JULY 2026 PROGRESS REPORT



CHEROKEE FOREST RELOCATION TO RESTORATION

Community-led relocation planning and habitat restoration in the Mississippi Sound

buy in
for a better buyout.

This report presents a strategy to acquire high-risk properties from willing owners of the Cherokee Forest subdivision and to restore the parcels into native Gulf Coast landscapes as a blue-green buffer zone.

ACKNOWLEDGEMENTS

LEAD AUTHORS

- Jennifer Fasolino, Community Partnerships Program Manager, Buy-In
- Kelly Leilani Main, Executive Director, Buy-In

CONTRIBUTING AUTHORS

- Dr. Katharine Duderstadt, Research Scientist, University of New Hampshire
- Colleen McHugh, Senior Planner, Water Institute
- Haley Blakeman, Gulf Coast Resilience and Planning Lead, Moffatt & Nichol
- Julia Mudd, Coastal Associate, Moffatt & Nichol
- David Perkes, Executive Director, Gulf Coast Community Design Studio
- Dr. Robert Macnee, Deputy Director, Climate Resilience Consulting

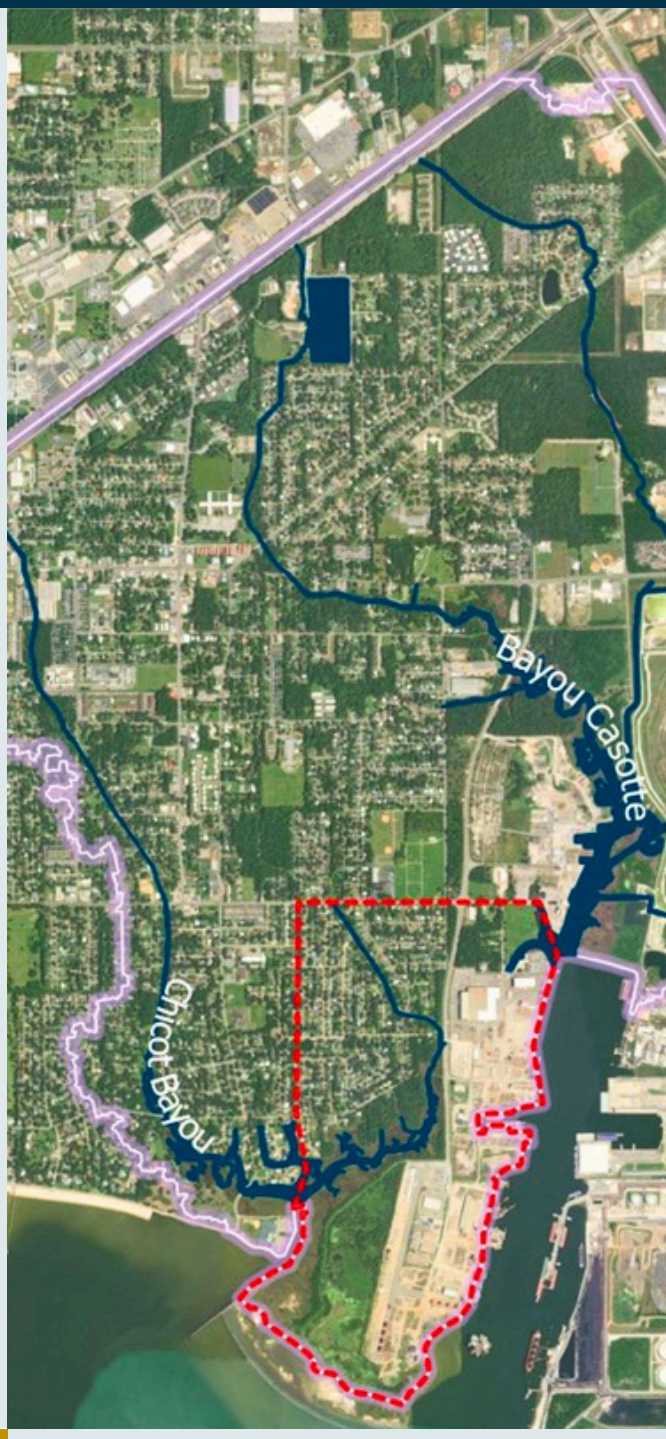
EDITORS

- Barbara Weckesser, Founder & Board President, CCC
- Karla Hopson, Board Treasurer, CCC
- Julie Hambey, CCC
- Dr. Renee Collini, Director of Community Resilience Center, The Water Institute
- Dr. Caroline Frischmon, Research Scientist, University of Colorado
- Stephen Deal, Extension Specialist, MS-AL Sea Grant

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Map of Cherokee Forest (outlined with red dashes) and connected waterways. Source: Moffatt & Nichol

Special thanks to all the Cherokee Forest and Pascagoula residents, NGO and academic partners, and City of Pascagoula, Jackson County, Mississippi State officials and staff who have helped shaped the first phase of this project.

Buy-In Community Planning is a nonprofit, tax-exempt charitable organization under Section 501(c)(3) of the U.S. Internal Revenue Code.

ABOUT US

The ***Cherokee Forest Relocation to Restoration*** **(R2R)** planning project is led by **Buy-In Community Planning (Buy-In)** in partnership with the **Cherokee Concerned Citizens (CCC)**, a neighborhood organization advocating for a buyout for residents of Cherokee Forest in Pascagoula, MS.

Buy-In's mission is to support the well-being of people whose homes and communities are threatened by environmental hazards by assisting them in planning for and relocating to safer areas. We bring together the technical expertise communities need to design **better buyout programs that address people, housing, and land** — the foundations of a healthy community.

The **Relocation to Restoration (R2R) framework** is a holistic approach that increases environmental, economic, and community benefits of buyouts. It aims to generate a long-term return on investment that is 2x–6x more than the initial cost of aquisitions due to associated ecological and quality of life benefits.

This project is part of **Buy-In's Community Partnerships Program (CPP),** a nation-wide intiative that develops bottom-up approaches to assisted relocation in collaboration with local community groups and residents. Buy-In also provides direct Technical Assistance to collaborating government partners to fund and implement buyout programs in communities that want them.



Our vision is a world in which all people have access to safe and affordable housing and where human and natural systems can thrive together.

ABOUT THIS REPORT

This ***2026 Progress Report*** reflects the 18-month long community-led planning process to develop an innovative solution for voluntary buyouts and ecological restoration in the Cherokee Forest Subdivision of Pascagoula, Mississippi.

PROJECT PURPOSE

In 2023, Buy-In was asked to support local resident group Cherokee Concerned Citizens (CCC) in their desire to develop a buyout program in their neighborhood. Through sustained engagement, R2R evolved out of conversations between Buy-In, CCC, and other local stakeholders. In 2024, Buy-In received a Capacity Building and Planning Grant from the National Fish and Wildlife Foundation (NFWF) National Coastal Resilience Fund (NCRF) program to develop a community-led plan.

The goal of the R2R project is to acquire high risk properties from owners who want to relocate and to restore parcels into a blue-green buffer to reduce flood and industrial pollution risks for nearby residents.

PROJECT OUTCOMES

Phase I Community Engagement & Planning Grant Outcomes:

- Cherokee Forest site assessment
- Resident & stakeholder workshops
- Cherokee Forest restoration conceptual design plan
- Rehousing in Pascagoula & Jackson County assessment
- Relocation & Restoration phasing & funding strategy

Air pollution and stormwater hydraulic modeling studies were also completed during Phase I planning with funding from CCC's LandTrust of MS Coastal Plain (LTMCP) environmental justice grant. The findings of these studies are also included in this report.

Phase II Planning & Design Grant from NFWF NCRF will kick-off in Summer 2026.

Anticipated Phase II outcomes:

- Detailed site assessment
- 30-60% restoration plan
- Conservation management plan
- Rehousing plan
- Preliminary permitting strategy
- Implementation partner agreements



Photos (From Top to Bottom:) Vacant land and mature trees in the Cherokee Forest neighborhood; R2R Community Workshop. Sept. 2025; TAP members look at Chicot Bayou from a resident's backyard during a visit in Feb 2025



Photo: Pascagouala residents sharing feedback with Pranav Thole, ONE Architerture, during Sept. 2025 Resident Workshop

PROJECT PARTNERS

Steering Committee: Buy-In Community Planning and Cherokee Concerned Citizens

- Barbara Weckesser, Founder & Board President, CCC
- Karla Hopson, Board Treasurer, CCC
- Leah Burks, CCC
- Julie Hambey, CCC

Technical Delivery Partners:

- Climate Resilience Consulting, ONE Architecture and Urbanism
- Moffatt & Nichol

Technical Advisory Panel (TAP):

- Andrew Whitehurst, Water Program Director, Healthy Gulf
- John Ben Soileau, Program Officer, National Academy of Sciences
- Dr. Katharine Duderstadt, Research Scientist, University of New Hampshire
- Dr. Caroline Frischmon, Research Scientist, University of Colorado
- Dr. Jennifer Baka, Associate Professor of Geography, Penn State University
- David Perkes, Executive Director, Gulf Coast Community Design Studio
- Stephen Deal, Extension Specialist, MS-AL Sea Grant
- Dr. Jennifer Debose, Research Coordinator, Grand Bay NERR
- Dr. Renee Collini, Director of Community Resilience Center, Water Institute
- Colleen McHugh, Senior Planner, Water Institute
- Dr. Abbey Hotard, Associate Professor, University of South Alabama
- Christopher Williams, Anthropocene Alliance

KEY FINDINGS

This report consolidates the technical site assessments and resident and stakeholder engagement that guided the development of a plan that can advance to a Phase II (Phase II) planning & design process. **The following are key findings that make the Cherokee Forest R2R project a smart investment for the City of Pascagoula.**

- **Opportunity for national leadership in hazard mitigation and restoration activities:** Through the R2R plan, Pascagoula is uniquely positioned to become a national leader by supporting hazard mitigation projects that emphasize environmental benefit and improved quality of life for residents outside of the relocation site in addition to relocating households.

- **High value monitoring and evaluation data through use of a phased approach:** This project will generate a one of its kind monitoring dataset to assess the benefit of community-led projects like R2R in improving ecological and economic vitality in neighborhoods while supporting resident desires to move away from environmental hazards.The restoration concept also creates a **unique opportunity to systematically collect, analyze, and maintain longitudinal data on the performance of nature-based solutions in a low-gradient, tidally influenced neighborhood.**

- **Strategic rationale for neighborhood prioritization:** The site's proximity to sensitive natural resources and heavy industrial activity coupled with high rate of vacancy creates the precise conditions for significant return on investment. A vegetated buffer zone can serve the dual purpose of protecting natural resources and mitigating noise and air pollutantion, improving quality of life for adjacent neighborhoods.

- **High level of buy-in from residents and property-owners:** In a resident survey conducted between 2023 and 2025, **84% of property-owners expressed interest in a buyout, with 64% stating that they are ready to relocate as soon as possible.** The rate of relocation interest in this neighborhood is significantly higher than what is commonly found in other coastal communities. Existing research has found that relocation interest among coastal residents ranges from 21.5% to 49%.

- **Strong ecological and hydrologic fit:** Bayou Chicot retains natural tidal connectivity, high-value habitat patches, and ecological potential not found in other neighborhoods.The multiple restoration typologies within one compact footprint, including native reforestation, tidally influenced streambank restoration, lowland freshwater stream enhancement, and wetland re-establishment, **create a multi-system ecological corridor that reconnects interior runoff, floodplain processes, and the lower Chicot Bayou system.**

- **Lower long-term operations and maintenance burden:** Once established, restored wetland and riparian areas typically require less ongoing maintenance than engineered solutions to protect neighborhoods from flooding.

Using FEMA's Environmental Benefits Analysis Equation, Cherokee Forest R2R could generate between $3.4 to $16.1 million per year in public benefits through flood mitigation, ecosystem services, and reduced infrastructure burdens.

- **Flexible, phased implementation:** The R2R framework intentionally accommodates a patchwork of parcel availability. Early interventions, such as micro-grading, depressional storage, soil decompaction, and native grass establishment, can occur on scattered parcels and still contribute to cumulative drainage improvement.

- **Proximity to a regional conservation network:** Cherokee Forest occupies a landscape of considerable ecological significance, proximate to two state-coordinated conservation programs, the Coastal Preserves Program and the Mississippi Sound Estuary Program, and includes a portion of a coastal marsh complex that functions as critical habitat along the Mississippi Flyway.

- **Alignment with local and state coastal resiliency priorities:** This project aligns with the Mississippi State Hazard Mitigation Plan (2023), the Mississippi Coastal Improvements Program (MsCIP), the Jackson County Resiliency Plan (Expected Release 2026), The Nature Conservancy's Chicot Bayou Conservation Action Plan (2016), and MDEQ's Coastal Nearshore Habitat Restoration and Development (CNHRD) Program.

- **Industry engagement and partnership potential:** Chevron has expressed interest in supporting the restoration project. The company has a record of supporting community-benefit initiatives as both a funder and collaborator, and its participation signals recognition that restoration and resilience investments advance shared community and industry interests.



Photo: Chicot Bayou tidal marsh: a hidden gem located behind Cherokee Forest

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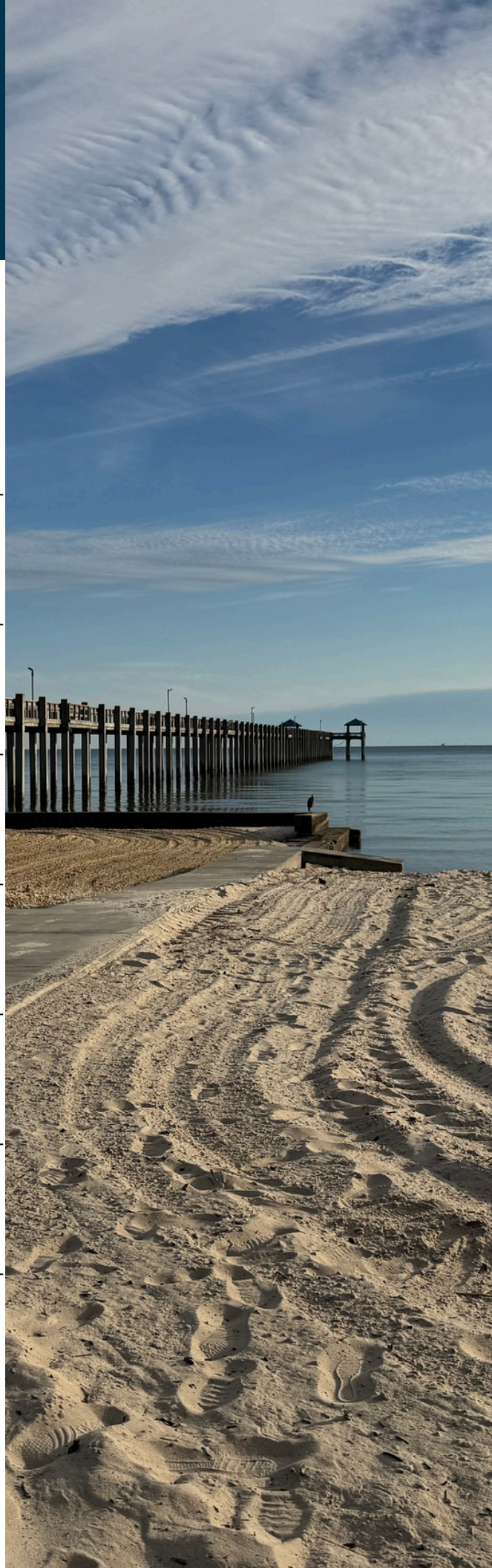


Photo: Pascagoula Beach and the Gulf of Mississippi

INTRODUCTION

According to a resident-led survey conducted between 2023 and 2025, many residents and property owners of Cherokee Forest are interested in moving away from their current homes. When considered with their proximity to heavy industrial activity, flood risk, and persistent vacancy, the neighborhood should be seen as a viable location for voluntary buyouts. The unique landscape further strengthens the case for restoring the land into an open space amenity that provides flood protection, pollution buffers, and water quality improvements.

Few neighborhoods combine such acute and compounding flood risks, industrial encroachment, and persistent vacancy with significant residential buyout interest and restoration potential.







Photos (from top to bottom): TAP members visit a home to view erosion along Chicot Bayou in the backyard during a Feb 2025 visit; Buy-In Executive Director Kelly Leilani Main presents at the Sept 2025 workshop; and TAP members meet around CCC founder Barbara Weckesser's dining table during a visit in Feb 2025.



NATIONAL CONTEXT

Across the country, states and municipalities are increasingly experimenting with buyout programs that reduce flood exposure while restoring ecological systems. The 2025 "Best Practices for Voluntary Home Buyouts" report highlights the importance of pairing relocation with ecological restoration, green buffer creation, and coordinated multi-agency action to maximize social and environmental benefits. The Cherokee Forest R2R project stands firmly within and advances the broader wave of hazard-migration and community resiliency planning now taking shape across the Gulf and the United States.

There are many long-term economic, environmental, and community benefits. According to the 2021 Report "Floodplain Buyouts: Challenges, Practices, and Lessons Learned", every $1 spent on buyouts saves $5 to $9 in future disaster costs. The return on investment (ROI) is even higher when including other mitigation measures, particularly ecosystem restoration. FEMA estimates the additional cumulative economic benefits of restoration to be between $2.57 and $12.29 per square foot per year.

Applying this formula to Cherokee Forest R2R, **restoring just half of the neighborhood (~30 acres) could generate between $3.4 to $16.1 million per year in public benefits through flood mitigation, ecosystem services, and reduced infrastructure burdens.** These estimates also don't include all the potential economic and quality of life benefits, such as decreased municipal costs, increase in nearby property values, lower flood insurance rates, improved air quality, and improved community physical and mental health.

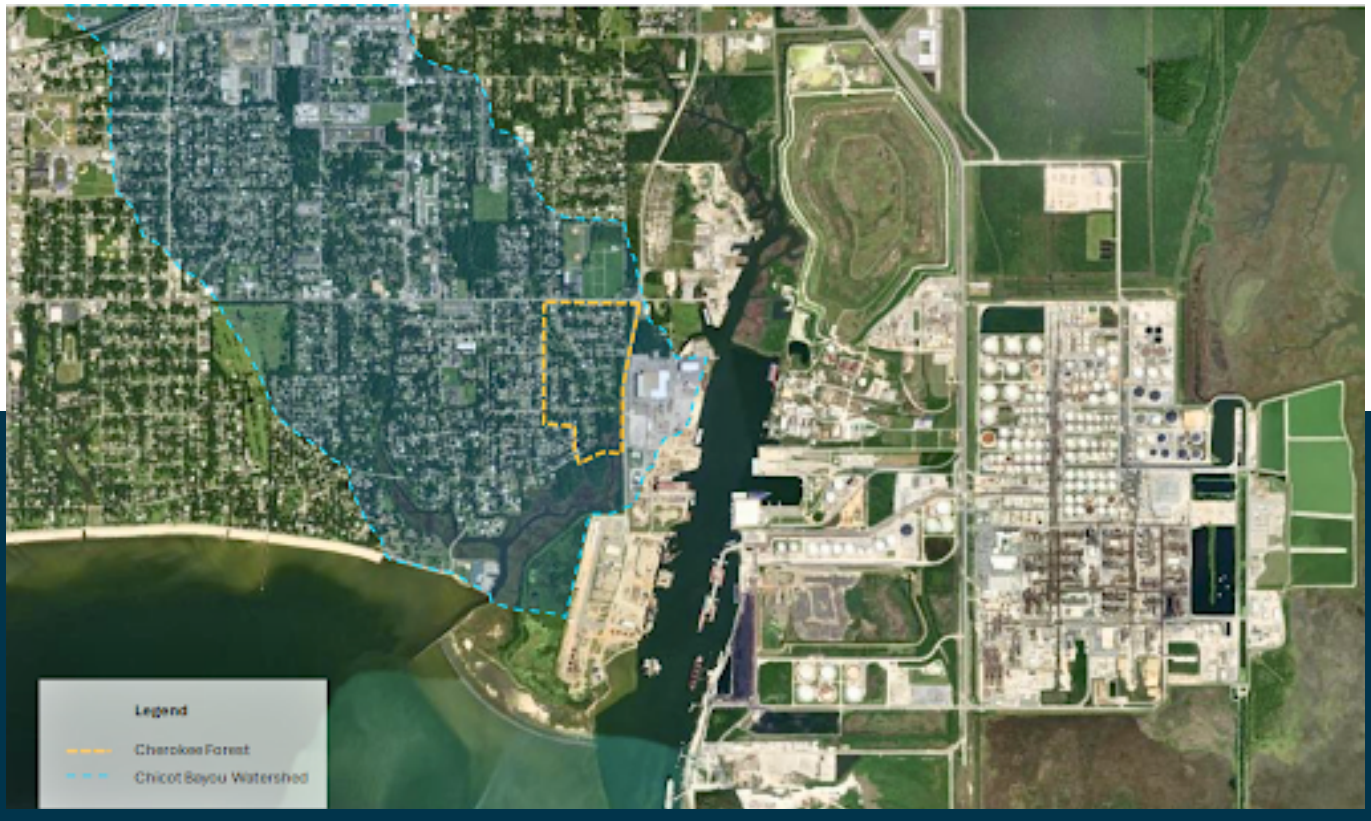
ABOUT CHEROKEE FOREST

Cherokee Forest is an industry-adjacent, high-risk flood zone neighborhood in Pascagoula, Mississippi. The neighborhood is about one mile north of the Mississippi Sound and sits across the street from Bayou Casotte Industrial Park, less than 150 ft from the closest industrial facility (Bollinger Shipbuilding), about 1.2 miles from the furthest industrial facility to the east (Chevron Refinery), and about 1.8 miles from the furthest facility to the south (Gulf LNG).

The neighborhood also sits at the southern edge of the Pascagoula River Basin Watershed which includes Bayou Chicot Watershed. The eastern prong of Bayou Chicot runs through the heart of the neighborhood. It separates Cherokee Forest and Delmas (the neighborhood located directly to the West of Cherokee Forest) and cuts across Cherokee St to wrap around the other side between Cherokee Forest and Bayou Casotte Parkway. Bayou Chicot and its surrounding marsh and wetland system represent one of Pascagoula's most distinctive natural assets.

The neighborhood is approximately 66 acres with 213 privately and publicly owned parcels. According to neighborhood knowledge, parcel analysis, and surveys, there are 113 owner-occupied homes, 43 rental properties (nearly half sit empty), and 57 vacant lots. Figure 1 below illustrates the neighborhood context, showing the Cherokee Forest neighborhood boundary (orange dashed line), industrial adjacency, and the lower Bayou Chicot watershed in which the neighborhood is situated.

Figure 1: Satellite view of Cherokee Forest neighborhood and Bayou Chicot Watershed



Source: CRC, using data from The Nature Conservancy. Satellite image from ESRI

STRATEGIC RATIONALE FOR R2R

According to a resident-led survey conducted between 2023 and 2025, many residents and property owners of Cherokee Forest are interested in moving away from their current homes. When considered with their proximity to heavy industrial activity, flood risk, and persistent vacancy, the neighborhood should be seen as a viable location for voluntary buyouts. The unique landscape further strengthens the case for restoring the land into an open space amenity that provides flood protection, pollution buffers, and water quality improvements.

Few neighborhoods combine such acute and compounding flood risks, industrial encroachment, and persistent vacancy with significant residential buyout interest and restoration potential.

BUYOUT INTEREST

Beginning in 2023 and continuing through the R2R Phase I Planning Grant, Buy-In and CCC have conducted a comprehensive a household buyout survey (N=116). The survey was completed by 95% of current resident-owners (resident-owners are people who own the home that they currently live in). **Over 85% of residents-owners surveyed are either ready to move or are interested in a buyout.**

Responses from the survey reveal that many residents feel trapped because of the financial investments and debt that accompanies home ownership, including outstanding mortgages, flood insurance, and renovations and building requirements following hurricanes Camille, Frederick, Elena, Georges, and Katrina. **Over 60% of respondents cited low home values and/or inability to find a comparable home elsewhere as the reason(s) why they haven't moved already.**

Figure 2: Cherokee Forest Resident Buyout Interest (2023-2025)

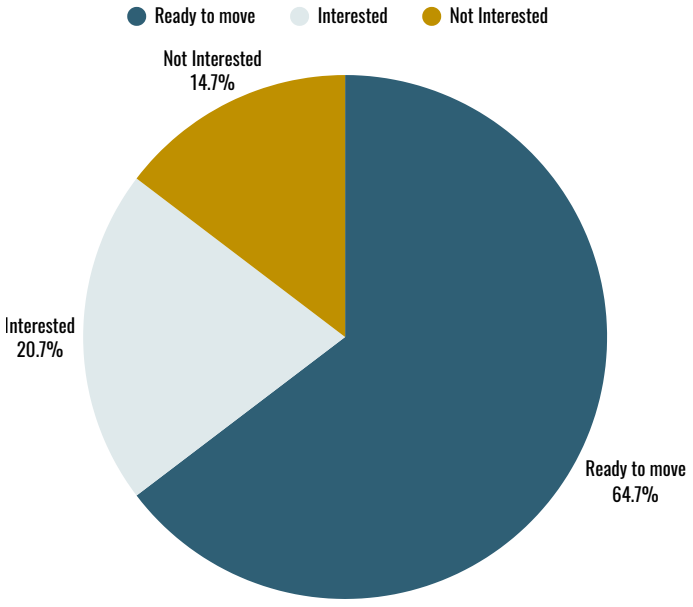




Photo: Barbara Weckesser, Board President of Cherokee Concerned Citizens, walks with Andrew Whitehurst, Water Program Director at Healthy Gulf, on Navaho Ave in Cherokee Forest during a Technical Advisory Panel (TAP) site visit in February 2025.

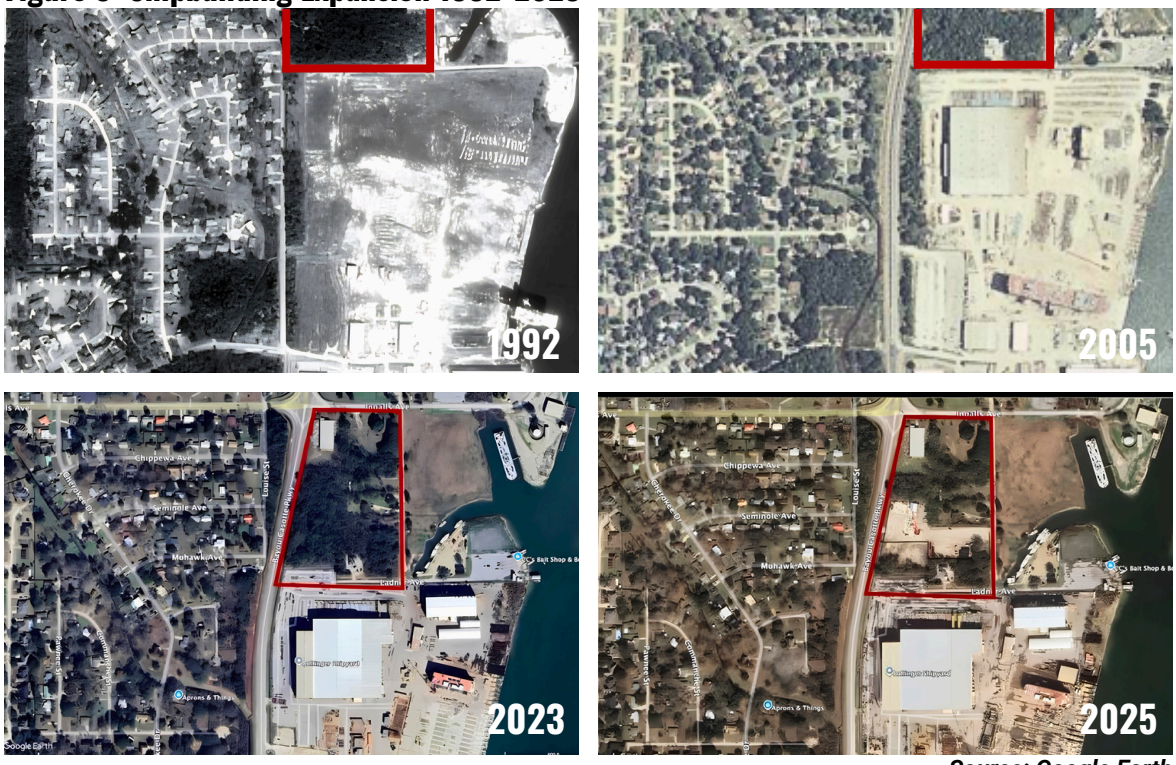
PROXIMITY TO HEAVY INDUSTRY

Heavy industrial activity is concentrated at the Bayou Casotte Industrial Park located in Jackson County, bordering the southeastern side of the City of Pascagoula. Of all the neighborhoods in the city, Cherokee Forest sits closest to multiple petrochemical and shipbuilding operations and a Superfund site (former MS Phosphates).

The Cherokee Forest neighborhood was developed during the 1960s and 1970s to house workers for the shipbuilding, petroleum, and chemical industries. As the industry grew, new subdivisions expanded to the west. In a community survey completed in 2023 by Thriving Earth Exchange scientists in partnership with the Cherokee Concerned Citizens, long-time residents describe the vibrancy of the neighborhood in the 1980s and 90s as a pleasant and safe place to live and raise a family. **However, since the early 2000s, residents became increasingly concerned about their proximity to industry as production increased and most of the existing forested buffer between industry and the neighborhood was removed.** Residents who have lived in the subdivision since it was first established, who grew up playing in the creek, raised their own children, and stayed to rebuild their homes after Hurricane Katrina, are now seeking relocation.

Figure 3 below shows the expansion of shipbuilding operations. By 2005, the distance between Bollinger (formerly VT Halter) and the neighborhood narrowed as homes and trees were removed to create a new road. In the last few years more trees have been removed on the Bollinger site (outlined in red) to accommodate industrial expansion.

Figure 3: Shipbuilding Expansion 1992-2025



Source: Google Earth

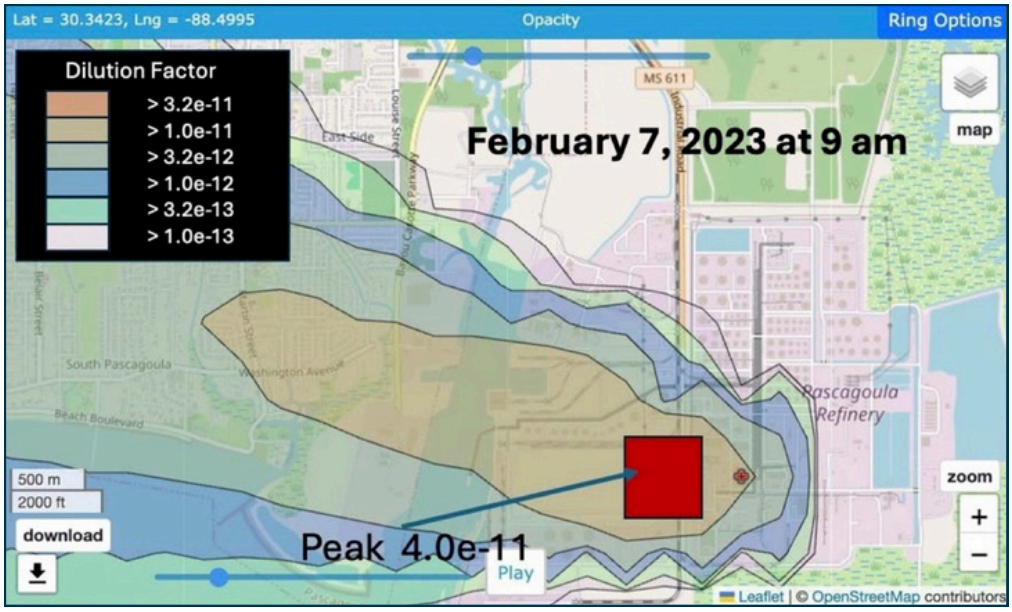
Bayou Casotte Industrial Park expansion since early 2000s:

- Chevron expanded their operations in 2003, 2006, 2010, 2014 and again in 2026 and is now one of the nation's largest refineries and the nation's only Group III+ base oil producer.
- The Port of Pascagoula expanded its operations with a near 5 fold increase in revenue between 2004 and 2024.
- Gulf LNG terminal opened in 2011.
- Enterprise grew to become one of the nation's largest gas processing companies, tripling its gas processing capacity between 1999 and 2016.

According to NOAA HYSPLIT air pollution modeling conducted during Phase I by Technical Advisory Panel member Dr. Katherine Duderstadt, **Cherokee Forest is uniquely impacted** when winds are from the southeast, east, and northeast, **often experiencing levels of pollution over ten times greater** than the background levels recorded at the MDEQ Pascagoula monitoring station or other residential neighborhoods in West Pascagoula. **EPA EJScreen data places Cherokee Forest's census block in the top 99th percentile nationally for toxic air releases.**

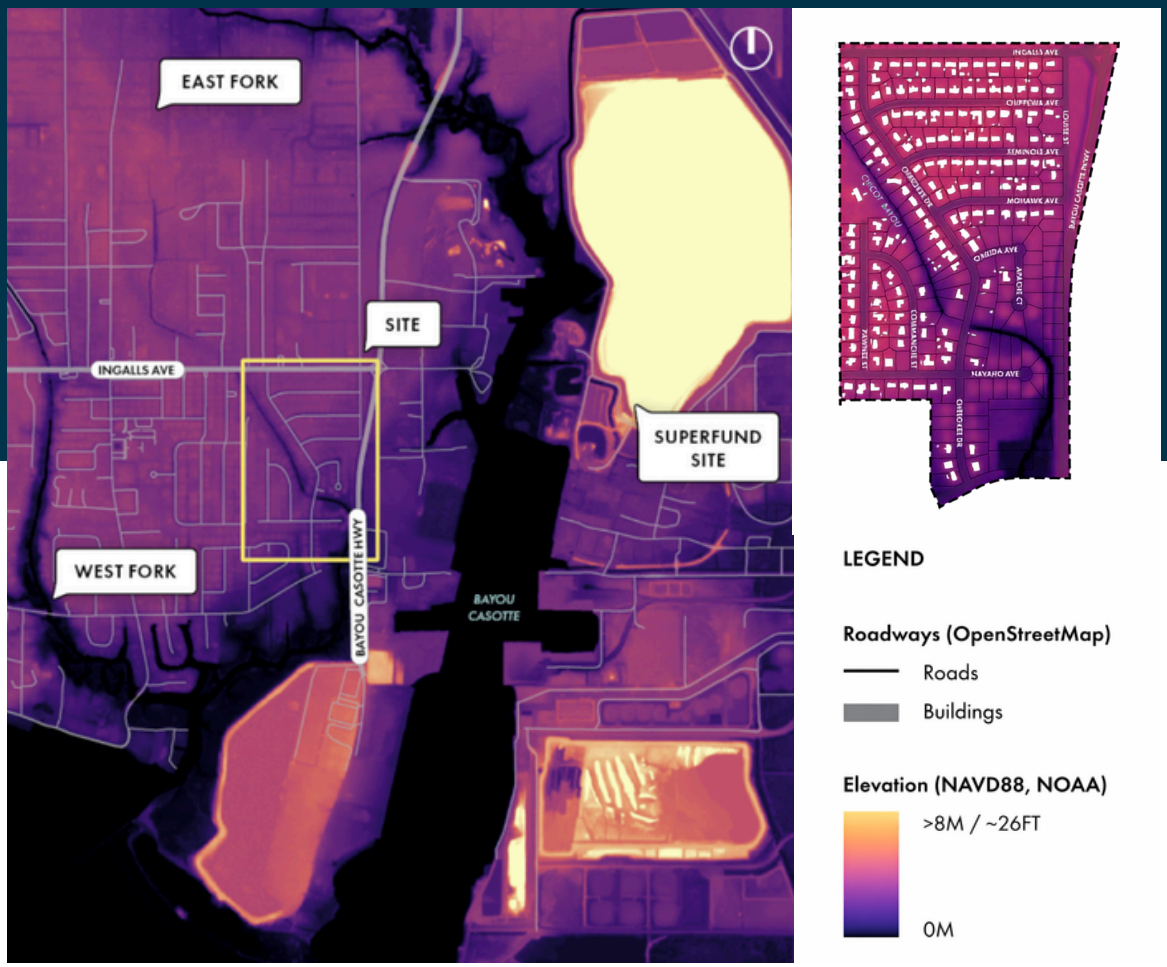
Figure 4 below is an image from a NOAA HYSPLIT simulation of a hypothetical polluted plume from an oil refinery flaring incident on February 7, 2023 when Cherokee Forest residents reported strong odors. The emissions rate is based on sulfur dioxide flare emissions previously reported by Chevron. The image shows peak concentrations at the facility fenceline. Concentration levels decrease as the plume moves further away from the facility, diluting by 75% before it reaches Cherokee Forest. However, concentration levels at the southern end of the neighborhood are 3x higher than surrounding areas, demonstrating the disproportionate risks these residents face.

Figure 4: HYSPLIT Simulation of Hypothetical Pollution Plume



***Source*: *Air Pollution Modeling and Analysis of Nature-Based Pollution Mitigation in the Cherokee Forest Subdivision of Pascagoula, Mississippi Report* by Dr. K. A. Duderstadt and Dr. C. Frischmon**

Figure 5: Elevation of Cherokee Forest and Southeast Pascagoula



Source: CRC and One Architecture

RELATIVE COMPOUND FLOOD RISK

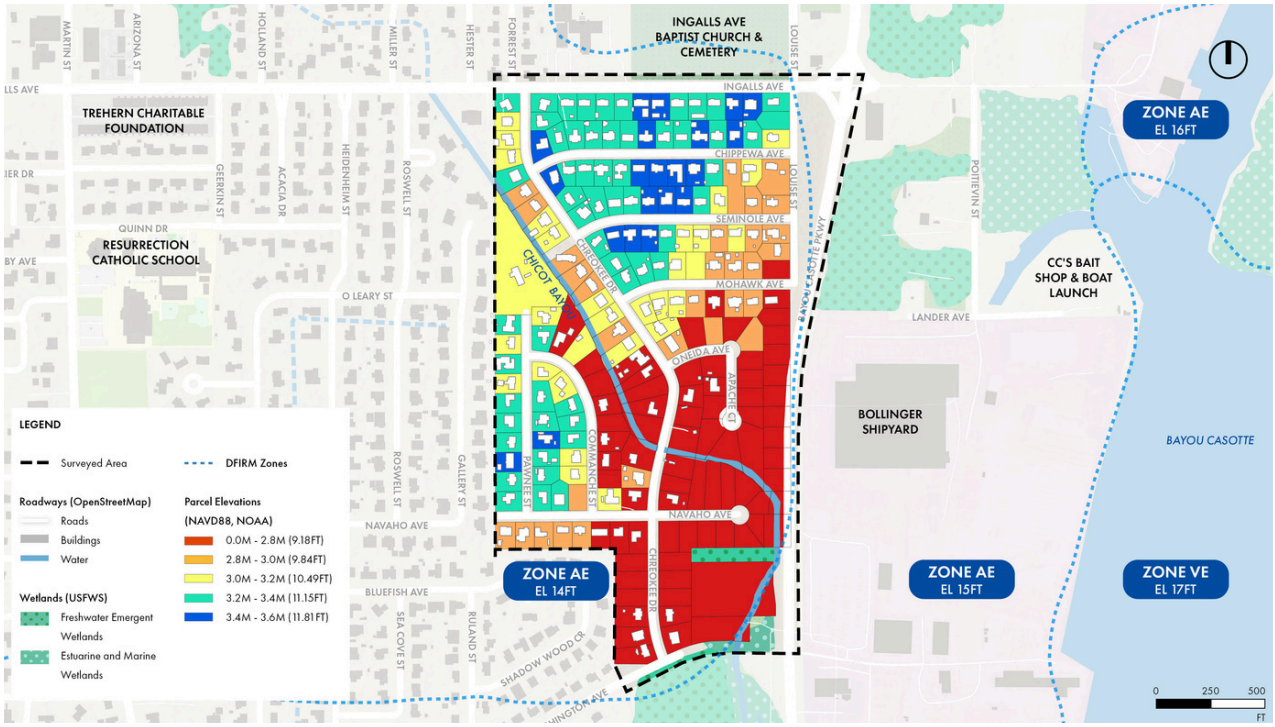
Roughly 90% of the City of Pascagoula is designated by FEMA as a high risk flood zone, but not all areas face equal risk of flooding due to proximity to waterways and variances in elevation. Cherokee Forest's proximity to the Mississippi Sound, Bayou Casotte, and eastern fork of Chicot Bayou that runs through the heart of the neighborhood makes it vulnerable to multiple types of flooding, including tidal influences, coastal storm surges, riverine overflow, and stormwater flooding. Additionally, nearly all of Cherokee Forest sits 3-5 ft below FEMA's Base Flood Elevation (14FT BFE for Zone AE). Figure 5 above shows that the neighborhood is one of the lowest residential areas in Southeast Pascagoula, especially in the southeasternmost part of the neighborhood and along Chicot Bayou.

The neighborhood flood risks are similar to other waterfront properties, but residents of Cherokee Forest do not get the benefit of ocean or river views from their property since they are cut off from Bayou Casotte by industrial sites. Since most of the forested buffer has been removed by the expansion of Bayou Casotte Parkway and the lower reaches of Chicot bayou lack public access, most homes now have views of industry, abandoned lots, and dumping in their backyards. As a consequence, they face similar flood risk but lower property values.

Additionally, unlike most other waterfront properties in Pascagoula, **the majority of homes in Cherokee Forest are not elevated.** Consequently they are more vulnerable to flood damage. According to the 2024 household buyout survey (N=144), only 10 homes are elevated. Many residents explained they also cannot afford flood insurance. The survey revealed that **33% of homes are uninsured**. Forty-two percent of uninsured residents cited cost as the primary barrier to coverage—a challenge that will grow as flood insurance premiums are likely to increase. Using the FEMA's Direct-to-Consumer (D2C) tool, **insuring a home today** within Cherokee Forest at $250,000 coverage with $100,000 contents, and a $2k deductible on each **will cost about $5,500/year**.

Figure 6 shows parcel-level elevation data collected by Phase I technical delivery partners, ONE Architecture and Urbanism & Climate Resilience Consulting. Their analysis found that **33% of the area's parcels (70 parcels) lie at or below 9 feet NAVD88**, and notably, 69% of those vulnerable lots are already vacant (48 lots), creating an opportunity for phased retreat and ecological restoration. **The 22 remaining parcels include homes that are especially vulnerable to compound flood risk.**

Figure 6: Cherokee Forest Elevation Map



Source: CRC and One Architecture

During a resident workshop held in September 2025, Cherokee Forest residents reported stormwater flooding up to 20X per year. They described roads that sometimes remain underwater for hours and isolate homes from main access routes. Participants mapped and discussed specific hotspots where water routinely collects and can render roads impassable. These areas include Navaho, Cherokee (near North Entrance and Chicot Bayou Bridge), Washington (near South Entrance), Louise, and Apache.

Residents' lived experience indicates that local stormwater flooding occurs at a scale that is not visible on FEMA or NOAA models. The discrepancy underscores how small-scale drainage blockages, stormwater runoff, and subsidence amplify risk beyond what national datasets capture.

Stormwater modeling conducted by Moffatt & Nichol is consistent with resident reports. Using a (2D) HEC-RAS model, the engineering team conducted a hydrologic and hydraulic analysis of the neighborhood with the goals of:

- analyzing the risks of flooding with the current infrastructure, including identifying locations of poor drainage, flow constriction, and possible erosion caused by stormwater convenance issues;
- identifying locations for possible stormwater storage; and
- providing guidance on nature-based design interventions.

Before modeling began, the engineering team (Moffatt & Nichol and Gulf Coast Community Design Studio) conducted a site visit to observe on-the-ground conditions. **Based on these observations, they noted three areas of potential concern within the neighborhood as illustrated in Figure 7:**

- along Cherokee Dr. bridge on both sides of the street;
- at the intersection of Louise St. and Mohawk Ave; and
- at the vacant cul-da-sac and storm drain at the end of Navaho St.

Figure 7: Cherokee Forest Site Observations



Cherokee Drive Bridge (looking North)



Cherokee Drive Bridge (looking South)



Louise and Mohawk St



Navaho Ave Drain

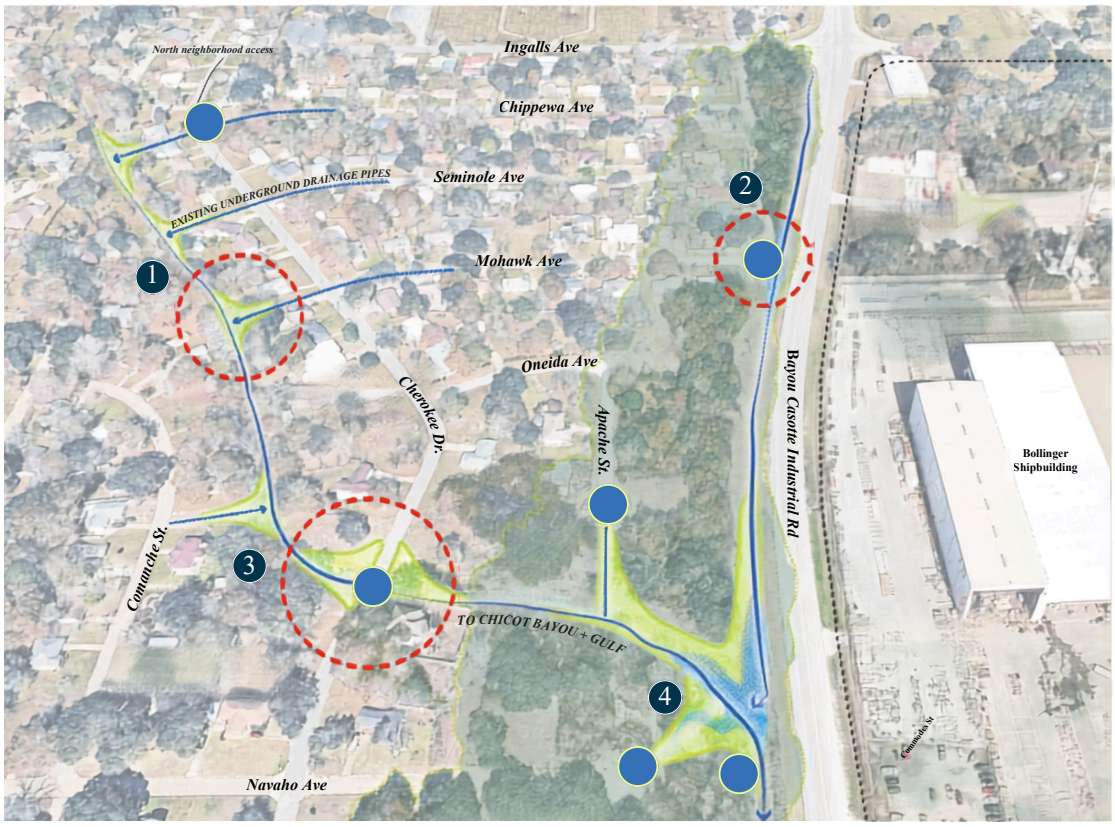
Source: Photos courtesy of Moffat & Nichol

The H&H modelling simulated 3 different case scenarios: common occurrence of 1-year, 24 hour storms (5.02 in.), a 10 year, 24-hour storm (9.23 in), and Hurricane Ida water levels (6.24ft). The model did not include rainfall combined with coastal storm surge above the Ida water levels, nor does it specifically predict severity, depth, or duration of flooding. However, it provides useful insight regarding areas at risk of flooding that can help inform design solutions.

Figure 8 is a combined graphic of resident reports of street flooding and model predictions of areas with constricted flow where flooding is most likely to occur during 1-year, 24-hour storm events. **Resident reports of flooding, marked by the blue dots, mirror the modeling that showed four major areas of constricted flow (red-dashed circles):**

- the corner of Mohawk Avenue and Louise Street, where an undersized surface drainage channel and culvert restrict flow along Bayou Casotte Parkway to the east;
- the northwestern part of the neighborhood, where underground pipes transverse through residential properties and outfall into Chico Bayou;
- at the bridge across Chicot Bayou on Cherokee Drive where erosion is threatening infrastructure on both the Western and Eastern edges; and
- at the end of the two existing cul-des-sacs at Apache Court and Navaho Avenue.

Figure 8: Resident Reports of Street Flooding & Stormwater Modeling Results



Source: CRC and One Architecture (resident reports) and Moffat & Nichols (stormwater model)

The engineering team is currently testing hydrologic and hydraulic impacts for three restoration scenarios, based on recommendations from their modeling of current conditions. The results will inform Phase II analysis of site conditions and the development of a restoration plan that maximizes ecosystem benefits, including stormwater management and flood protection. Each recommendation below is numbered to match its corresponding location in Figure 8 above.

1. **Naturalize outfalls along Chicot Bayou with planted landscape to cleanse stormwater**
2. **Remove hard infrastructure along Louise St. that is constricting flow**
3. **Widen the channel under the bridge to slow stormwater and reduce erosion**
4. **Daylight buried pipes and culverts on Apache and Navaho to enhance connectivity and infiltration**



Photo: TAP members Dr. Jennifer Baka and Dr. Jennifer Debose standing in front what is left of a home in Cherokee Forest during a site visit in February 2025. Only the foundation and driveway remain after the home was destroyed during Hurricane Katrina.

PERSISTENT VACANCY

Unlike many other areas of Pascagoula, Cherokee Forest has not recovered from Hurricane Katrina. Many residents did not return after the storm destroyed numerous homes in the neighborhood, especially in the lowest lying areas. While some properties are now owned by the City of Pascagoula and State of Mississippi, the lack of a complete buyout program for recovery combined with high costs to rebuild resulted in several homeowners abandoning their property altogether. Many others converted their properties into rentals. **There were once over 200 owner-occupied homes. Today, just over 50% of the households are homeowners and about 30% of the neighborhood is vacant.**

The impact of compounding flood and industrial hazards is evident by the presence of persistent vacancy. **The majority of abandoned and overgrown residential lots are concentrated at the southeastern part of the neighborhood where elevation levels are the lowest and proximity to industrial activity is the highest.** The visible abandonment, including foundation slabs, cracked driveways, and overgrown lots, is a stark contrast to other parts of the neighborhood.

On Navajo Ave., a cul-de-sac near Chicot Bayou that faces industrial sites across Bayou Casotte parkway, the landscape is dotted with empty lots. On other streets, nearly every parcel is overgrown and vacant. On Apache Street, for instance, only one home remains. **13 homes that once stood just 150 ft. from Bayou Casotte Parkway were destroyed and never rebuilt after Katrina.**

Most of these properties have remained vacant for 20 years. Based on reports from property owners, there has been little interest for real estate development in the neighborhood due to construction requirements that would mandate elevating homes high into the air. Phase II planning will include a more in-depth housing market analysis, but residents report declining home values and rising flood insurance rates, suggesting this pattern of vacancy could continue. **If another major storm occurs and homeowners are faced with the decision whether or not to rebuild, vacancy rates could even increase above current levels.**

The vacant land concentrated in the lowest lying areas of the neighborhood adjacent to the Chicot Bayou marshland is an ideal location to begin a phased approach to restoration. Restoration could include converting high-risk properties into a public asset that reduces future liabilities while creating long-term economic and ecological value for the community.











ECOLOGICALLY SIGNIFICANT LANDSCAPE

Despite the many challenges facing residential properties in Cherokee Forest, **Chicot Bayou and its surrounding marsh and wetland system represent one of Pascagoula's most distinctive natural assets.**

It's significance is described in The Coastal Streams and Habitat Initiative (CSHI) Action Plan as follows:

> *"Bayou Chicot contains a rare mix of ecological features within Pascagoula: a functioning fringing oyster reef and a remnant intertidal saltmarsh at its mouth, along with patches of tidal wetland and riparian habitat that support fish, birds, and other wildlife. The lower reach of Chicot Bayou retains natural tidal connectivity, high-value habitat patches, and ecological potential." (pg 136-137)*

The eastern fork of Chicot Bayou runs along the property line of residents on the west side of Cherokee Drive until about halfway into the neighborhood. After flowing under the bridge on Cherokee drive, it wraps around the southeastern side of the neighborhood, bounded by Bayou Casotte parkway, before it connects to a marsh stretching to the Mississippi Sound. **Unfortunately, Chicot Bayou's exquisite marsh and wetland system is relatively invisible to Pascagoula residents unless you are driving along Bayou Casotte Parkway.**

This was not always the case. Many longtime residents recall playing in the marsh as children and fondly recall launching their kayaks in the Bayou, going fishing, and enjoying access to the water and wildlife all around them, especially birds.





Pascagoula is a nationally recognized destination for birders, drawing visitors from all over the world. The region acts as a crucial stopover on the Mississippi Flyway, a migration route used by 45% of North American bird species. Thirty-five heritage species have been identified within the Bayou Chicot watershed, including the iconic Painted Bunting, a favorite among bird enthusiasts. Two state and federally listed endangered species the Mississippi sandhill crane and Piping plover, both enjoy this area.

Given the neighborhood's proximity to Greenwood Island, a refuge and nesting spot for migratory birds, converting the site into urban forest could offer a secondary stopover, preventing fallout. **Likewise, creating a public amenity that improves access to the marshland could also create new economic opportunities for Pascagoula residents by attracting tourists to this unique destination.** This type of development opportunity will be explored further in Phase II.



Painted Bunting



MS Sandhill Cranes



Piping plover

Restoring wetlands, riparian habitat, and early-successional vegetation within Cherokee Forest would add new functional habitat that complements these nearby protected areas, such as Grand Bay NERR located about 2 miles east of the neighborhood. Although modest in size, the site sits within a larger ecological corridor linking coastal marshes, forested wetlands, and tidal systems. As parcels transition from residential use to open space, **Cherokee Forest can serve as sanctuary for migratory species and contribute to the broader mosaic of Gulf Coast habitat restoration underway across the region.**

RESTORATION OPPORTUNITY ZONES

Building off of the ecological amenities described in this report, the Cherokee Forest Restoration Opportunity Zones (ROZ) Map identifies four distinct opportunity zones for nature-based strategies tailored that are tailored to local site conditions including vacancy, flooding, and soil type:

- **Riparian buffers** incorporating tiered or planted riverbanks for the properties that border Chicot Bayou throughout the neighborhood, to stabilize slopes and improve filtration.
- **Afforestation** along the eastern boundary to create a vegetative buffer against air and noise pollution from the adjacent Bayou Casotte Industrial area.
- **Wetland restoration** in the southeastern corner, where the convergence of freshwater and saltwater forms a unique ecological zone suitable for marsh creation and biodiversity enhancement.
- **Pocket parks and small reforested areas** on higher, isolated parcels outside the immediate floodplain, designed to reduce heat island effect and support PM capture.

Figure 9: Cherokee Forest Restoration Opportunity Zones Map



Source: CRC and One Architecture

RIPARIAN BUFFER

The western edge of Cherokee Forest, running parallel to Chicot Bayou, represents a critical opportunity to restore natural floodplain function while reducing exposure of residents along Chicot Bayou to erosion and maintenance headaches. Naturalizing the riparian edge of Chicot Bayou can also reduce nuisance flooding that regularly affects the interior blocks of the neighborhood. The engineered drainage system, consisting of small culverts, armored outfalls, and gabion baskets (that are already failing), provides limited conveyance and storage for the bayou's low gradient and tidal influence.



Photo: Metal gabion baskets placed along Chicot Bayou can be seen failing in the backyard of a resident along Cherokee Drive. In addition to failing gabions, residents report vegetative overgrowth, nuisance flooding, and stagnant water. Source: Chris Williams, A2

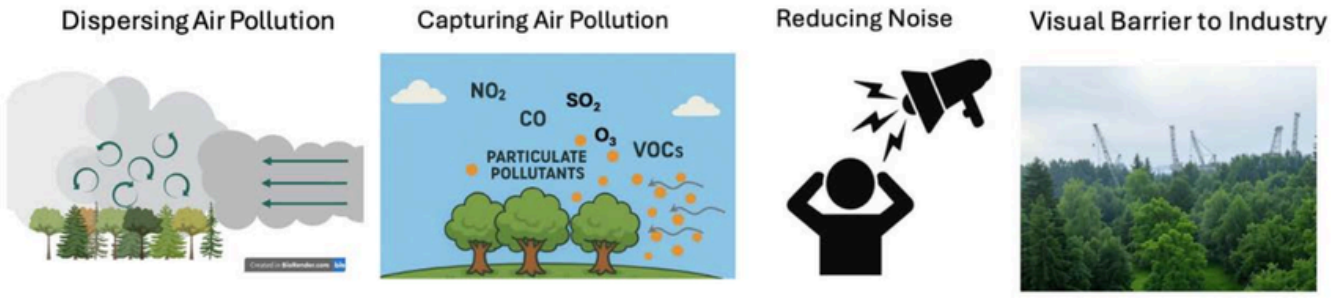
Restoration strategies in the riparian zone often include floodplain benches or shallow benches within the floodplain, floodplain reconnection to allow overbank flow and storage, and creation of vegetated depressional storage areas or wet meadow zones. These features help slow runoff, improve infiltration, and provide ecological benefit while accommodating periodic inundation.

A target width of at least 75–100 feet could likely accommodate both routine overbank flow and the slow drawdown associated with tidal backwater conditions. This approach is intended to enhance resilience under both tidal and pluvial (rain-driven) flooding. It would require voluntary acquisition of homes adjacent to Chicot Bayou's channel.

AFFORESTATION

While the Bayou Casotte Industrial Complex has natural buffers to air pollution to its east through the Grand Bay National Estuarine Research Reserve (NERR), to the north from undeveloped forested land, and to the south with the Gulf waters, there is no longer an equivalent natural buffer to the west protecting residential areas from industrial activity. **A forested buffer along the entire eastern side of the neighborhood can protect neighborhoods farther to the west, such as Delmas, by slowing, dispersing, and capturing pollutants as they spread.**

Benefits of a forested buffer Include:



Source: ***Air Pollution Modeling and Analysis of Nature-Based Pollution Mitigation in the Cherokee Forest Subdivision of Pascagoula, Mississippi Report*** **by Dr. K. A. Duderstadt and Dr. C. Frischmon**

The USDA recommends a forested buffer of at least 600 ft to reduce particulate matter (PM) by 75%. The air pollution modeling conducted during Phase I shows similar results for large PM. The LANL QUIC-URB model was used to run simulations on how well a 600 ft forested buffer (just under half of the width of the neighborhood) and one that extended across the entire neighborhood reduces PM pollution from the nearby shipyard. The study also evaluated levels of reduction for different size particles, 15 and 5 microns. While more data is needed to run additional simulations accounting for other types of pollutants, such as VOCs, varying atmospheric and meteorological conditions, and restoration scenarios, early modeling suggests a forest buffer is effective at mitigating exposure risks (see Figure 8).

The study recommends the following buffer width, type of trees, and setback design:

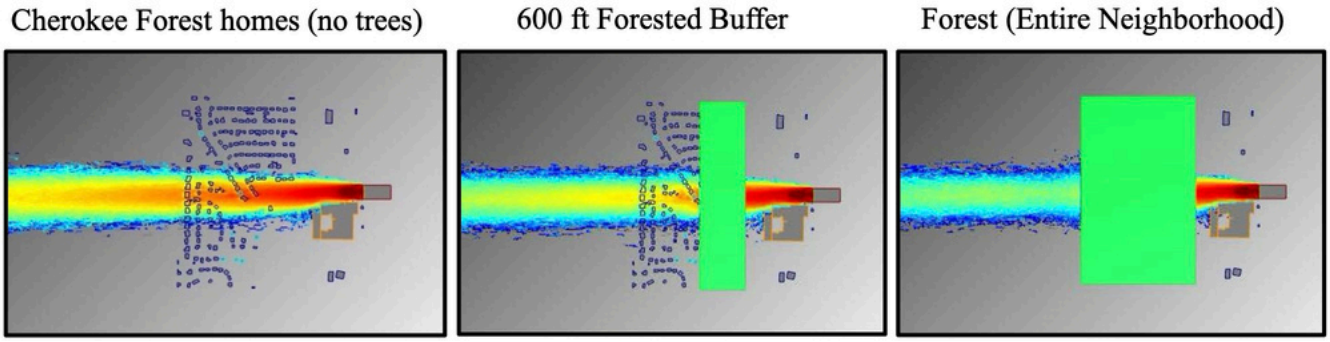
- **40-60% forest density to capture pollutants and create turbulence while allowing venting of surface emissions.** Forest canopies that are too dense can trap pollutants emitted within the forest near the surface. This includes pollution from driving cars on roads that cut through the forest, mowing lawns in parks within the forest, or outdoor burning of undergrowth such as leaf litter. Forests that are too sparse or have unhealthy vegetation with large gaps also provide minimal pollution reduction.

- **Mixed evergreen forest with large leaf surface area and low emitters of biogenic hydrocarbons.** Trees with dense, highly textured foliage, such as fuzzy/hairy surfaces that allow more particles to stick to the surface. Some species of trees can also emit VOCs, often also called “biogenic hydrocarbons.” While not as toxic as industrial pollutants, this can occasionally enhance peak afternoon ozone and nighttime particle formation. Instead of planting monocultures of high biogenic VOC-emitting species such as oaks and poplar, prioritize low emitters, including broadleaf hardwoods and evergreens native to the area and appropriate for the soils and wetland.

- **Include setbacks or variation in greenspace to account for wake and downwash effects at the forest edge that can bring pollutants aloft down to the surface.** A "wake" is an area of increased turbulence just downwind of a forest, like the waves and eddies behind a speedboat. "Downwash" refers to the sudden downward flow of pollution from above the forest canopy that happens at the edge of the forest. Having a mix of tree species with variable canopy height and a setback downwind of the forest between the trees and residences can help prevent unintended increases in pollution exposure. Another solution would be to have a variety of landscapes, such as those proposed for the project area: forest, riparian, and wetland zones.

Figure 8 below is QUIC model comparisons of the effect of Cherokee Forest afforestation options (600 ft and entire neighborhood forested) with existing conditions. The forested areas are shaded in green to model the effect of protecting communities downwind to the west. According to the model, reforesting the entire neighborhood is the best option for protecting residents further west, with a tall forest reducing particulate pollution by 93% for 15 μm and 47% for 5 μm particles. While the 600 ft forest reduces the very course 15 μm particles by 71%, it only reduces 5 μm particles by 10%.

Figure 8: QUIC Model Comparisons on the Effect of Cherokee Forest Afforestation Options



Reduction of particles in the Delmas neighborhood (Heidenheim St) compared to the Cherokee Forest homes modeled without trees.		
	15-micron particles	5-micron particles
600ft buffer of young trees (10 m)	39%	2%
600ft buffer of tall trees (20 m)	71%	10%
Young complete forest (10 m)	55%	1%
Tall complete forest (20 m)	93%	47%

***Source*: *Air Pollution Modeling and Analysis of Nature-Based Pollution Mitigation in the Cherokee Forest Subdivision of Pascagoula, Mississippi Report* by Dr. K. A. Duderstadt and Dr. C. Frischmon**

There are multiple vacant parcels along the eastern boundary that are hydrologically suitable for afforestation and soil-stabilization plantings. Where residents remain, the buffer can be implemented in phases, beginning on vacant lots and expanding as additional parcels are voluntarily vacated. This phased approach allows early demonstration of visible environmental improvements while accommodating phased relocation timelines.

The Southeastern corner of the neighborhood is where stormwater runoff from East Pascagoula meets tidally influenced backflow. ***Restoration in this zone offers an opportunity to rebuild wetland processes that can improve water retention and filtration, prevent tidal backflow, and provide ecological benefits.***

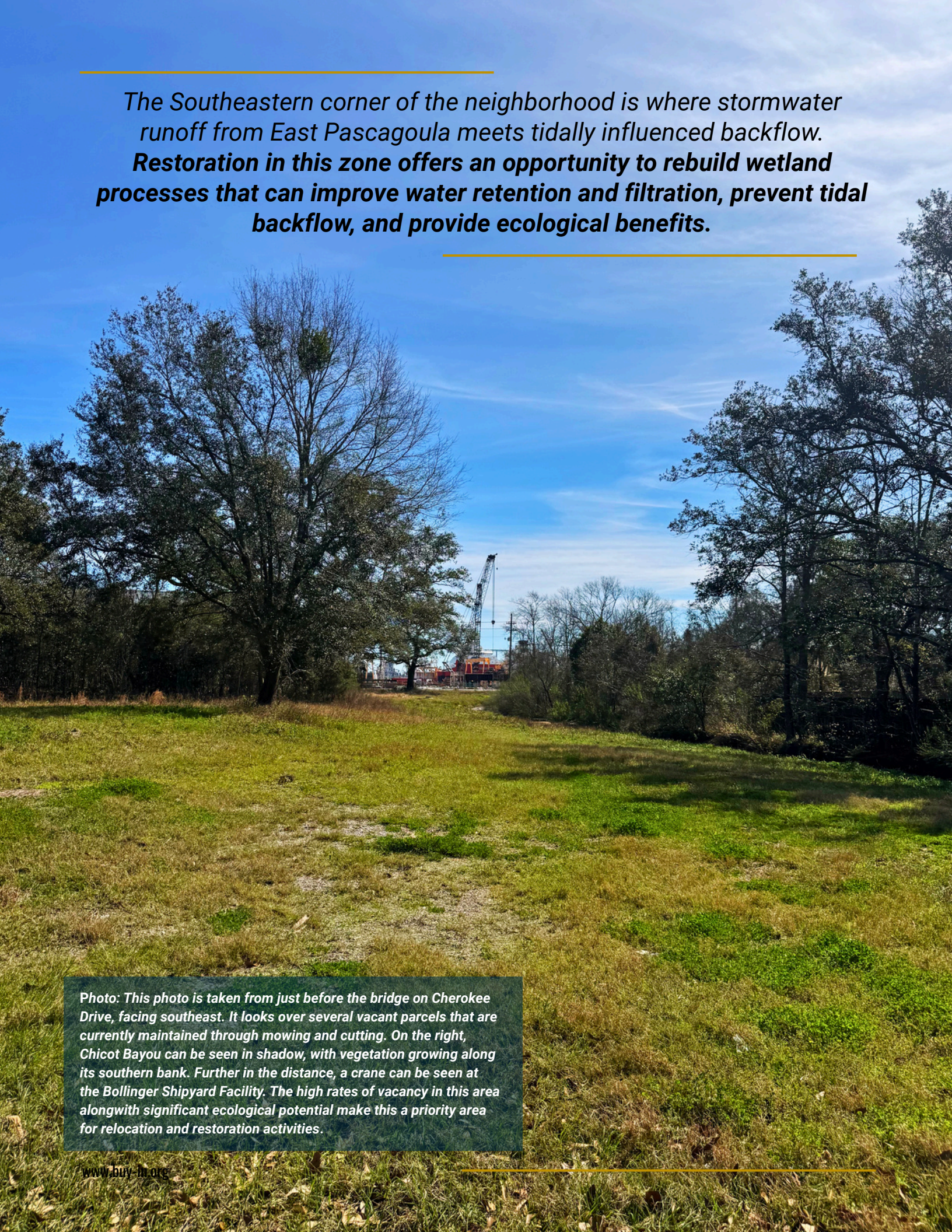


Photo: This photo is taken from just before the bridge on Cherokee Drive, facing southeast. It looks over several vacant parcels that are currently maintained through mowing and cutting. On the right, Chicot Bayou can be seen in shadow, with vegetation growing along its southern bank. Further in the distance, a crane can be seen at the Bollinger Shipyard Facility. The high rates of vacancy in this area alongwith significant ecological potential make this a priority area for relocation and restoration activities.

WETLAND RESTORATION

The southeastern corner of Cherokee forest is ideal for wetland restoration. According to a 2025 NRCS Web Soil Survey, nearly 98% of the soil in the neighborhood consists of Smithton and Ocilla soil with high water tables within 12 to 30 inches of the surface and are rated “very limited” for buildings, roads, and other infrastructure due to flooding and shallow saturation. The Smithton unit is also classified as hydric, indicating persistent anaerobic conditions. This indicates that the area is suitable for wetland restoration, because the structure and low surface level oxygen content to naturally support wetland vegetation.

Encouraging volunteer colonization and targeted planting of native wetland grasses and herbaceous species can be supplemented with native canopy and marsh vegetation, including bald cypress and water tupelo in deeper, persistently saturated areas, and soft rush and bulrush in shallower margins. These plant communities are adapted to fluctuating salinity and inundation and will create a mosaic of freshwater marsh, forested wetland, and transitional upland that enhances stormwater retention, improves water quality through nutrient filtration, and provides vital habitat for migratory birds and amphibians.



Bald Cypress



Wetland Restoration at Sydney Park
Source: Landscape Performance Series

POCKET FORESTS/PARKS

The northern and western areas of Cherokee Forest have slightly higher ground elevations than the central and southeastern portions. These locations provide the most suitable conditions for small-scale green-space interventions that complement hydrologic restoration without impeding drainage. The restoration in this zone is currently limited by the presence of occupied homes but could be restored in phases if and when residents voluntarily relocate.

While large-scale reforestation is not feasible within occupied blocks, strategic street-tree planting and groundcover restoration can meaningfully reduce surface heat, improve comfort for residents who remain adjacent to the project area, and reinforce visual continuity between active residential areas and the restored landscape.

Together, the Restoration Opportunity Zones have the potential to significantly increase property values for residents who do not want to move, improve quality of life for surrounding neighborhoods, and create a unique regional ecological amenity for wildlife lovers and nature enthusiasts.

ALIGNMENT WITH MISSISSIPPI COASTAL RESILIENCY GOALS

The Cherokee Forest R2R project would support many of the same core ecological goals as existing and planned coastal restoration projects in Mississippi, including wetland creation and enhancement, hydrologic reconnection, flood storage expansion, and multi-species habitat improvement.

The R2R project is consistent with the Mississippi State Hazard Mitigation Plan (2023), which prioritizes restoring natural systems as hazard mitigation, encourages restricting development in flood-prone areas and acquiring flood-prone properties, and notes that the destruction of natural protective systems increases flood risk.

Mississippi's Coastal Nearshore Habitat Restoration and Development (CNHRD) Program prioritizes projects that restore, create, and enhance coastal and nearshore habitats while improving ecological connectivity, hydrologic function, and resilience. The Cherokee Forest R2R Plan directly advances these goals through restoration of a rare and ecologically significant nearshore marsh wetland along the lower reach of Bayou Chicot. The R2R project is specifically designed to address environmental stressors that align with those identified in CNHRD-supported efforts, including loss of wetland function, impaired hydrologic connectivity, and degradation of biological integrity.

This project aligns with the **Mississippi Coastal Improvements Program (MsCIP)** to integrate non-structural flood-risk reduction with ecosystem restoration. MsCIP explicitly calls for the restoration of over 3,000 acres of wetland and coastal forest habitat and the acquisition and relocation of approximately 2,000 parcels in high hazard areas. The program emphasizes a systemwide strategy combining nonstructural measures with ecosystem restoration to reduce storm impacts.

The Nature Conservancy's Coastal Streams and Habitat Initiative Conservation Action Plan specifically identifies the lower Chicot Bayou watershed as a priority zone for reducing non-point source pollution, reconnecting wetlands, and improving wildlife habitat and migratory bird corridors.

The Jackson County Resiliency Plan (JCRP) aims to reduce long-term risk by improving the resilience of the shoreline, guiding safe and strategic growth and development, and strengthening access to resources and services. This project works in concert with JCRP by incorporating wetland restoration and buffers that reduce shoreline erosion and flood impacts, directing development to areas of lower risk within the county, and providing risk and resilience education for elected officials and residents.



PARTNERSHIPS & FUNDING

Integrating floodplain buyouts with coastal habitat restoration expands opportunities for strategic partnerships and funding. **The project is already supported by substantial technical expertise, planning momentum, and external investment with funding from The National Fish and Wildlife Foundation National Coastal Resilience Fund.** Buy-In received funding for Phase of this project to advance the Relocation to Restoration (R2R) framework into adaptive management planning and 30-60% restoration design. The Phase II planning process will take place from 2026-2028.

The phased Relocation to Restoration strategy creates a unique opportunity to partner with academic and other institutions, such as Grand Bay NERR, to generate high-value monitoring data for local and national use. Phase II will explore methods for systematically collecting, analyzing, and maintaining longitudinal data on the performance of post-buyout nature-based solutions in a low-gradient, tidally influenced neighborhood with vegetative buffers.

Implementing the Cherokee Forest Relocation to Restoration vision will depend on a diversified funding and financing strategy that aligns with existing state programs, federal opportunities, private investment, and community partnerships. Phase II planning will explore a full suite of funding options and innovations and conduct a cost benenfit analysis. For now, **key federal and state funding sources include:**

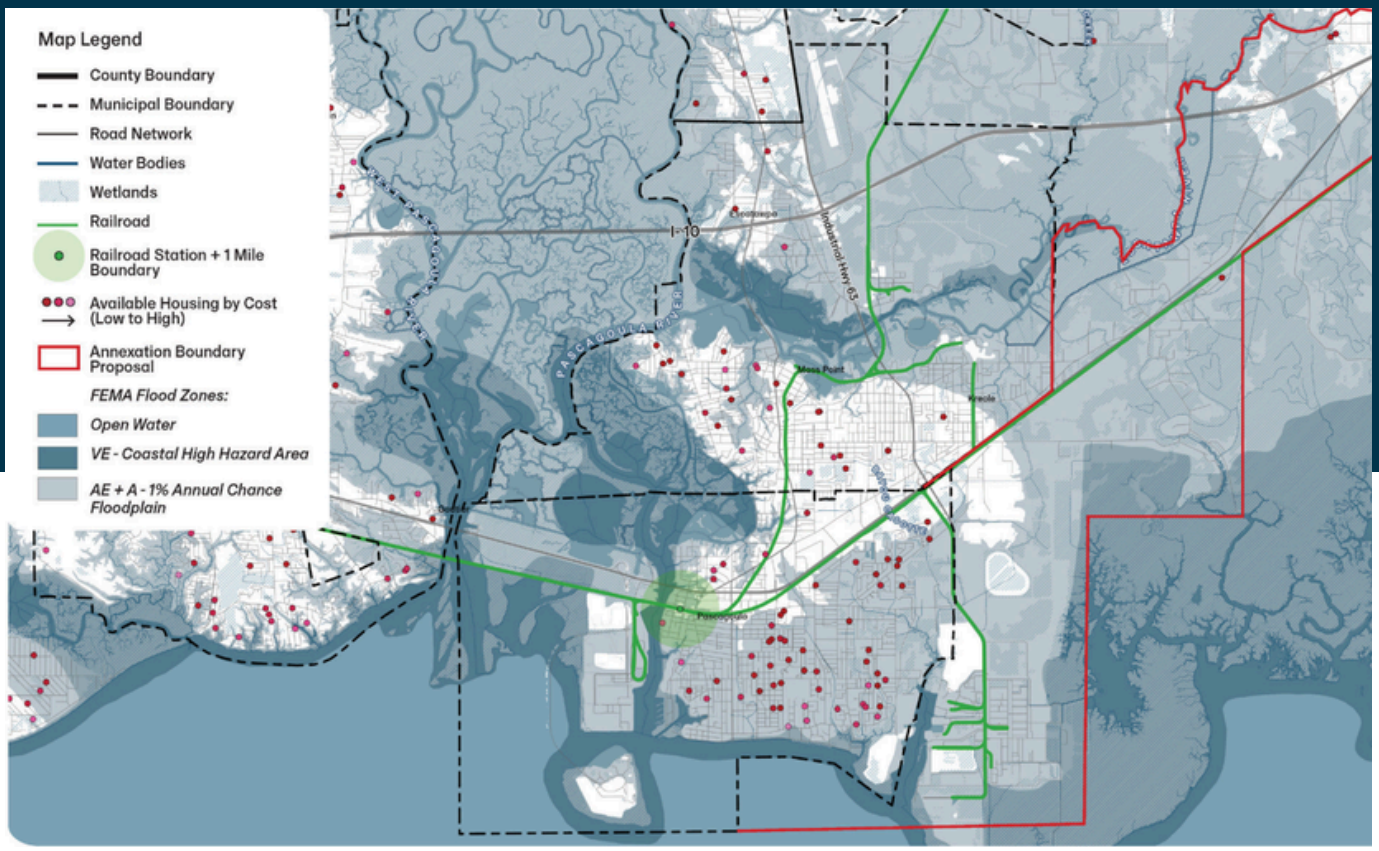
- FEMA's Building Resilient Infrastructure and Communities (BRIC) program
- FEMA's Flood Mitigation Assistance Program (FMA)
- FEMA's Hazard Mitigation Grant Program (HMGP) (in the case of federally-declared disaster)
- HUD's Community Development Block Grant (CDBG) Program
- HUD's Community Development Block Grant Disaster Recovery (CDBG-DR) Program
- RESTORE Act funding

This project is a great fit for the Mississippi's Coastal Nearshore Habitat Restoration and Development (CNHRD) Program. The site occupies a critical position within a broader ecological corridor linking coastal marshes, forested wetlands, and tidal systems and represents a strategic inland–nearshore interface where targeted restoration can deliver outsized ecological benefits relative to scale.

The private sector, particularly nearby industrial facilities that stand to benefit from this project are key partners. **Chevron, in particular, has expressed interest in supporting the project.** The company has a record of supporting community-benefit initiatives as both a funder and collaborator and has a presence on the board of the Mississippi Nature Conservancy,

Most importantly, the City of Pascagoula is a critical partner for this project. While there are other possible ownership models, such as conservation landtrusts, the City currently owns several properties in the neighborhood and is necessary for accessing federal funding for relocation and the conversion of residential parcels into public amenity. If the City does decide to own all restored parcels, they will be responsible for ongoing maintenance that includes periodic invasive-species control, debris clearing after major storms, and targeted vegetation management. This maintenance can be carried out at predictable intervals and at lower cost that the current engineered solutions, including paved roads, ditches, culverts, mowing schedules, and drainage infrastructure. Alternative ownership arrangements to reduce maintenance burden on the city will be explored further in Phase II.

Figure 9: Map of Housing Availability in Pascagoula (February 2026)



Source: Moffatt & Nichol Cherokee Forest R2R Rehousing Assessment

REHOUSING ASSESSMENT

According to the household buyout survey, many Cherokee Forest residents expressed an interest in relocating to higher ground away from heavy industrial activity within the City of Pascagoula or Jackson County. As part of Phase I planning, Buy-In commissioned a rehousing assessment conducted by Moffatt & Nichol to determine the availability of comparable safe housing. While there is strong interest to relocate nearby, the assessment identified substantial financial, environmental, and supply-related challenges.

Figure 9 above shows a snapshot of the types of housing stock available in Pascagoula in February 2026, highlighting lower cost homes in red and higher cost homes in pink. Most available homes are below Highway 90 and in FEMA flood zone AE or A. Potential annexation area is outlined in red, though much of this land is in FEMA flood zone AE or A, and/or near existing heavy industrial areas. While there were some units available in Pascagoula, the study identified significant gaps in availability of homes that are comparable in price (market value of current home) and size (square feet and number of bedrooms).

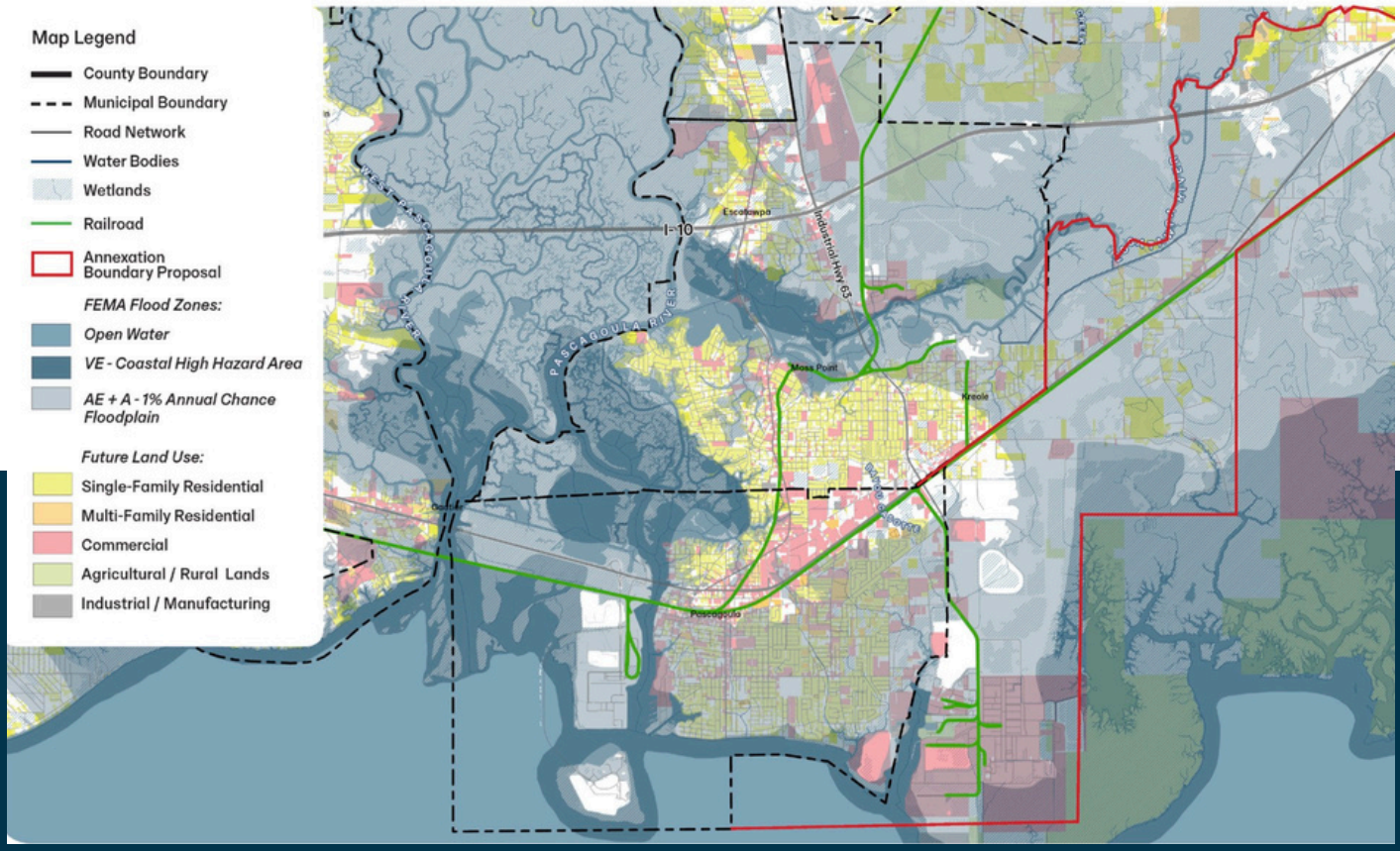
As infill development continues along with ongoing discussions regarding annexation, Relocation to Restoration aims to support residents who would like to relocate nearby. Our surveying process can provide market demand signals to future affordable housing developments and create new models for linking buyouts to rehousing solutions.

Figure 10 below shows potential smart growth development potential in Pascagoula and surrounding unincorporated areas of Jackson County. While a large part of the undeveloped land in Jackson County is located within floodplains, conservation areas, and prime farmland, **the County is making strides to reduce overall risk and improve resilience by guiding growth to lower-risk areas**, including updating existing codes and policies in alignment with the Jackson County Watershed Plan and the Jackson County Resilience Plan.

The Rehousing Assessment revealed that **by incorporating additional housing sizes and price points, such as cottage courts, townhomes, infill adaptive reuse live/work condos, and conservation subdivisions, the City of Pascagoula and Jackson County could accommodate Cherokee Forest residents who want to move nearby in addition to attracting new residents.** Jackson County is already in the process of adding a conservation subdivision ordinance to encourage this type of development in their rapidly growing rural areas.

During Phase II and as part of the ongoing Rehousing Plan, we will work with residents interested in relocating to identify their individual housing and financial needs and continue expand/deepen partnerships with City and County staff, developers, and realtors to ensure future development meets the needs of current Cherokee Forest and area residents, so those who choose to relocate can reduce their overall risk while staying in the community they love.

Figure 10: Future Land Use Potential for Pascagoula and Jackson County



Source: Moffatt & Nichol Cherokee Forest R2R Rehousing Assessment

CONCLUSION

Through the R2R project, Pascagoula is uniquely positioned to become a national leader in community-driven coastal resiliency and hazard mitigation. The proposed suite of nature-based solutions (native afforestation, wetland restoration, and riparian buffer enhancement) will collectively increase habitat diversity, restore natural flow paths, and strengthen ecological connectivity between uplands, floodplains, and nearshore waters while recognizing the desires of residents who want to relocate.

These interventions are expected to generate multiple co-benefits, including:

- improved water quality through sediment and nutrient retention;
- enhanced air quality and urban heat island mitigation;
- increased flood storage and attenuation of peak flows;
- creation of resilient landscape buffers that protect surrounding neighborhoods;
- expanded nesting, foraging, and stopover habitat for resident and migratory species;
- contribution to species recovery and regional habitat networks;
- stabilization and/or increased property values for surrounding homes in East Pascagoula;
- lower flood insurance costs through improving Pascagoula's Community Rating System (CRS) score;
- reduced future disaster recovery and infrastructure maintenance costs; and
- many more economic, environmental, and community benefits.

Relocation to Restoration shows how community-led relocation projects can result in widespread environmental benefits that meet the needs of humans and nature alike.

Advancing towards implementation will require continued partnership, honest conversations and commitment to collaboration amongst residents, and coordination across sectors. We already have the ingredients for progress: community leadership, technical expertise, and a willingness to explore new approaches. Phase II planning officially launches in Q3 2026 and will include more detailed technical assessments and design planning, including cost benefit analysis, adaptive conservation management plan, funding and permitting strategy, and increased stakeholder engagement.



Photo: Cherokee Forest residents, Buy-In staff, and TAP members gather after a site visit in February 2025

Want to Buy-In?

For more information about the R2R project, including ways to get involved, please contact jennifer@buy-in.org



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for a better buyout.

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