperatures highest on record

Daily average sea surface temperature, 1979-2023



Note: Temperatures between latitudes 60° North and 60° South

Source: ERA5, C3S/ECMWF (data until 30 Dec 2023)

B B C



U.S. Copyright Office Fair Use - Source: <https://www.11alive.com/article/news/local/clark-atlanta-university-flooding-students-displaced/85-c15ca39e-3e2e-43e7-9933-218abb5903c2>



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School of City & Regional Planning

College of Design

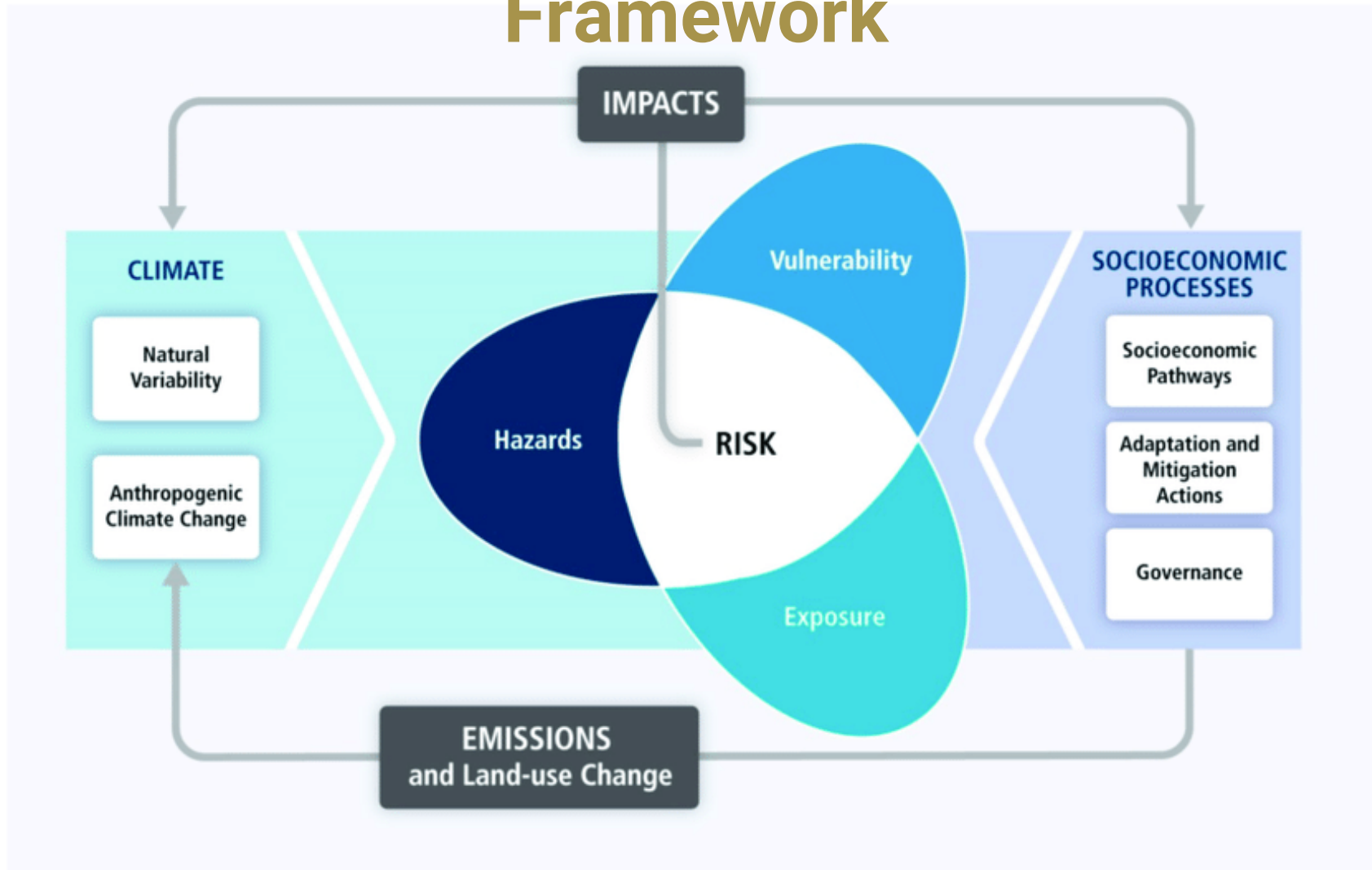
About | Academics | Admissions | Research & Engagement | Current Students | People | News & Events



Minor in Sustainable Cities

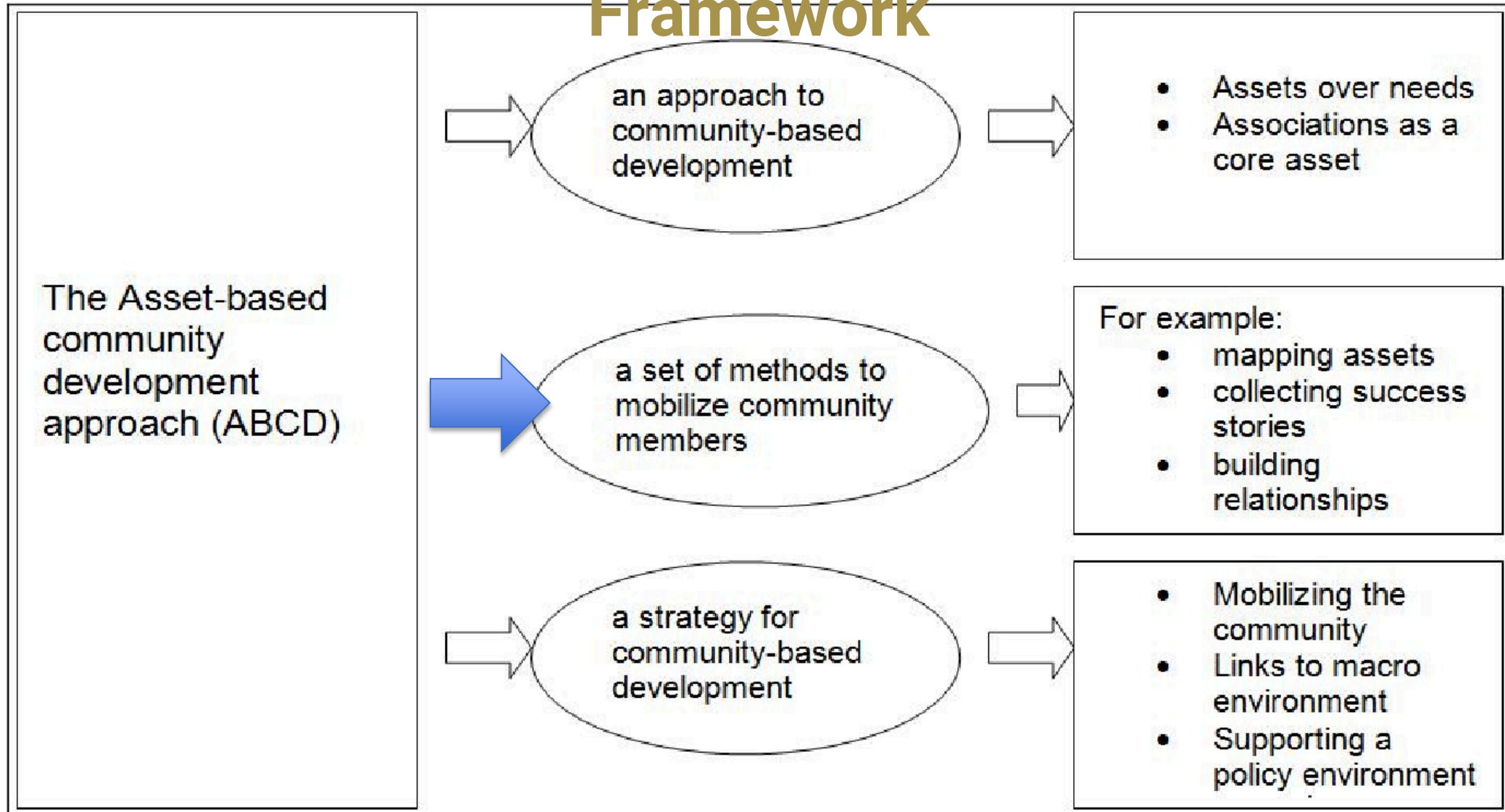
The minor in Sustainable Cities emphasizes sustainability, community engagement, and social justice. It provides students with a deep learning experience that integrates classroom learning and real-world, community-based project experience in creating sustainable communities, with a focus on the built urban environment. The minor is affiliated with **Serve-Learn-Sustain (SLS)**.

Framework



IPCC (2014). AR5 Risk-Vulnerability Conceptual Framework : <https://www.ipcc.ch/report/ar6/wg2/>

Framework



Satovuori, Anna. "Applying asset-based community development approach to community-based tourism: The Case of Beni Na'im in Palestine." (2016).

Fall 2019: Downtown Atlanta



Sustainable Cities Studio Class Fall of 2019 with Central Atlanta Progress Sustainability Director – Audrey Leous

DOWNTOWN ATL
Climate Vulnerability Assessment

Home About Method Mapping Library Proposed Solutions References

Climate Vulnerability Assessment for CAP of Downtown
ATLANTA

View Our Project

GIS MAPPING

Check out our GIS maps!

They're an interactive way to see what vulnerabilities affect different parts of Downtown. Make sure to click on the content icon to view the other maps and play around!

<https://cpcapstone2019.wixsite.com/mysite>

Maps Table of Contents

- Downtown Boundary, NPU's, Roads, and Downtown Buildings Outlines

Economic Team Maps:

- Small business by Zip Code 2015
- Small businesses loans 2014
- Restaurant Visits in the Downtown Area
- Commercial Electricity Consumption
- Residential Electric Consumption
- Percent Unemployed

Social Team Maps:

- Energy Burden
- Percent Uninsured
- Percent in Poverty
- Transit Frequency by Parcel
- Asthma Count

Environmental Team:

- CO2 Emissions from Electricity
- Parcel Flood Map
- NDVI Heat Map
- Urban Heat Island
- Downtown Flood

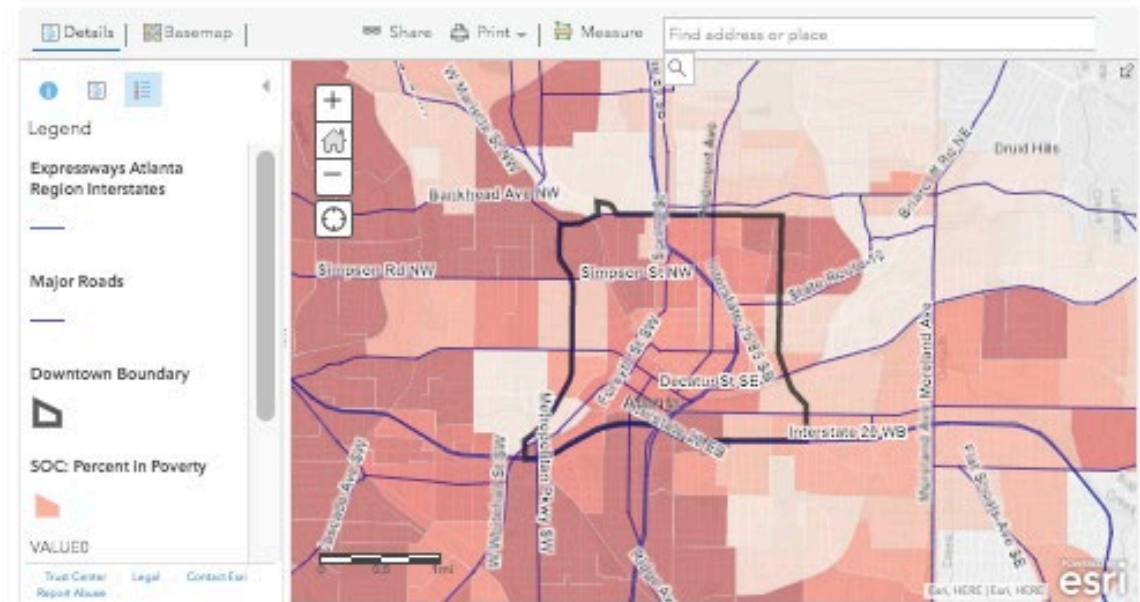
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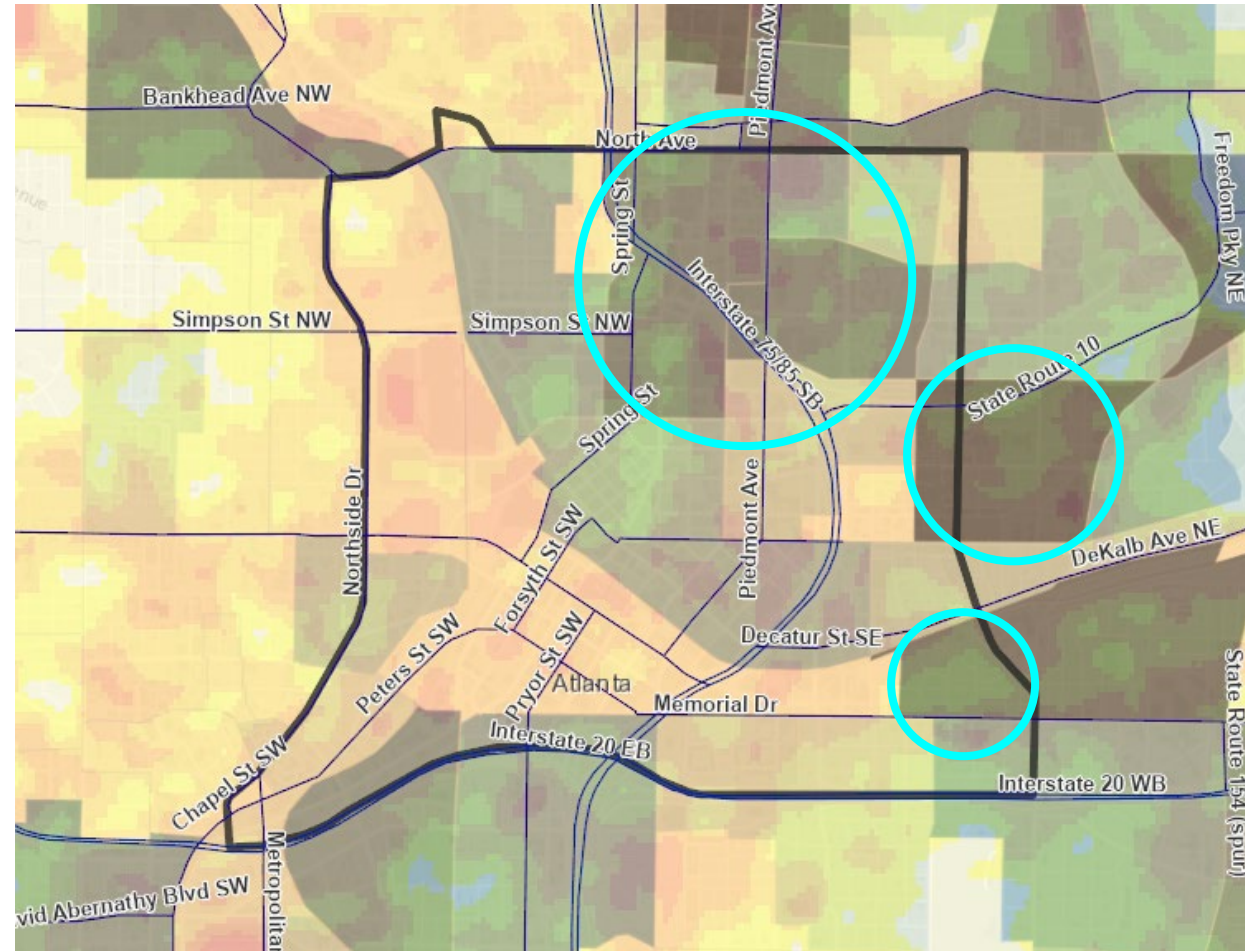
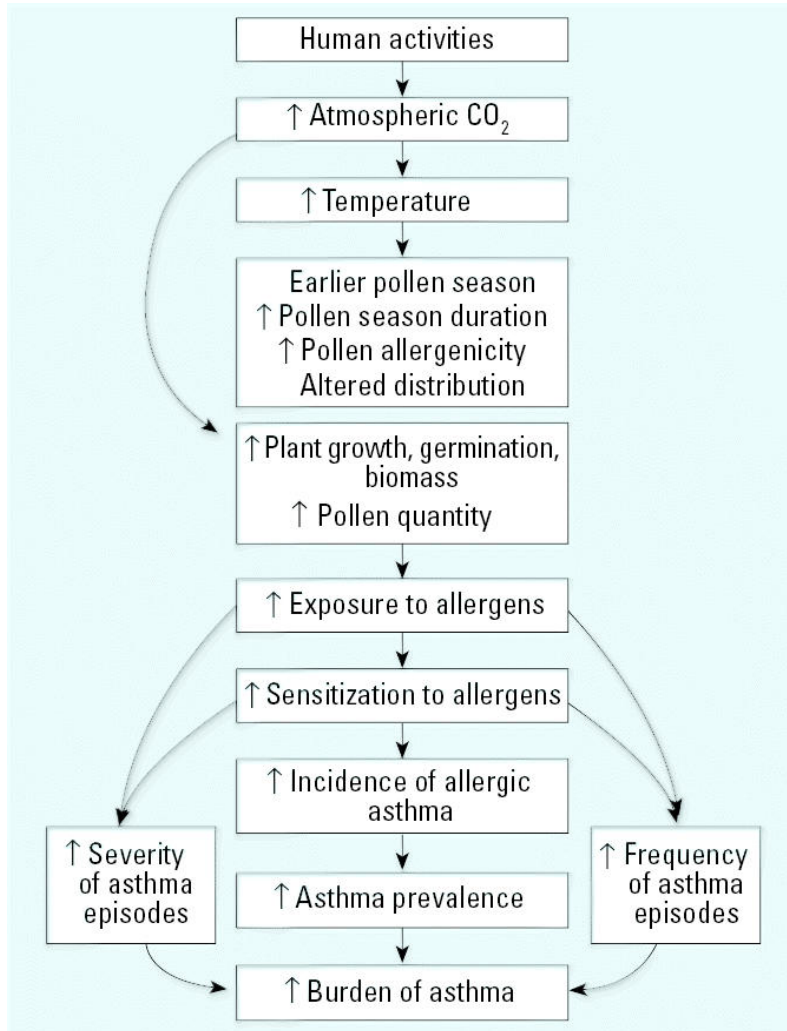


ArcGIS Spatial Analysis of Sustainability and Climate Vu... Open in new Map Viewer Modify Map & Sign In



Analysis

Correlations between Urban Heat Island, Asthma, and Unemployment:



Asthma Counts + Urban Heat Island

PARCEL FLOOD MAP

Science & Technology Team

Spatial Analysis of Sustainability and Climate Vulnerabilities in Downtown Atlanta



Enr, HERE | The Trust for Public Land, Descartes Labs, USGS | Community Reinvestment Act (CRA), Atlanta Regional Commission | • U.S. Census: County Business Patterns • Atlanta Regional Commission | Enr, HERE



unitar



cifal



KENNESAW STATE
UNIVERSITY

Georgia
Tech



RCE
GREATER ATLANTA

Findings Summary

- Dr. Garcia and team developed a Climate Vulnerability Assessment of downtown Atlanta
 - Data analytics and GIS mapping for the social, economic, and environmental vulnerabilities affecting downtown
 - Most fascinating aspect → each map has a description, source, implications why it matters, and possible connections with other maps



Summer 2020: City of Savannah

SAVANNAH, GA
Climate Vulnerability Assessment

HOME ABOUT TEAMS SPATIAL ANALYSIS FINDINGS

Our research project's aim is to analyze climate and social vulnerabilities in the City of Savannah, and to then recommend sustainable solutions for those vulnerabilities.

Georgia Tech
School of City and Regional Planning
Serve-Learn-Sustain

FEATURED PROJECT

GLOBAL CLIMATE ACTION SYMPOSIUM
VIRTUAL & HYBRID
OCT 6, 7, 8 9AM - 12PM Free Event

Featured Student Project
Global Climate Action Symposium at Georgia Tech
October 2020

HAZARDING GEORGIA'S FUTURE

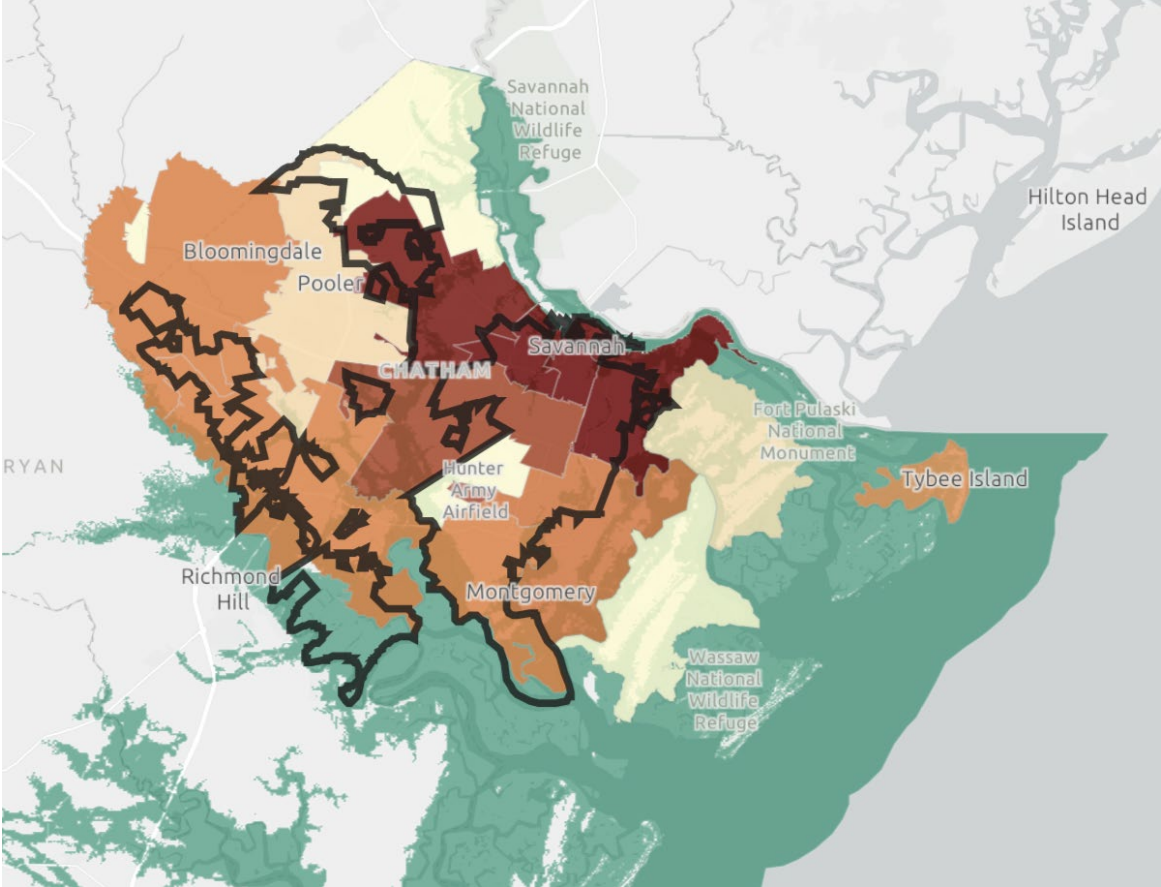
Featured Poster Presentation
Georgia Department of Natural Resources Climate Conference
August 2021

INNOVATE CITIES

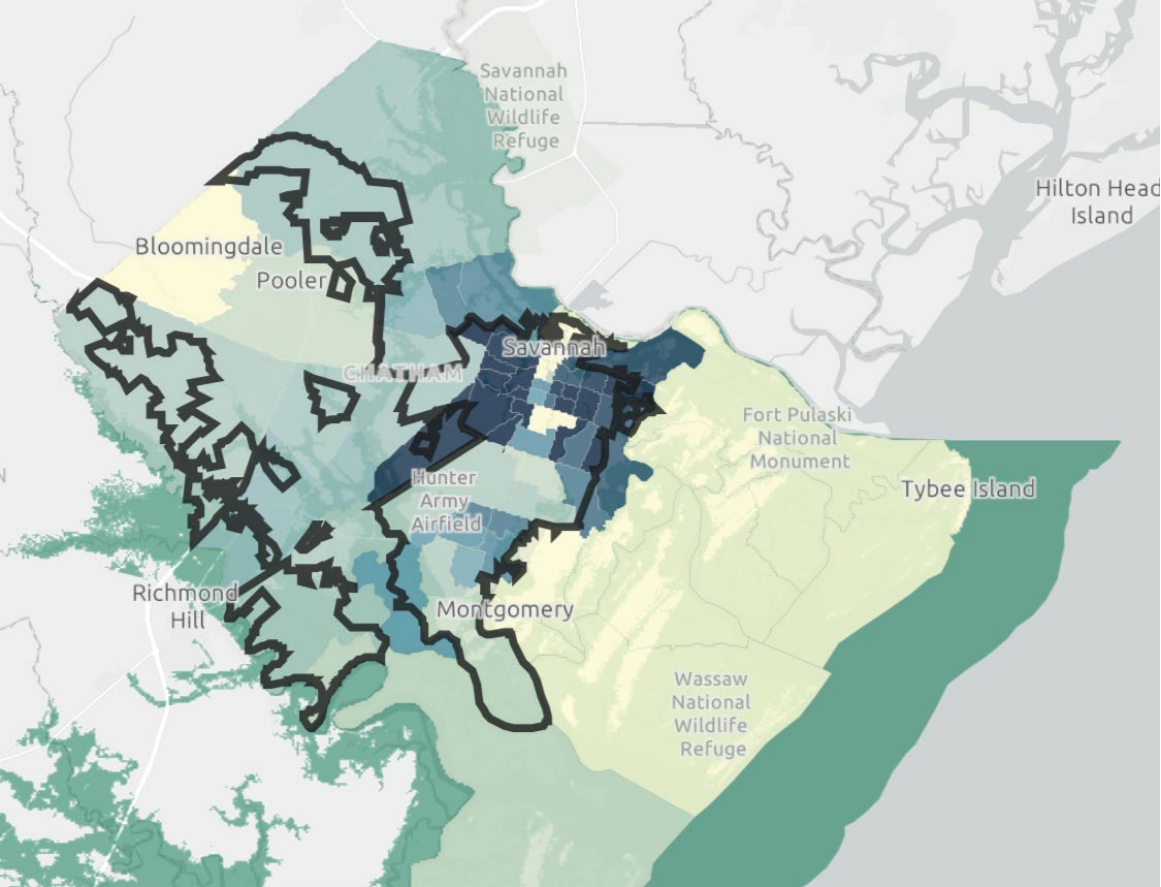
Featured Parallel Session
UN Habitat Innovate4Cities Conference
October 2021

<https://cpcapstone2020.wixsite.com/mysite>

Analysis



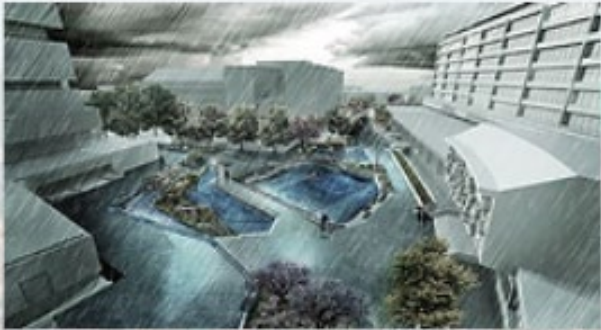
Overlapping Projected Flooding and Percentage Poverty by zip code



Overlapping Projected Flooding and Percentage Black or African American Population

Takes Away

Flood Mitigation



Environmental Recommendations:

- Implement outreach programs to educate citizens on the effects of flooding and how to react in the event of one
- Invest in flood prevention infrastructure ranging from sea walls to retention ponds
- Provide funding for flood recovery and flood-proofing in impoverished neighborhoods.

Economic Recommendations:

- Provide incentives/subsidies for businesses to implement risk-reduction measures.
- Support businesses and residents by providing information, such as a Flood Response Toolkit.
- Savannah should apply existing climate change measures for residential buildings to small businesses
- A benefit-cost analysis should be conducted before funding any flood-mitigation project

Water Supply



Equity Recommendations:

- Savannah must regularly monitor the water supply and adapt to changes in the urban environment
- Alternative water sources should be identified in case of contamination

Summer 2021: DeKalb County



DEKALB COUNTY, GA
Climate Vulnerability Analysis

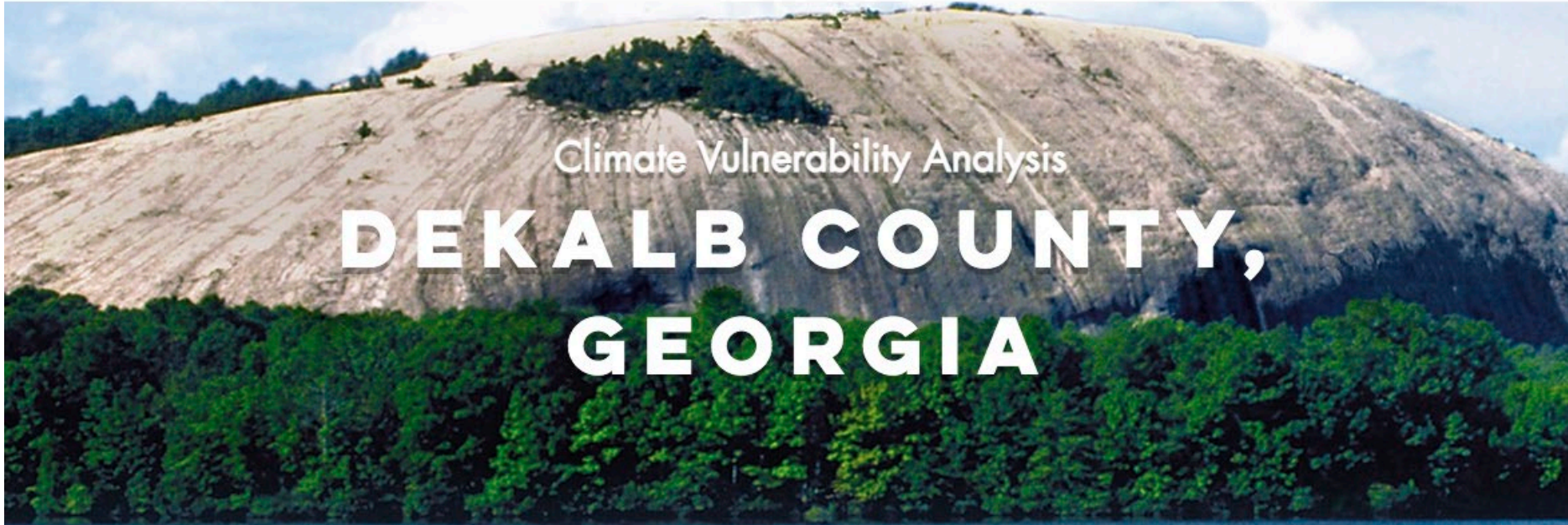
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Climate Vulnerability Analysis

DEKALB COUNTY, GEORGIA

Our project's purpose is to analyze the climate and social vulnerabilities within DeKalb County, Georgia. Provided in this website are the details of our analyses and solutions to the vulnerabilities we found.

Georgia Tech  Serve
Learn
Sustain

Maps Created

Environmental Maps

- Floodplains
- Total Energy Consumption

SocioEconomic Maps

- Total Businesses
- Total Business Sales
- Movie/Amusement Businesses
- Health Services Sales
- Education/ Library Businesses

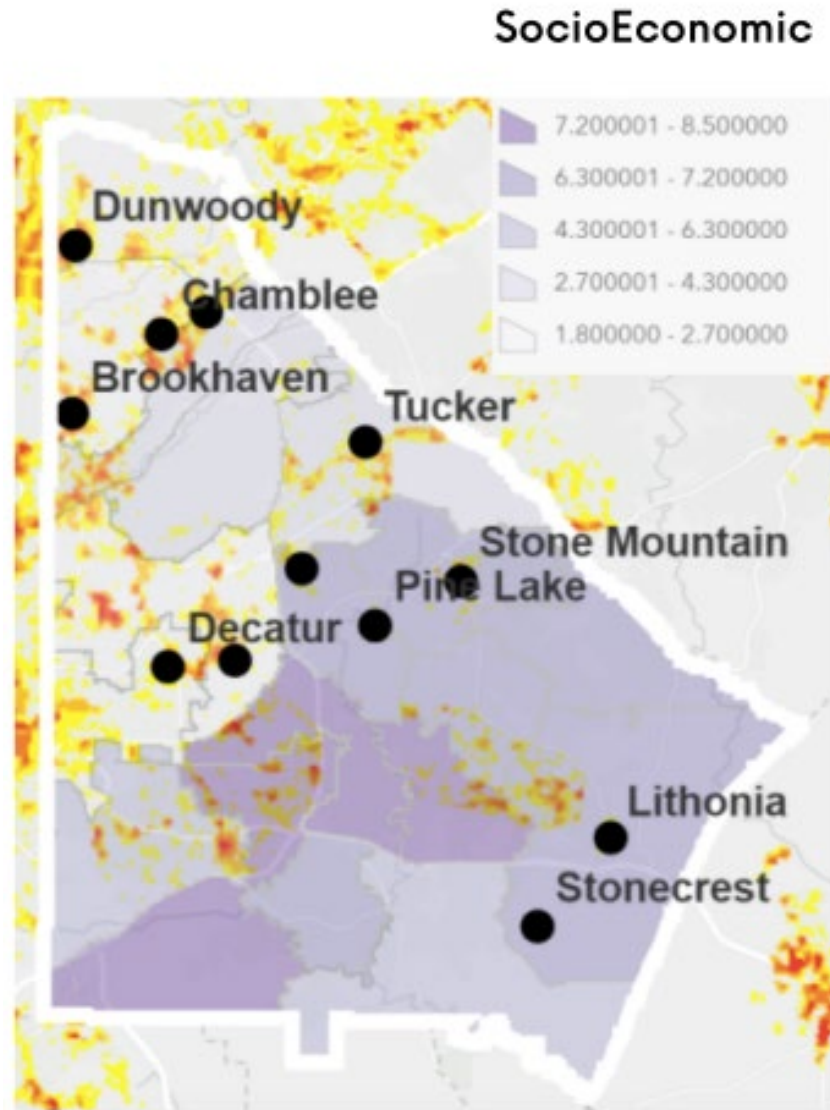
- Urban Heat Island Effect
- Tree Canopy

- Food Stores
- Housing Affordability
- Per Capita Income
- Population age 19-64 employed,
no health insurance

- Surplus Solar Energy after
Energy Consumption

- Population in Poverty (%)
- Vehicle Accessibility
- Civilian Unemployment (%)
- Food Deserts - Low Income,
Low Access (LILA)

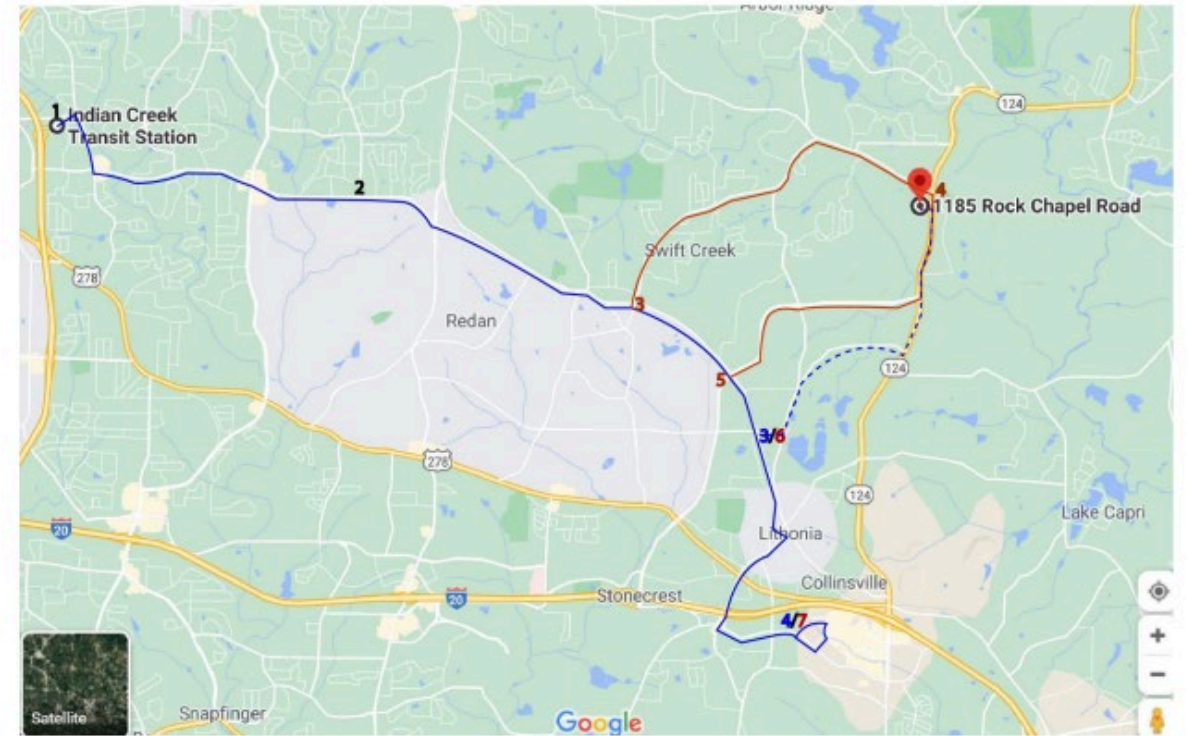
Analysis



Overlapping heat, unemployment, and
respiratory diseases

Takes Away

- Green Infrastructure (GI) to identify existing organizations, individuals, and groups that could work together to increase GI in the entire county.
- Expand bike lane coverage and pedestrian infrastructure to improve existing alternative transportation routes.
- Expand transit access and connectivity to the EMBARC Youth Farm to address food deserts by having access to a center where produce can be grown and sold.



Note. This image shows the EMBARC site in relation to the nearest MARTA bus stop (blue) and the proposed new bus stop in red. The blue dashed line indicates the walking path from the nearest existing bus stop to the EMBARC site.

Summer 2022: Clayton County

CLAYTON COUNTY, GA   

Climate Vulnerability Assessment

Home

New Page

About

Research



Climate Vulnerability Assessment

<https://jairohgarcia.wixsite.com/claytoncountycva2022>

Maps

The image shows a web-based map interface. On the left is a legend with two columns of items. The first item, 'CLAYTON COUNTY BOUNDARY', is checked with a blue square. The other items are unchecked. On the right is a map of Clayton County, Georgia, highlighted with a thick black border. The map shows surrounding counties like Cobb, DeKalb, Douglas, and Fulton, and cities like Atlanta, Marietta, and Roswell. A navigation panel with a back arrow, zoom in (+), and zoom out (-) buttons is located above the map.

Legend	
<input checked="" type="checkbox"/> CLAYTON COUNTY BOUNDARY	<input type="checkbox"/> ENV CLAYTON LAKES
<input type="checkbox"/> COMMISSION DISTRICT BOUNDARIES	<input type="checkbox"/> ENV CLAYTON RIVERS AND STREAMS
<input type="checkbox"/> CLAYTON CITIES	<input type="checkbox"/> ENV FLOOD MAP
<input type="checkbox"/> ECO CLAYTON AIR TRAVEL	<input type="checkbox"/> SOC TOTAL HOUSING UNITS
<input type="checkbox"/> ENV GEORGIA RIVERS AND STREAMS	<input type="checkbox"/> SOC TOTAL POPULATION
<input type="checkbox"/> ENV CLAYTON LAKES	<input type="checkbox"/> SOC POP DENSITY HALFMILE
<input type="checkbox"/> ENV CLAYTON RIVERS AND STREAMS	<input type="checkbox"/> SOC TRANSIT
<input type="checkbox"/> ENV FLOOD MAP	<input type="checkbox"/> ECO ROAD MAIN HIGHWAYS
<input type="checkbox"/> SOC TOTAL HOUSING UNITS	<input type="checkbox"/> ECO ROAD STATE INTERSTATE
<input type="checkbox"/> SOC TOTAL POPULATION	<input type="checkbox"/> ECO LOCAL STREETS
<input type="checkbox"/> SOC POP DENSITY HALFMILE	<input type="checkbox"/> ECO AVERAGE MEAN INCOME
<input type="checkbox"/> SOC TRANSIT	<input type="checkbox"/> ECO GROCERY STORES
<input type="checkbox"/> ECO ROAD MAIN HIGHWAYS	<input type="checkbox"/> SOC PUBLIC PARTNER AGENCIES
<input type="checkbox"/> ECO ROAD STATE INTERSTATE	<input type="checkbox"/> SOC TRANSIT ROUTE

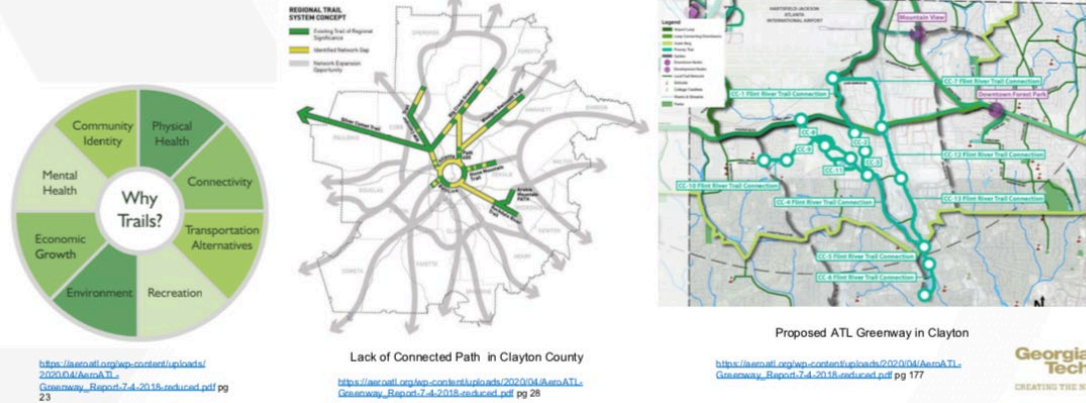
Analysis

Finding the Flint (Asset)



AeroATL Greenway Trail Expansions (Asset)

Goal: create a greenway system that provides the Aerotropolis communities with **an integrated, comprehensive bike/pedestrian trail system** that improves the quality of life, health, connectivity, and economic growth of the Aerotropolis region



Transportation (Deficit)

Needs/Lacks

- Multi-use trails for pedestrians, cyclists, and wheelchair users
- Connection to MARTA and transit services
- Improvement of safety on roadways
- Multi-use connections between employment and activity centers
- Gateway to county

Opportunities

- Join or provide connectivity to marta
- Repave existing roadways and potholes
- Education about passenger rail
- Bike facilities
- Improve streetscape environment (Tara Boulevard, Highway 85, and Highway 42)
- Welcoming gateway to community
- Network of trails
- Planning and implementation assistance through the ARC (Atlanta Regional Commission) **Livable Centers Initiative Program**

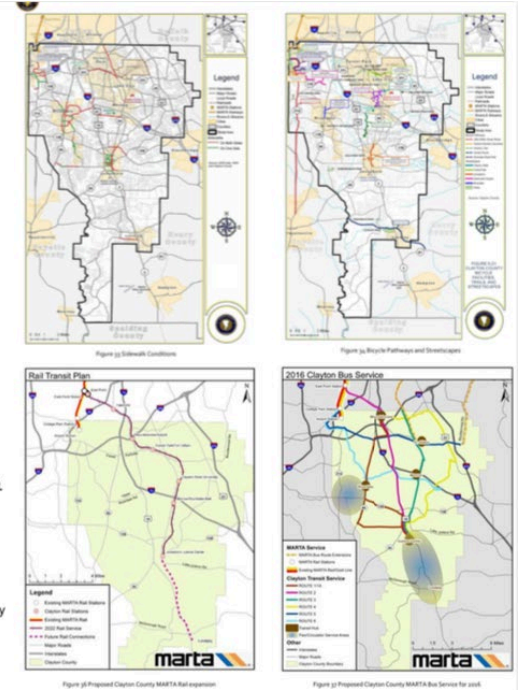
2022: Clayton County and the cities of Jonesboro and Lovejoy (Grant Amount: \$400,000)

Tara Gateway Study → improve pedestrian safety, access to bus routes, catalyze development, Goal: a true gateway for Clayton County

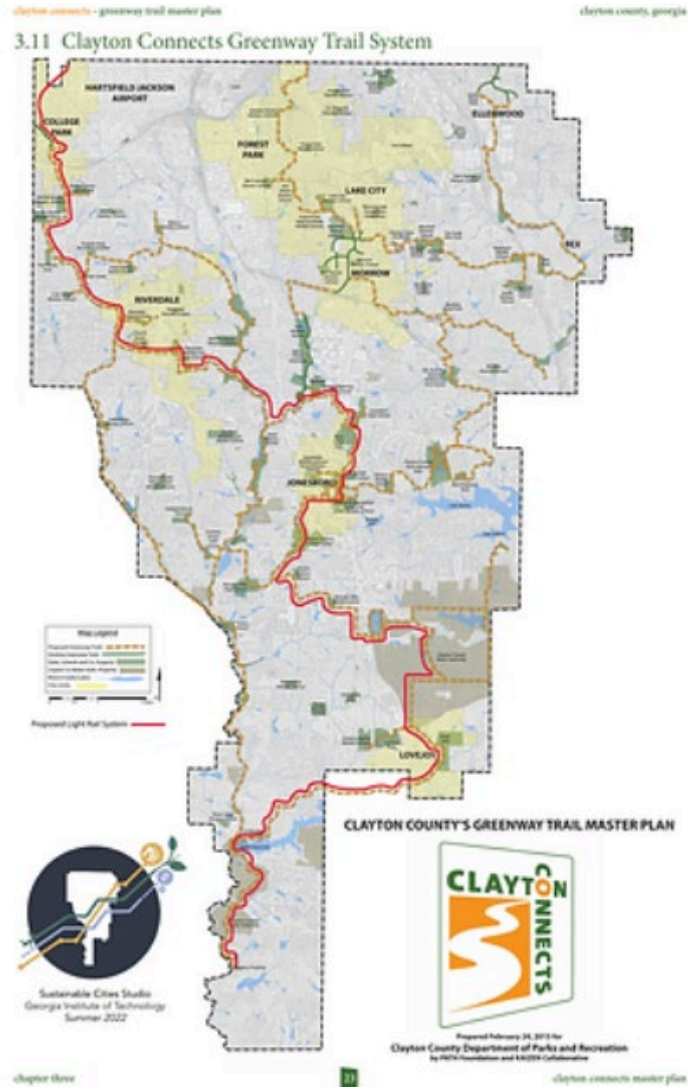
2020: City of Forest Park (Grant amount: \$120,000)

The Forest Park Downtown Master Plan Update → a five-year development and implementation strategy that capitalizes on the city's vacant properties and creating access to retail, residential, and commercial development and the city's proximity to Hartsfield-Jackson Atlanta International Airport.

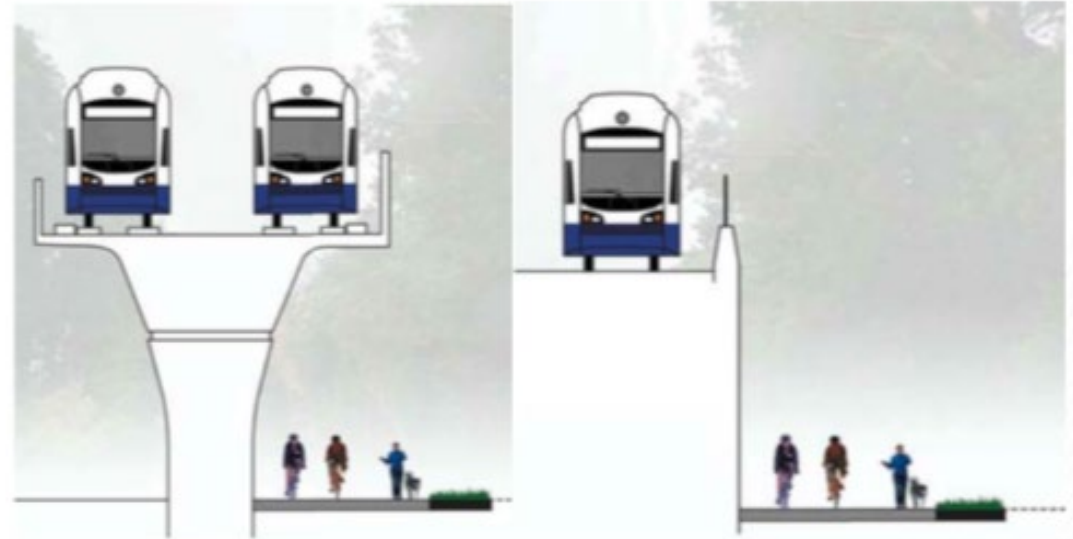
Source: Clayton Forward: Comprehensive Plan | 2014-2034
Smith, A. (2022, May 16). *Livable centers initiative*. ARC. <https://atlantaregional.org/community-development/livable-centers-initiative>



Takes Away



Click to Explore:



Concept Designs of Shoreline, Washington Project
[https://www.shorelinewa.gov/home/showpublisheddocument/
32366/636427145867800000](https://www.shorelinewa.gov/home/showpublisheddocument/32366/636427145867800000)

Fall 2022: Cobb County



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Welcome to the Cobb County Climate Vulnerability Assessment | Fall 2022 Sustainable Cities Studio

We are Georgia Tech students enrolled in the Sustainable Cities Studio with Professor Jairo Garcia. Our goal is to determine the climate vulnerabilities in Cobb County. We also analyze the county's climate resilience with a focus on local assets and the intersections between environmental, economic, and social issues. Based on this assessment, we propose solutions to address some of these vulnerability factors. Learn more about our project & partners, our findings, and our GIS mapping [here!](#)



[Let's Chat!](#)

Maps Created

Economic

Bike Facilities (Lanes & Designated Shoulders)
Employed Civilian Population
Unemployment Rate
Metro Atlanta Transit Routes
Metro Atlanta Transit Stops
CobbForward Eight Priority Trails
Trails (Existing, Proposed, Under Construction)
CobbForward Transit Routes (5-10-30 Year)
CobbForward Project Lines (5-10-30 Year)
Sample Proposed Solution

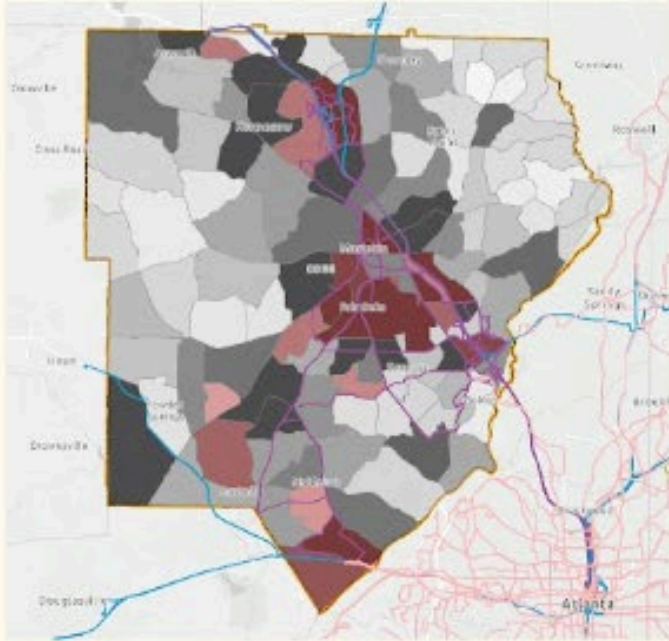
Environmental

Traffic Counts
Parks
Air Quality (PM2.5, O3 Levels)
FEMA Floodplains
Urban Heat Island Effect
EPA HSI Sites
Superfund Sites
Combined Contaminated Sites
Tree Canopy 2016
Tree Canopy Change 2011-2016

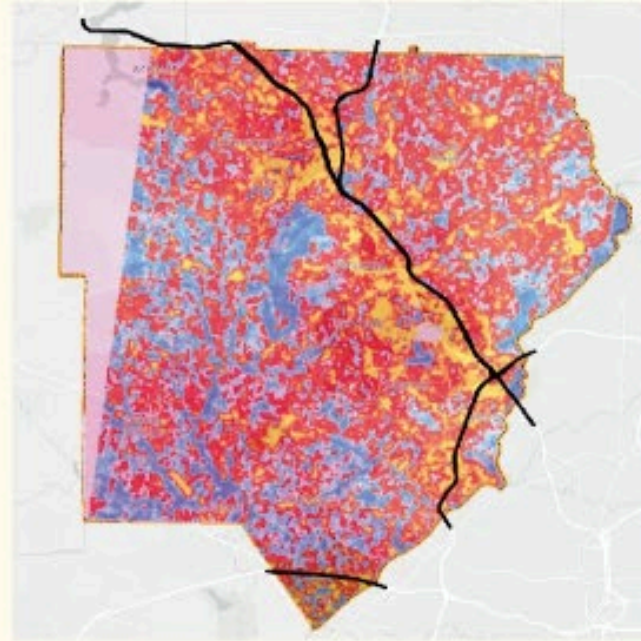
Social

Coronary Heart Disease Prevalence
Asthma Prevalence
Cancer Prevalence
Food Deserts
Low Access to Food
Households Below Poverty
Grocery Stores
Farmer's Markets
Housing Cost Burden
Inequity Distribution
Energy Burden

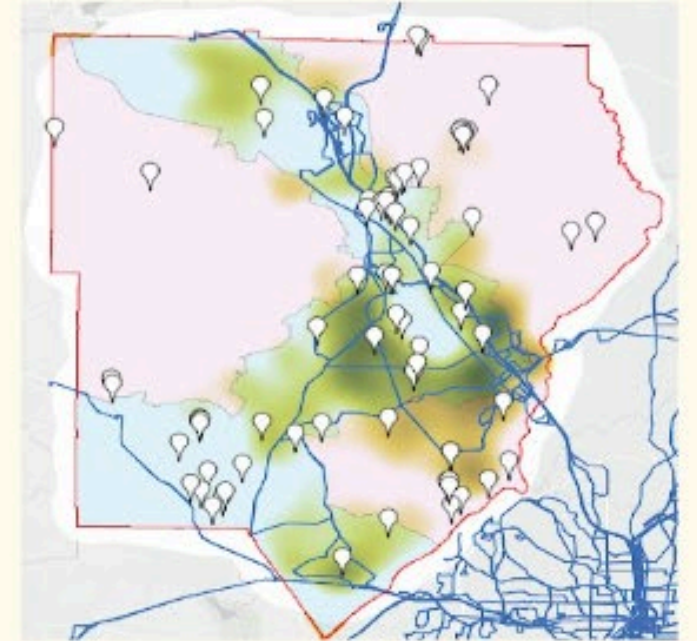
Map Analysis



Poverty, Transit, and Food Deserts



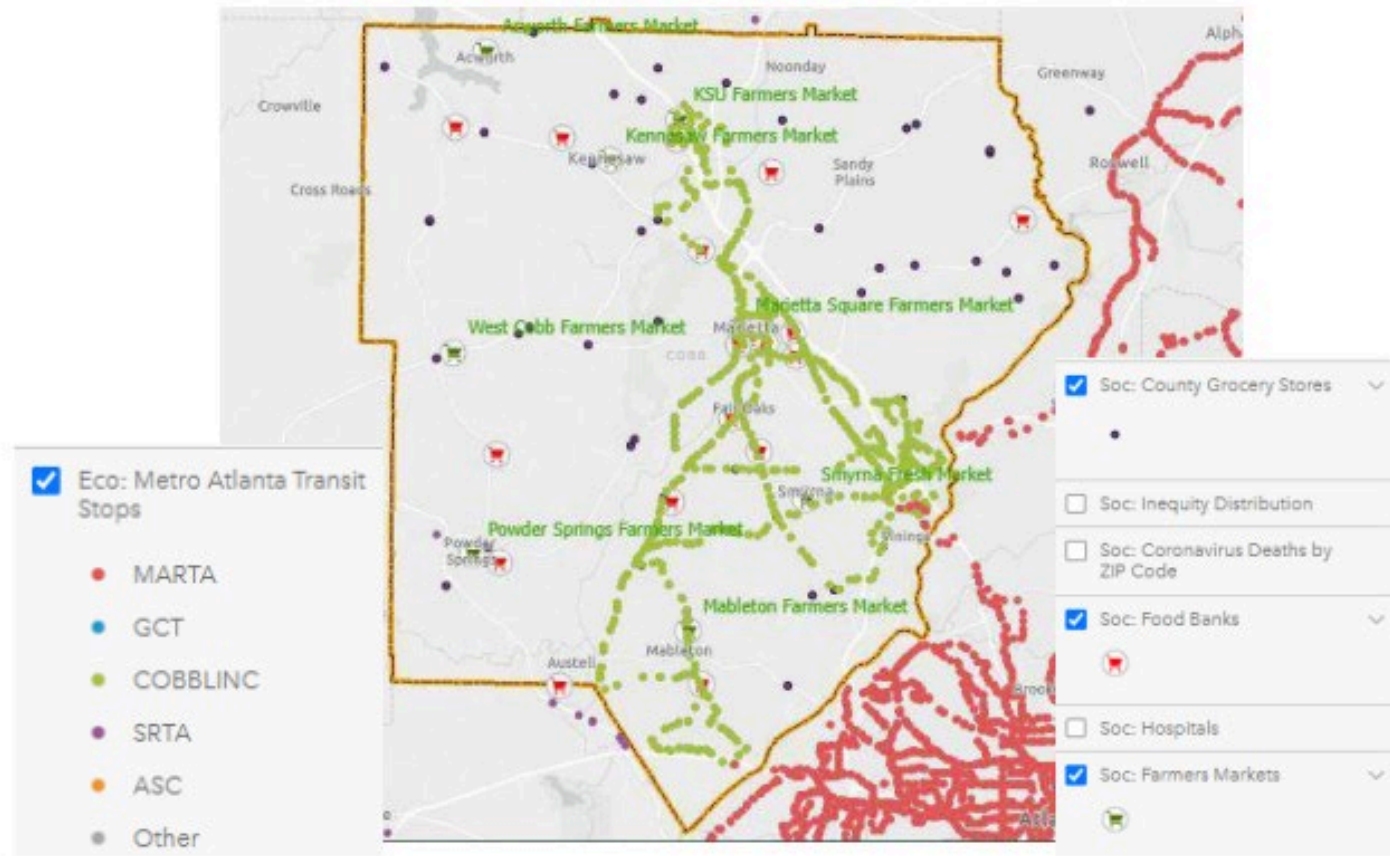
Heat Island, Transit, and Health



Equity, Hazards, and Air

Takes Away

Figure 85: Metro Atlanta Transit and Food Banks, Farmers Markets, and Grocery Stores in Cobb County



Note: This figure shows the locations of all food sources in Cobb as well as the transit stops. Source: GIS team, CP 4052 Fall 2022 Website.

Fall 2023: GT Climate Vulnerabilities

Findings

The research team divided into groups, each addressing a particular hazard. This table shows Georgia Tech's vulnerability to each hazard, divided across eight parts of campus and institute operations.

	Heat	Drought	Floods	Winds	Diseases	Air
Utilities	High	High	High	High	Low	Low
Buildings	High	High	High	High	Low	Medium
Transportation	Medium	Low	Medium	Medium	Low	High
Health	High	Low	Low	Low	High	High
Safety	Low	Low	Low	Low	High	Medium
Food Systems	Low	Low	Low	Low	Low	Low
Emergency Resp.	Low	Low	Low	Medium	Low	Medium
Community	High	Medium	Medium	Low	Medium	High

Takes Away

Embedding Climate Change in Urban Planning and Design

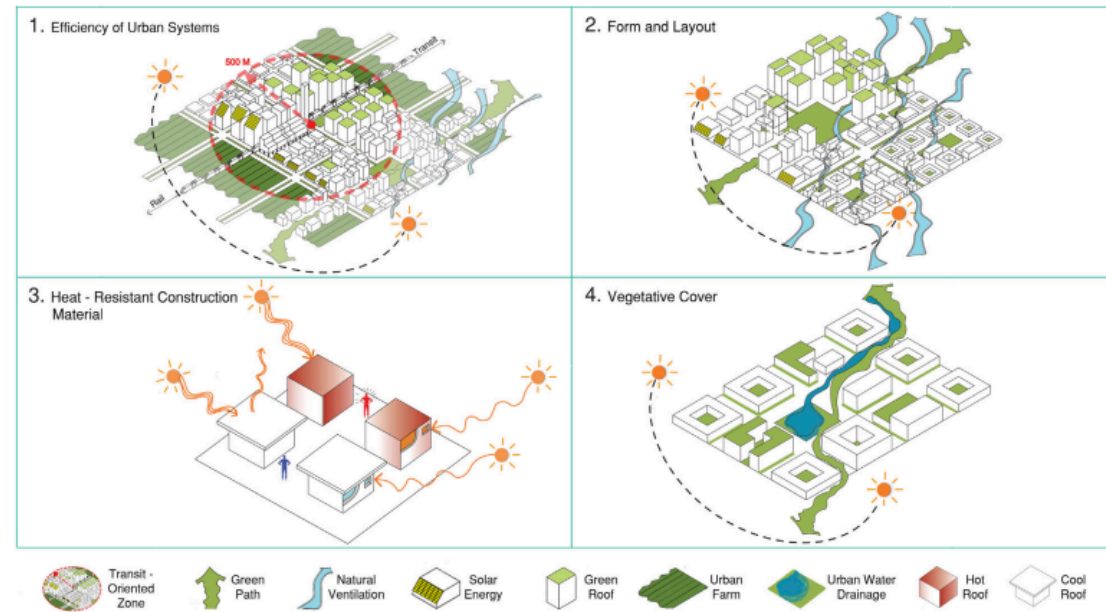
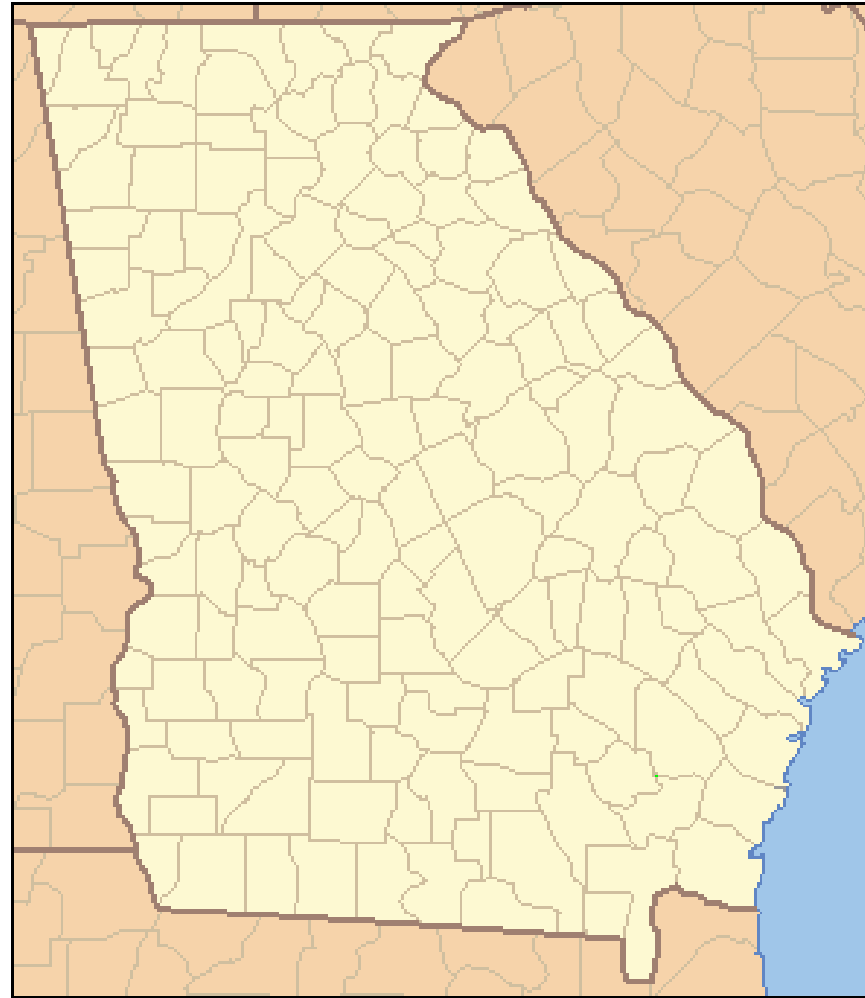


Figure 5: Main strategies used by urban planners and designers to facilitate integrated mitigation and adaptation in cities: (a) reducing waste heat and greenhouse gas emissions through energy efficiency, transit access, and walkability; (b) modifying form and layout of buildings and urban districts; (c) use of heat-resistant construction materials and reflective surface coatings; and (d) increasing vegetative cover. Source: Urban Climate Lab, Graduate Program in Urban & Regional Design, New York Institute of Technology, 2015.

Conclusions

jairo.garcia@design.gatech.edu



159-4 = 155 counties in GA to go