

The Use of EJSCREEN Imagery and Data to Address Environmental and Health Injustices

April 2017 – Current

Contacts: Gwen Smith/404-734-5817

A. Purpose

- a. The project is Collier Heights Historic District in Atlanta, GA. The boundaries are I-285, I-20, Donald Lee Hollowell Pkwy, and H.E. Holmes Dr.
- b. The community concerns are industry on Donald Lee Hollowell and stormwater runoff in Collier Height Community

B. Project Tools and Application

- a. EJSCREEN was used to address the communities concerns.
- b. EJSCREEN was selected because it provides demographic information, comparative data, and can visually map areas and business locations that can impact the health of the community.

C. Process Implemented

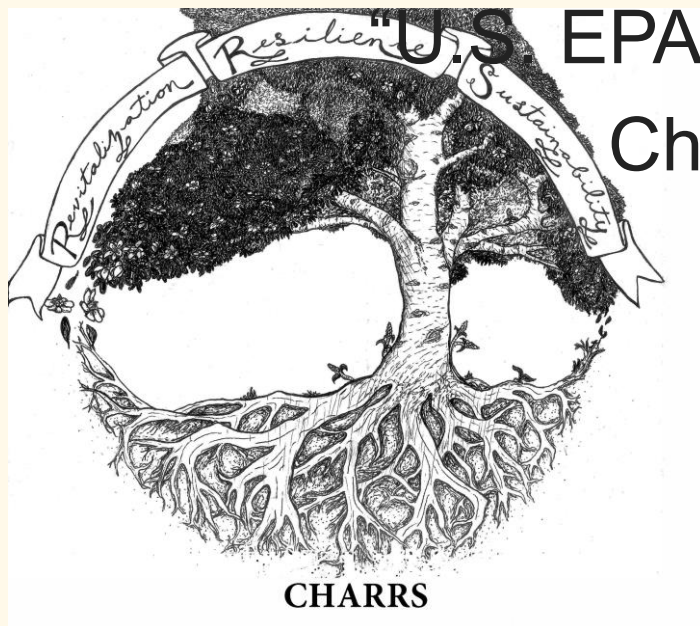
- a. We conducted an overview of EJSCREEN as part of an Environmental Health Outdoor Classroom with youth. We are building on that overview for a project that the youth will use the tool for identifying stormwater runoff
- b. We also used EJSCREEN in presentations to illustrate the EJ issues on the border of the community.

D. Results of the Project

- a. One community has benefitted from the use of EJSCREEN
- b. The data has been used to show the industries and businesses located close to the community and how they are or may be impacting the health of the community and to identify the demographics of the community.

- e. EJSCREEN will be used in a future project with youth to identify stormwater runoff and work to get community members to contribute data to make it a citizen science project.

The Use of EJSCREEN Imagery and Data to Address Environmental and Health Injustices: Collier Heights Historic District



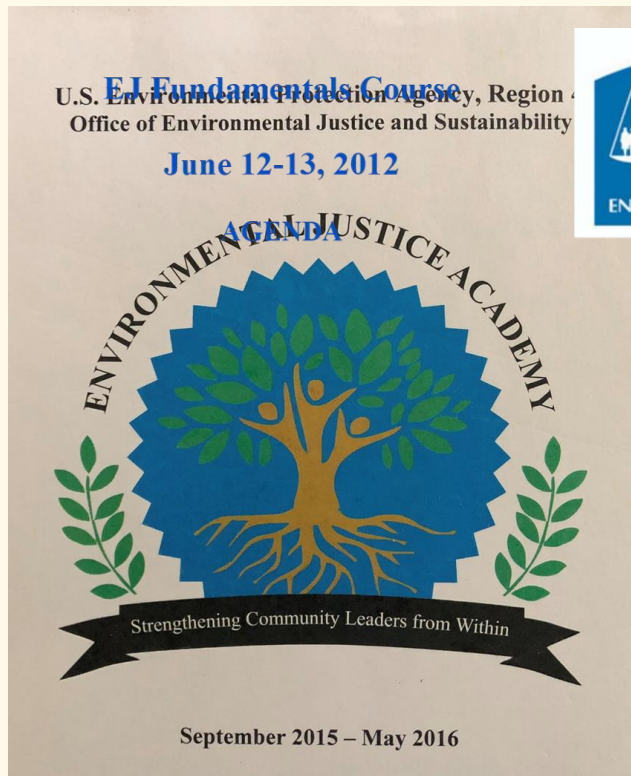
U.S. EPA, Region IV, Environmental Justice and
Children's Health Section Webinar

May 20, 2021

Background

**2012 EJ Fundamentals Course
Office of Environmental Justice
U.S. EPA, Region IV**

**2015 U.S. EPA Environmental Justice Academy
Office of Environmental Justice and Sustainability
U.S. EPA Region IV**



EJ Academy *Leadership* Development September 2015 – May 2016

- Required a Community Letter of Recommendation
- Support Received from Collier Heights Community Association

EJ ACADEMY Changing Community Leaders from Within

ENVIRONMENTAL >>>
Justice ACADEMY
LEADERSHIP DEVELOPMENT

The purpose of the Environmental Justice Academy is to provide individuals an opportunity to learn additional skills and how to improve communication skills when environmental concerns in their community become present.

EJ ACADEMY OVERVIEW Through a series of nine modules, the Environmental Justice Academy (EJ Academy) will cultivate skills so that participants may successfully identify their environmental challenges and accomplish their environmental improvement goals.

EDUCATION	NETWORKING	COMMUNITY DEVELOPMENT	EXPERIENCE
 <p>Gain a basic understanding of environmental justice and its principles, concepts, and history.</p>	 <p>Learn how to leverage human, social, & financial resources to build long term progress in communities.</p>	 <p>Work with community leaders, members, and their stakeholders to bring about a positive change in the community.</p>	 <p>Gain experience in conducting an evaluation of progress and efforts, evaluating plans, designing logic models & documenting program efforts.</p>

The Environmental Justice Academy is designed to create a shared vision among different stakeholders so that all who are a part of the community can have a voice.

EJ ACADEMY TO DEVELOP LEADERS THAT WILL BECOME ADVOCATES FOR THEIR COMMUNITY.

Purpose of Project and Benefits

PURPOSE

- Identify environmental challenges
- Accomplish community's environmental improvement goals
- Encourage collaborative problem solving for a shared vision
- Community's voice at the table

BENEFIT

- Complete a community portfolio
- A plan to guide organizational Activities
- Identify and secure potential partners
- Interact directly with technical experts
- Network with other community leaders and establish mutually beneficial relationships
- Expert feedback and guidance

My Project EJA Training, Tools, & Homework

Training

- Speakers and Reference Materials

Tools

- EJSCREEN
 - American Community Survey
 - CDC Data
 - Environmental Justice Index
- U.S. Census *FactFinder* and Quickfacts
 - American Community Survey

Homework

- Community Assessment
 - Demographic Information
 - Active Involvement
 - Boundaries/Geography of Community
 - Assessing and Identifying Community Challenges

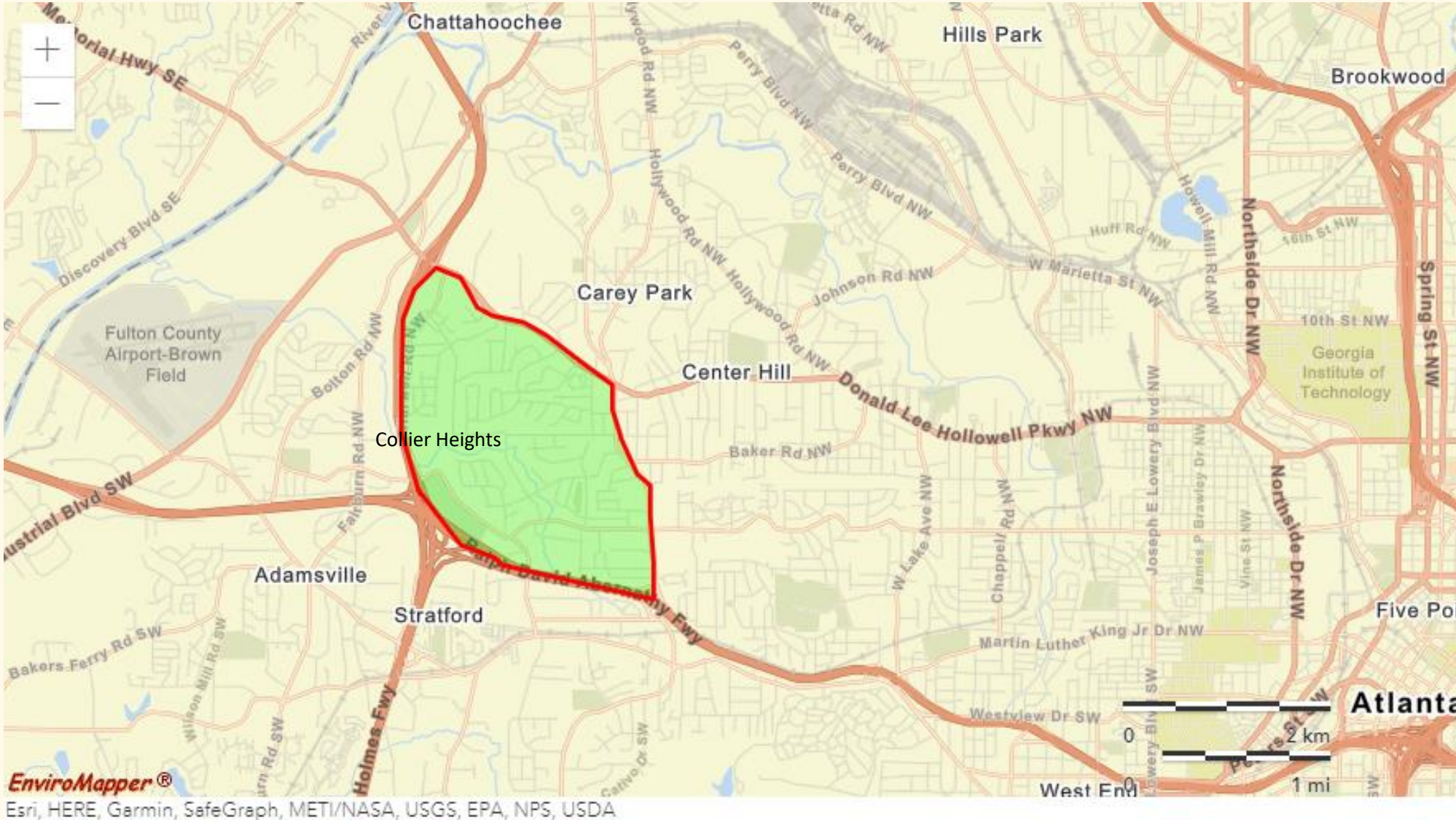
Community Assessment: Boundaries & Geographies

Community Assessment: Collier Heights Historic District Boundaries and Geography

- I-20, I-285, Donald L. Hollowell, and H.E. Holmes
- Sandy Creek Watershed
- 3 Parks-Jenny Drake Park, Harwell Park, and Dale Creek
- Approximately 1,000 Acres Developed between 1941 and 1979
- 54 Subdivisions

- Nominated to the National Register of Historic Places in 2008
 - Home of Civil Rights Activist
 - Planned and Developed by African Americans
 - Architectural Significance-Mid Century Houses
 - City of Atlanta Historic Registry

Collier Heights Historic District

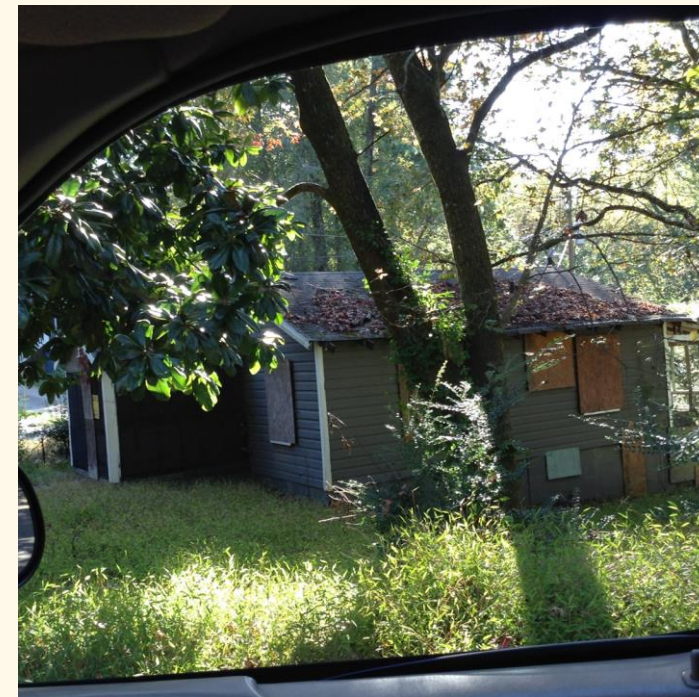


SOURCE: U.S. EPA EJSCREEN

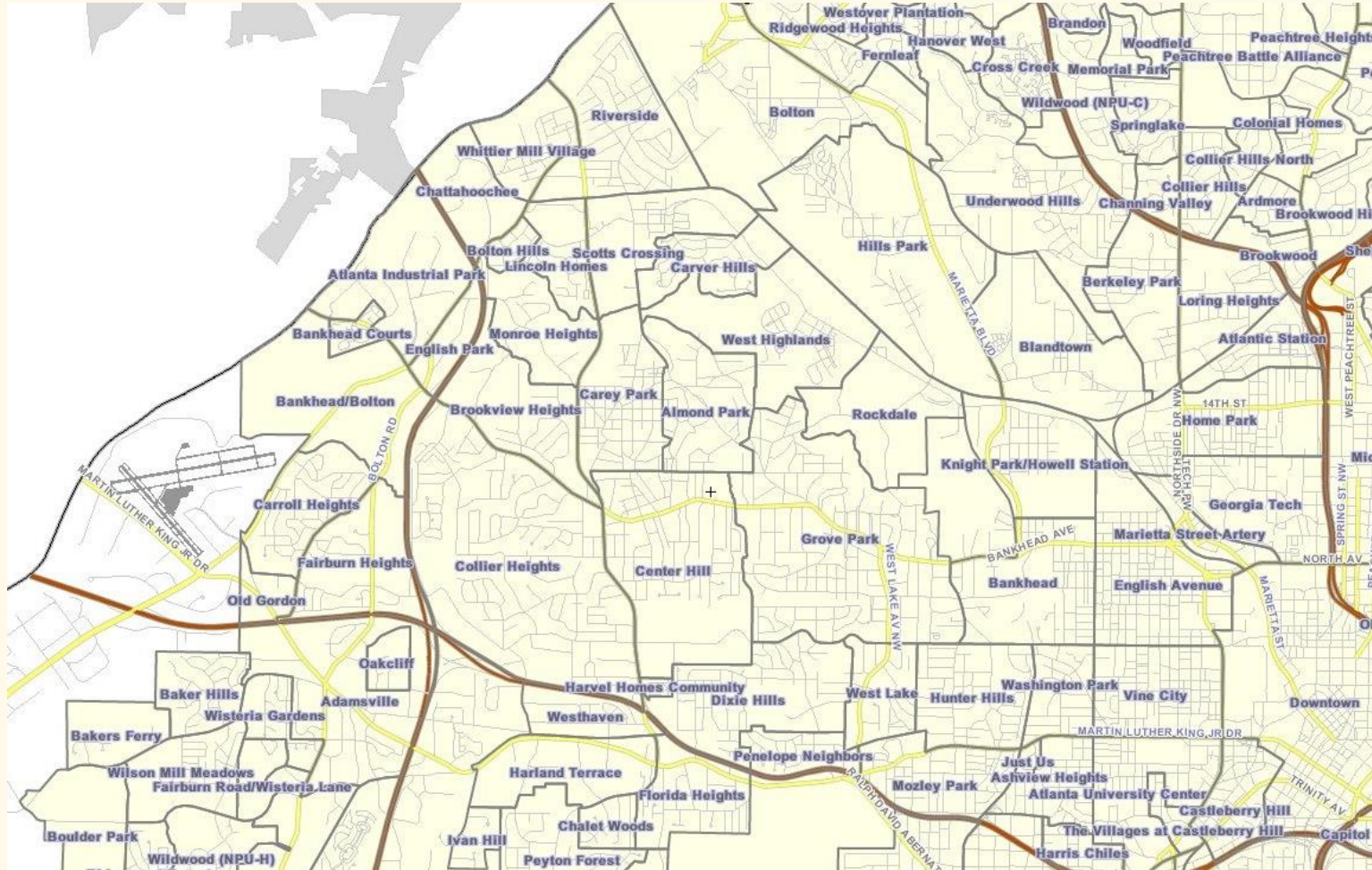
Collier Heights' Mid-Century Homes



Abandoned or Vacant Homes

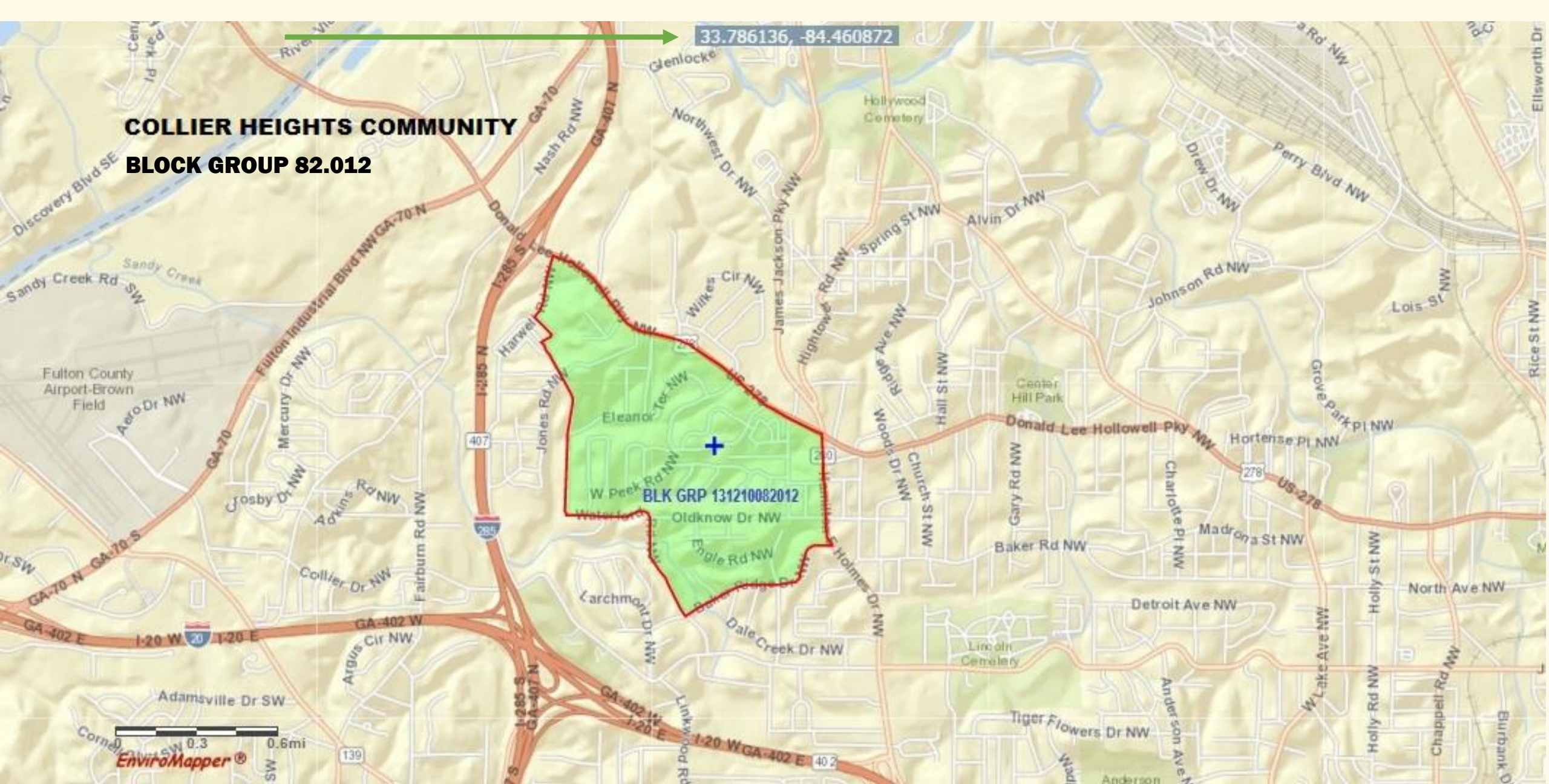


Neighboring Communities



**COLLIER HEIGHTS COMMUNITY
BLOCK GROUP 82.012**

33.786136, -84.460872



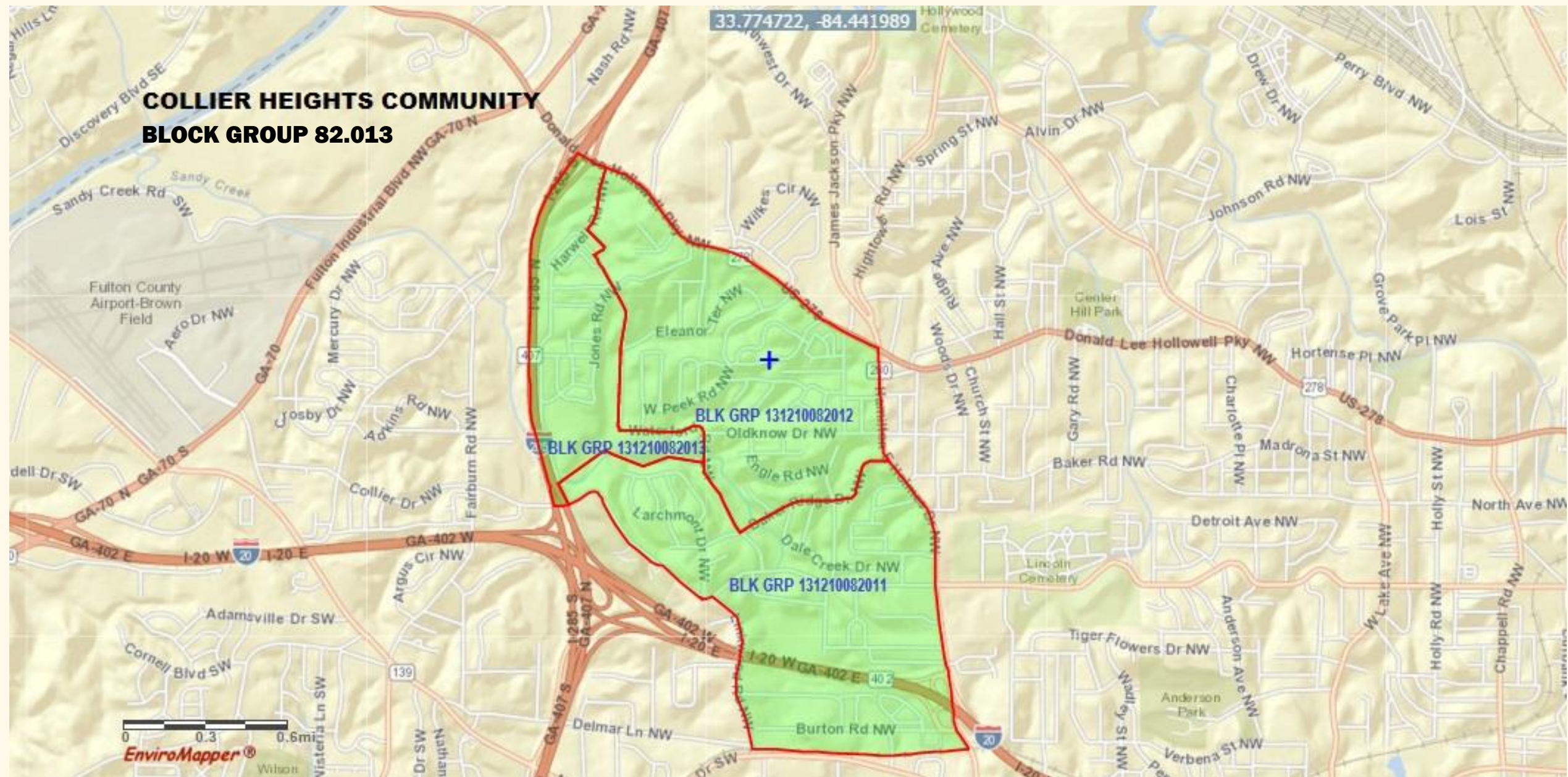
COLLIER HEIGHTS COMMUNITY
BLOCK GROUP 82.011

33.775720, -84.412464

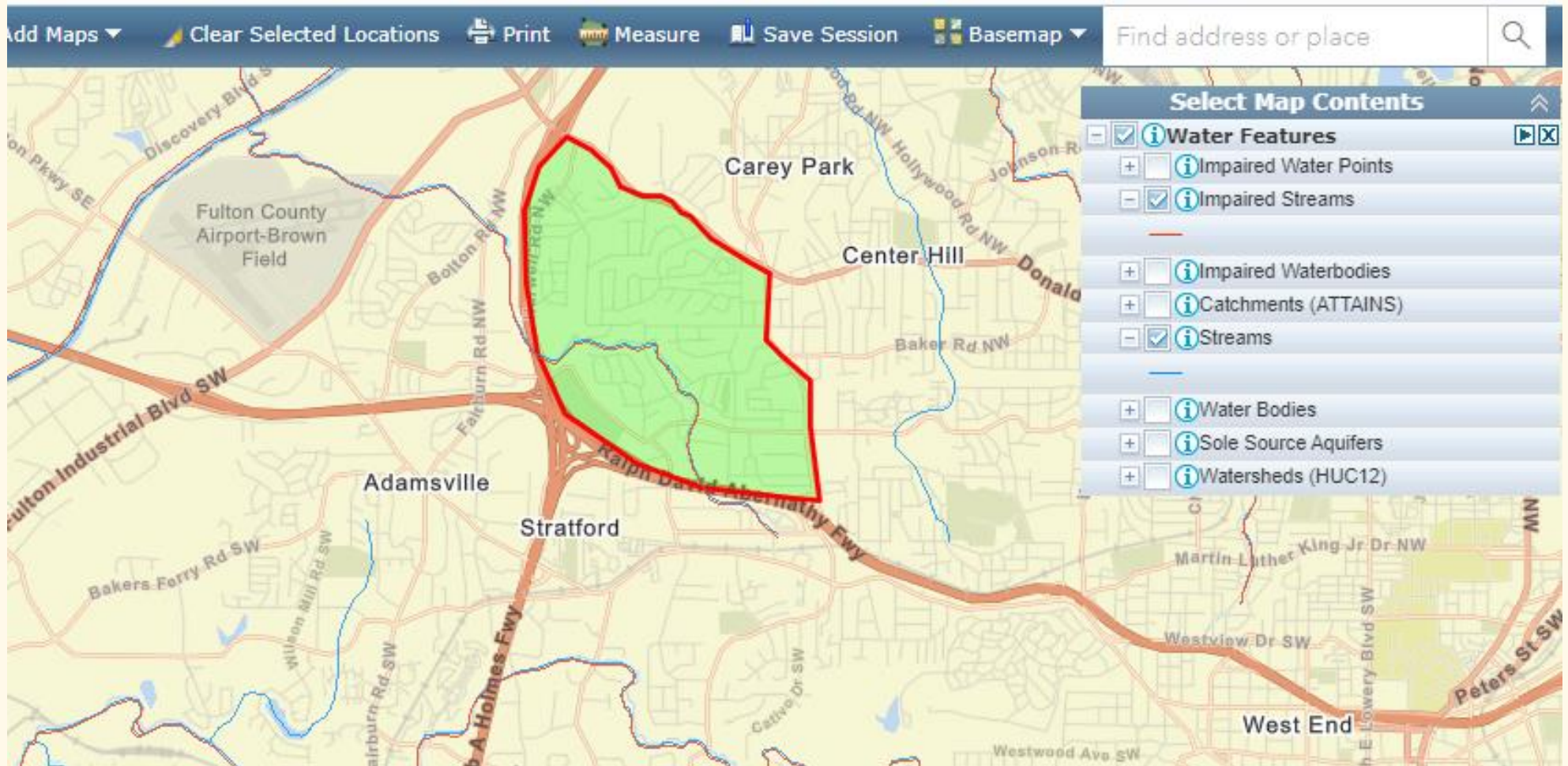


**COLLIER HEIGHTS COMMUNITY
BLOCK GROUP 82.013**

33.774722, -84.441989



Sandy Creek (Impaired Water Body), Sandy Creek Watershed



Community Assessment: Demographics

Census and CDC Data

The screenshot displays the EPA EJSCREEN interface. At the top, the header reads "EPA EJSCREEN EPA's Environmental Justice Screening and Mapping Tool (Version 2020)". Navigation links include "EJSCREEN Home", "Mobile", "Glossary", and "Help". A search bar on the right contains the text "Find address or place".

The main map area shows a map of Atlanta, Georgia, with a green-shaded site selected in the Adamsville area. A "Select Location" dialog box is open on the left, offering four options: "Draw a Site" (selected), "Enter a location or a latitude/longitude", "Click on map to select a census block group", and "Enter a census block group id".

A secondary menu is overlaid on the map, listing the following options:

- Name: [input field]
- Buffer: 0 mi [dropdown] [Add to Map]
- [Explore Reports...](#)
- [Get Printable Standard Report...](#)
- [Get 2014-2018 ACS report...](#)
- [Get 2010 Census report...](#)
- [Get CDC report... \[EXIT EPA\]](#)
- [Delete this site](#)

At the bottom left, the text "EnviroMapper®" and "Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA" is visible. At the bottom right, it says "Powered by Esri".

Collier Heights Historic District's 2014-18 ACS Summary Report



EJSCREEN ACS Summary Report



Location: Blockgroup: 131210082011,131210082012,131210082013

Ring (buffer): 0-mile radius

Description:

Summary of ACS Estimates	2014 - 2018
Population	6,281
Population Density (per sq. mile)	3,036
People of Color Population	6,187
% People of Color Population	99%
Households	2,468
Housing Units	2,958
Housing Units Built Before 1950	182
Per Capita Income	18,522
Land Area (sq. miles) (Source: SF1)	2.07
% Land Area	100%
Water Area (sq. miles) (Source: SF1)	0.00
% Water Area	0%

Population by Race

Total	6,281	100%	1,273
	6,243	99%	1,455
	106	2%	131
	6,137	98%	1,272
	0	0%	13
	0	0%	13
	0	0%	13
	0	0%	13
	38	1%	34
	12	0%	20
	6,269		
	94	1%	131
	6,137	98%	1,272
	0	0%	13
	0	0%	13
	0	0%	13
	0	0%	13
	38	1%	34

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Male	2,809	45%	946
Female	3,472	55%	461
Population by Age			
Age 0-4	201	3%	129
Age 0-17	1,300	21%	315
Age 18+	4,981	79%	533
Age 65+	1,436	23%	261

SOURCE: U.S. Census Bureau, American Community Survey (ACS)

Collier Heights Historic District's 2014-18 ACS Summary Report, Continued



EJSCREEN ACS Summary Report



Location: User-specified polygonal location

Ring (buffer): 0-miles radius

Description: Collier Heights Historic District

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	4,004	100%	666
Less than 9th Grade	60	2%	50
9th - 12th Grade, No Diploma	270	7%	115
High School Graduate	1,438	36%	398
Some College, No Degree	1,223	31%	250
Associate Degree	183	5%	96
Bachelor's Degree or more	1,014	25%	201
Population Age 5+ Years by Ability to Speak English			
Total	5,575	100%	1,271
Speak only English	5,552	100%	980
Non-English at Home ¹⁺²⁺³⁺⁴	22	0%	47
¹ Speak English "very well"	9	0%	23
² Speak English "well"	13	0%	47
³ Speak English "not well"	0	0%	13
⁴ Speak English "not at all"	0	0%	13
³⁺⁴ Speak English "less than well"	0	0%	13
²⁺³⁺⁴ Speak English "less than very well"	13	0%	47

Linguistically Isolated Households*

Total	9	100%	24
Speak Spanish	9	100%	20
Speak Other Indo-European Languages	0	0%	13
Speak Asian-Pacific Island Languages	0	0%	13
Speak Other Languages	0	0%	13

Households by Household Income

Household Income Base	2,265	100%	208
< \$15,000	361	16%	122
\$15,000 - \$25,000	414	18%	135
\$25,000 - \$50,000	895	40%	208
\$50,000 - \$75,000	334	15%	127
\$75,000 +	260	11%	82

Occupied Housing Units by Tenure

Total	2,265	100%	208
Owner Occupied	1,003	44%	129
Renter Occupied	1,262	56%	206

Employed Population Age 16+ Years

Total	4,653	100%	991
In Labor Force	2,294	49%	626
Civilian Unemployed in Labor Force	246	5%	90
Not In Labor Force	2,359	51%	450

SOURCE: U.S. Census Bureau, American Community Survey (ACS)

Community Assessment: CDC Demographic Information

Asthma[†]

Asthma is a chronic disease that affects the airways that carry oxygen in and out of the lungs. Asthma can cause

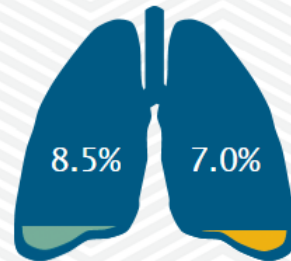
- shortness of breath,
- wheezing,
- coughing, and
- tightness in the chest.

Asthma attacks have been linked to many factors, including exposure to environmental hazards like

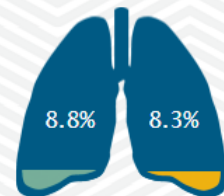
- allergens,
- tobacco smoke, and
- indoor and outdoor air pollution.

Asthma can be controlled by taking medication and avoiding triggers that can cause an attack.

Percent of **adults** who currently have asthma



Percent of **children** who currently have asthma



Georgia National

Fulton County, Georgia[†]



POPULATION: 984,721

INCOME

Average Household Income

Fulton County: \$70,808

Georgia: \$58,634

Residents who live below the poverty line



13.5%

Fulton County

14.5%

Georgia

QUICK FACTS:

Out of 10 people living in this county

SEX



AGE



About 2 are between the ages of 20 and 34 years

About 2 are between the ages of 35 and 49 years

About 3 are 50 years and older

About 3 are 50 years and older

ETHNICITY



1 are Hispanic and 9 are non-Hispanic

RACE



Air Quality: Particulate Matter[†]

Air pollution is a leading environmental threat to human health. Particles in the air like dust, dirt, soot, and smoke are one kind of air pollution called particulate matter. Fine particulate matter, or PM_{2.5}, is so small that it cannot be seen in the air. Breathing in PM_{2.5} may

- lead to breathing problems,
- make asthma symptoms or some heart conditions worse, and
- lead to low birth weight.

The national standard for annual PM_{2.5} levels is **12.0µg/m³**. When PM_{2.5} levels are above 12, this means that air quality is more likely to affect your health.

In 2016, the annual level of PM_{2.5} in **Fulton County** was **10.6µg/m³**.*

* Micrograms per cubic meter (µg/m³)

ANNUAL AMBIENT CONCENTRATION OF PM_{2.5}

10.6µg/m³*

Fulton County, Georgia

12.0µg/m³*

Annual National Standard

*Micrograms Per Cubic Meter (µg/m³)

SOURCE: 2016 data from the National Environmental Public Health Tracking Network

Discover the data | Learn more about this topic

† 2016 data from the National Environmental Public Health Tracking Network



Community Assessment: Assessing and Identifying Challenges

Community Assessment: Assessing & Identifying Community Challenges



Petro Truck stop



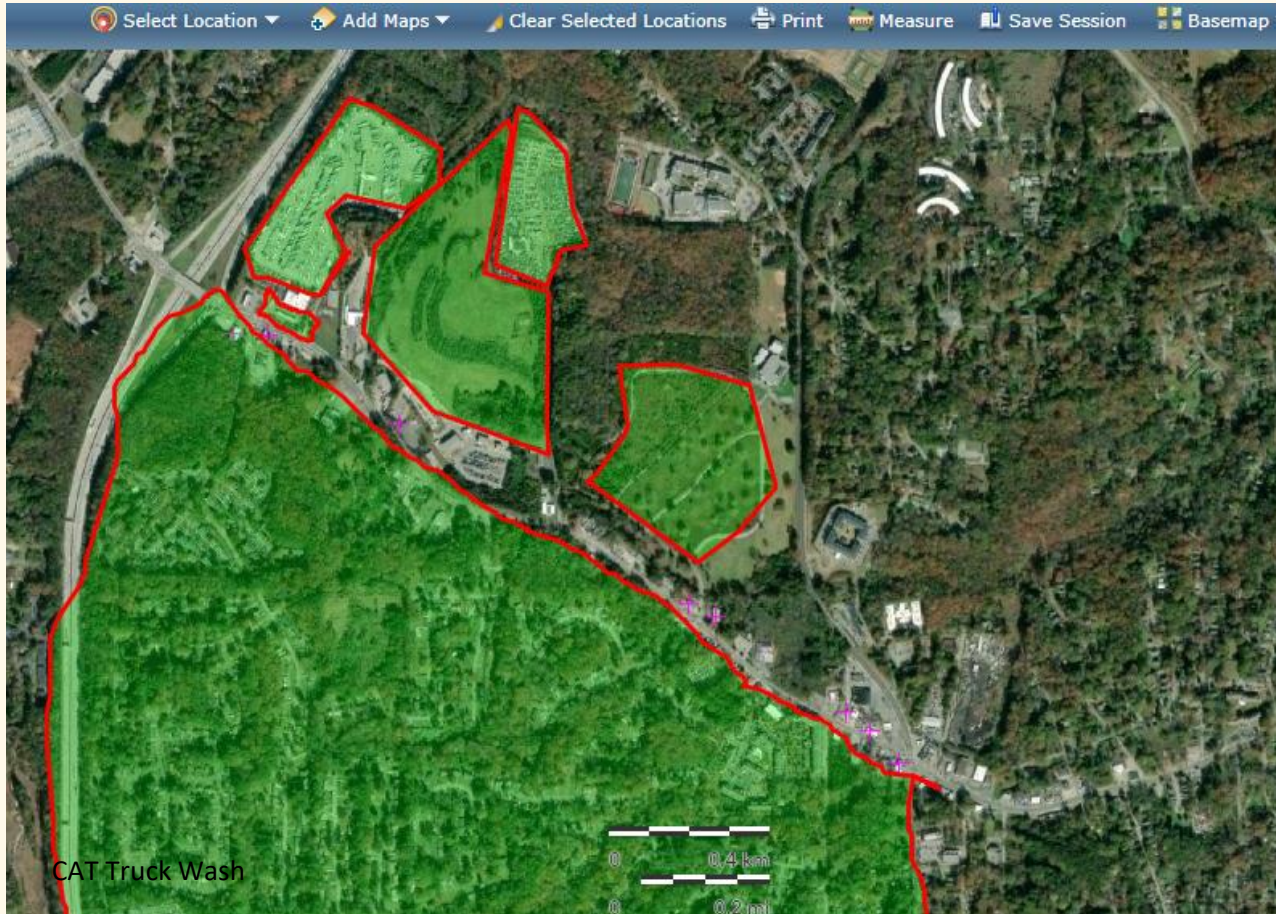
Valero Gas Station



Republic Waste Company



Chevron Gas Station



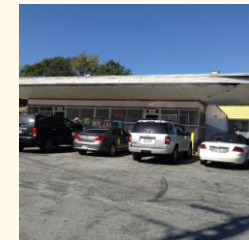
Grey & White Salvage Yard



Texaco Gas Station



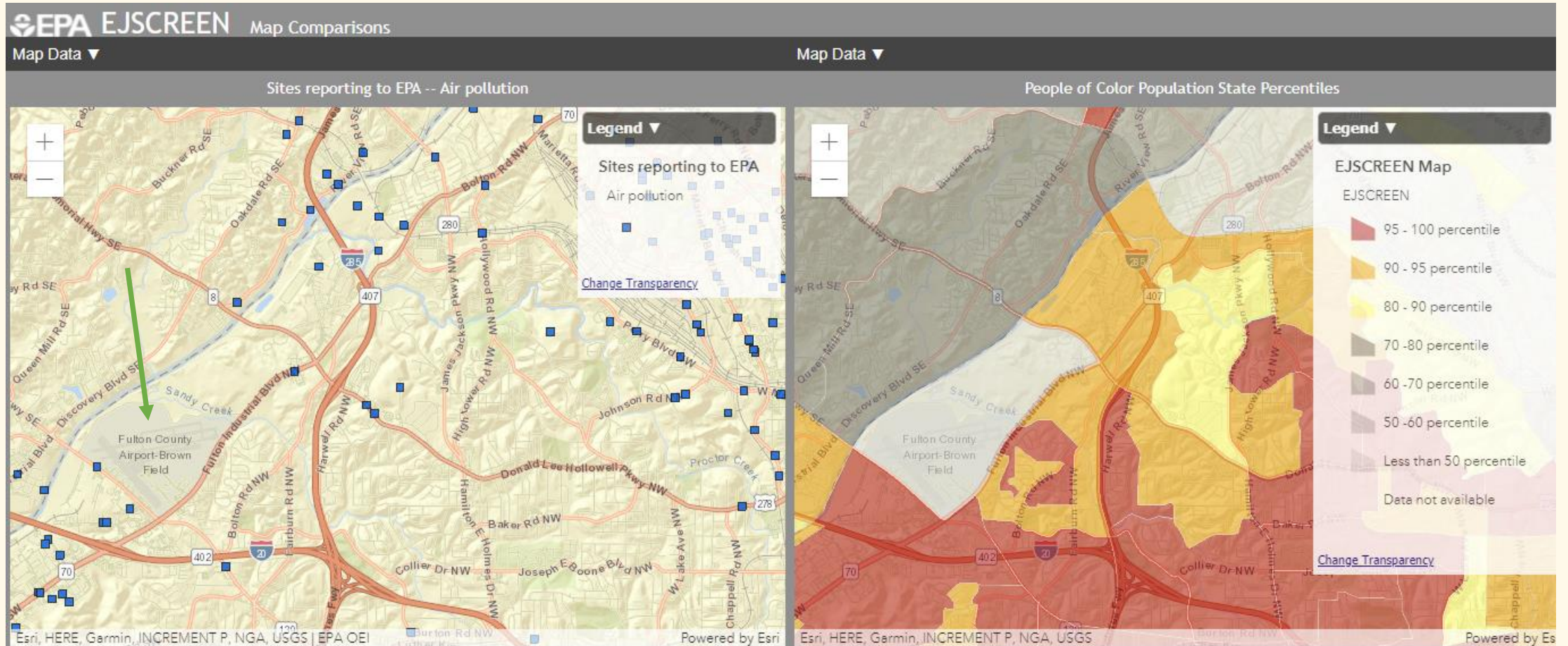
Pure Gas Station-UST



Liquor Store

Citgo Gas Station and Dry Cleaning store not pictured

Air Pollution Compared to People of Color Pop. %



Unknown if Airports are sites that report emissions. * Aircraft emit Ultrafine Particles (UFP), Particle-bound Polycyclic Aromatic Hydrocarbon (PB-PaH) and Black Carbon (BC) Downwind and increase when aircraft takeoff. UFP are easily inhaled. PB-PaH and BC are known carcinogens.

- SOURCE: * *Environ. Sci. Technol.* 2021, 55, 5, 2847–2858 Publication Date: February 5, 2021 and *Environ Sci Technol.* 2009 Nov 1;43(21):8039-45

HUMAN EXPOSURE/HEALTH RISK

2011 National Air Toxics Assessment

The 2011 National-Scale Air Toxics Assessment (NATA) assessment includes emissions, ambient concentrations, and exposure estimates for [180 of the 187 Clean Air Act air toxics](#) plus diesel particulate matter. For 138 of these air toxics (those with health data based on chronic exposure), the assessment includes cancer or non-cancer health effects, or both, including non-cancer health effects for diesel PM.

Eight air toxics were not included in this NATA assessment because either no emissions information was reported for them in 2011 or emission estimates useful for modeling could not be determined reliably from their reported emissions (e.g., radionuclides).

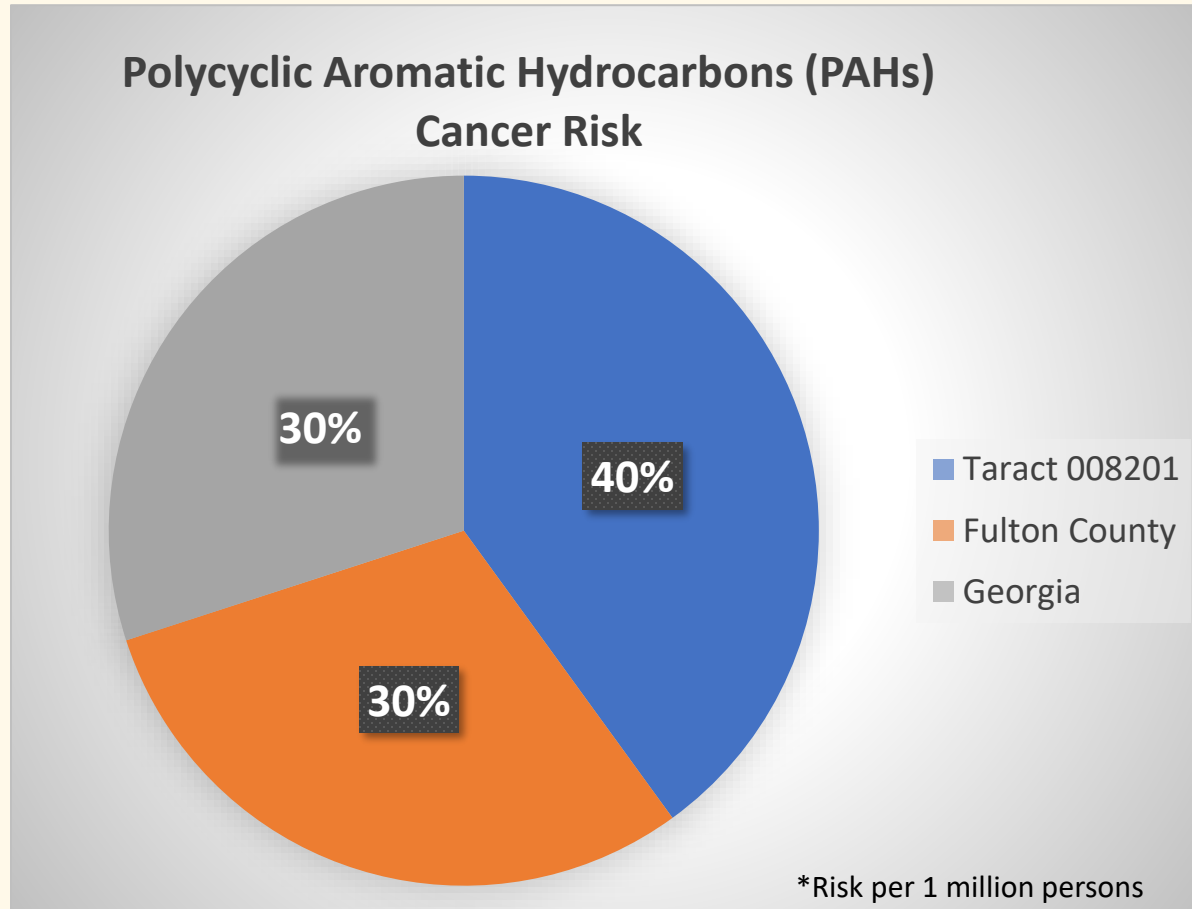
HUMAN HEALTH RISK

2011 National Air Toxics Assessment

The assessment includes four steps that focus on the 2011 emissions year:

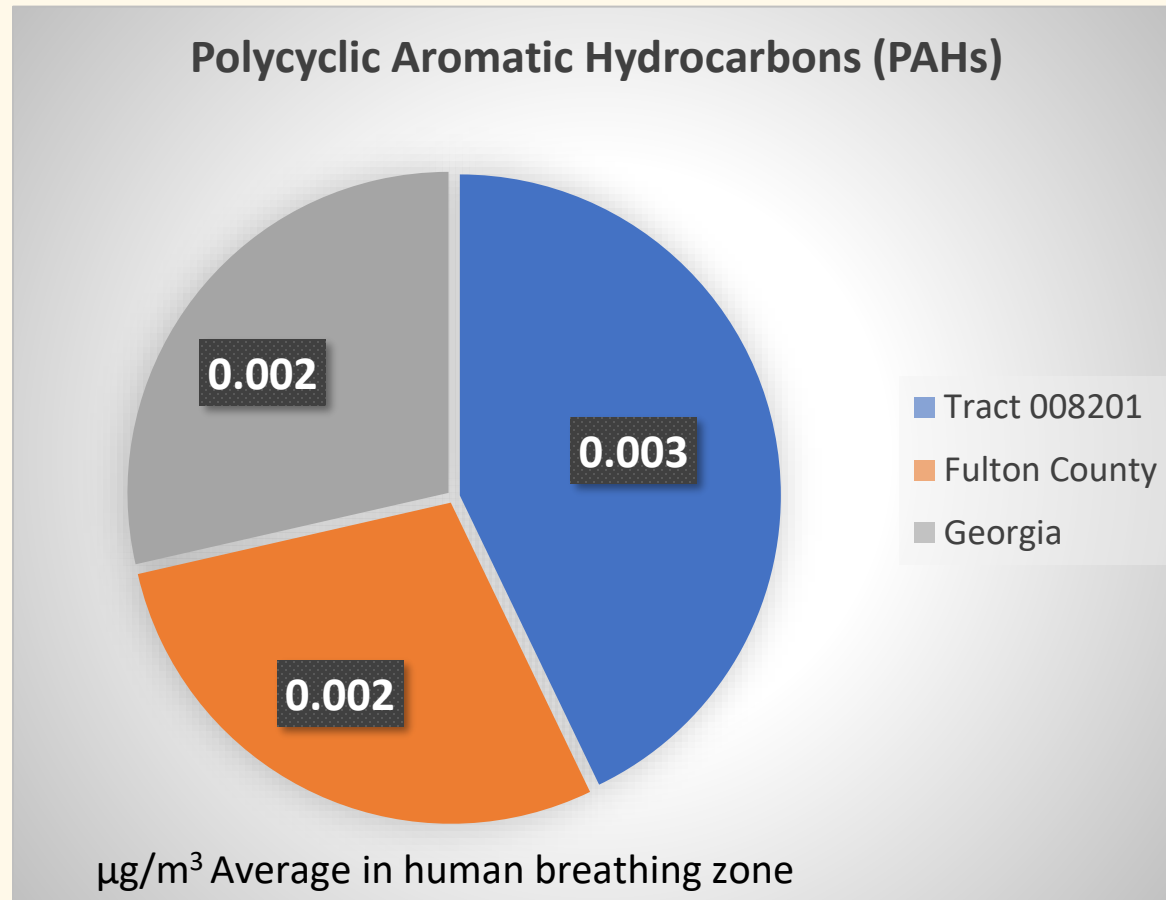
1. Compiling a national emissions inventory of air toxics emissions from outdoor sources
2. Estimating ambient concentrations of air toxics across the United States
3. Estimating population exposures across the United States
4. Characterizing ***potential*** public health risk due to inhalation of air toxics including
both cancer and non-cancer effects

Polycyclic Aromatic Hydrocarbons (PAHs)



- PAHs are a group of chemicals found in coal, crude oil and gasoline and produced when coal, oil, gas, wood, garbage and tobacco are burned.
- PAHs can bind to or form small particles in the air.

Human Exposure Estimate: Polycyclic Aromatic Hydrocarbons (PAHs)



- People are exposed to PAHs by breathing contaminated air or eating food on which PAH-contaminated air has settled.
- PAHs can also be found in grilled or charred food.

Community Assessment: Active Involvement

CHARRS Environmental Health Outdoors Classroom Activity



Storm Drain Marking, Water Sampling, and Data Collection

Neighborhood Water Watch

Sandy Creek at Baker Ridge MPN > 1000

2014 – 1 Sample greater than 1000 MPN coliform in stream

2015 – 2 Samples greater than 1000 MPN coliform in stream

2016 – 3 Samples greater than 1000 MPN coliform in stream

2017 – 6 Samples greater than 1000 MPN coliform in stream

Sandy Creek Sewage
Spill on Baker Ridge Rd.

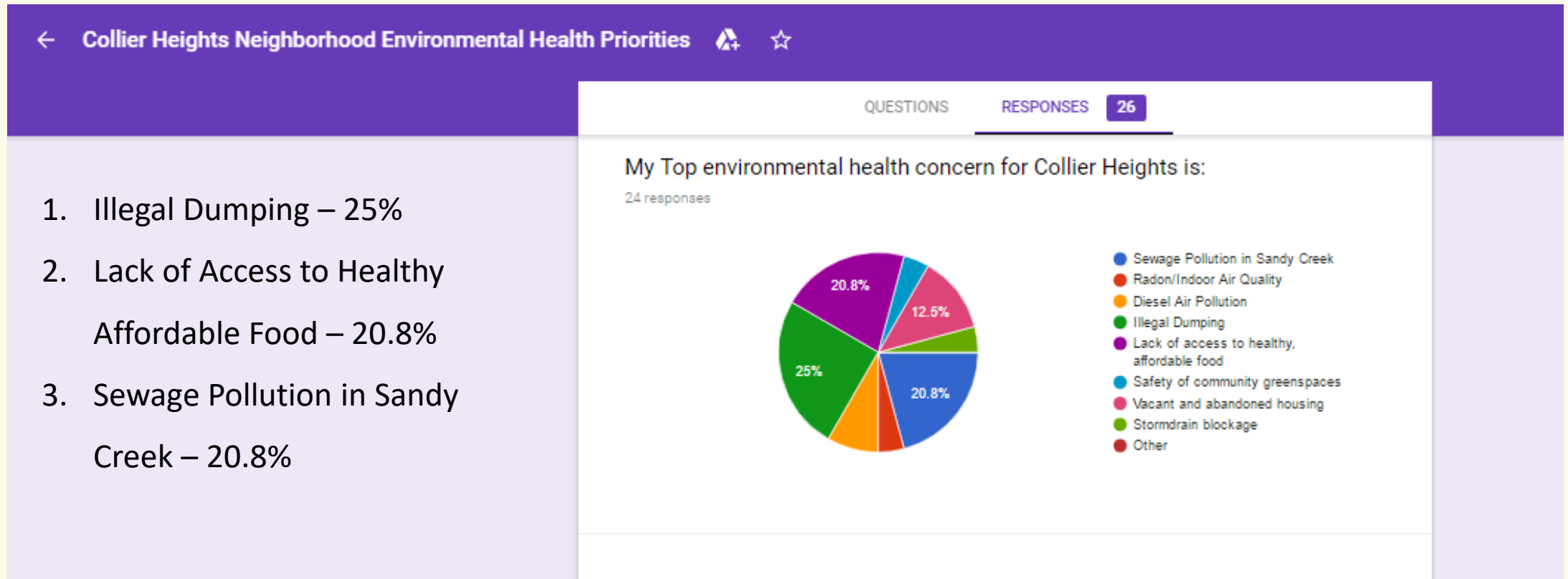


Partnering with Colleges: EJ, Sustainability & Community Based Participatory Research

- Agnes Scott Public Health and Sustainability Majors
- Presentations
- Visits to Community Meetings
- Volunteering on Earth Day 2017
- Survey of Collier Heights TOP Environmental Health Concerns
- Collier Heights Infographics

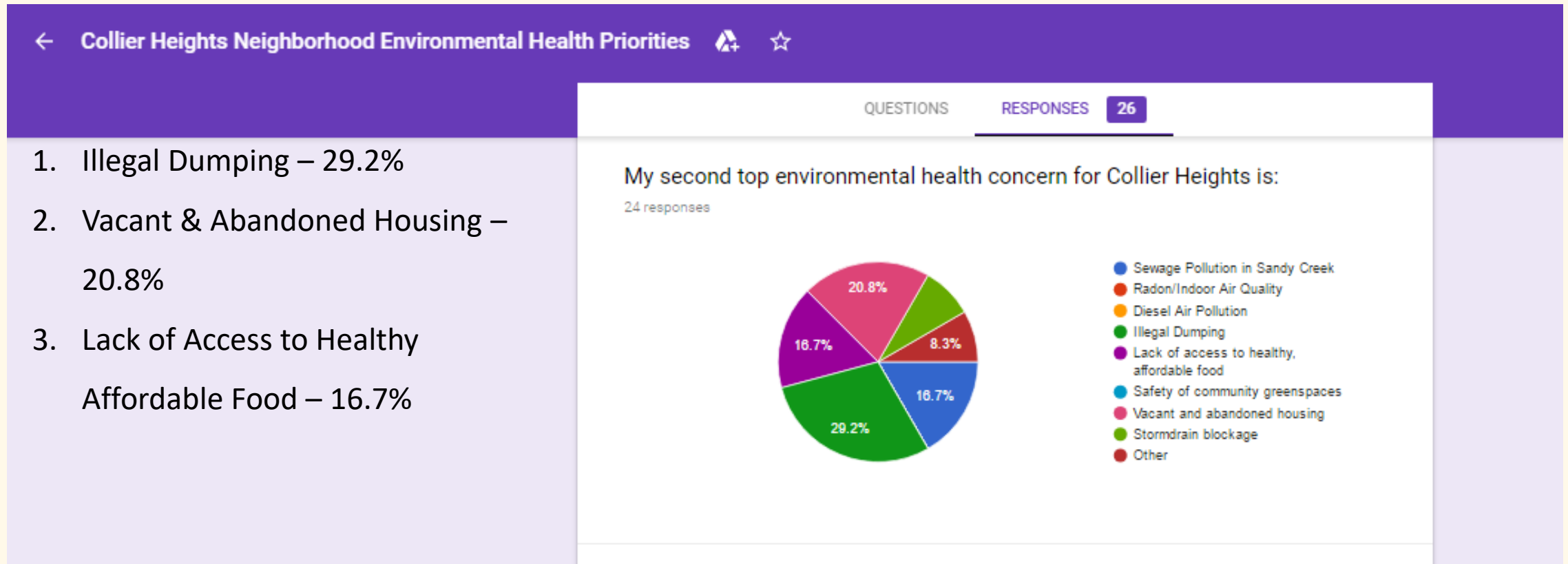
Survey: Collier Heights Top EH Concerns

N= 26



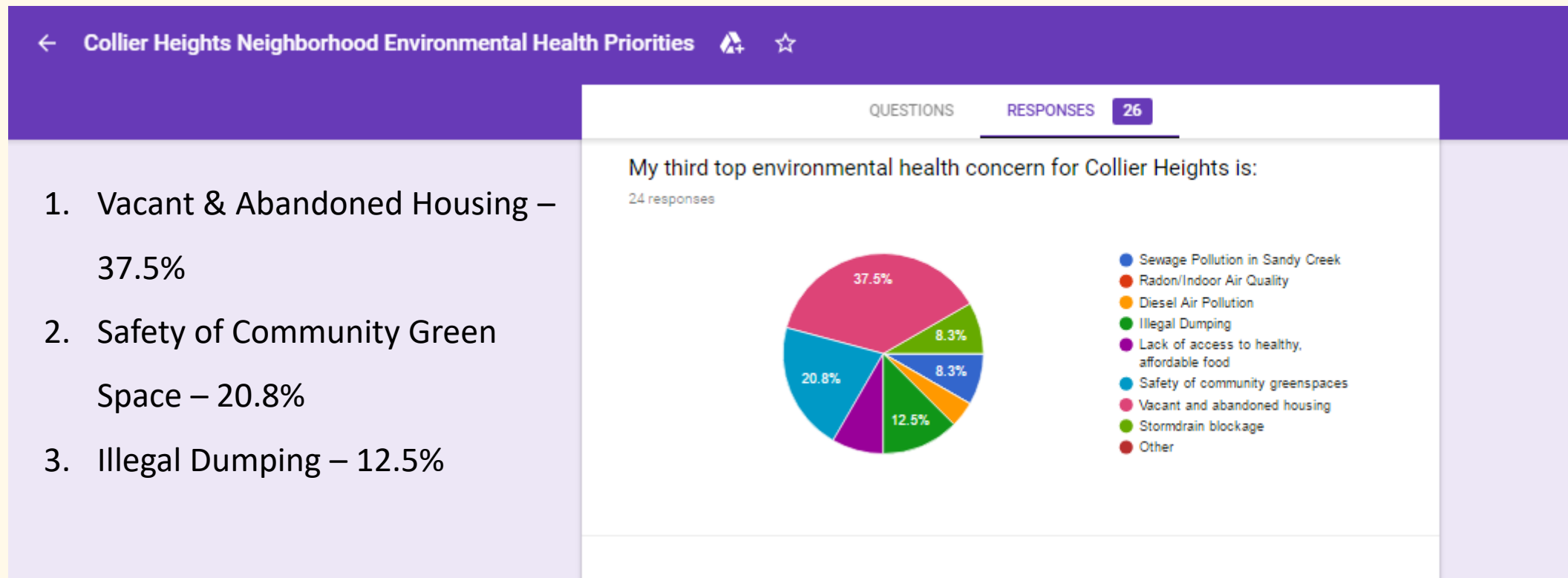
Survey: Collier Heights 2nd Top EH Concerns

N= 26



Survey: Collier Heights 3rd Top EH Concerns

N= 26



PROJECT RESULTS

- Collier Heights Community Association established a Health and Environment Committee
- Residents were recruited to be collect water samples for the Chattahoochee Riverkeepers Neighborhood Water Watch Program
- In partnership with U.S. EPA Region IV, Youth Stakeholders were introduced to EJSCREEN/GIS software.
- Youth Stakeholders will work on an upcoming project that will utilize EJSCREEN to document environmental issues in their communities.

Thank You

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U.S. Environmental Protection Agency, Region IV

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Kamilah Carter, U.S. Environmental Protection Agency

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