



THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

GULF COAST RESEARCH LABORATORY

2025 MASTER PLAN



Page /

Forward from the Director

I am pleased to share the Master Plan for the Gulf Coast Research Laboratory (GCRL) Halstead and Cedar Point sites. This plan is designed to guide GCRL's future development and to advance its mission as a coastal unit of The University of Southern Mississippi and as Mississippi's designated marine laboratory.

The plan was developed with thoughtful input from a broad range of stakeholders and with the expertise of CCD Architects and Page. It strikes a balance between strengthening core infrastructure and preparing for future growth. As you read through the plan, please remember that it is not meant to remain static, but rather to serve as a guide that can be adapted to meet changing needs and emerging opportunities.

I am grateful to the GCRL Master Plan Focus Group for their insightful contributions, to everyone who participated in the listening sessions, and to CCD Architects and Page for thoughtfully incorporating feedback into a plan that aligns with GCRL's mission and charts a path for its continued success.

Kelly M. Darnell

Kelly M. Darnell, Ph.D.
GCRL Director
October 2025



Acknowledgments

Focus Group

Lucas Applewhite

Director of Facilities Planning and Management, Coastal Operations

Reg Blaylock

Director, Thad Cochran Marine Aquaculture Center

Jason Cantu

Architect & Assistant Director for Campus Projects and Space Utilization, Coastal Operations

Micayla Cochran

Division of Coastal Sciences Graduate Student Representative

Kelly Darnell

Director, GCRL

Zack Darnell

Associate Director, Division of Coastal Sciences

Leila Hamdan

Associate Vice President for Research, Coastal Operations

Jill Hendon

Director, Center for Fisheries Research and Development

Eric Hook

Assistant Director, GCRL Finance Administration

Jessie Kastler

Director, Marine Education Center

Pam Moeller

Director of External Relations, Coastal Operations

Robert Leaf

Director, School of Ocean Science and Engineering

Special Recognition

Millie Medina

GCRL Administration and Special Projects Coordinator

Listening Session Participants

GCRL-wide representatives offering critical insight to shape the Master Plan

Consulting Team

CCD Architects / Consulting Team Lead

Jared Pierce

Principal-in-Charge, Architect

Kirk Oldenburg

Principal, Architect

Page / Master Planning Lead

Beth Foster

Principal-in-Charge, Director of Campus Planning

Philip Perlin

Lead Campus Planner

Alison Ecker

Senior Campus Planner

Alex Lara

Senior Urban Designer

Ashley Chiarelli

Senior Strategist

Photo credit pages 1, 9, 16, 25, 28, 44, 76, 81, and 88: Casey Dunn

Key Acronyms

Organizations

CFRD: Center for Fisheries Research and Development

COA: School of Ocean Science and Engineering's Division of Coastal Sciences

GCRL: Gulf Coast Research Laboratory

MEC: Marine Education Center

MBRACE: Mississippi Based RESTORE Act Center of Excellence

TCMAC: Thad Cochran Marine Aquaculture Center

TNC: The Nature Conservancy

USM: The University of Southern Mississippi

Planning Terminology

SF: Square Feet

NSF: Net Square Feet (assigned, functional interior floor area, excluding structural elements like walls, columns, or circulation areas)

USF: Usable Square Feet (NSF plus common floor areas)

GSF: Gross Square Feet (total area of enclosed space measured to exterior building walls, inclusive of NSF and/or USF)



Table of Contents

INTRODUCTION	6
Executive Summary	8
GCRL History	12
GCRL Strategic Framework	14
Master Plan Scope and Process	15

PLAN DRIVERS	16
Related Planning Efforts	18
Focus Group Insights	20
Listening Sessions	22
Space Needs Analysis	26

GCRL SITES TODAY	28
Comparing Sites	30
Halstead Site	32
Cedar Point Site	44

GCRL MASTER PLAN VISION	56
Proposed Site Program	58
Halstead Master Plan	60
Cedar Point Master Plan	70

IMPLEMENTATION	82
Phased Project Approach	84
Potential Follow-up Studies and Plans	86





INTRODUCTION

Executive Summary

The Gulf Coast Research Laboratory (GCRL) Master Plan (master plan or plan) establishes a long-term vision and strategic framework to guide investment, renewal, and growth across the Halstead and Cedar Point sites. Developed through a comprehensive process of analysis, engagement, and design exploration, the plan aligns with The University of Southern Mississippi's (USM) mission to advance marine and coastal science through research, education, and outreach. Building upon GCRL's historic legacy and its expanding role in the Gulf Coast region, the plan positions a forward-looking framework for the future of both sites.

The planning process began with a review of existing facilities, site conditions, and program requirements, combined with engagement through listening sessions and focus group meetings. Input from faculty, staff, students, and partners revealed consistent themes: the need to modernize aging facilities, expand housing and dining capacity, improve storage and operational efficiency, and reinforce site identity and connectivity. A high-level space needs analysis confirmed these priorities and informed the plan's development framework.

The resulting site vision builds on GCRL's dual-site model—Halstead as the legacy site supporting field-based research and university instruction, and Cedar Point as the center for innovative aquaculture research, public outreach, and institutional growth. At Halstead, the plan emphasizes targeted reinvestment through strategic renovation, selective demolition, and new development of housing, office, and storage

spaces. At Cedar Point, new development focuses on linking the northern and southern site areas through the addition of storage, office, and incubator facilities, along with a new central dormitory and dining hall to expand program capacity. Across both sites, the plan strengthens open space, pathway, and signage systems to enhance daily experience and reinforce site identity.

Implementation is organized into near-, mid-, and long-term phases that balance ambition with practicality. These phases establish a manageable roadmap for realizing the plan over time while maintaining flexibility to adapt to funding opportunities, program evolution, and future research needs.

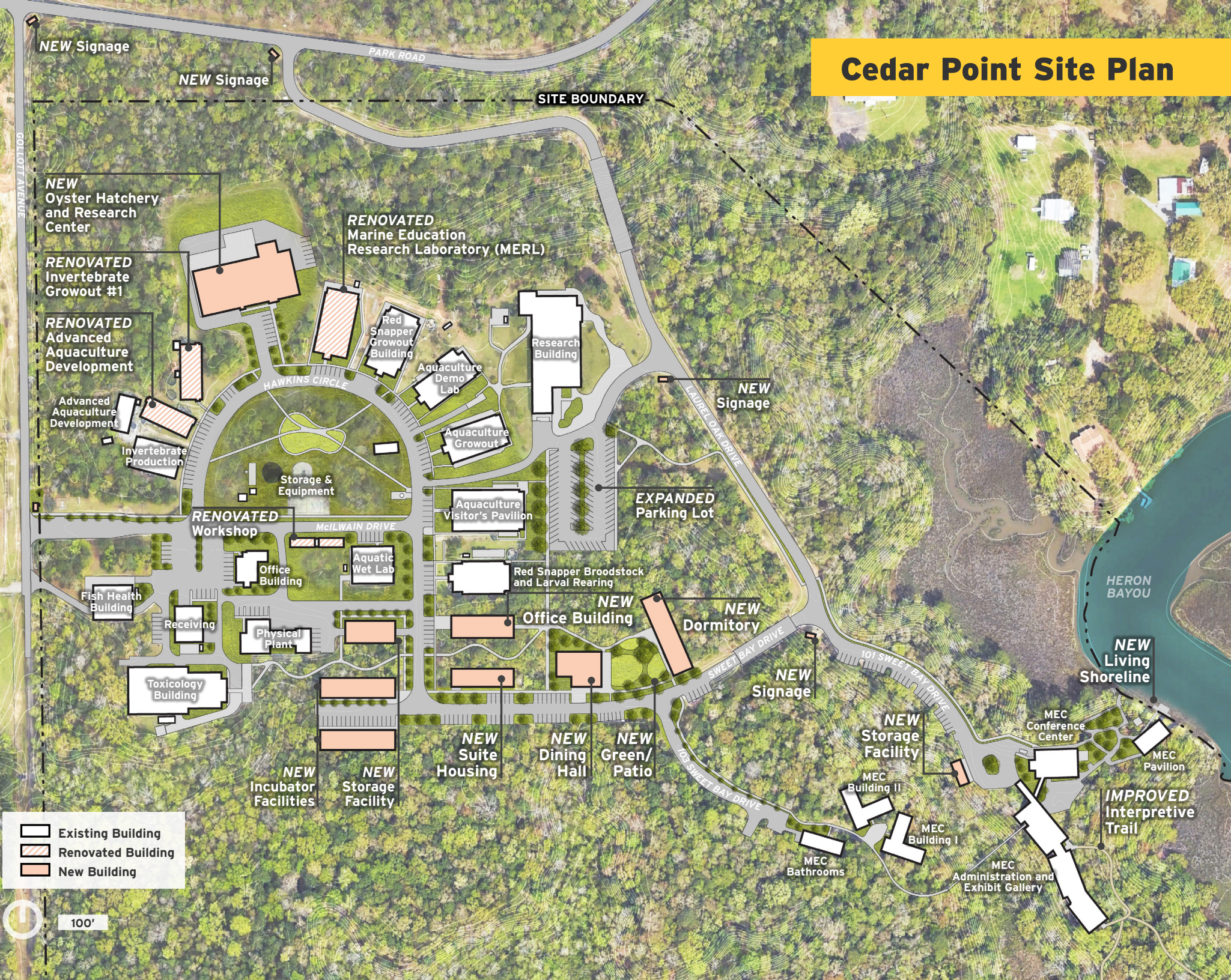
Ultimately, the GCRL Master Plan provides a coordinated framework for guiding investment and decision-making across both sites. By aligning facility improvements, open space strategies, and resilience initiatives with institutional goals, the plan ensures that GCRL will continue to thrive as a leader in marine and coastal science—advancing innovation, fostering education, and deepening engagement with the Mississippi Gulf Coast and beyond.



Halstead Master Plan



Cedar Point Site Plan



GCRL History

The GCRL has been a cornerstone of marine science research and education in Mississippi for more than seventy-five years. Originating in the 1920s from early field excursions organized by members of the Mississippi Academy of Sciences, the idea for a permanent laboratory was realized in 1947 with the first summer field session at Magnolia State Park and was formalized with the purchase of land in Ocean Springs in 1949. Over the decades, GCRL has expanded into multiple sites, each shaped by its own history of scientific ambition, community support, and resilience. The Halstead site represents the original heart of the institution, while Cedar Point, acquired in the 1990s, reflects a new era of advanced aquaculture research and marine education.

Halstead Site History

The Halstead site was the first permanent home of the GCRL, purchased in 1949 with strong support from state leaders, scientists, and local advocates. Set between Davis Bayou and 1,600 feet of beachfront, the site originally included a large residence (affectionately known as the “Big House”), garage apartment, boats, a pier, a greenhouse, and a well. The site quickly became a base for research and summer field programs. Early facilities included surplus military barracks converted into dormitories, dining halls, and laboratories, alongside a dedicated research building in the early 1950s.

The 1950s and 1960s were marked by rapid expansion under Director Gordon Gunter, who oversaw the construction of key facilities such as the Oceanography Building, a 40-room dormitory,

the Caylor building, research building, and maintenance shop. During this period, GCRL grew from a seasonal summer program to a year-round research institution, adding research vessels like the R/V *Hermes* and the R/V *Gulf Researcher*. Gunter also helped establish the laboratory's reputation as both a teaching hub and a center of applied marine science, shaping its dual mission of education and research.

Hurricane Camille in 1969 devastated the site, destroying the Big House and multiple laboratories, but rebuilding efforts reinforced the institution's resilience. New facilities such as the Research Building (1971), the Director's House (1981), and a new Dining Hall (1996) marked successive waves of reinvestment.

Hurricane Katrina in 2005 brought catastrophic impacts to the Halstead site, with a storm surge of nearly 24 feet destroying the Hopkins Instructional Labs, the anadromous fisheries building, greenhouses, and the pier, while severely damaging other facilities. Recovery required extensive cleanup, replacement of lost equipment and records, and restoration of teaching and research capacity. Federal support through FEMA helped stabilize the site, and subsequent investment included rebuilding and upgrades to core facilities such as the Field Studies Building (2013) and Marine Operations Building (2024), ensuring Halstead could continue serving as a functional base for research and education.

Today, the Halstead site remains emblematic of GCRL's history: a site shaped by both scientific vision and environmental challenges. Its layered

landscape of historic and modern facilities tells a story of growth, loss, and renewal—a living record of the laboratory's enduring role in advancing marine science on the Gulf Coast.

Cedar Point Site History

By the mid-1990s, the growing scope of GCRL research and aquaculture programs demanded additional space. In 1995, Jackson County purchased a 214-acre site east of Ocean Springs for \$3 million and transferred it to The University of Southern Mississippi for the lab's expansion. The Cedar Point property offered ample space for new facilities and proximity to the Gulf Islands National Seashore. Groundbreaking began in 2000, within initial efforts including construction funded by the U.S. Marine Shrimp Farming Program. Early facilities included broodstock, maturation, grow-out, and office buildings designed to support aquaculture innovation.

As Cedar Point grew (2005–2015), federal funding spurred major growth. Seven additional buildings were completed, including the Aquaculture Visitor's Pavilion, Red Snapper broodstock and grow-out facilities, and a new Research Building funded by Mississippi taxpayers. International support also played a role: the Marine Environmental Research Laboratory (MERL) was funded by the country of Qatar as a gesture of goodwill after Hurricane Katrina.

In more recent years (2015–present), the site's growth was shaped by FEMA recovery funds following Hurricane Katrina, which destroyed the J. L. Scott Marine Education Center at Point Cadet. Cedar Point became the site for a

reimagined Marine Education Center, designed by Lake Flato Architects and Unabridged Architecture, with education buildings, conference facilities, and a pedestrian suspension bridge that connected classrooms with the natural setting of Davis Bayou. This investment solidified Cedar Point as both a research site and a public-facing education destination.

Today, Cedar Point houses the Thad Cochran Marine Aquaculture Center, the Marine Education Center, a toxicology research building, various research and demonstration labs, and office space. The site reflects GCRL's forward-looking vision: a facility designed not only to expand marine science research but also to serve as a resilient, community-engaged hub for innovation, outreach, and education.

Sources

- Collins, Brennan. "University of Southern Mississippi Gulf Coast Research Laboratory: Cedar Point Campus, Building Historical and Pictorial Review for the Ten-Year Master Plan." August 12, 2025
- Collins, Brennan. "University of Southern Mississippi Gulf Coast Research Laboratory: Halstead Campus, Building Historical and Pictorial Review for the Ten-Year Master Plan." July 17, 2025
- Shaw, Joyce M. "History of the Gulf Coast Research Laboratory," *Gulf of Mexico Science*, no. 1-2 (2010): 109-126.
- Shinskie, Gabriela. "USM's Gulf Coast Research Laboratory Celebrating 75 years of Rich History." *University of Southern Mississippi News*, November 1, 2023. <https://www.usm.edu/news/2023/release/gcrl-history.php>



Halstead "Big House"



Fishing expedition (1967)



Halstead Dormitory (constructed 1966)



Botany class held under the trees at Magnolia State Park (1947)



Recovery following Hurricane Katrina

GCRL Strategic Framework

This plan is closely integrated with the GCRL strategic framework, including the institutional mission, philosophy, and relevant statewide goals and benchmarks.

GCRL Mission

The Gulf Coast Research Laboratory (GCRL) is dedicated to achieving sustainable marine and coastal resources and promoting economic development consistent with this goal through scientific discovery, education of future scientists and citizens, and development of new technologies. GCRL seeks excellence in coastal and marine research, education, outreach, and service with a focus on living marine resources to:

- ▶ Develop, expand, and transfer the knowledge and technology needed for the responsible use of marine resources in harmony with conservation and management of marine ecosystems for a sustainable future;
- ▶ Educate and train the next generation of scientists who will advance our understanding of Mississippi coastal waters and the broader Gulf ecosystem;
- ▶ Foster an increased awareness and understanding of the importance of Gulf marine environments and resources;
- ▶ Facilitate an increased awareness and understanding of how marine environments and resources of the Gulf are linked to societal needs, including quality of life and economic development;
- ▶ Promote the application of the best available science in restoration and management of the

coastal and marine resources of the State of Mississippi;

- ▶ Support economic development consistent with sustainability of coastal habitat and living resources; and
- ▶ Empower students, the general public, and community leaders to make more responsible resource decisions.

GCRL Philosophy

The Gulf Coast Research Laboratory (GCRL) is a research and teaching unit of The University of Southern Mississippi dedicated to the advancement of scientific discovery and promotion of academic growth in the fields of marine biology and coastal sciences for the betterment of society, the wise use of natural resources, and the advancement of sound economic development. The GCRL is a leader in coastal and marine sciences research, education, outreach, and service. Its scientists and educators meet changing societal needs by creating knowledge at the forefront of its areas of expertise, empowering graduates with knowledge and skills, and translating this knowledge for the public. GCRL's exploration and discovery are enhanced through open communication, historic strengths and innovative, multidisciplinary initiatives, and its programs excite and engage students and marine resource users, demonstrating the importance of marine sciences in their everyday lives. The GCRL accomplishes its mission in support of:

- ▶ Research, education, and service activities of national and international distinction;

- ▶ The use of advanced technologies and multidisciplinary approaches;
- ▶ Basic and applied research and technological development;
- ▶ Graduate and undergraduate educational opportunities;
- ▶ Interactive educational outreach experiences for the general public; and
- ▶ Service activities designed to provide expertise in support of governments, industries, organizations and individuals at local, state, national, and international levels.

GCRL Relevant Statewide Goals and Benchmarks

- ▶ **3.1:** Develop a robust state economy that provides the opportunity for productive employment for all Mississippians
- ▶ **3.2:** Make available a quality K-12 public education for all Mississippians
- ▶ **3.3:** Make available an accessible, quality public higher education that prepares students for marine-related careers
- ▶ **3.4:** Ensure that current and future generations have access to the state's abundant natural resources through restoration, protection, conservation, and wise development of those resources

Source

- The University of Southern Mississippi, Gulf Coast Research Laboratory. "Five-Year Strategic Plan: Fiscal Years 2026-2030." July 2024

Master Plan Scope and Process

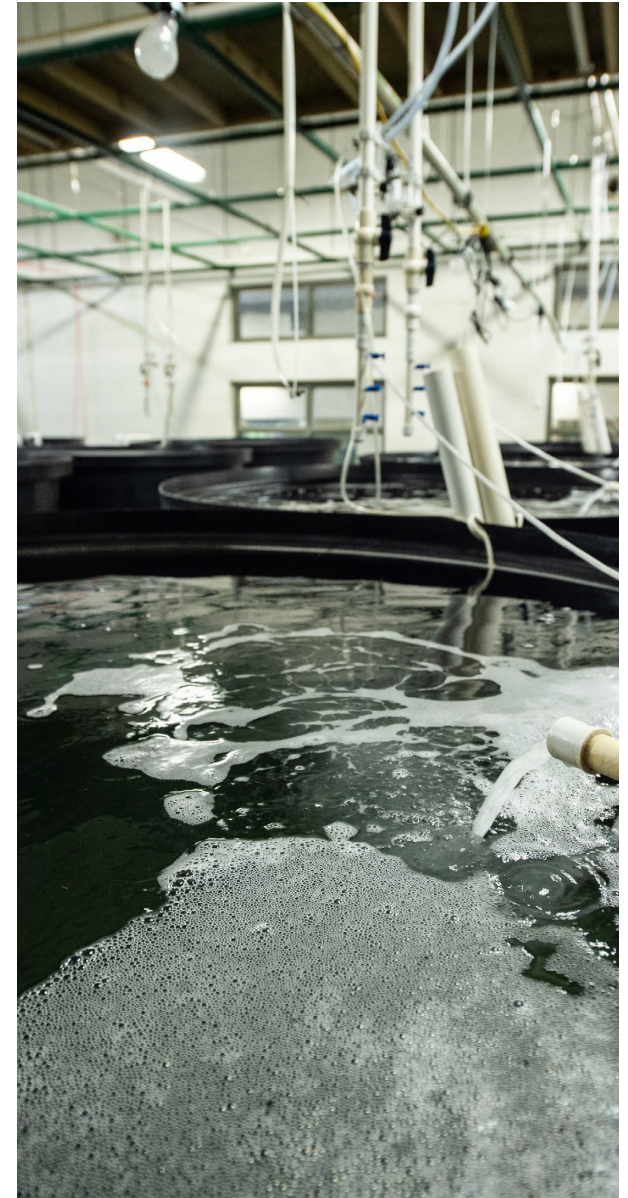
The GCRL Master Plan was initiated to establish a clear vision and coordinated physical framework for the Cedar Point and Halstead sites (note that the GCRL Point Cadet site was not included in this planning process). Grounded in GCRL's goals for teaching and research, the plan integrates prior strategic and environmental planning efforts and prioritizes addressing space needs (academic, research, and housing), facility conditions, land and building use, site organization, and resiliency.

Key tasks within the scope included:

- ▶ **Data collection and review** of existing GCRL reports, surveys, and facility information
- ▶ **Focus group meetings** convened three times throughout the planning process to review findings and progress, provide information, guide priorities, and validate or revise proposed strategies for both sites; the Focus Group served as the primary advisory body guiding the plan's development
- ▶ **Stakeholder listening sessions** held with five key groups including Aquaculture, MEC and external relations, research, trailered vessels, and units and partners; these sessions captured detailed needs, challenges, and aspirations to refine the plan
- ▶ **Space needs analysis and facility review** to assess research, classroom, laboratory, office, housing, dining, shared space, and storage requirements, condition, and suitability

- ▶ **Building and land use analysis** to identify existing building and open space uses to determine development opportunities and refine site organization
- ▶ **Program development** to organize discrete new versus improvement building and open space projects across various use categories on both sites
- ▶ **Implementation strategy** to phase and sequence projects while allowing flexibility for future adjustments
- ▶ **Identification of potential planning studies** beyond the immediate scope to guide future site development in greater depth

These tasks culminated in a comprehensive draft and final plan, consisting of this narrative report supported by site plans, diagrams, and program tables. The plan provides both sites with a cohesive roadmap that balances near-term needs with long-term opportunities, ensuring GCRL can continue advancing research, education, and outreach in a resilient and sustainable way.



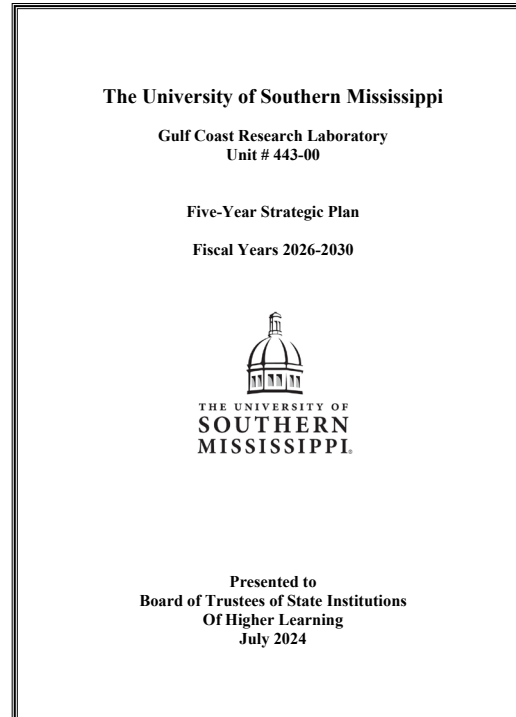




PLAN DRIVERS

Related Planning Efforts

Several recent and related planning efforts have laid the groundwork for the current GCRL Master Plan. These initiatives have addressed strategy, resilience, mobility, and academic programming. Together, they provide a foundation that informs and complements this plan, ensuring that proposed facilities and site strategies align with GCRL's research and educational mission.

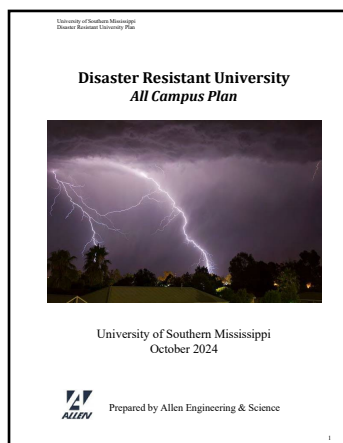


Strategic Plan (2026-2030)

The GCRL Five-Year Strategic Plan establishes a forward-looking framework for advancing marine and coastal science research, education, and outreach. Central to the plan is the recognition that modern, resilient facilities form the backbone of the institution's mission.

The plan highlights a substantial backlog of repairs and renovations. A 2013 external review identified more than \$7 million in deferred maintenance needs across laboratory, instructional, and support buildings. Addressing these deficiencies is prioritized not only to improve safety and efficiency but also to sustain competitive academic and research programs. Notably, the plan calls for evaluating the logistical and financial feasibility of retaining lower-elevation buildings at the Halstead site.

Dining and housing are also identified as critical impediments to program growth. Existing overnight lodging at Halstead is insufficient, and Cedar Point currently lacks dining and residential facilities altogether. The plan recommends replacing aging accommodations at Halstead and developing new dormitory and dining capacity at Cedar Point to better support the Summer Field Program, K-12 initiatives, and expanded outreach activities.



Disaster Resistant University (DRU) Plan (2024)

The Disaster Resistant University (DRU) Plan emphasizes the vulnerability of GCRL's coastal setting and the importance of designing sites to withstand hurricanes, storm surge, flooding, sea level rise, wildfire, and other hazards.

The plan provides hazard vulnerability ratings for each GCRL facility and calls for elevating or hardening buildings in lower-lying areas, reducing reliance on aging or at-risk structures, and incorporating resilient design standards into all future capital projects.

Landscapes and site systems are also recognized as critical components of resilience. The plan identifies solutions to better manage stormwater and flash flooding, while specifically highlighting the need to address the flood-prone and sea level rise-vulnerable entry to the Halstead site.



Halstead Pedestrian, Bicycle, and Parking Master Plan (2024)

Completed in 2024, the Halstead Pedestrian, Bicycle, and Parking Plan establishes a framework for improved connectivity and community life at the original GCRL site. The plan reconfigures and expands the layout of pedestrian paths, parking areas, and secure fencing and gates to enhance both access and safety. Key features include a bicycle shelter, a new site entry, and an upgraded boat barn area. A phased implementation strategy outlines ten project areas, balancing circulation improvements with landscape protection and enhancement.



Summer Field Program Plan (2025)

The Summer Field Program (SFP) has been a defining part of GCRL's identity since 1947, offering immersive courses in marine science for students nationwide. Despite interruptions from hurricanes and the pandemic, the program has continued for 78 consecutive years. Recent enrollment trends show participation from students across more than ten states, reinforcing its national draw.

Planning for the SFP includes both five- and ten-year strategies to maintain steady enrollment, grow participation from USM's own students, and expand course offerings. Goals also include integrating the program more deeply into USM degree pathways, celebrating its upcoming 80th anniversary, and maintaining strong partnerships with affiliate institutions. This ensures the program remains a cornerstone of GCRL's education and outreach mission.

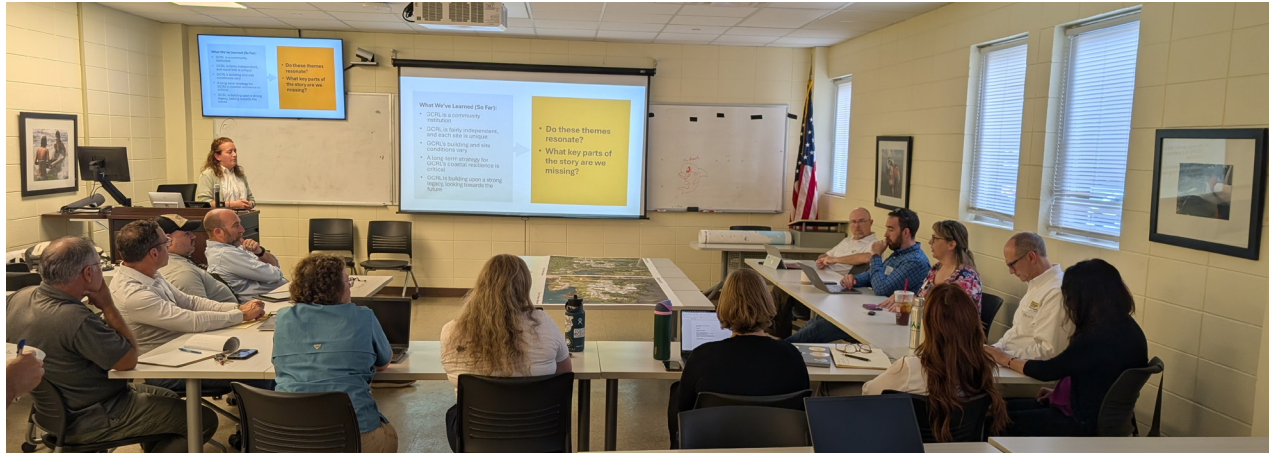
Focus Group Insights

The GCRL Master Plan focus group served as the primary advisory body guiding the development of the plan and included representatives from across GCRL, such as faculty leaders, facility directors, and graduate students. The group met three times during the planning process to review findings, provide information, set priorities, and validate or refine proposed strategies for both sites. Their insights were instrumental in shaping and strengthening the final plan.

Focus Group #1
Kick-off

Focus Group #2
Analysis Review
and Validation

Focus Group #3
Draft Plan
Review



Initial site visit and focus group kick-off meeting

GCRL Today: Kick-off Meeting Exercise

During the kick-off meeting, the focus group participated in a group exercise to identify sites strengths, challenges, and opportunities. The exercise and subsequent discussion generated key insights that helped establish the framework for the plan.



- Strengths
- Challenges
- Opportunities

Listening Sessions

A key part of the planning process was a series of listening sessions with faculty, staff, students, and partners. These conversations provided direct insight into how facilities support or hinder daily teaching, research, and outreach, and captured perspectives on the distinct needs of aquaculture, research programs, the Marine Education Center, external partnerships, GCRL units, and trailered vessel operations.

Each session focused on topical needs, challenges, and opportunities through facilitated dialogue. The input gathered informed the space needs analysis and directly shaped recommendations for future programs and facilities, ensuring the plan reflects the lived experience of the GCRL community.

A summary of key ideas from each session is presented here.

Aquaculture Listening Session

- ▶ Diverse resources **support a broad range of aquaculture research**
- ▶ **Storage** is a key operational constraint; need for new **secure and climate-controlled storage sites** (from heat, humidity, cross-contamination) in **closer proximity to research labs** for sensitive materials (salt, fertilizers, sterile materials)
- ▶ **Security and access control** is a key concern (lack of cameras, card access, or lock-down capability) and may potentially limit grant eligibility
- ▶ **Infrastructural issues** limit ability to support research (lack of dedicated machine shop, centralized recaptured water storage, efficient fluid/algae transfer, and consistent back-up power)
- ▶ **Interest in industry accelerators/incubators** with secure, private spaces to support commercialization and collaboration
- ▶ **Current building names** (e.g., “Red Snapper Grow-Out”) are **outdated and misleading**
- ▶ Cedar Point **lacks food services, common space, covered parking, and accommodations** for visitors

MEC & External Relations Listening Session

- ▶ **MEC is USM’s primary public-facing unit** for K-12 marine education, teacher workshops, citizen science, and legislative and VIP engagement
- ▶ The **MEC buildings and site are a core strength**; the area was intentionally designed to be connected to nature, aesthetically appealing, and actively used
- ▶ MS Institute of Higher Learning (IHL) has set a target of **35,000 annual participants**, but MEC currently reaches **approximately 17,000-18,000 participants**; staffing is key limitation, not necessarily space
- ▶ **Parking only works for approximately 80 people**, beyond that issues arise; shuttle use is possible but logistically challenging
- ▶ **Significant storage issues** (original storage overtaken by HVAC/IT systems with equipment now stored in hallways and shared spaces)
- ▶ **Two trails are ADA-designated but do not meet accessibility standards** due to erosion or steepness
- ▶ **On-site kitchen is limited**; bagged lunches are the norm for youth groups, but not ideal; transfer to Halstead dining hall is not ideal
- ▶ **MEC groups stay at Halstead** (~10-15 minutes away), which is not ideal for programming

Research Listening Session

- ▶ **Building conditions** are mixed, some are highly functional while others have recurring aging infrastructure issues
- ▶ **Storage capacity is severely lacking** for both large and small field equipment
- ▶ Need to maintain proximity between labs, boats, and gear for **field-based work**
- ▶ **Classrooms space mostly works well** for now; however, Summer Field Program growth is constrained by both classroom and dorm capacity at Halstead
- ▶ Consistent need for **new and larger office spaces**
- ▶ **A/V infrastructure** is outdated across both sites and requires comprehensive modernization
- ▶ Desire to develop a **designated graduate student area** to foster community and reduce space pressure
- ▶ Emphasis to preserve **GCRL's identity as a working research lab**, not a generic campus

Trailerred Vessels Listening Session

- ▶ GCRL maintains a **current fleet of 17 trailerred** vessels (with two more incoming); sizes range from 15 to 26 feet
- ▶ Subsequent feedback from the focus group clarified a need to **store 8-10 high-priority boats** in a potential boat barn
- ▶ **Fleet is aging**, incurring high maintenance costs, and some boats are underutilized
- ▶ **Boats are scattered** across Halstead (primarily)
- ▶ Only **one boat is covered and secure**
- ▶ Past boat storage structures near the waterfront were **destroyed by hurricanes**
- ▶ Most open land for a potential boat barn is **in the floodplain**, limiting viable new construction
- ▶ An existing **fuel station** is located near chemical storage in a compact corner with limited maneuverability
- ▶ **Boat wash-down** currently happens near the Research Building, requiring vessels to be moved multiple times
- ▶ **Gunter Drive**, the main vessel access route to the water, has a choke point near the Field Studies Building that makes trailering challenging
- ▶ Recommendation for a **covered, secure, and centralized boat barn** with gear storage (nets, barrels, safety gear), hoists and mechanical lifts, fuel station, and wash station

Units and Partners Listening Session

- ▶ GCRL currently supports
 - **Four major academic and research units** (COA, CFRD, MEC and TCMAC)
 - **A variety of external partnerships** (TNC, MS/AL Sea Grant, MS Gulf Fly Fishing Club, MS Marine Patrol)
- ▶ GCRL is **open to partnerships**, but doesn't actively seek them out
- ▶ As a key example of **external partnership collaboration for site improvement**, TNC is currently actively involved in developing a living shoreline project at the MEC
- ▶ The **Caylor building auditorium** is a frequently requested space for external events (capacity ~150)

Space Needs Analysis

The Space Needs Analysis provided a high-level review of how existing facilities align with GCRL's current and projected program requirements over the coming decade. Drawing from listening sessions, facility condition assessments, and utilization data, the analysis identified both immediate deficits and long-term needs across classrooms and class laboratories, housing and dining, offices, research, storage, and central service functions.

By quantifying space shortfalls and highlighting opportunities for strategic investment, the analysis establishes a clear framework for developing site plan strategies for renovation, construction, and site improvements. As presented in the GCRL Master Plan Vision chapter, these recommendations were further refined through focus group discussions and the physical site planning process, resulting in a plan that is both grounded and visionary.



Classrooms/Class Laboratories

Current classroom utilization at GCRL is just 6% against a target of 65%, reflecting significant underuse of existing space. Detailed scheduling data show weekly utilization of 12.75 hours in Fall 2024 and 15.75 hours in Spring 2025, with two courses meeting outside the standard schedule and classroom spaces, bringing true Spring 2025 usage closer to 10.25 hours per week. With a standard availability of 31 hours per room, even projected enrollment growth of 10-13 additional students over the next decade would raise utilization only to about 8%. Across Cedar Point and Halstead, the inventory includes five classrooms and four class labs (excluding MEC facilities), with the latter traditionally used only in the summer but counted here to assess potential expanded use.

From this analysis, the study concludes there is no immediate need for additional traditional classroom facilities, as current space can accommodate foreseeable university course growth while also supporting K-12 programs, teacher workshops, and public events. While stakeholders expressed interest in a specialty “Outdoor Classroom” for approximately 25 students, which could leverage the marsh environment to enhance GCRL’s distinctive field-based educational offerings, this concept was not included in the final plan with the goal of preserving the natural marsh ecosystem.

Housing/Dining

The analysis determined that GCRL’s student life infrastructure is insufficient to support current and future residential programming. Existing housing at Halstead provides limited capacity, and Cedar Point currently lacks residential or dining facilities.

To address this gap, the study identified the need for a new 21,000 GSF dormitory at Cedar Point, designed to mirror the Halstead facility in scale but organized into smaller groupings. This configuration—20 two-bedroom, one-bathroom suites—would better accommodate mixed-age and mixed-gender student cohorts while providing greater scheduling flexibility. The analysis also recommends development of a 150-seat dining hall at Cedar Point, to be built in tandem with the proposed dormitory. The facility would include a serving line, kitchen, and support spaces, designed to operate on a single-turn service model that fosters a sense of community.

Finally, the study recommends enhanced social spaces at both sites, with 1,000 GSF multipurpose lounges recommended at both Halstead and Cedar Point. These spaces would provide much-needed areas for study and informal gatherings but are intentionally separated from dormitory amenities to ensure proper accommodation of K-12 participants during educational programs.

Subsequent feedback from the focus group expanded space needs to include improvements at Halstead (renovated dining and renovated/new dormitory) and suite-style housing options at both sites.

Office

The analysis identified office space as the most immediate capacity constraint at GCRL. Across the Halstead and Cedar Point sites, existing facilities currently provide 130 seats, while demand already exceeds this capacity at 174 seats. Projections indicate that demand will increase to 245 seats within the next decade, creating a shortfall of 115 seats if no new space is added. This deficit affects not only faculty and staff but also graduate students and visiting researchers, underscoring a critical need for additional professional workspace.

To address this shortage, the analysis recommends adding 12,000 to 16,000 GSF of office space at each site, with exact allocation requiring further study based on program distribution and staffing patterns (subsequent feedback from the focus group decreased this space allocation in the final plan). The analysis assumes full-time employees require dedicated workspace while part-time staff can share workspace at a ratio of three employees per seat. Spaces in the current inventory of space larger than 150 square feet are assumed to accommodate multiple individuals.

Office space planning must consider not just individual workstations but also essential support functions, including lobby areas, conference rooms, break rooms, and storage; all accounted for in the recommended square footage. The recommendation emphasizes creating flexible workspace solutions that can adapt to changing organizational needs while maintaining professional standards for faculty, staff, and visiting researchers.

Storage/Central Services

The analysis identified storage and central services as the most significant unmet space need across GCRL's sites. Current facilities are insufficient for both general and specialized storage, limiting the ability to securely house vessels, equipment, and materials. At Halstead, storage for larger equipment and boats is particularly constrained, while Cedar Point lacks adequate secure materials storage and a consolidated workshop to support research operations.

To address these deficiencies, the analysis recommends a total of approximately 25,000 GSF of new storage and support facilities across the two sites. At Halstead, this includes 2,000 GSF for large-equipment storage, 3,000 GSF for small-equipment storage, and a 9,000 GSF consolidated boat barn capable of accommodating nine mid-sized vessels plus one larger offshore-capable research boat. At Cedar Point, recommendations include 2,000 GSF of large-equipment storage, 5,000 GSF for small-equipment storage, 2,000 GSF of secure materials storage, and a 2,000 GSF expanded machine shop. Subsequent feedback from the focus group decreased each of these space allocations in the final plan.

By consolidating and modernizing storage and central service facilities, GCRL would significantly improve day-to-day efficiency, extend the useful life of equipment, and enhance safety. Because these facilities directly support all other operations, the study emphasizes that storage and service improvements should be prioritized early in the implementation timeline.

Research

The space needs analysis found that existing research laboratories at GCRL are generally sufficient to meet projected program demand over the next decade, with no immediate need for large-scale expansion. The one notable opportunity identified was the concept of a new 18,000 GSF incubator facility at Cedar Point, designed to strengthen partnerships with industry and expand applied marine science capacity. This facility would provide wet and dry labs, shared instrumentation, and specialized aquaculture infrastructure, adding approximately 15% to current research capacity while creating potential new revenue streams through collaboration with external partners.

The table below provides a preliminary program for an incubator facility and informed the spatial assumptions for this analysis. Additional feasibility analysis and detailed programming will be required to support future construction or renovation initiatives.

Incubator Facility Space Assumptions

	Quantity	NSF Per	Total NSF	Total USF
Primary Research Spaces				
Wet Labs	4	960	3,840	4,310
Dry Labs	2	640	1,280	1,459
Shared Instrumentation Areas	1	640	640	730
Microscopy Suite	1	480	480	559
Specialized Marine Infrastructure				
Seawater System/Mechanical	1	960	960	1,078
Aquaculture Facilities (indoor)	1	1,280	1,280	1,414
Specimen Processing	1	640	640	730
Support Spaces				
Cold Storage/Freezers	1	320	320	382
Equipment Staging	1	640	640	730
Chemical Storage	1	320	320	382
Loading/Receiving	1	640	640	730
Administrative/Collaboration				
Offices	6	120	720	997
Conference/Meeting Rooms (10 seats)	1	300	300	359
Service Space	1	180	180	235
			Total USF	14,095
			Total GSF	18,000



GCRL SITES TODAY

Comparing Sites

Understanding the current condition of the Gulf Coast Research Laboratory sites is an essential step in shaping a plan for their future. The two sites play distinct but complementary roles: Halstead, the older and smaller site, functions as the operational hub for marine activities with its vessel fleet, boat launch, dormitories, and dining hall, yet it faces persistent challenges from aging infrastructure, fragmented storage, and vulnerability to flooding and wind. Cedar Point, by contrast, is larger and newer, home to modern facilities that support aquaculture research and educational outreach, but it lacks critical amenities such as food service, housing, and secure storage. Taken together, these differences underscore the need for a coordinated development strategy that both leverages existing strengths and addresses infrastructure and programmatic gaps. Documenting these current conditions provides a clear picture of assets, constraints, and opportunities that will guide future planning.

Halstead	Cedar Point
Older (Founded 1948)	Newer (Founded 1995)
Smaller (54 acres)	Larger (224 acres)
Fewer buildings (15 buildings, 120,000 SF total)	More buildings (25 buildings, 165,000 SF total)
Primarily support COA and CFRD	Primarily support MEC, TCMAC, and COA
Housing and dining available	Housing and dining not available
Best bayou access and most of vessel fleet	Minimal bayou access and minimal vessel fleet
Bayou water for research	Artificial water for research
Parasite research	No parasite research
More water risk (flood, SLR, storm surge)	Less water risk (flood, SLR, storm surge)



Halstead Site

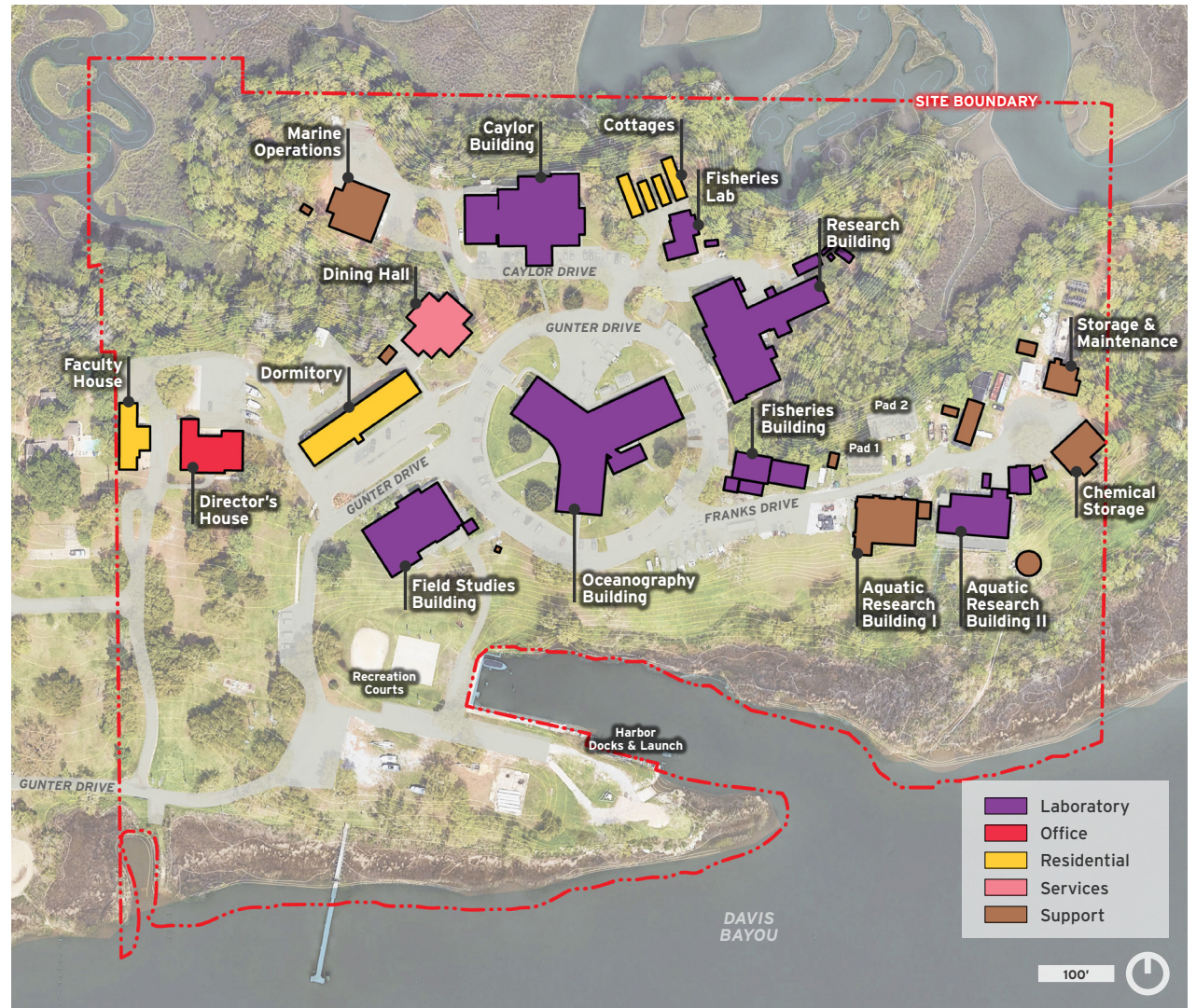
The Halstead site is the historic home of the Gulf Coast Research Laboratory and remains the operational hub for many of its core activities. Located along East Beach in Ocean Springs, the site provides direct access to the water and houses essential functions including the vessel fleet, boat launch, dormitories, dining hall, museum, library, field studies program, and various laboratories. Despite its strengths, Halstead faces significant challenges: aging infrastructure, scattered and undersized storage, and site vulnerability to flooding and storm surge all limit its capacity to support future growth. These conditions frame Halstead as both a vital asset and a critical focus area for reinvestment within the master plan.





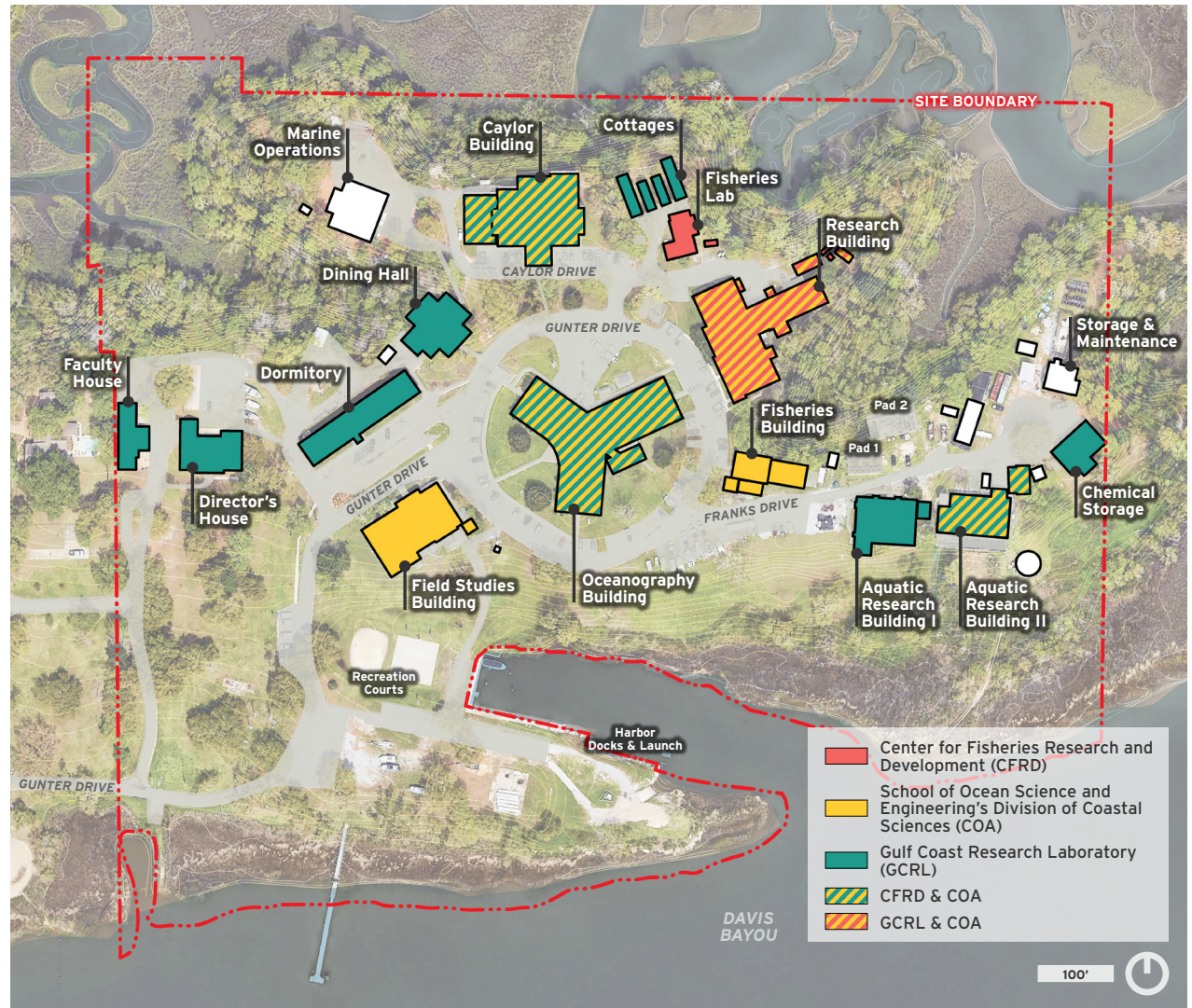
Building Use

Buildings at the Halstead site support a mix of operational, instructional, residential, and research functions. Key facilities include the Oceanography and Research Buildings, which house teaching labs and faculty offices; the Caylor Building and Field Studies Building, which provide classrooms and instructional space; and the Dining Hall, Dormitory, Cottages, and Faculty House, which serve residential life. Marine Operations facilities and scattered storage structures support vessel use and fieldwork.



Building Affiliation

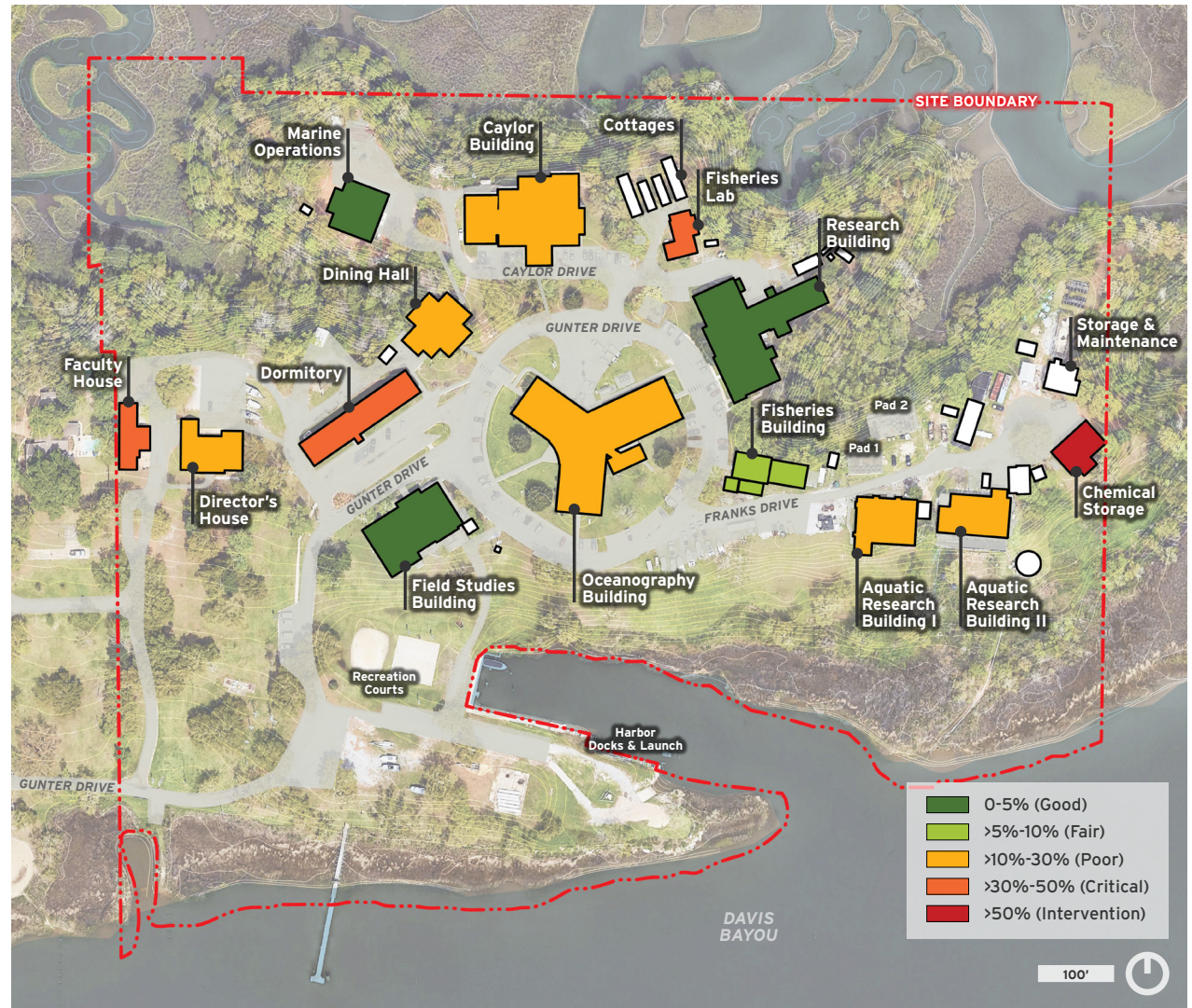
Halstead buildings support a range of research and academic units. The Caylor, Oceanography, Field Studies, Research, Fisheries, and Aquatic Research II buildings are affiliated with the School of Ocean Science and Engineering's Division of Coastal Sciences (COA). The Fisheries Lab and Research Building support the Center for Fisheries Research and Development (CFRD). Various buildings throughout the site—including office buildings, the Dormitory, and the Dining Hall—support overall GCRL needs.



Building Condition (3 Year)

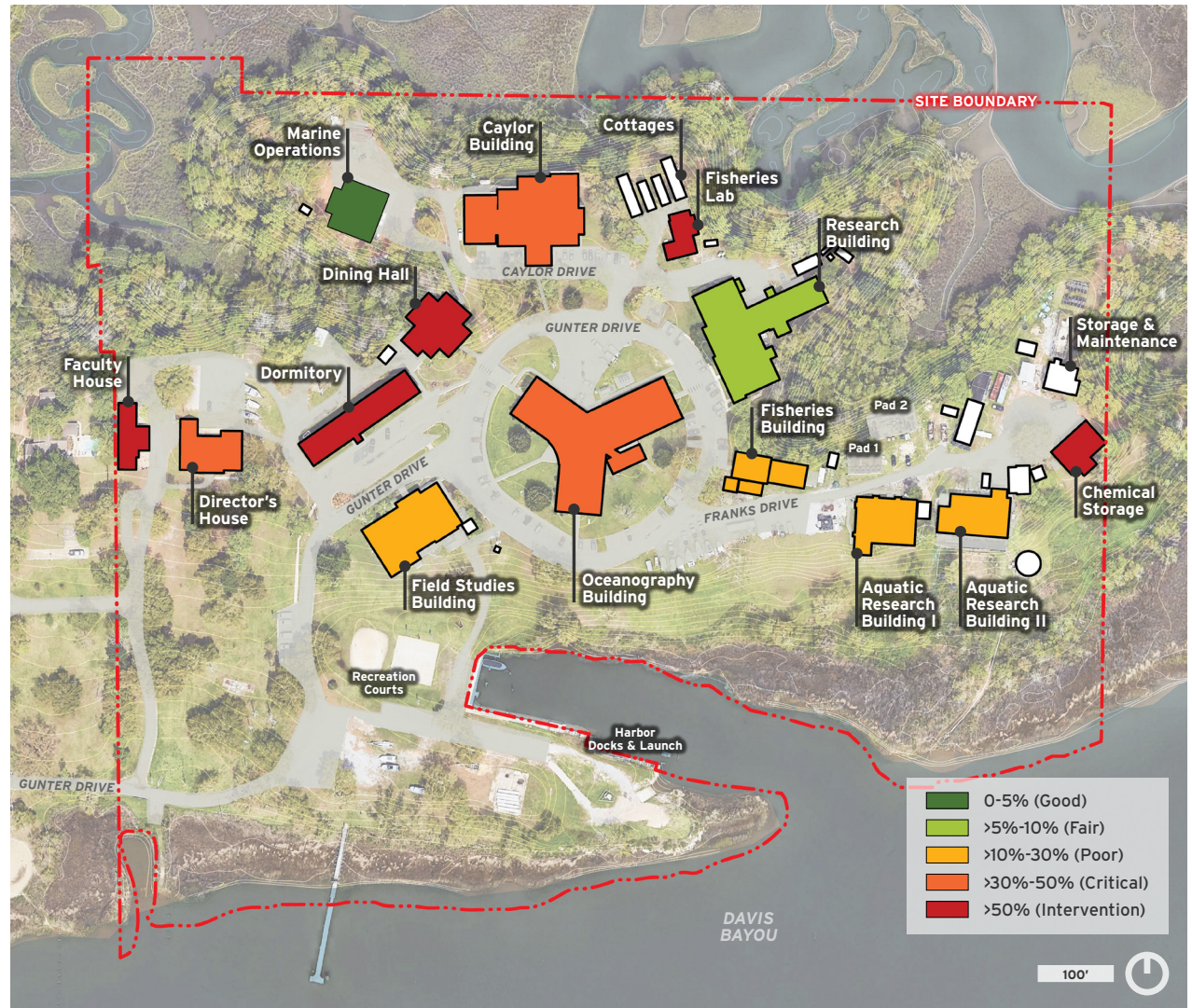
The building condition analysis projects facility needs over the next three and ten years using USM's 2025 Facility Condition Index (FCI), which measures deficiencies relative to replacement value to guide maintenance priorities and capital improvement projects.

For the master plan, these scores were translated into categories ranging from Good to Intervention. At Halstead, several buildings are already trending toward Critical or Intervention status within the next three years, including the Chemical Storage Building, Fisheries Lab, Dormitory, and Faculty House. These findings align with stakeholder feedback from the kick-off meeting and underscore the urgency of reinvestment in core facilities.



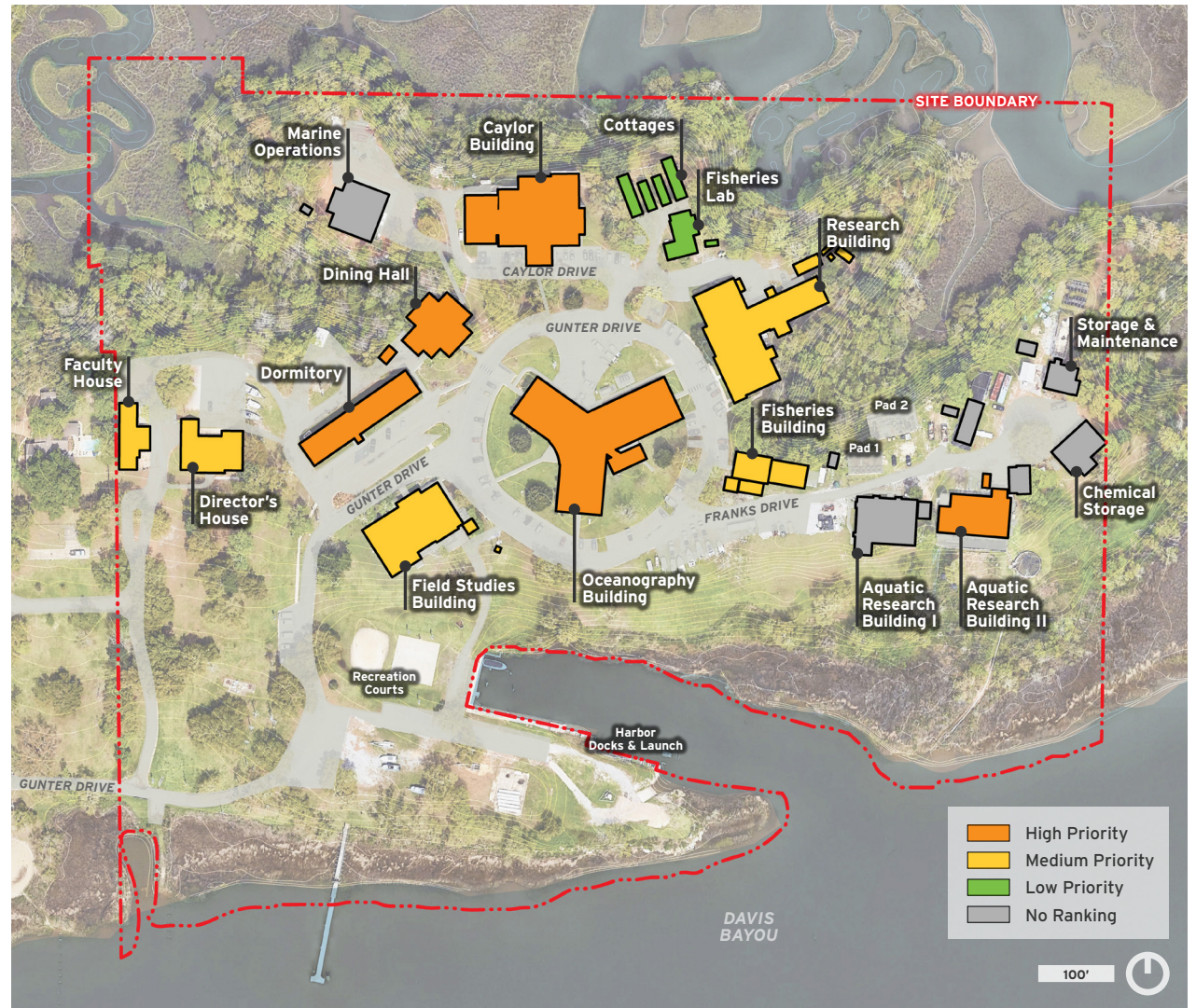
Building Condition (10 Year)

Looking ahead over the next ten years, the building condition analysis shows a sharp decline across much of the Halstead site, with the majority of facilities projected to fall into the Poor or Critical categories if no significant investment is made. Without intervention, essential academic, research, and residential facilities will increasingly approach the Intervention threshold, signaling the need for either major renovation or replacement. This long-term outlook reinforces the importance of prioritizing capital investment and phasing strategies to sustain the functionality of Halstead's core facilities.



Building Hazard Ranking

As risk and resilience are central to this planning process, the team reviewed building hazard rankings established in USM's 2024 Disaster Resistant University Plan. This ranking system provides a generalized measure of each building's relative importance and functional value before, during, and after hazard events such as hurricanes, thunderstorms, or tornadoes. In practice, it identifies which facilities must be protected or restored most quickly in order for the site to remain operational. At Halstead, the highest-priority buildings are those with significant laboratory and office functions, such as the Caylor and Oceanography Buildings, as well as those that provide essential services, including the Dormitory and Dining Hall.



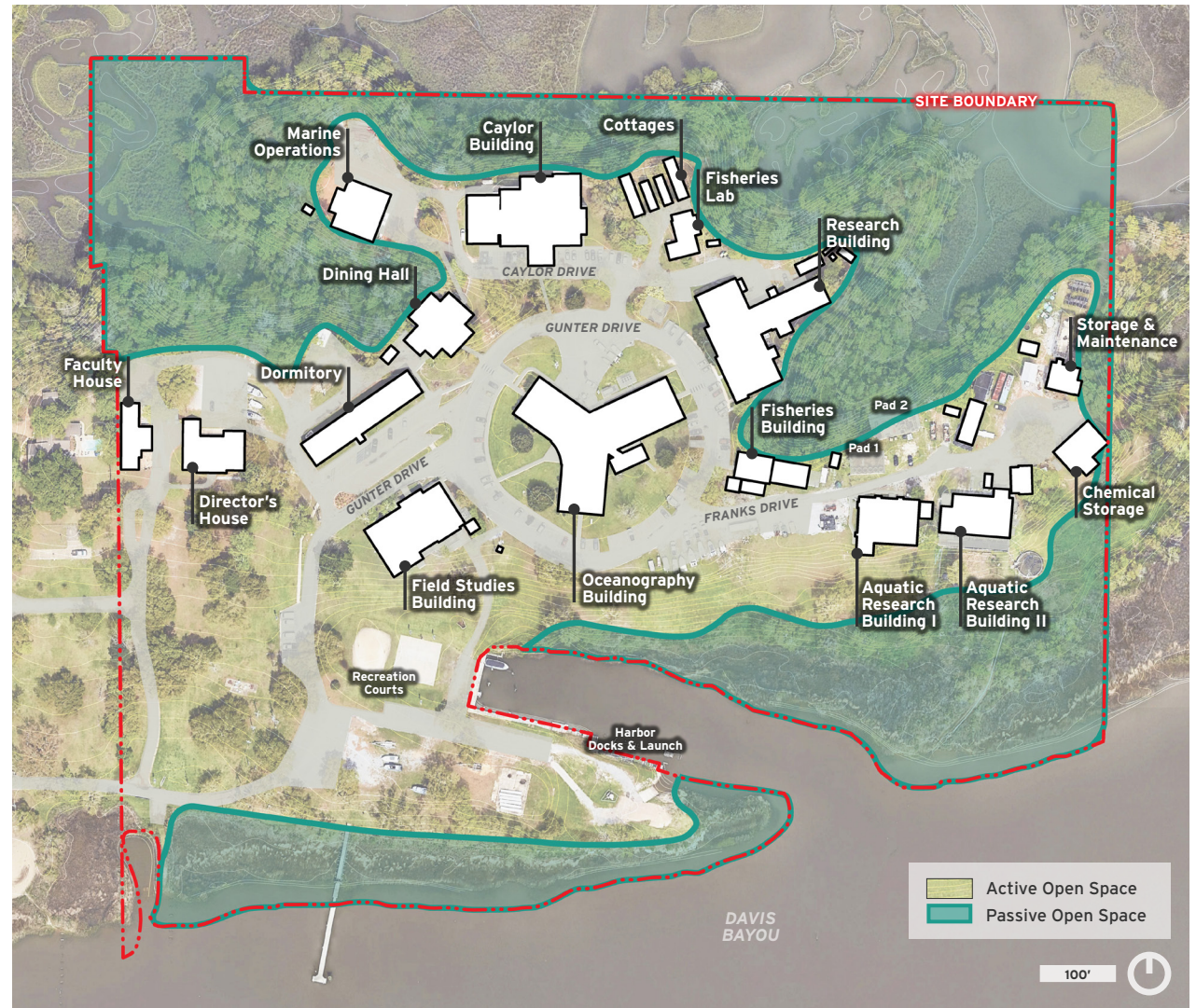
Source: Disaster Resistant University (DRU) Plan, 2024

Note: Based on consultation from GCRL, the DRU hazard ranking was modified to list Aquatic Research Building II as a high priority due to it hosting live animals

Open Space

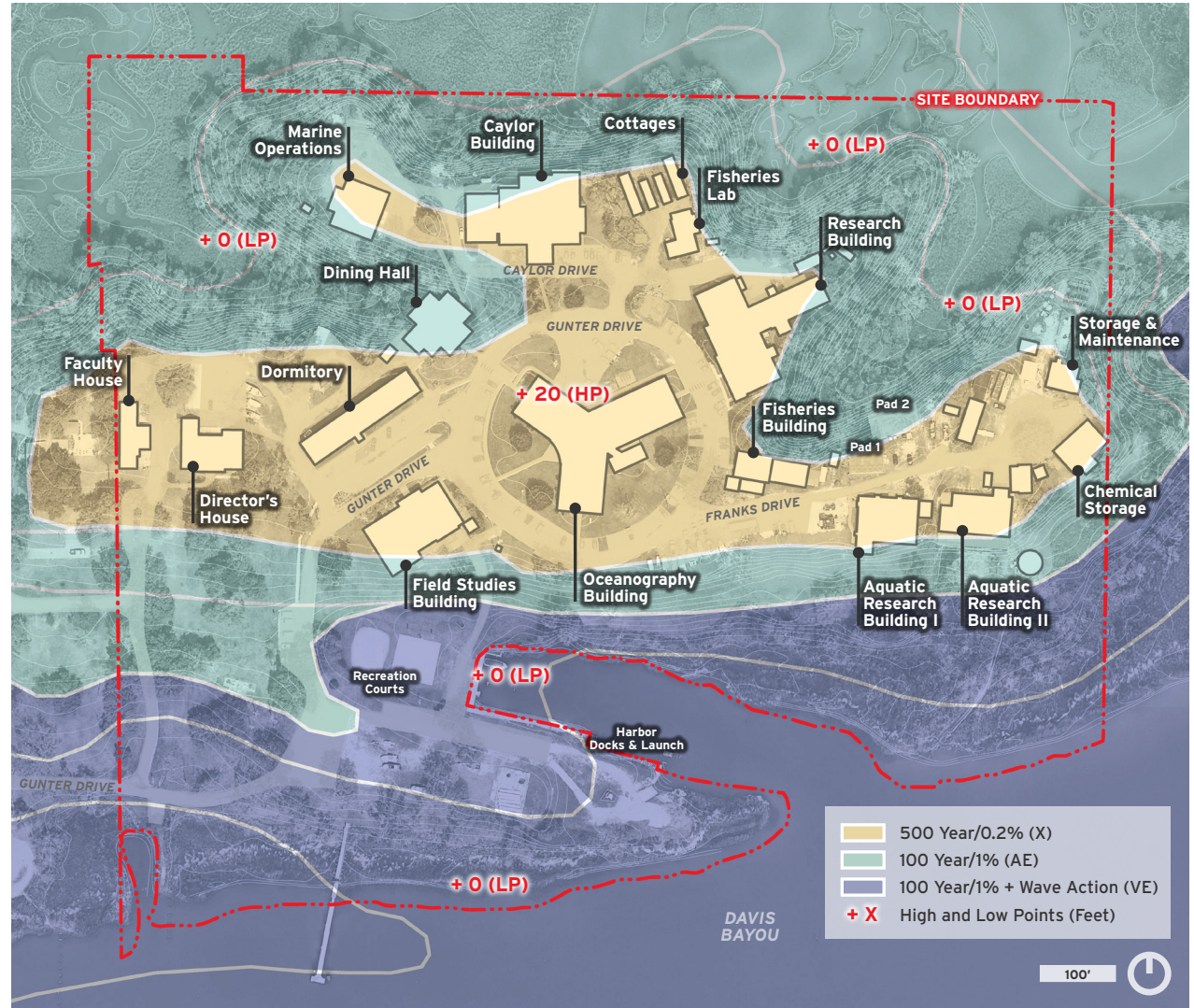
The Halstead site features a compact but functional open space network shaped by its waterfront setting along Davis Bayou. Lawns and shaded areas between buildings provide informal gathering spaces, while the public pier and boat launch connect the site directly to the water. Recreational amenities, including a volleyball court and basketball court, contribute to student life.

However, open spaces are generally fragmented and secondary to building and operational needs. Pedestrian circulation is limited, with much of the site oriented around vehicular access and parking areas. Recognizing these challenges, the University approved the 2024 Halstead Pedestrian, Bicycle, and Parking Plan, which envisions a more connected circulation system, improved paths, and upgraded parking that will better integrate with open space and enhance the overall site experience.



Floodplains

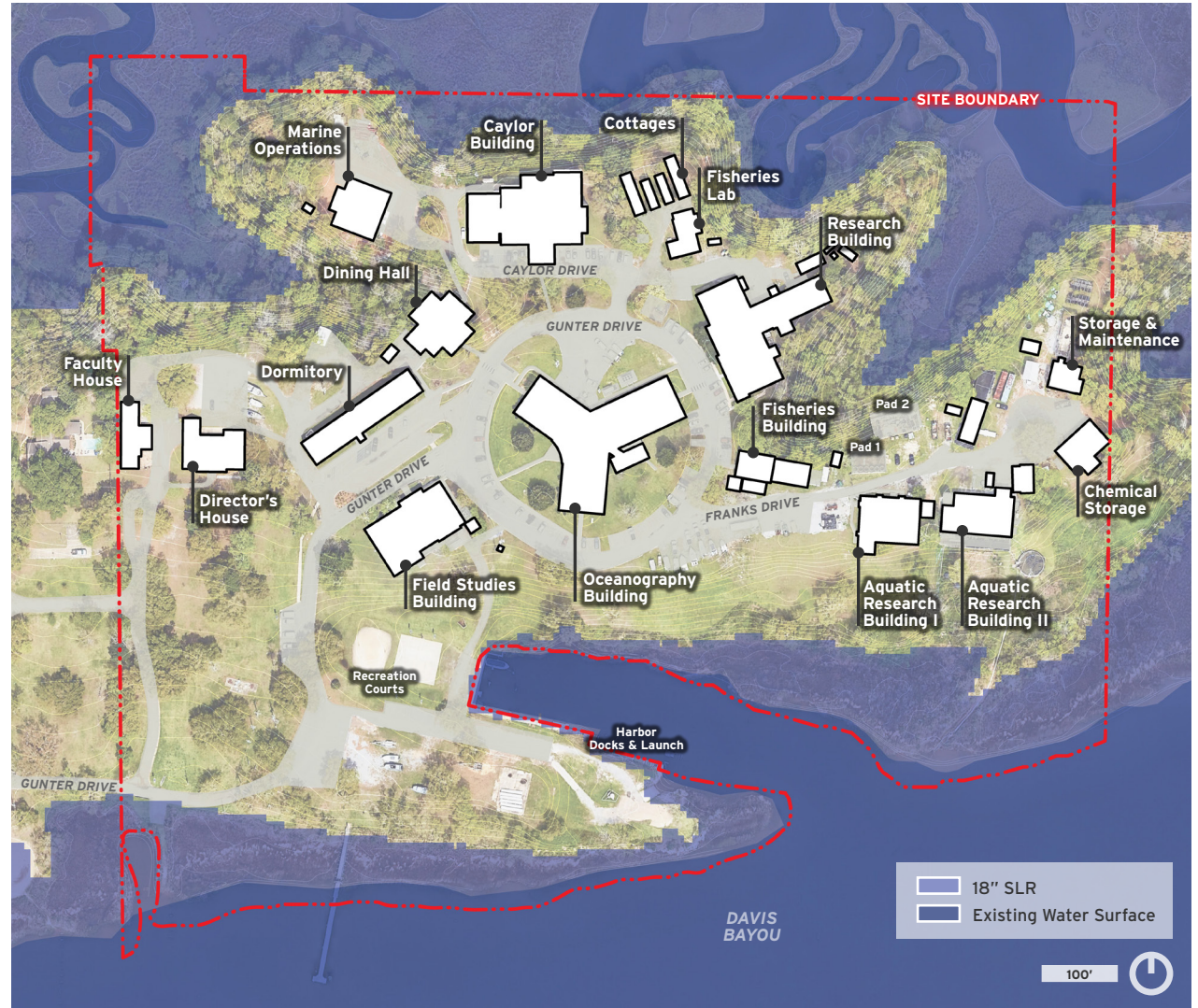
Floodplains are a critical planning consideration for the Halstead site, which is generally situated at a lower elevation than the Cedar Point site. The floodplain map indicates that most buildings sit within the 500-year floodplain, while the Dining Hall is located in the more vulnerable 100-year floodplain. The southern frontage of the site falls within the 100-Year + Wave Action zone, reflecting areas that were most heavily damaged during Hurricane Katrina. Elevation across the site varies, with the Oceanography Building occupying the highest ground and conditions descending to the lowest points along the bayou edge. These conditions underscore the importance of resilient design, strategic siting of new construction, and investment in protective landscape measures, aligning with the recommendations of the Disaster Resilient University Plan.



Source: FEMA Flood Map Service

Sea Level Rise

Sea level rise projections add another layer of risk for the Halstead site. According to NOAA, which forecasts 14 to 18 inches of rise along the Gulf Coast by 2050—a prediction also cited in USM's Disaster Resistant University Plan—large portions of the site's low-lying bayou edges would become permanently submerged. This scenario also introduces additional risk to site access routes via Halstead Road and Gunter Drive, potentially isolating the site during high-water events. Over time, floodplain boundaries could shift inland, further increasing facility vulnerability.



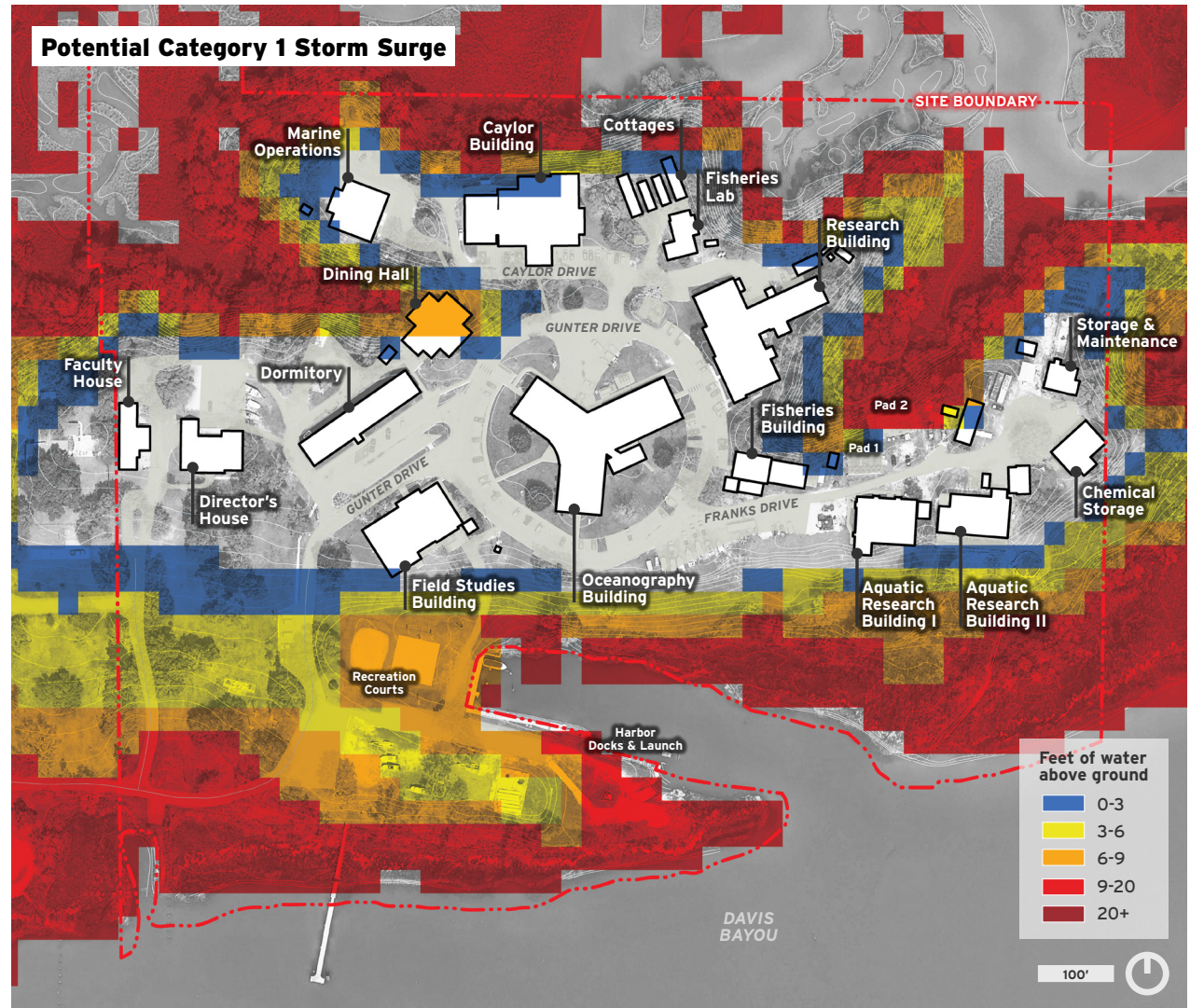
Sources: USM Disaster Resistant University All Campus Plan (October 2024); U.S. Interagency Sea Level Task Force; National Oceanic and Atmospheric Administration (NOAA)

Hurricane Storm Surge

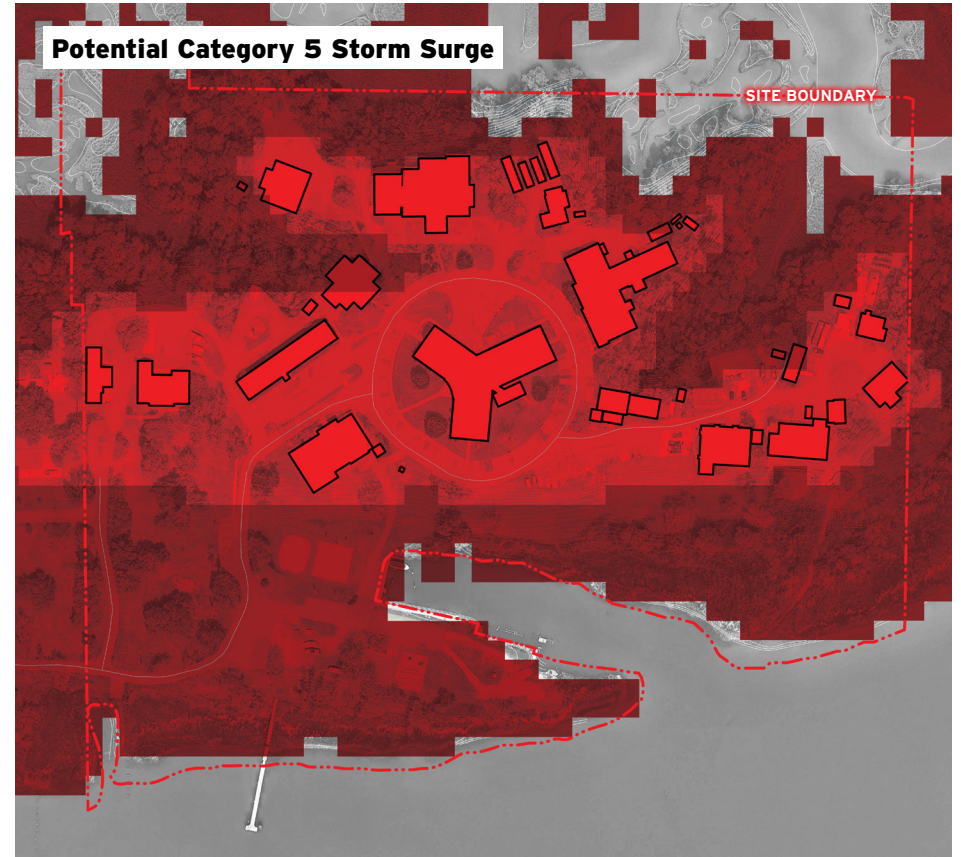
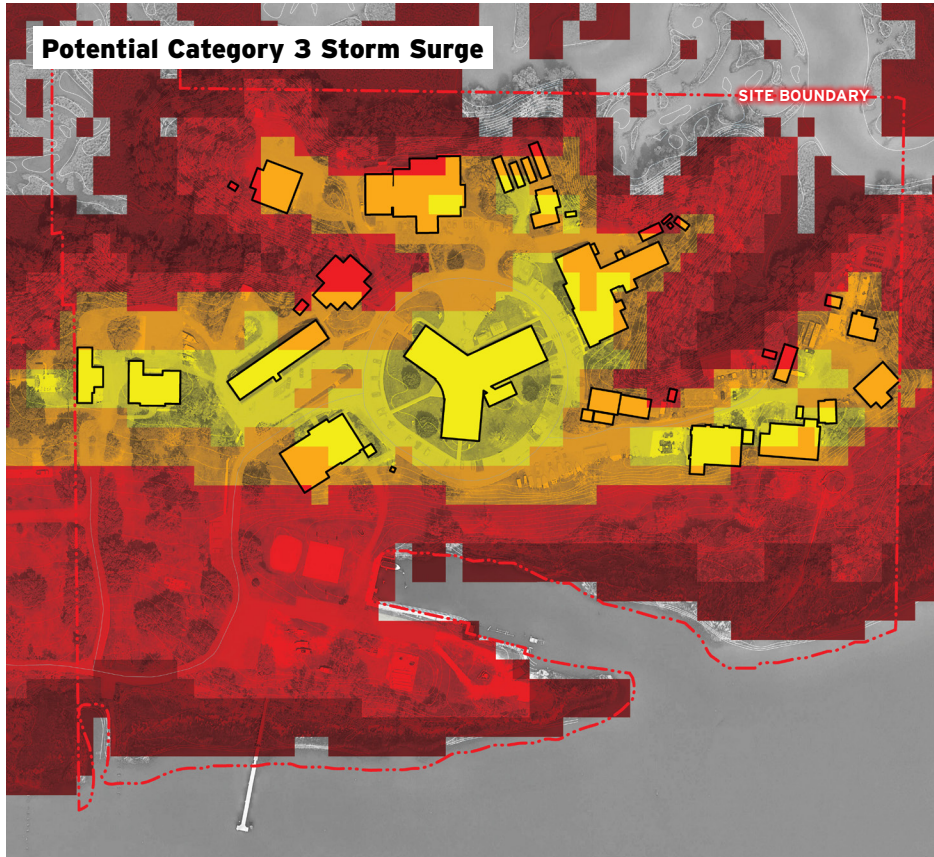
Storm surge modeling provides a critical perspective on the potential impacts of hurricanes at the Halstead site. Using NOAA's SLOSH model—which simulates near worst-case surge flooding scenarios under ideal storm conditions—the analysis illustrates likely inundation levels for Category 1, 3, and 5 hurricanes.

In a Category 1 event, most site buildings would remain unaffected, with only the Dining Hall at risk of flooding. By contrast, a Category 3 storm could bring surge levels of 3 to 9 feet, potentially inundating the first floors of most buildings. Under a Category 5 scenario, surge depths exceeding 9 feet could impact both first and second floors, threatening the majority of the site.

While actual building vulnerability may vary depending on finished floor elevation, these projections confirm the significant risk storm surge poses to Halstead, echoing the damage observed during Hurricane Katrina. The findings underscore the importance of resilient design and strategic reinvestment for the most vulnerable areas within and beyond the 10-year planning horizon.

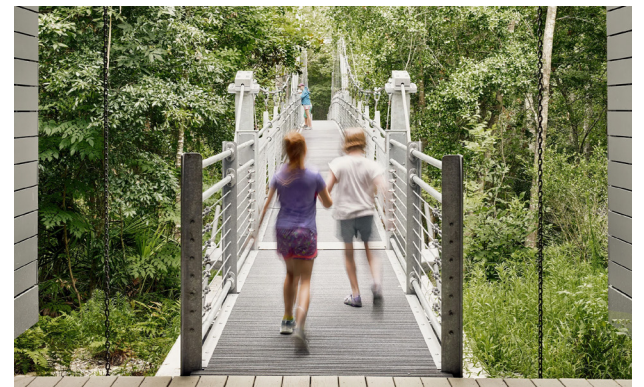


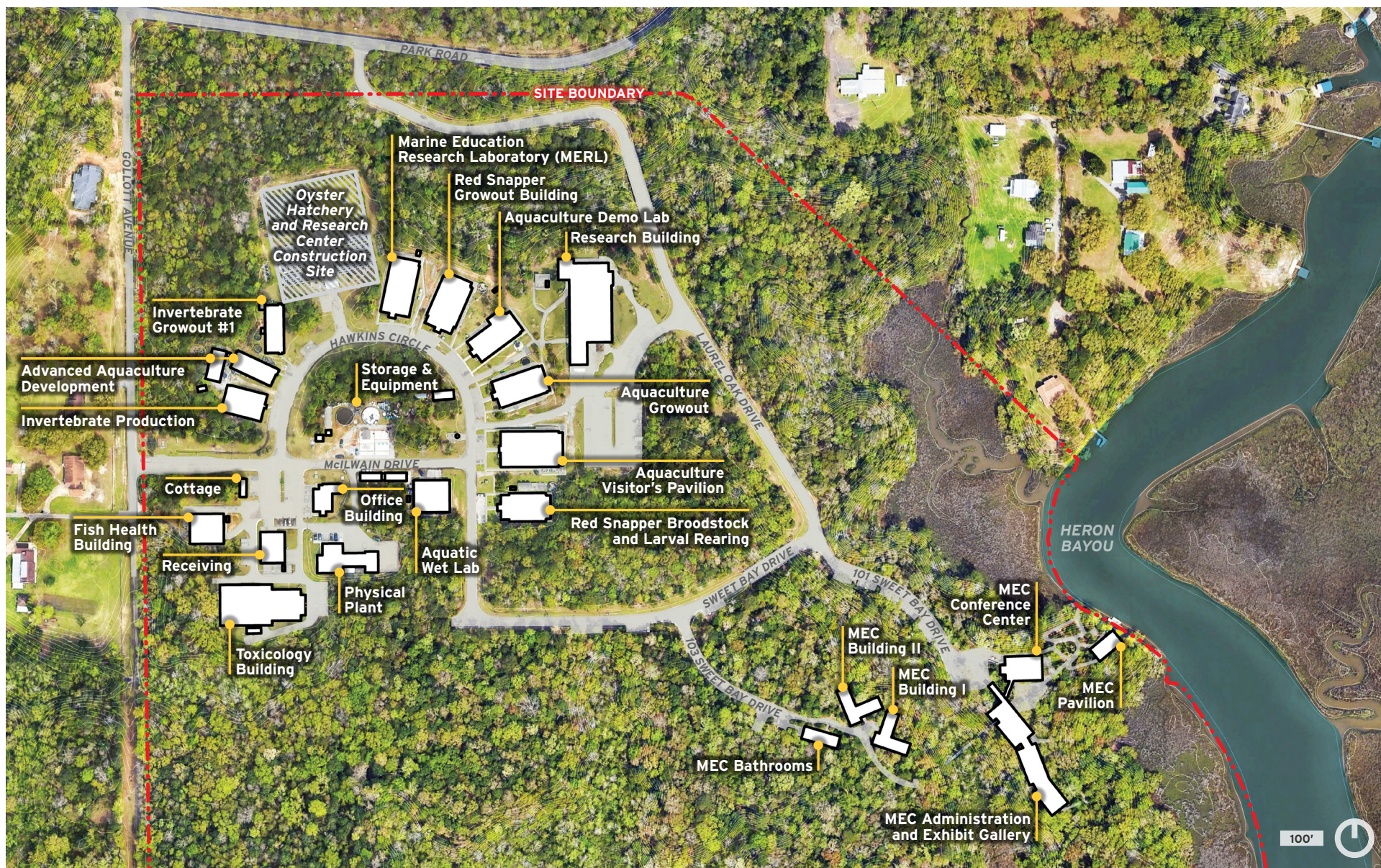
Source: National Oceanic and Atmospheric Administration (NOAA) Sea, Lake, and Overland Surges from Hurricanes (SLOSH) Model, 2021



Cedar Point Site

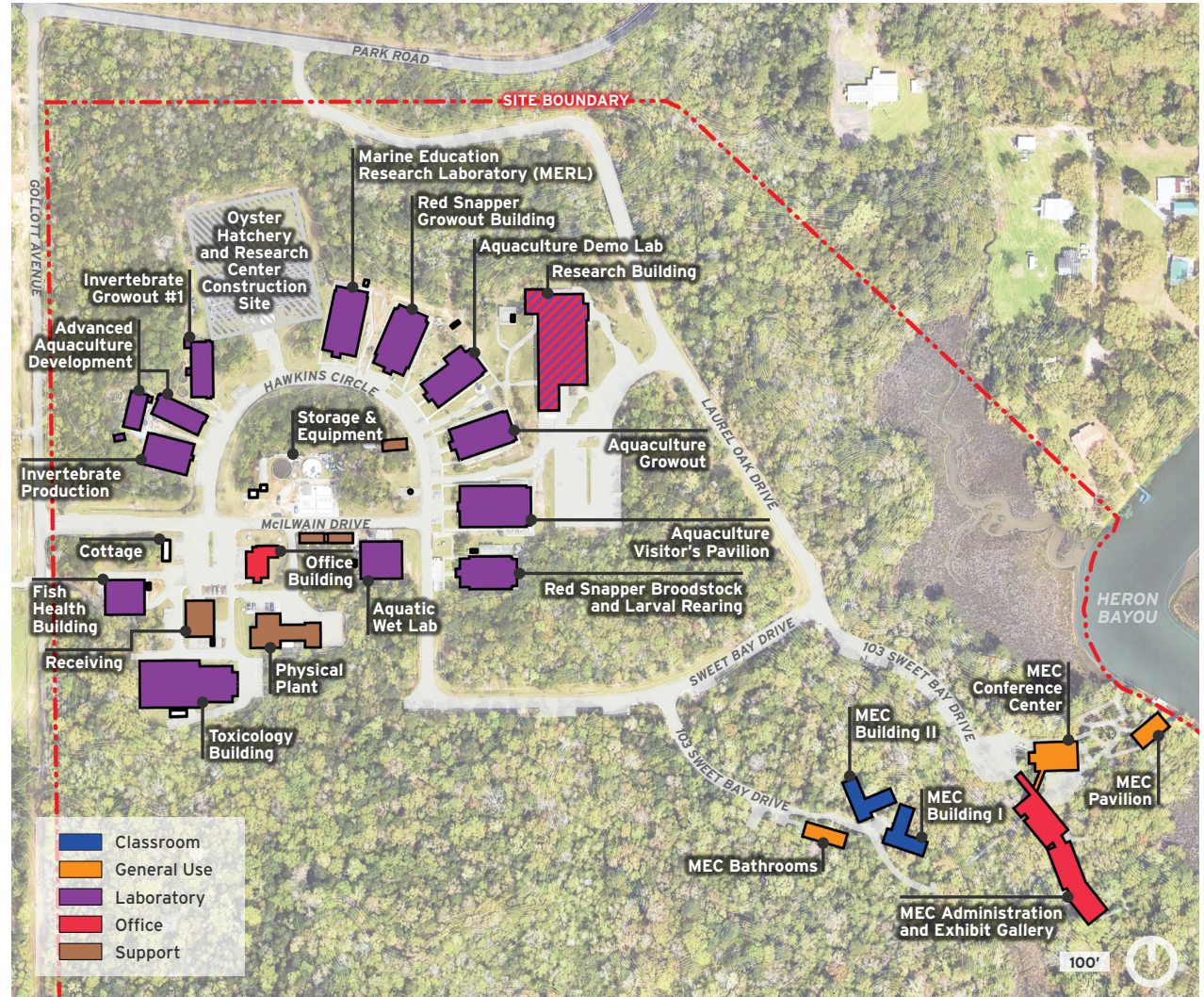
The Cedar Point site represents the newer and larger of GCRL's two sites. It has developed into a hub for aquaculture research and public education, housing specialized laboratories, demonstration facilities, and the award-winning Marine Education Center. These assets not only support advanced science but also connect the public to coastal research in meaningful ways. With its scale, newer infrastructure, and undeveloped land, Cedar Point offers the greatest potential for growth and expansion.





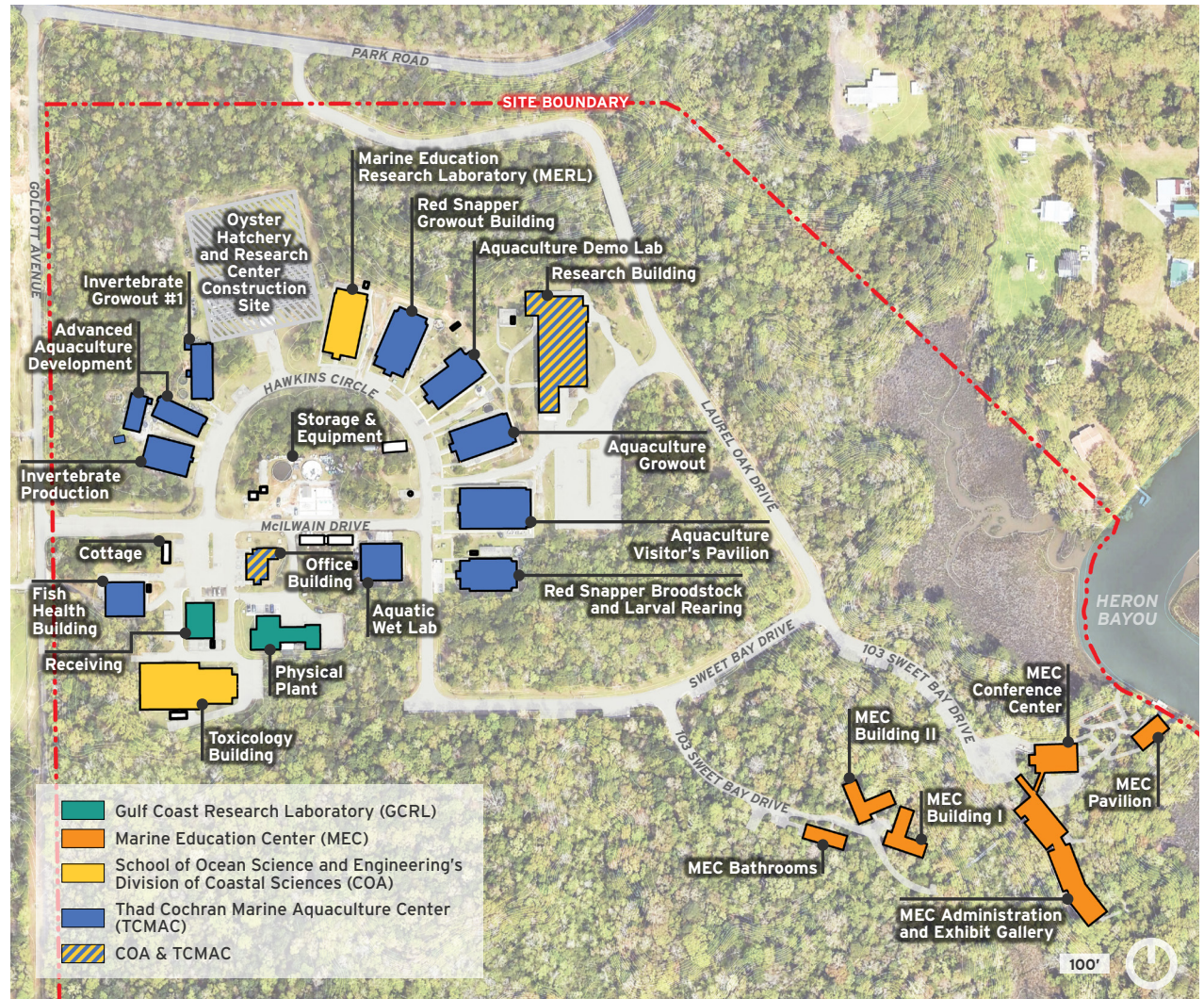
Building Use

Building use at Cedar Point is clustered in two main areas. The northern part of the site is centered on aquaculture research, with the majority of facilities functioning as laboratories and support-focused buildings. These include specialized labs, growout buildings, and associated infrastructure. Complementing this scientific core, the Marine Education Center area houses a mix of offices, classrooms, conference space, and general-use buildings that serve various university and public outreach programs. Together, these facilities reflect Cedar Point's dual role as a center for advanced research and as a gateway for education and community engagement.



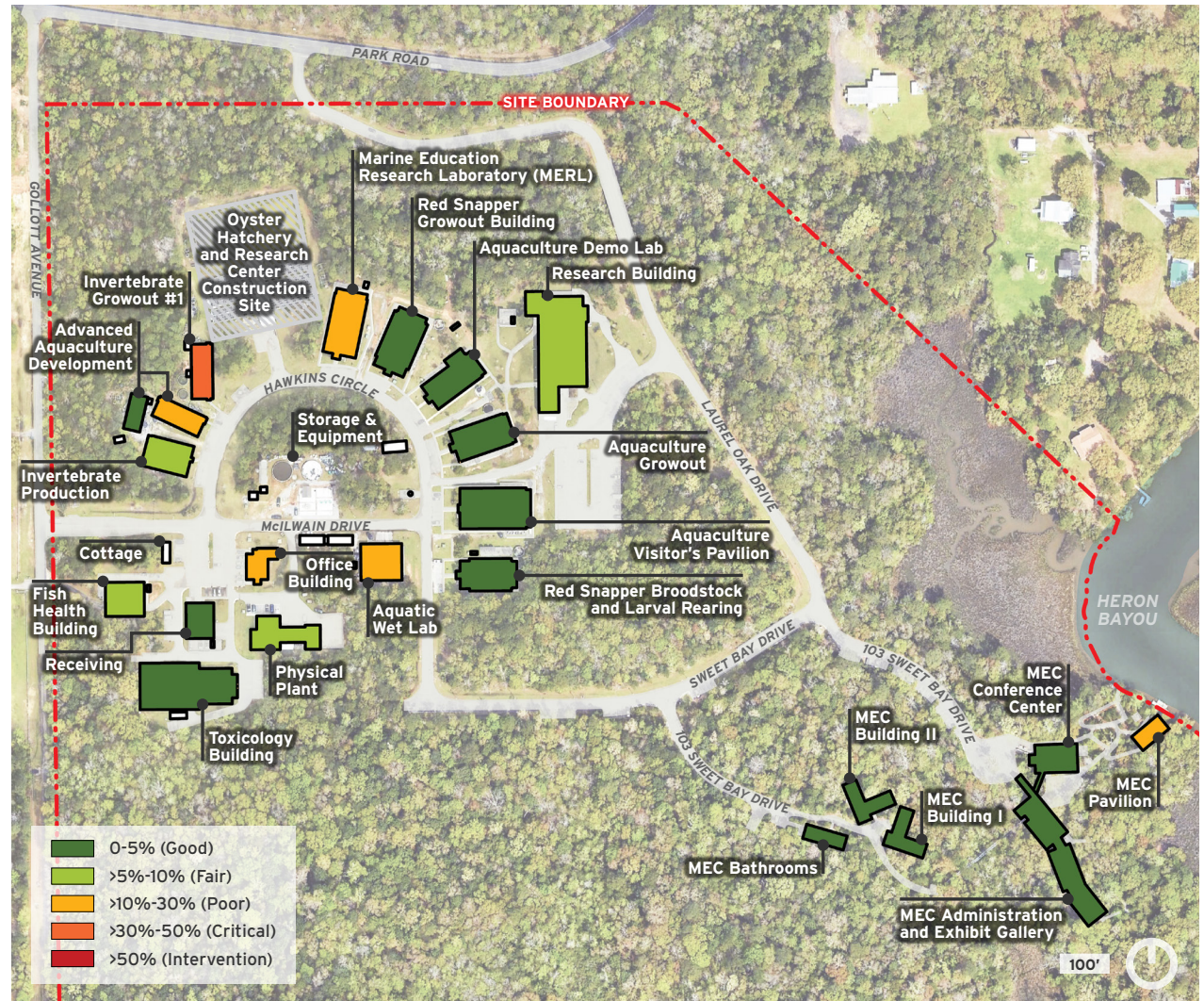
Building Affiliation

Building affiliation at Cedar Point is anchored by three primary units: the Marine Education Center (MEC), which includes classrooms, offices, and public engagement facilities; the School of Ocean Science and Engineering's Division of Coastal Sciences (COA), which supports research in the Toxicology Building and the Marine Education Research Laboratory (MERL); and the Thad Cochran Marine Aquaculture Center (TCMAC), which occupies most of the laboratory buildings. Similar to Halstead, key building such as Receiving and the Physical Plant support overall GCRL operations. Together, these programs define Cedar Point's identity as both a research and educational hub, linking advanced aquaculture science with outreach to students and the broader community.



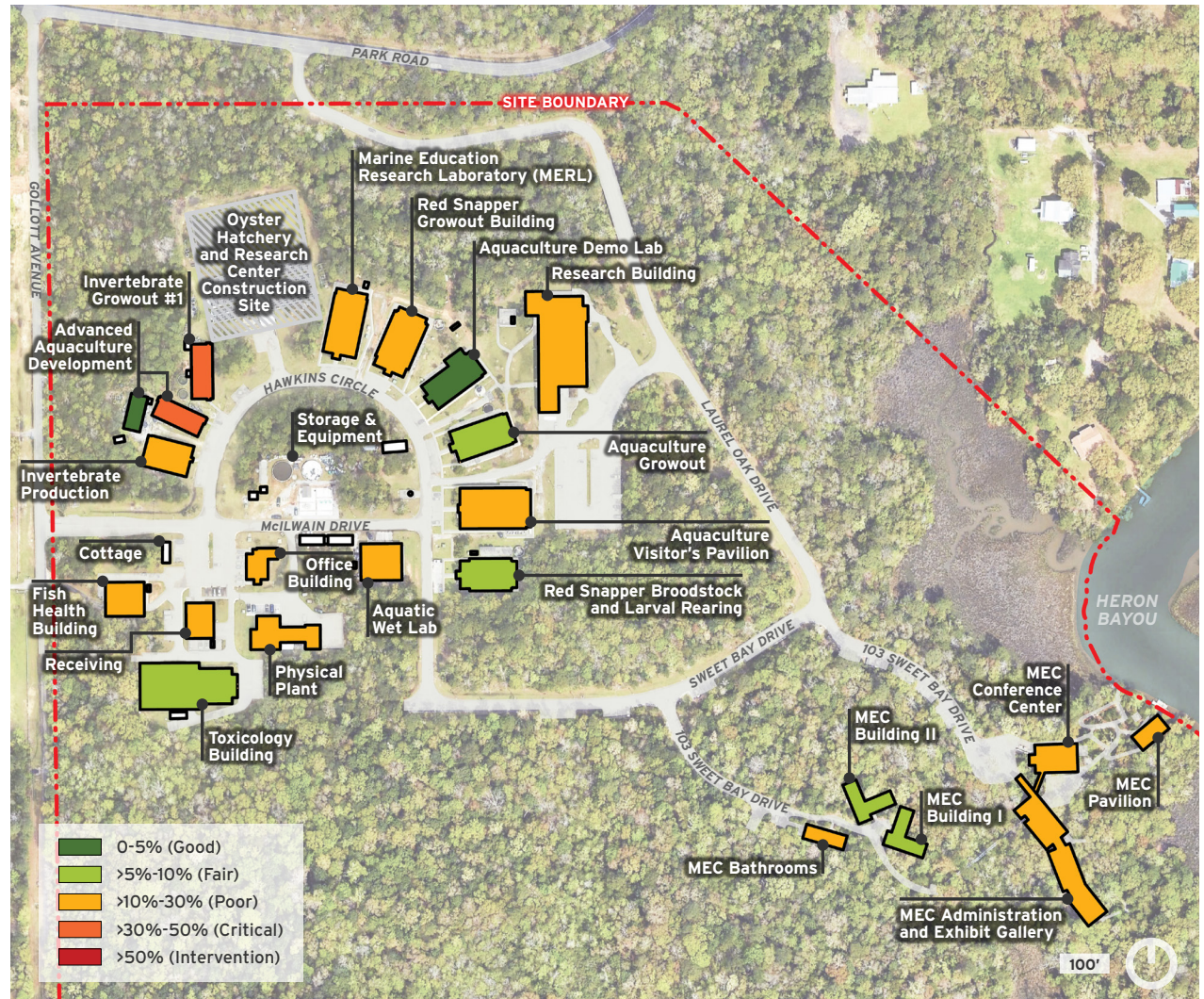
Building Condition (3 Year)

In contrast to Halstead, most buildings at Cedar Point are projected to remain in good condition within the three-year horizon, reflecting the site's newer construction and recent investments. A handful of facilities, however, are expected to show deficiencies sooner, including the Marine Environmental Research Laboratory (MERL), Invertebrate Growout, Advanced Aquaculture Development, the Office Building, the Aquatic Wet Lab, and the MEC Pavilion. These exceptions highlight where near-term maintenance and reinvestment will be needed to preserve overall site functionality.



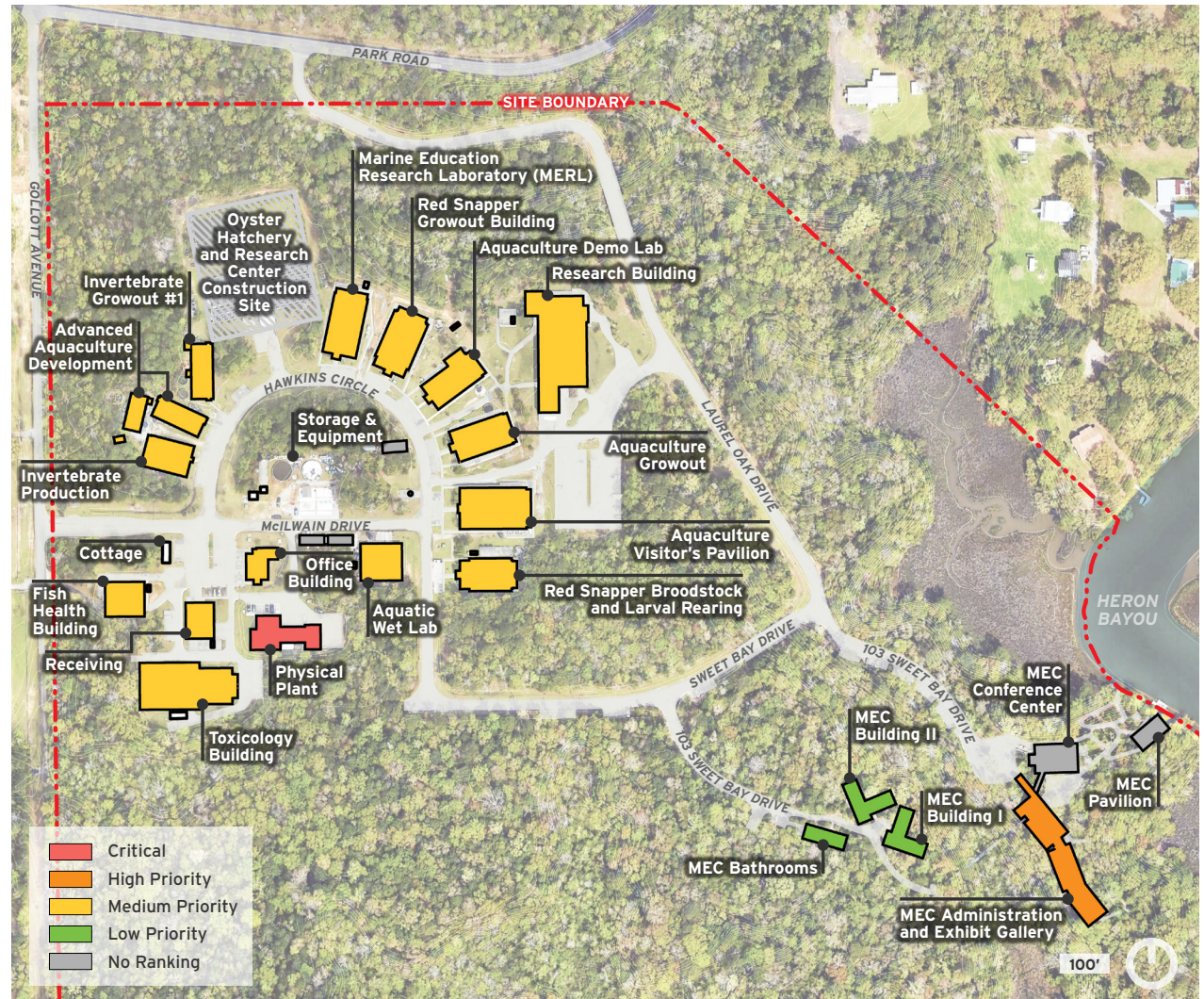
Building Condition (10 Year)

Looking ten years ahead, building condition patterns at Cedar Point become more pronounced, with growing deficiencies across multiple facilities if significant renovation investments are not made. In particular, the Invertebrate Growout and Advanced Aquaculture Development buildings are projected to reach critical condition, underscoring the importance of timely reinvestment to sustain research capacity.



Building Hazard Ranking

The building hazard ranking at Cedar Point highlights several clear priorities for maintaining site functionality after a hazard event. The Physical Plant stands out as a critical facility, given its role in supporting overall operations and utilities. Secondary priorities include buildings central to research functions—such as the Marine Environmental Research Laboratory (MERL), the Toxicology Building, and the Research Building—which would need to be protected or restored quickly to sustain the site’s scientific mission.

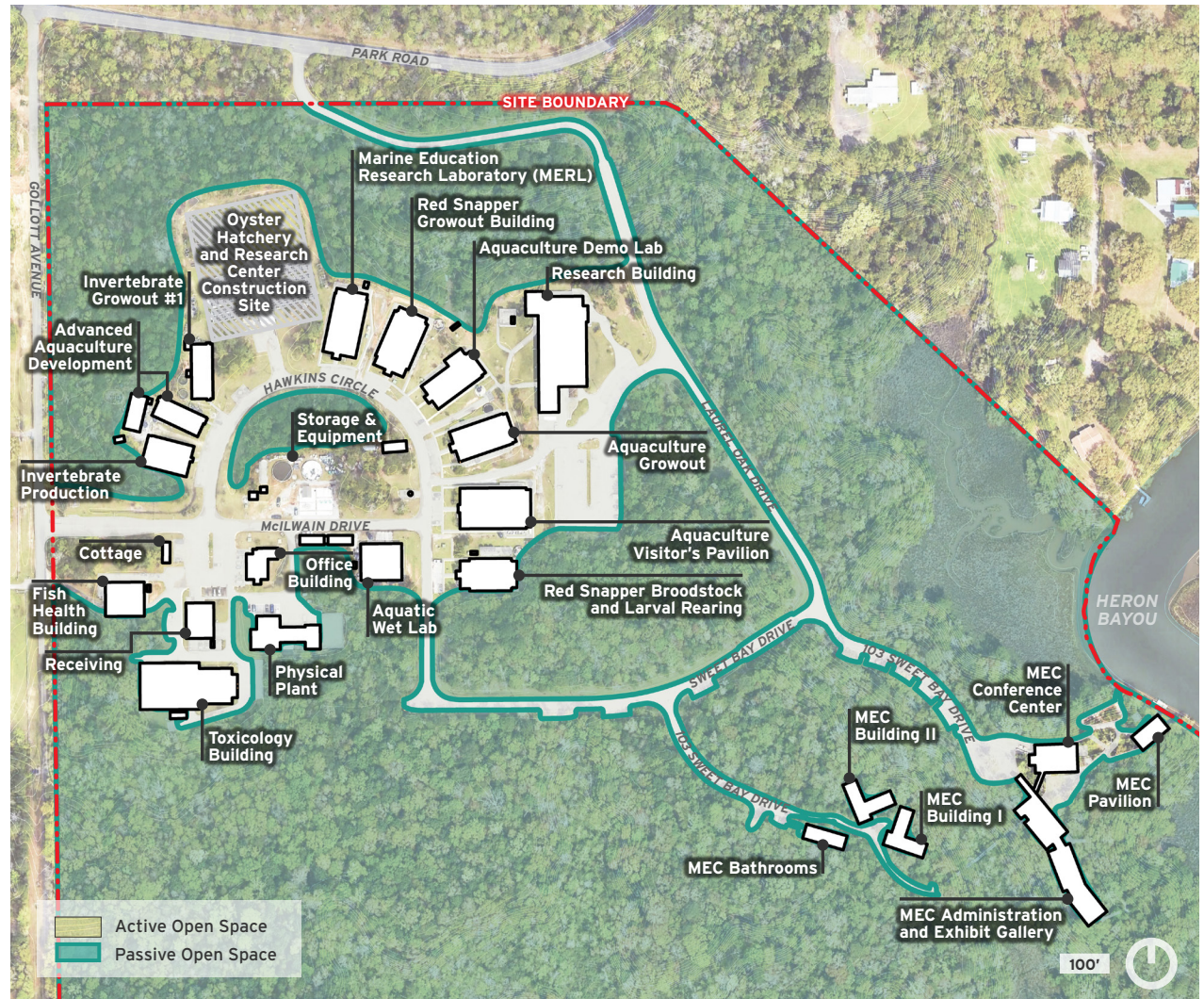


Source: Disaster Resistant University (DRU) Plan, 2024

Note: Based on consultation from GCRL, the DRU hazard ranking was modified to list the MEC Administration and Exhibit Gallery as high priority and to list all aquaculture buildings as medium priority due to similar functionality across these facilities

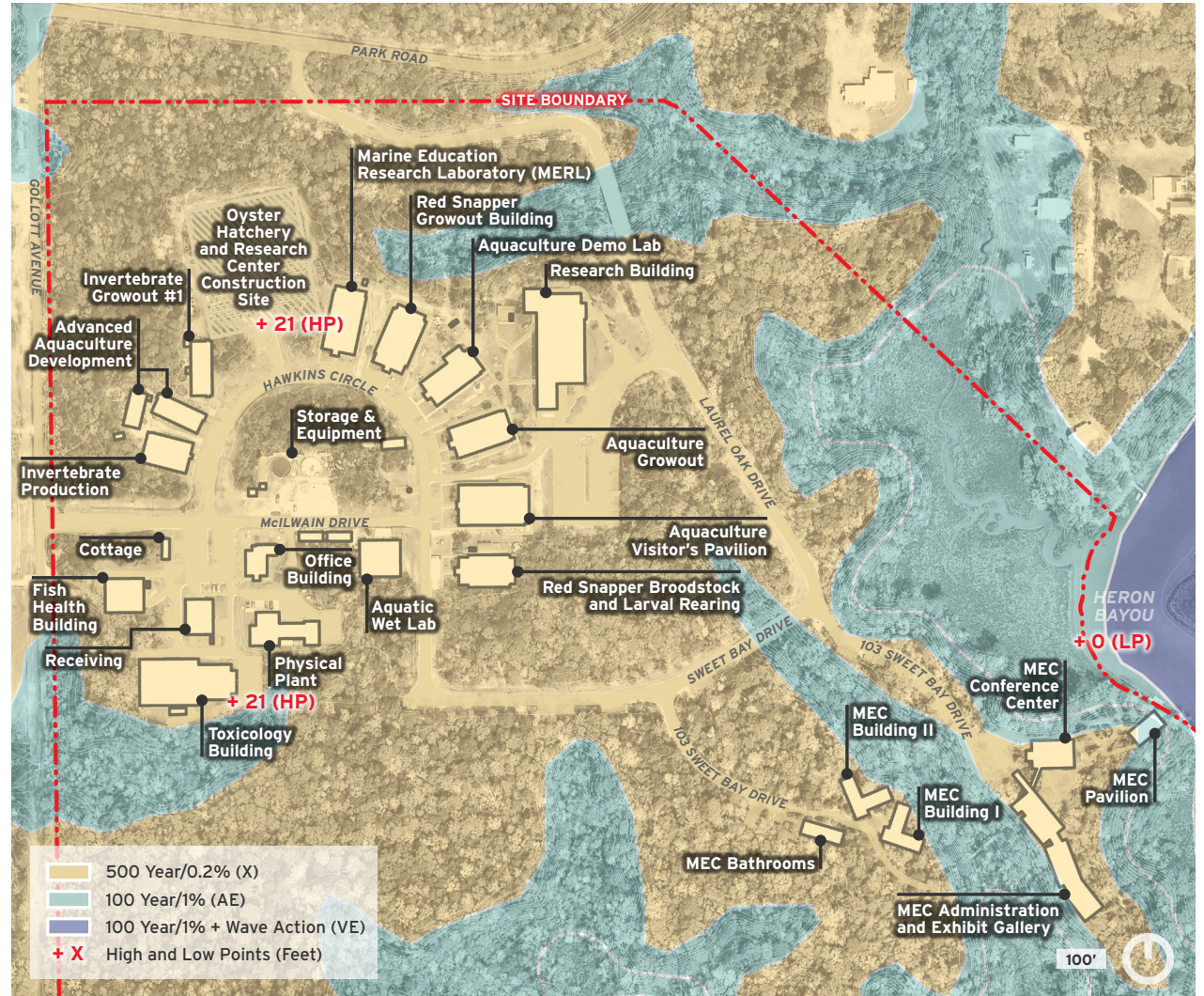
Open Space

Cedar Point is distinguished by its extensive passive open space, with woodlands, marshes, and bayous stretching well beyond the developed areas of the site. These natural landscapes are not only a defining feature of the site but also play an important role in the Marine Education Center experience, providing opportunities for outdoor learning, interpretation, and direct engagement with coastal ecosystems.



Floodplains

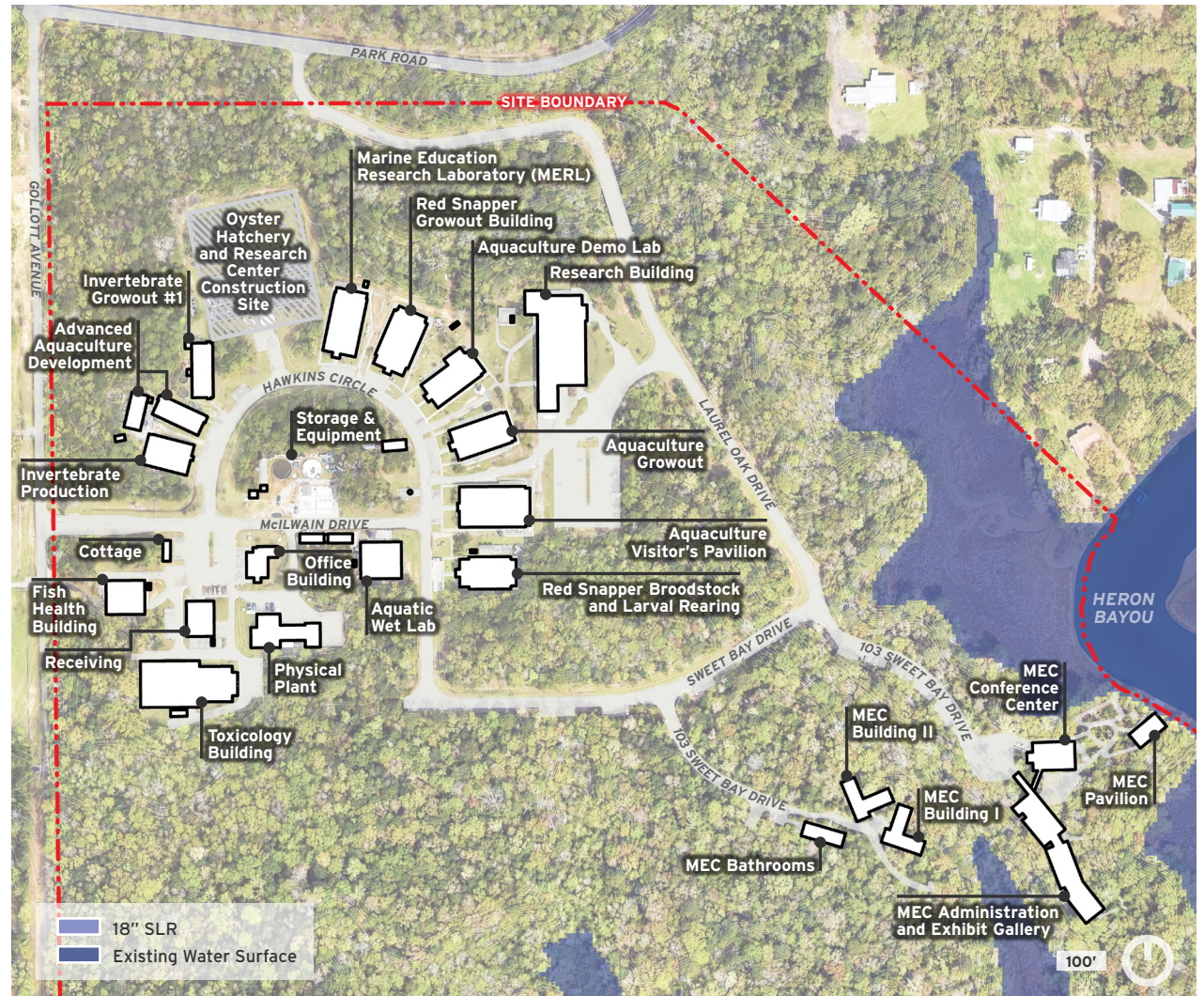
At Cedar Point, all buildings fall within the 500-year floodplain, though the MEC Pavilion is elevated above the 100-year floodplain. While the site shares similar peak elevations with Halstead, its larger land area sits at a generally higher elevation, providing greater overall protection from flooding. This higher ground helps reduce vulnerability compared to Halstead, positioning Cedar Point as the more resilient site in terms of flood risk.



Source: FEMA Flood Map Service

Sea Level Rise

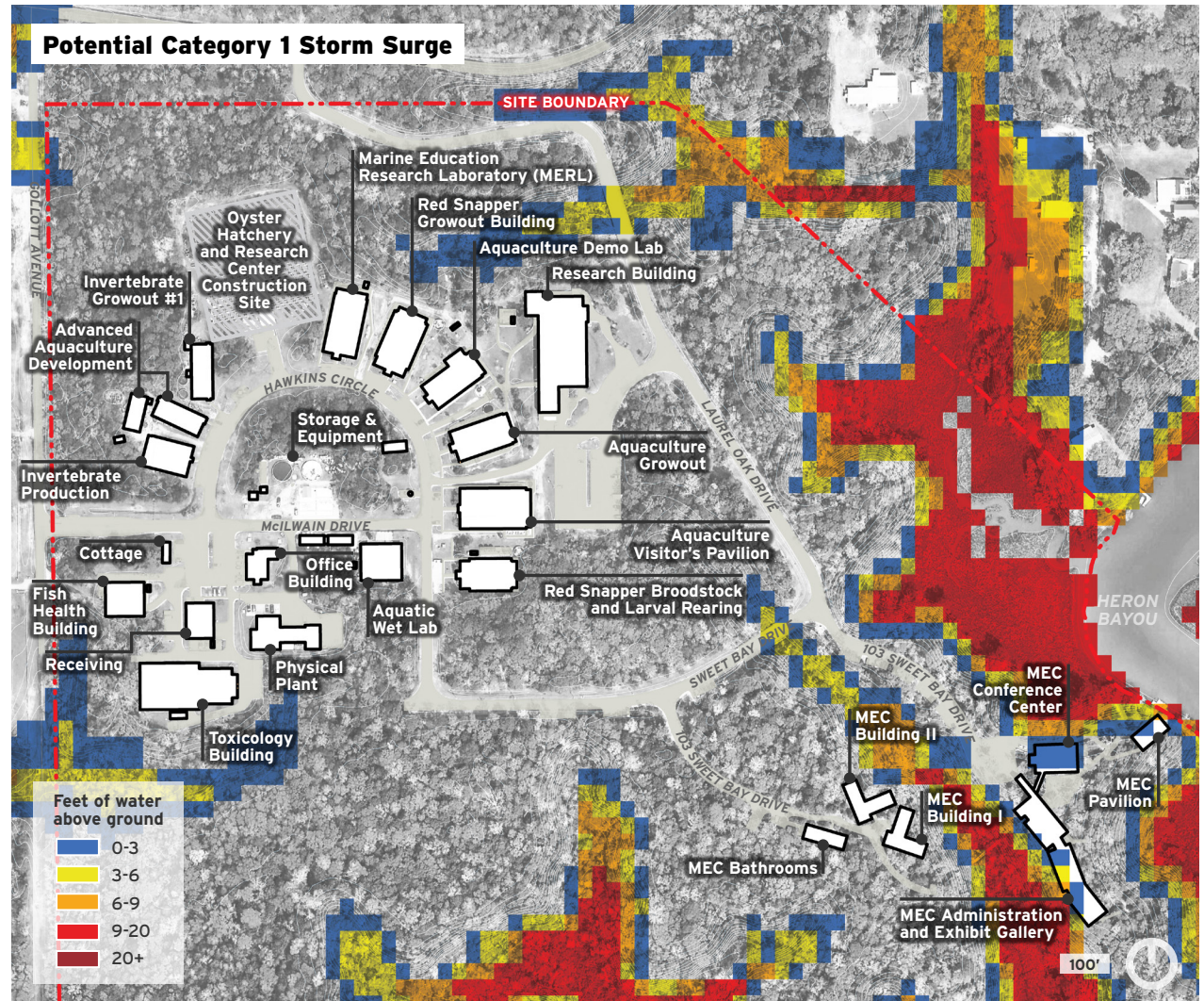
Cedar Point is relatively well protected from the projected 18 inches of sea level rise by 2050, with most developed areas remaining above anticipated inundation levels. However, the impacts of rising seas are complex and could introduce indirect risks, including saltwater intrusion, changes to the water table, and increased stormwater runoff challenges. Compared to Halstead, where sea level rise is expected to more directly threaten low-lying areas and access routes, Cedar Point's higher ground offers an advantage, though careful planning will still be needed to address these longer-term risks.



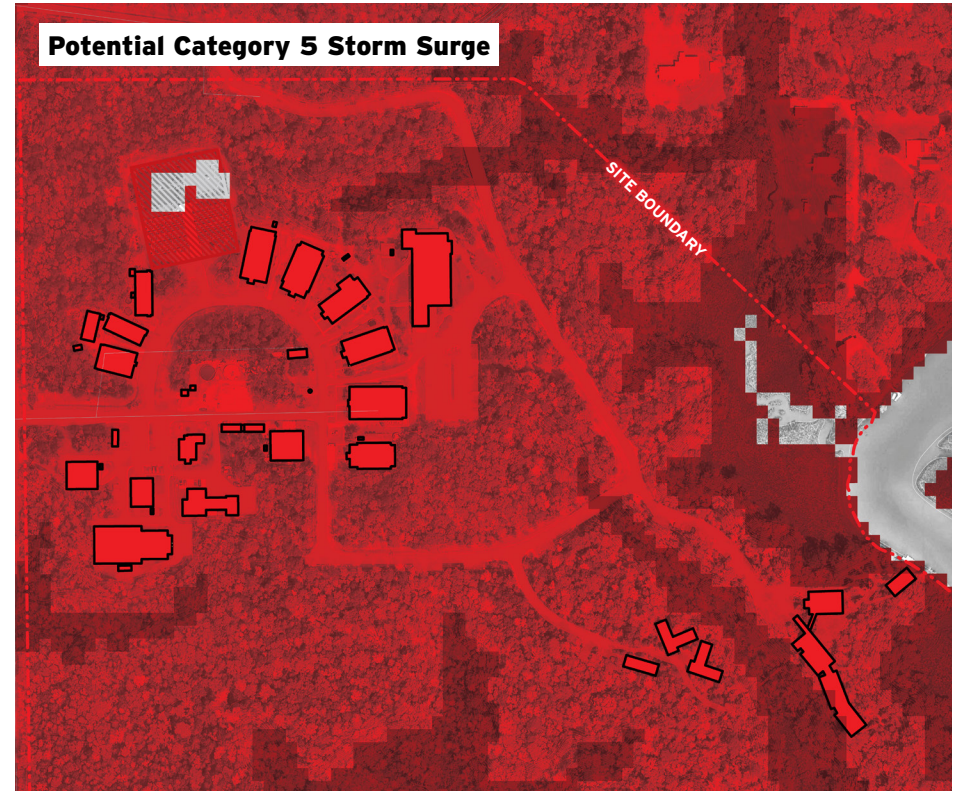
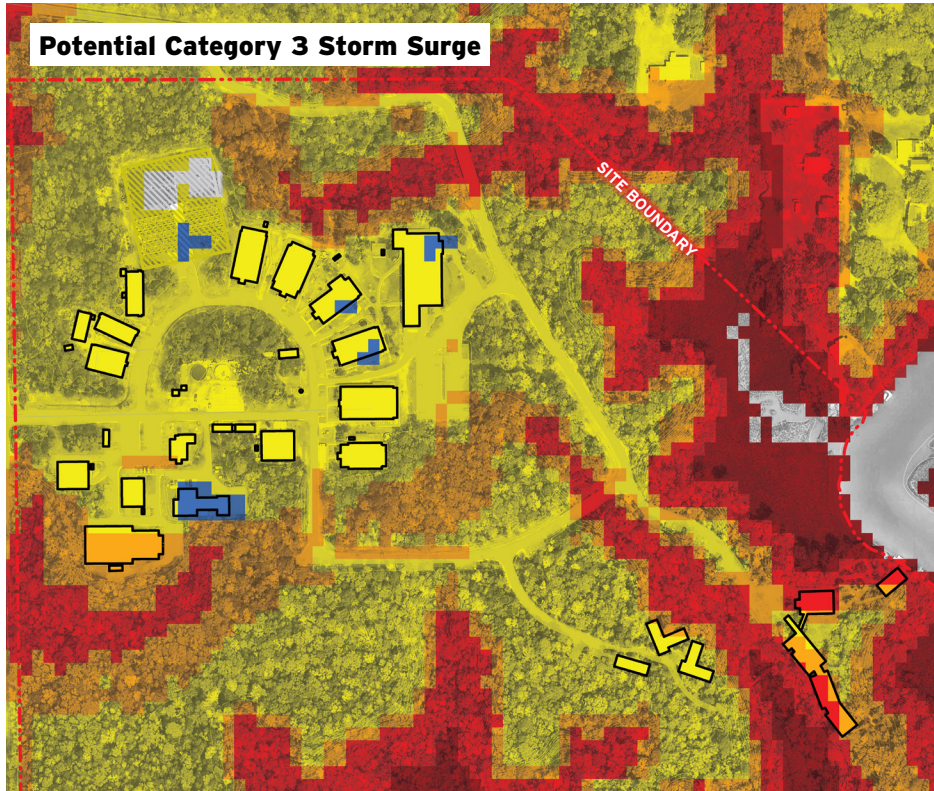
Sources: USM Disaster Resistant University All Campus Plan (October 2024); U.S. Interagency Sea Level Task Force; National Oceanic and Atmospheric Administration (NOAA)

Hurricane Storm Surge

As with Halstead, storm surge risk at Cedar Point was evaluated using NOAA's SLOSH model, which simulates near worst-case surge conditions across thousands of hypothetical hurricanes. In contrast to Halstead's greater vulnerability, Cedar Point is relatively well protected in a Category 1 event, with most buildings remaining unaffected. By a Category 3 storm, however, a majority of buildings could experience 3-6 feet of water, potentially impacting foundations and first floors depending on finished floor elevations. In an extreme Category 5 scenario, surge depths of 9-20 feet or more could inundate the first floor or higher across much of the site. While Cedar Point benefits from a generally higher elevation than Halstead, these scenarios demonstrate that both sites face significant storm surge risks at higher hurricane intensities.



Source: National Oceanic and Atmospheric Administration (NOAA) Sea, Lake, and Overland Surges from Hurricanes (SLOSH) Model, 2021







GCRL MASTER PLAN VISION

Proposed Site Program

The proposed site program brings together all recommended building and open space initiatives across both the Halstead and Cedar Point sites. It reflects a balanced mix of new construction and strategic renovations, addressing critical needs for housing, storage, and office space while reinvesting in existing facilities where upgrades or replacement are most needed.

Developed through stakeholder input, space needs analysis, and site review, the program emphasizes efficiency and resilience while advancing GCRL's long-term mission in research, education, and outreach.

The following sections outline these program recommendations for both sites, presenting a framework that is practical in its immediate priorities while visionary in its long-term direction.

	Halstead	Cedar Point
Housing / Dining / Shared Space	/ Renovate Dining Hall / + Renovate Dormitory or demolish/new dormitory at 1:1 GSF and in same general location + New 6,000 GSF suite housing	+ New 8,000 GSF dining/shared space + New 15,000 GSF dormitory + New 6,000 GSF suite housing
Offices	+ New 10,000 GSF office building / + Renovate Director's House with new 4,000 GSF visitor's center addition	+ New 10,000 GSF office building
Research	/ Renovate Oceanography Building and Caylor Building	/ Renovate Invertebrate Growout #1 and Advanced Aquaculture Growout + New 18,000 GSF incubator facility
Storage/Central Services	/ Renovate Chemical Storage Building + New 9,000 GSF consolidated storage building supporting removed storage, large equipment, and small equipment + New 5,000 GSF consolidated boat barn with adjacent outdoor services (wash station and fuel station) + New 1,500 GSF green house facility	/ Renovate workshop + New 6,500 GSF consolidated storage facilities for secure materials, large equipment, and small equipment + New 1,000 GSF storage facility at MEC
Open Space	+ Implement approved Pedestrian, Bicycle, and Parking Plan with modifications to accommodate the master plan	+ Implement new signage system + Expand and improve primary parking lot + Expand and improve accessibility of pathway system + New outdoor gathering area at Hawkins Circle + New outdoor exhibit/gathering areas at MEC

+ proposed site addition
/ proposed site renovation



Halstead Master Plan

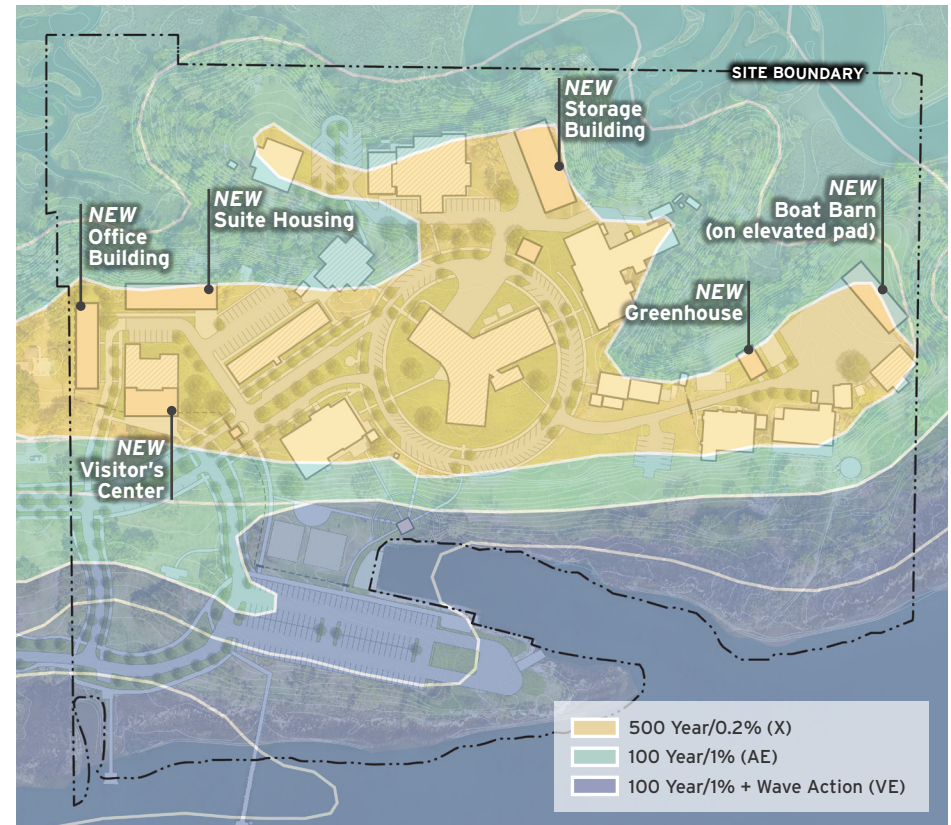
The proposed Halstead Master Plan centers on a series of strategic moves designed to strengthen the site's ability to meet both immediate functional needs and long-term GCRL objectives. Key recommendations include critical renovations to core facilities such as the Caylor, Oceanography, and Research Buildings; consolidation of boat storage along the western edge and general storage to the north; and the introduction of new or upgraded dining, housing, office, and visitor facilities on the eastern edge. In addition, the plan enhances site open space by building on the approved Pedestrian, Bicycle, and Parking Plan, refined to align with the broader site vision. The master plan also reinforces Halstead's identity as a working research laboratory—where field operations and vessel activity are visible and central to the campus experience—celebrating the active, hands-on nature of GCRL scientific mission.



Halstead Master Plan

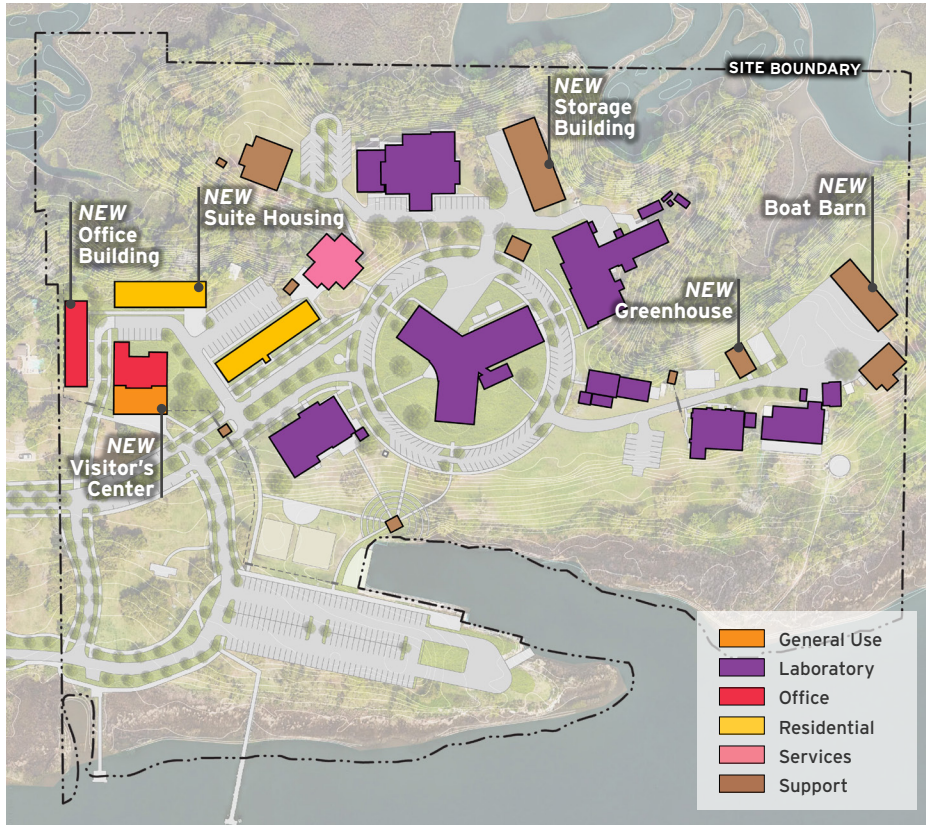
Key Planning Considerations

Three key considerations shaped the proposed Halstead Master Plan: floodplain constraints, which guided the siting of new facilities; building use and adjacencies, which informed the organization of program areas across the site; and a targeted demolition strategy, which clears underutilized or vulnerable structures to allow for reinvestment and improved open space.



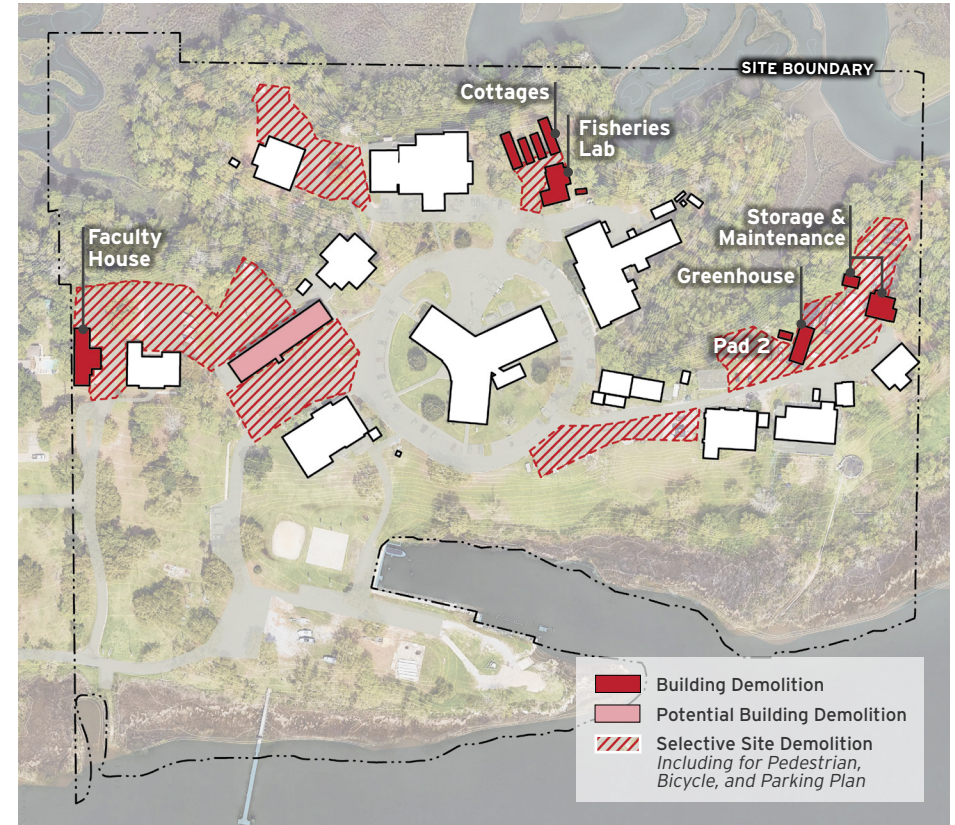
Floodplains

Floodplain constraints were an important factor in shaping the proposed site plans. Nearly all new building proposals are located above the 100-year floodplain to reduce long-term vulnerability. Incorporating elevated foundations or exploring amphibious architectural strategies with buoyant bases could further reduce risk. Floodplain levels are lightly referenced on the following page to illustrate how risk and resilience influenced site planning decisions.



Building Use

Building use was also organized to strengthen functional adjacencies across the sites. Support facilities are positioned in secure, back-of-house areas, while laboratory buildings occupy the central core of the site to remain accessible to both operations and research. More public-facing uses—such as offices, administration, housing, and dining—are located near the site entry, where they can serve students, staff, and visitors with greater convenience.



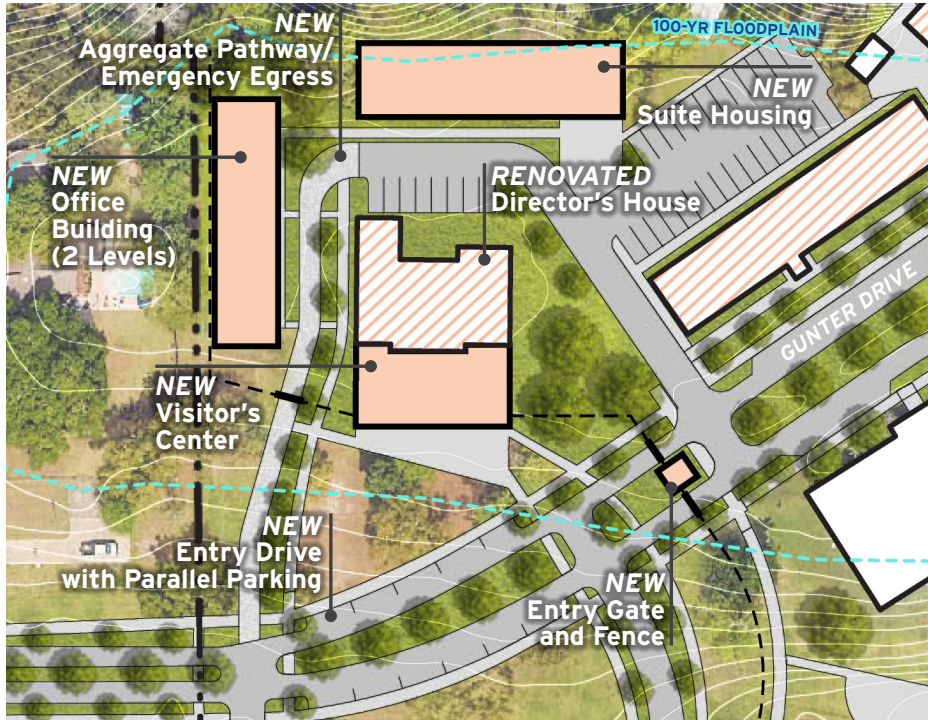
Demolition Strategy

An important part of realizing the Halstead plan vision is the selective demolition and removal of facilities that no longer meet program needs. This includes several storage and maintenance buildings, the Fisheries Lab, the cottages, and the Faculty House, along with targeted removal of paved surfaces to support new construction and improved open space.

Note: Prior to undertaking any work that impacts buildings under the purview of the Mississippi Department of Archives and History (MDAH), USM shall submit a Notice of Intent and supplementary information to MDAH for review and approval.

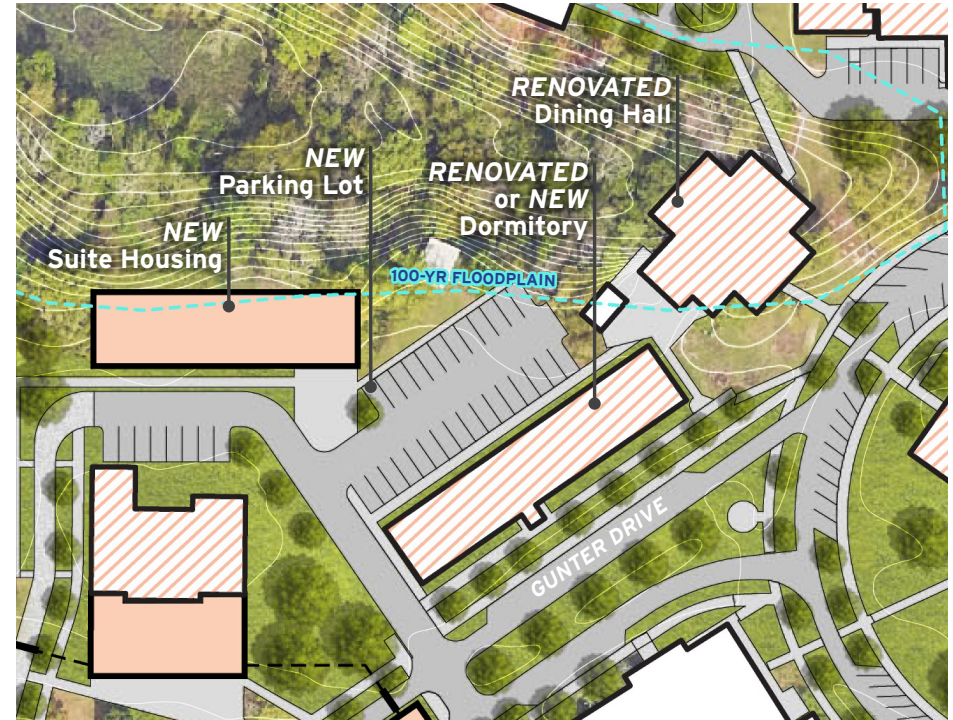
Halstead Master Plan

Key Proposals



Office and Entry Area

- ▶ Demolish existing Faculty House and replace with **new 10,000 GSF office building**; adjacent to office uses within the Director's House
- ▶ **Renovate Director's House** and expand with a **4,000 GSF visitor's center addition** located and accessible before new entry gate



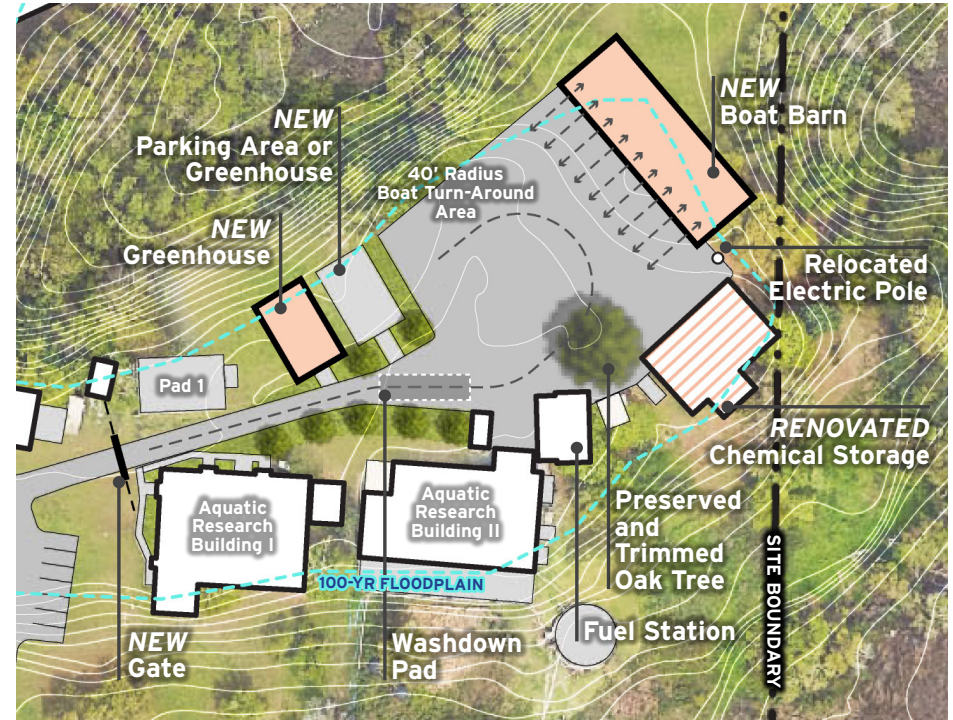
Housing and Dining Area

- ▶ **Renovate Dining Hall**
- ▶ **Renovate Dormitory** or demolish and develop new dormitory at approximately 1:1 GSF in same general location
- ▶ Develop **new 6,000 GSF suite-style housing**
 - 6-10 units with small kitchenettes and living areas
 - Intended for graduate students, visiting faculty, chaperones, bus drivers, etc.
 - Replaces housing lost from removed cottages and Faculty House



Storage Area

- ▶ Remove/demolish existing dispersed storage facilities throughout the site
- ▶ Remove/demolish existing Cottages and Fisheries Lab in this area
- ▶ Develop **new consolidated 9,000 GSF storage facility** to both accommodate removed storage and expand storage capabilities for both large and small equipment



Boat Barn Area

- ▶ Demolish/remove a majority of existing storage and greenhouse facilities
- ▶ Develop **new consolidated 5,000 GSF boat barn**
 - 14-foot-wide stalls
 - 8 stalls for vessels up to 30 feet in length with 10 feet of additional storage
 - 1 stall for vessel up to 40 feet in length
 - Elevate pad above the 100-year floodplain
- ▶ Retain the existing **washdown pad and fuel station**
- ▶ Preserve and trim the **existing oak tree** to allow for vessel access
- ▶ Remove/demolish the existing greenhouse facility and replace with a **new 1,500 GSF greenhouse facility**

Open Space Plan Integration

The master plan incorporates and builds upon the approved Pedestrian, Bicycle, and Parking (PBR) Plan, adapting it to align with broader site development goals. While the overall framework of the original PBR plan remains intact, several of the ten identified projects require modification to integrate with proposed building and open space improvements.

More substantial changes are recommended for Projects 5, 7, and 10, with partial adjustments to Projects 2 and 6. These include added entry signage and new parallel parking in Project 6, reconfigured parking lots in Projects 5 and 7, a new paved drive for storage access in Project 2, and a revised paved layout to reach the consolidated boat barn in Project 10. Strategies to reduce stormwater runoff across all paved surfaces are recommended, including the use of permeable paving, bioswales, and integrated tree canopies.

Together, these refinements ensure that circulation, parking, and open space function cohesively within the overall plan vision.

Approved Pedestrian, Bicycle, and Parking Master Plan (2024)



- | | |
|---|------------|
|  | Project 1 |
|  | Project 2 |
|  | Project 3 |
|  | Project 4 |
|  | Project 5 |
|  | Project 6 |
|  | Project 7 |
|  | Project 8 |
|  | Project 9 |
|  | Project 10 |





Halstead Master Plan

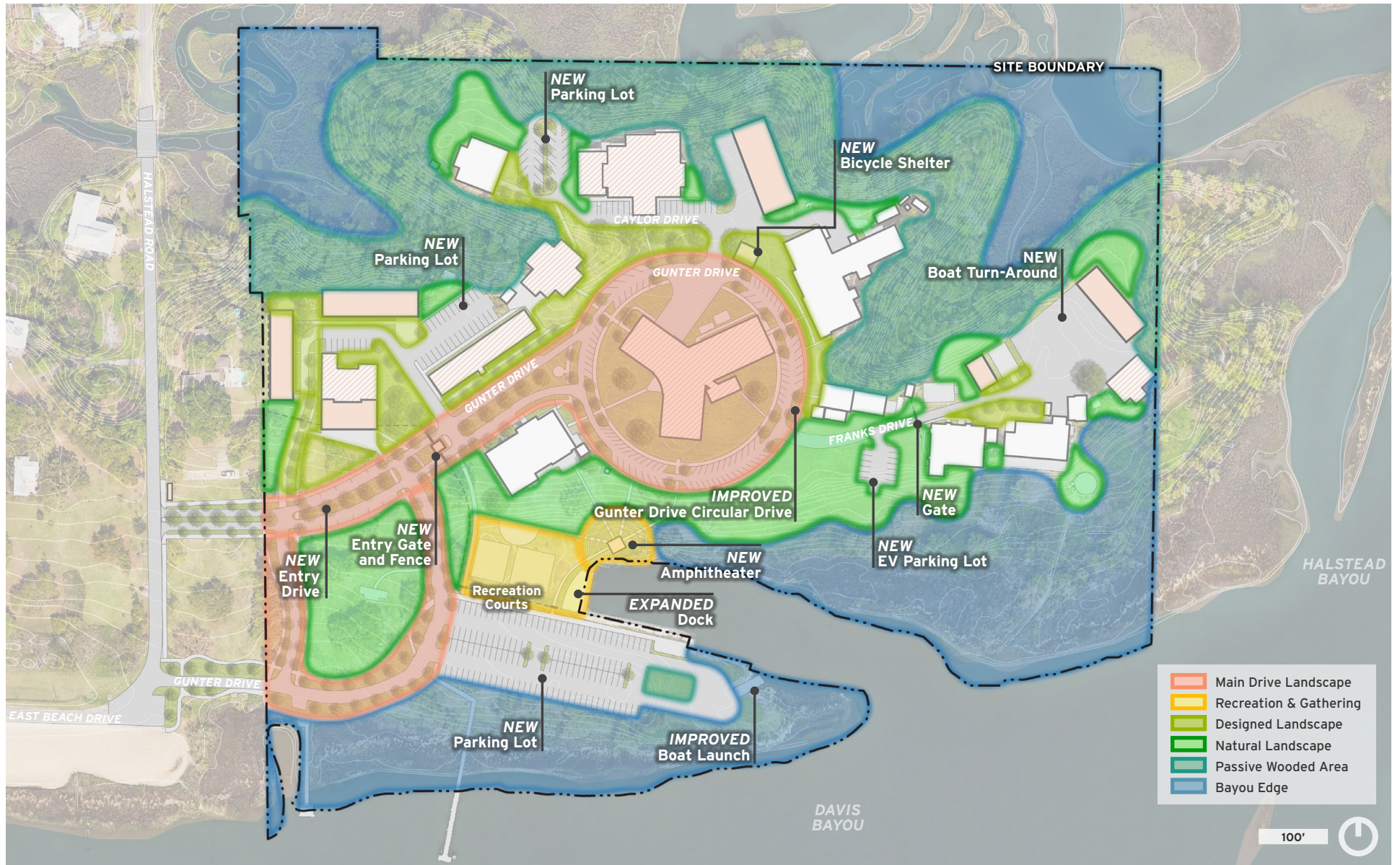
Open Space Plan

The final open space plan establishes a clear spatial logic that unfolds as one moves through the Halstead site. At the arrival sequence, a main drive landscape introduces a more organized, manicured open space framing the new Gunter Drive approach. A series of new parking lots is integrated into this entry experience and throughout the site, designed with landscape buffers and pedestrian connections that enhance access without detracting from the open space character.

The open space then transitions into design landscapes at the site core, where activity is highest and spaces support everyday use and interaction. Toward the waterfront, recreation and gathering areas provide opportunities for socializing, events, and relaxation along the bayou.

Finally, at the site edges, natural landscapes transition into passive bayou edge landscapes that could be enhanced with either hard infrastructure or soft, nature-based solutions to mitigate sea level rise, hurricane surge, and flooding risks. This connection to the bayou integrates the built environment with the surrounding coastal ecology, strengthening Halstead's distinct sense of place.

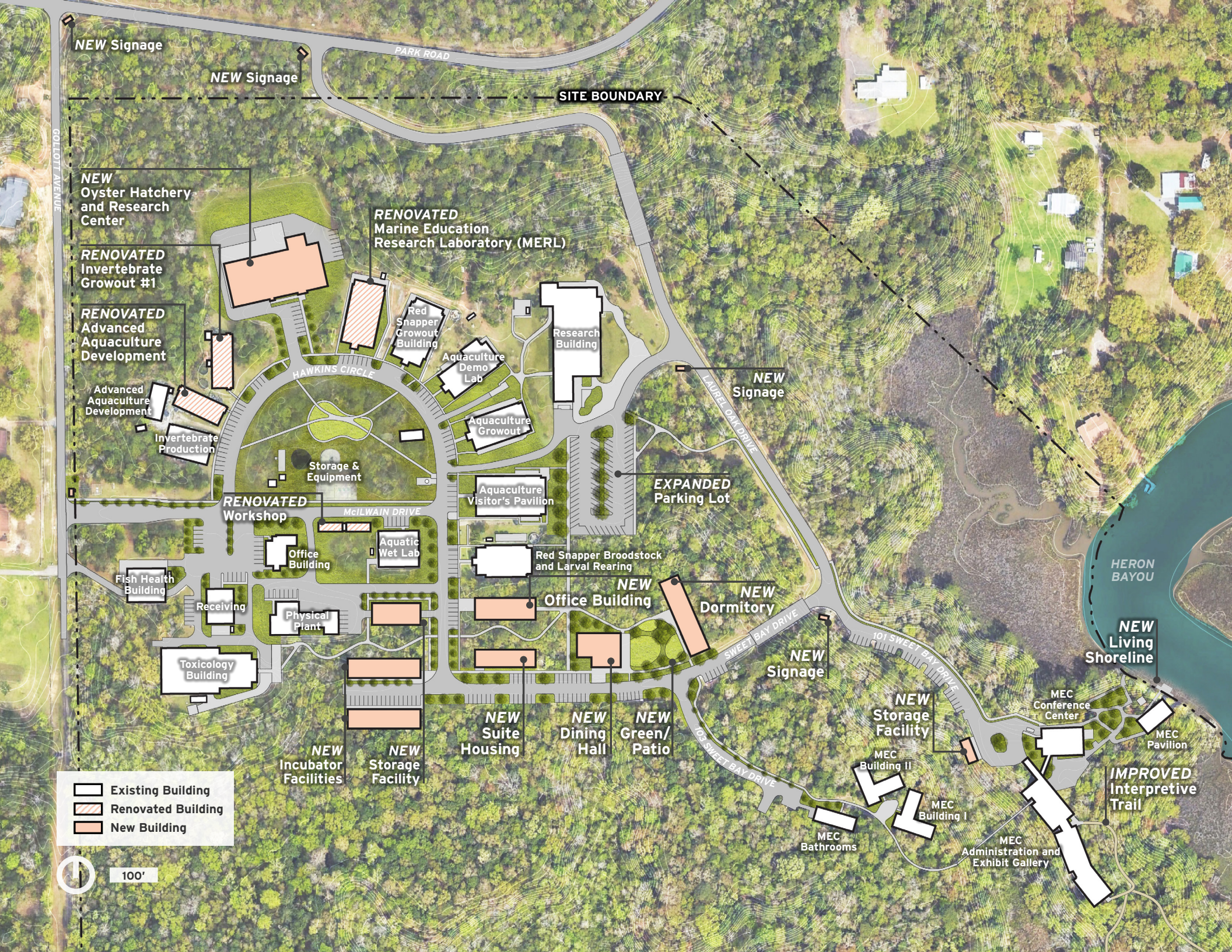




Cedar Point Master Plan

Compared to Halstead, the proposed Cedar Point Master Plan involves relatively fewer renovations, reflecting the site's newer facilities and more recent investment. Instead, the plan focuses on strategic enhancements that strengthen the site's functionality and sense of place.

A key move is the introduction of a series of new buildings in the area between the northern and southern portions of the site—an approach designed to physically and programmatically unite the site. Complementing this, a series of open space improvements, including new gathering areas, enhanced pathways, and updated signage, will improve site experience, identity, and connectivity.



NEW Signage

NEW Signage

PARK ROAD

SITE BOUNDARY

NEW
Oyster Hatchery
and Research
Center

RENOVATED
Invertebrate
Growout #1

RENOVATED
Advanced
Aquaculture
Development

Advanced
Aquaculture
Development

Invertebrate
Production

HAWKINS CIRCLE

Storage &
Equipment

RENOVATED
Workshop

McILWAIN DRIVE

Office Building

Aquatic
Wet Lab

Fish Health
Building

Receiving

Physical
Plant

Toxicology
Building

NEW
Incubator
Facilities

NEW
Storage
Facility

RENOVATED
Marine Education
Research Laboratory (MERL)

Red
Snapper
Growout
Building

Aquaculture
Demo
Lab

Aquaculture
Growout

Research
Building

Aquaculture
Visitor's Pavilion

Red Snapper Broodstock
and Larval Rearing

NEW
Office Building

EXPANDED
Parking Lot

NEW
Signage

LAUREL OAK DRIVE

NEW
Dormitory

NEW
Signage

SWEET BAY DRIVE

NEW
Suite
Housing

NEW
Dining
Hall

NEW
Green/
Patio

100 SWEET BAY DRIVE

NEW
Storage
Facility

MEC
Building II

MEC
Bathrooms

MEC
Building I

MEC
Administration and
Exhibit Gallery

MEC
Conference
Center

MEC
Pavilion

NEW
Living
Shoreline

HERON
BAYOU

IMPROVED
Interpretive
Trail

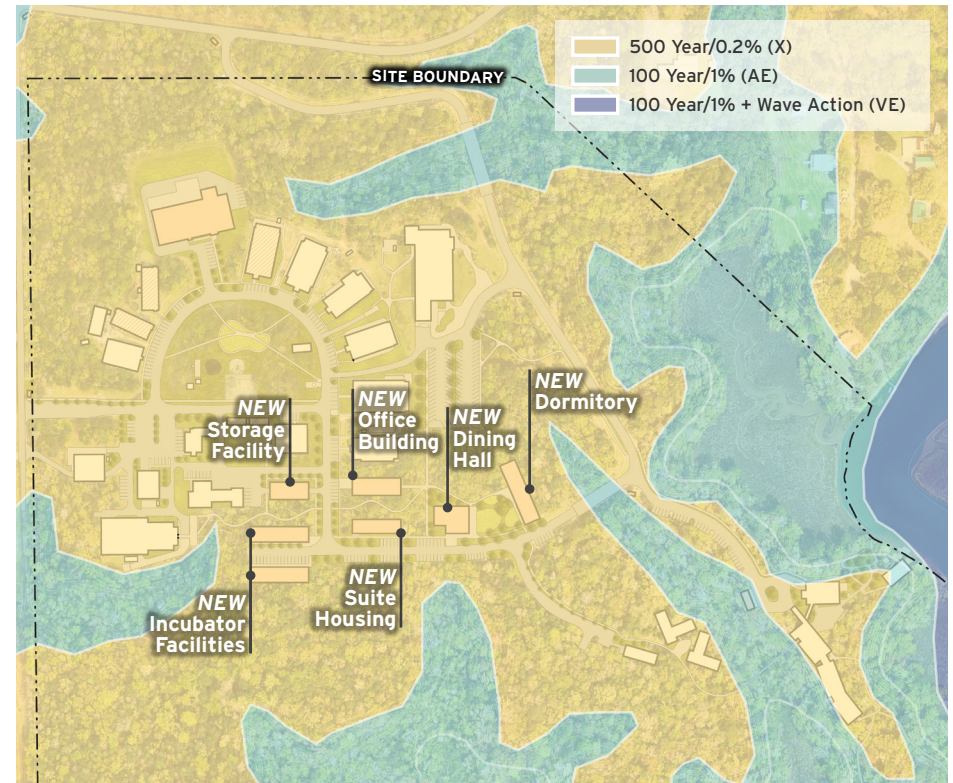
- Existing Building
- Renovated Building
- New Building



Cedar Point Master Plan

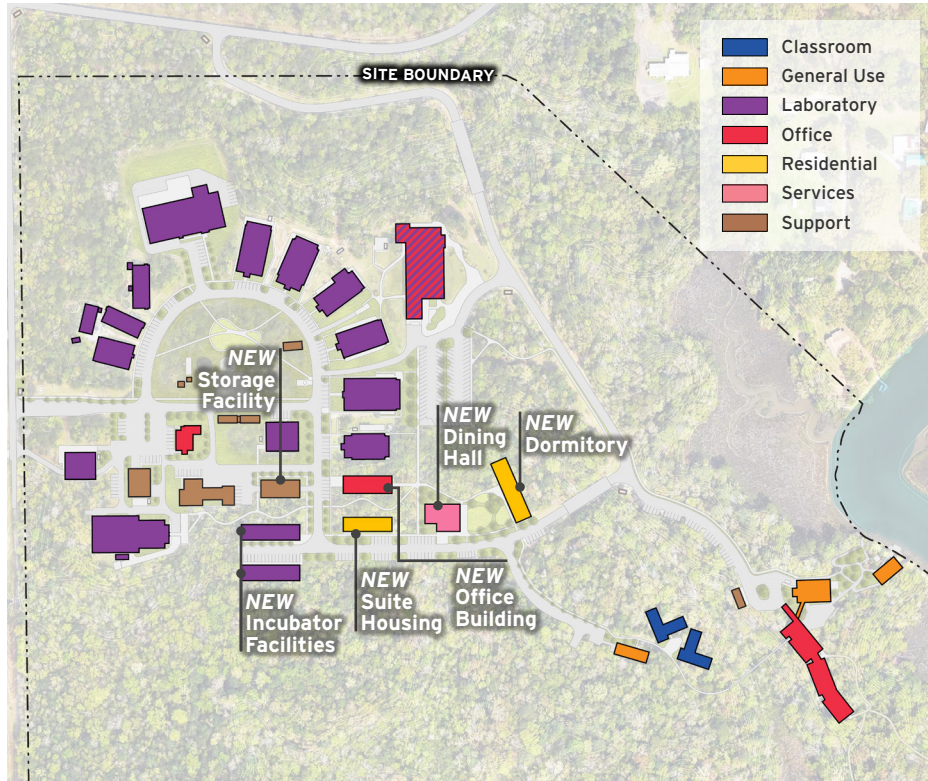
Key Planning Considerations

Three key considerations shaped the proposed Cedar Point Master Plan: floodplain constraints, which guided new development to higher, less flood-prone areas; building use and adjacencies, which organized research, housing, and dining functions for greater efficiency and accessibility; and a limited demolition strategy, focused only on removing the existing cottage to accommodate new suite-style housing. Together, these considerations established the master plan framework.



Floodplains

Floodplain conditions were a key factor guiding the placement of new development at Cedar Point. Similar to Halstead, the planning process prioritized locating all new buildings in relatively higher areas above the 100-year floodplain to reduce long-term flood risk. This approach ensures that critical new facilities are sited for resilience while maintaining proximity to existing infrastructure and program areas. Incorporating elevated foundations or exploring amphibious architectural strategies with buoyant bases could further reduce risk.



Building Use

Establishing strong functional adjacencies was another key consideration at Cedar Point. The layout intentionally clusters new support and laboratory facilities near one another to promote operational efficiency and collaboration within the research core. At the same time, the proposed dining hall and dormitory are centrally located yet slightly separated from active lab areas—providing convenient access for all site users while maintaining appropriate distance from research operations.



Demolition Strategy

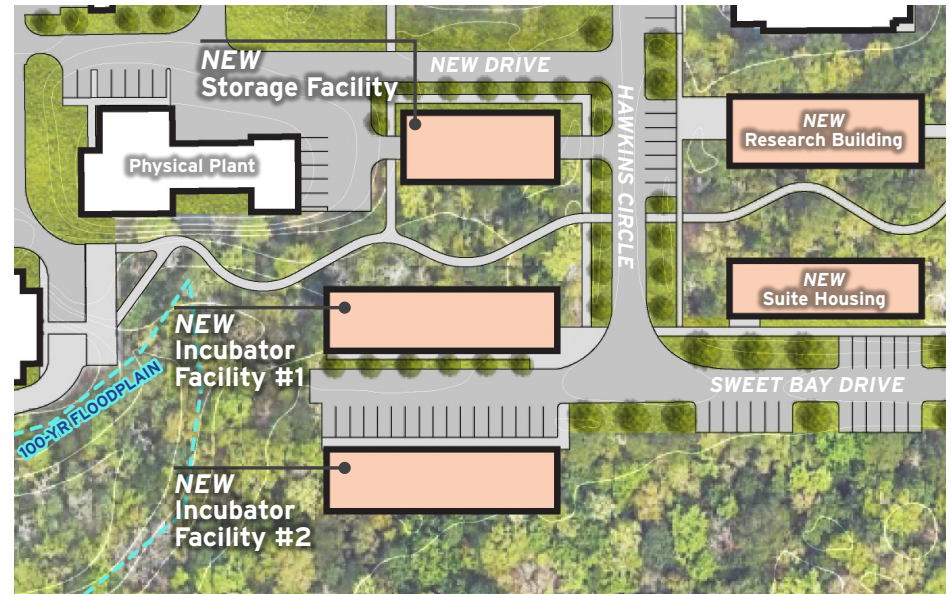
While a broader demolition strategy is required at Halstead, only the existing cottage at Cedar Point is proposed for removal to achieve the master plan. The housing it currently provides will be replaced by the new suite-style housing building.

Note: Prior to undertaking any work that impacts buildings under the purview of the Mississippi Department of Archives and History (MDAH), USM shall submit a Notice of Intent and supplementary information to MDAH for review and approval.

Cedar Point Master Plan

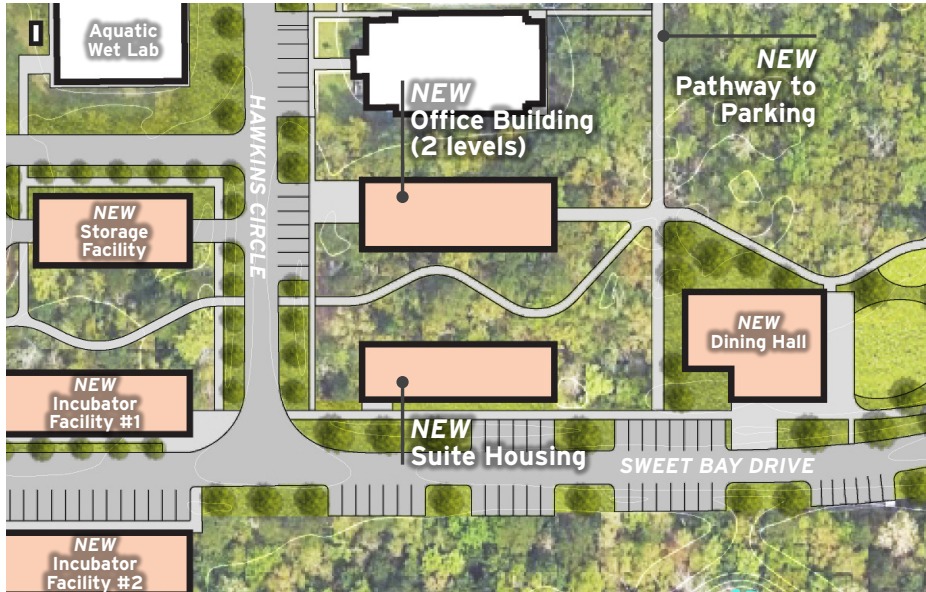
Key Proposals

The proposed Cedar Point Master Plan focuses on strategic new development that strengthens research capacity and enhances on-site programming potential. Key proposals include a new incubator facility to expand industry partnerships and generate potential revenue, along with a consolidated storage facility to service the entire research enterprise. A new office building will accommodate faculty, staff, graduate students. The plan also introduces two new housing options—a dormitory and a suite-style housing building—as well as a new dining hall; these buildings are designed to serve all site users while physically linking the northern and southern areas of the site. Together, these projects establish a more connected and functional site that supports GCRL's growing research and education mission.



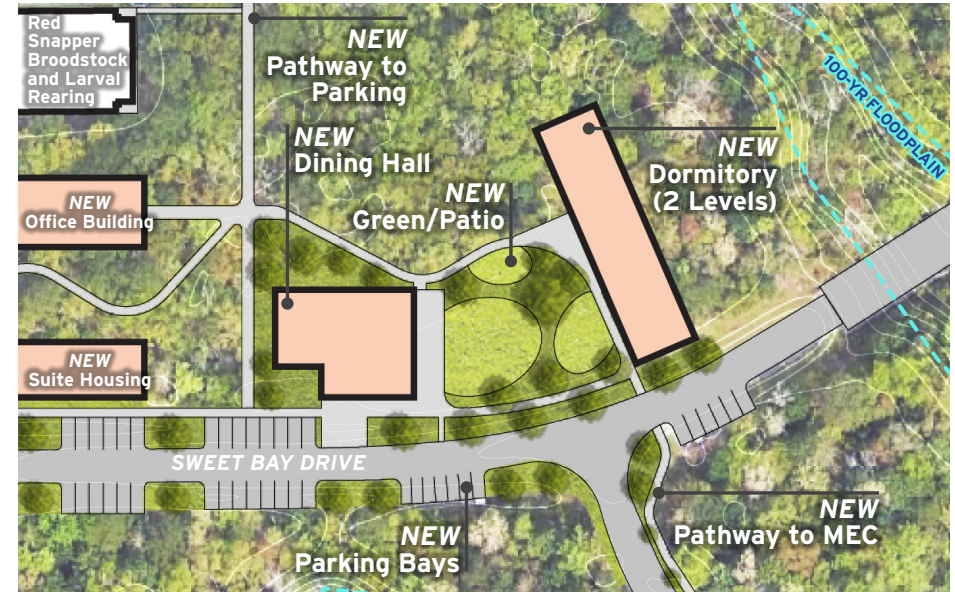
Incubator and Storage Area

- ▶ Develop **new 18,000 GSF incubator facility** to strengthen partnerships with the marine science sector and potentially create a revenue stream
 - Located at Sweet Bay Drive dead-end
 - Divided between two facilities to accommodate a phased development
 - Parking located between facilities
 - Close adjacency to Toxicology Building
- ▶ Develop **new 6,500 GSF consolidated storage facility** with dual-access/drive-through capabilities from the Physical Plant to Hawkins Drive



Office and Suite Housing Area

- ▶ Develop **new 10,000 GSF office building** to accommodate faculty, staff, and graduate student current need and growth
- ▶ Similar to Halstead, develop **new 6,000 GSF suite-style housing**
 - 6-10 units with small kitchenettes and living areas
 - Intended for graduate students, visiting faculty, chaperones, bus drivers, etc.
 - Replaces housing lost from removed housing on western edge of site, adjacent to the Fish Health Building



Dormitory and Dining Area

- ▶ Develop consolidated and accessible housing, dining, and office area to create a connection between the northern and southern site areas
- ▶ Develop **new 8,000 GSF dining hall and social space** at a centralized location
 - Assumes 150 seats with serving, kitchen, and support facilities with a single-turn service
 - Provides dining services to all site users, including faculty, staff, students, and visiting MEC groups
- ▶ Develop **new 15,000 GSF dormitory** in slightly separated area
 - Assumes 20 two-bedroom, one-bathroom suites
 - Primarily intended for MEC visiting groups with flexibility to house other users
- ▶ Develop **new centralized green/patio** to both connect and separate buildings
- ▶ Develop **new pathways** to connect to areas throughout the site

Cedar Point Master Plan

Open Space Plan

Similar to Halstead, the Cedar Point open space plan follows a clear spatial logic that organizes landscape types in response to site activity and natural features. The main entry and designed landscapes create a structured open space character that frames key buildings and defines the site core. These spaces transition into recreation and gathering areas that provide opportunities for social interaction and outdoor use. Toward the site edges, natural landscapes gradually transition to passive wooded areas, which blend into the bayou edge—preserving the site's ecological character and reinforcing its connection to the surrounding coastal environment.

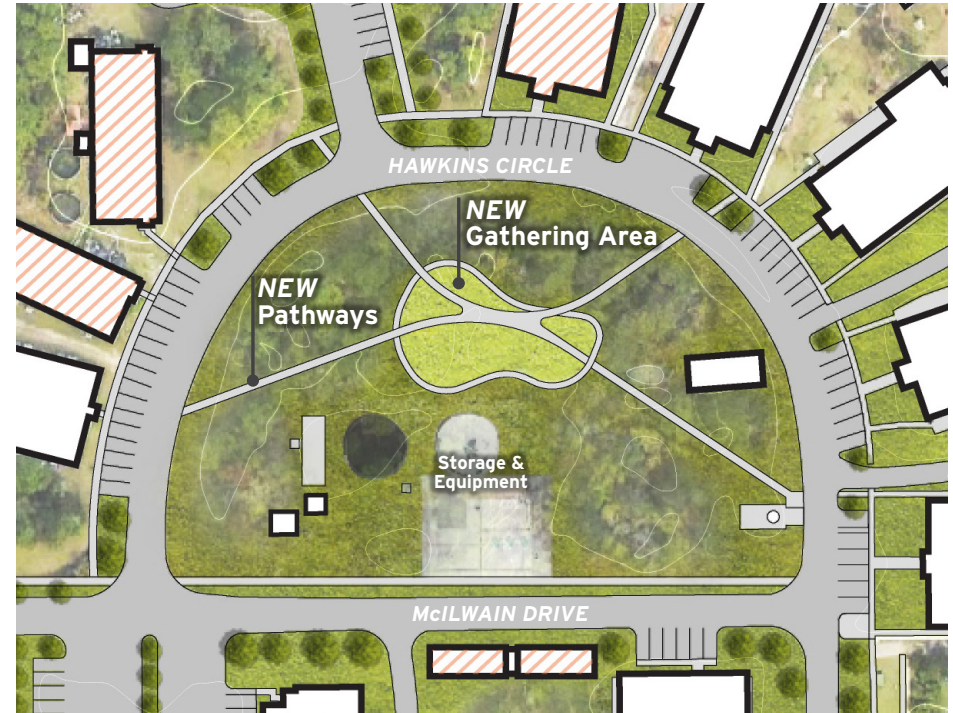




Cedar Point Master Plan

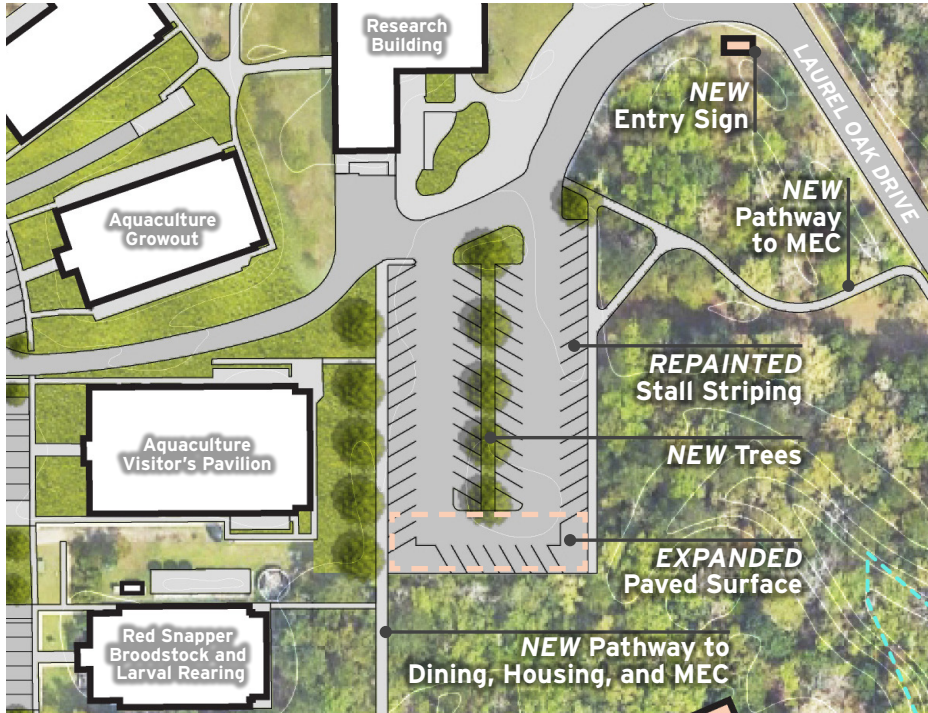
Key Open Space Proposals

The Cedar Point Master Plan enhances open space through a series of improvements focused on accessibility, usability, and connection. A new gathering area at Hawkins Circle will provide a central outdoor space for lunch, breaks, and informal meetings, with new pathways linking it to surrounding research buildings. The main parking lot will be upgraded with expanded and permeable paving, shaded planting strips, and new pathway connections to the surrounding area—enhancing event capacity and daily logistics. Finally, improvements to the Osprey Interpretive Trail will address accessibility, strengthening the link between the site and its surrounding natural environment.



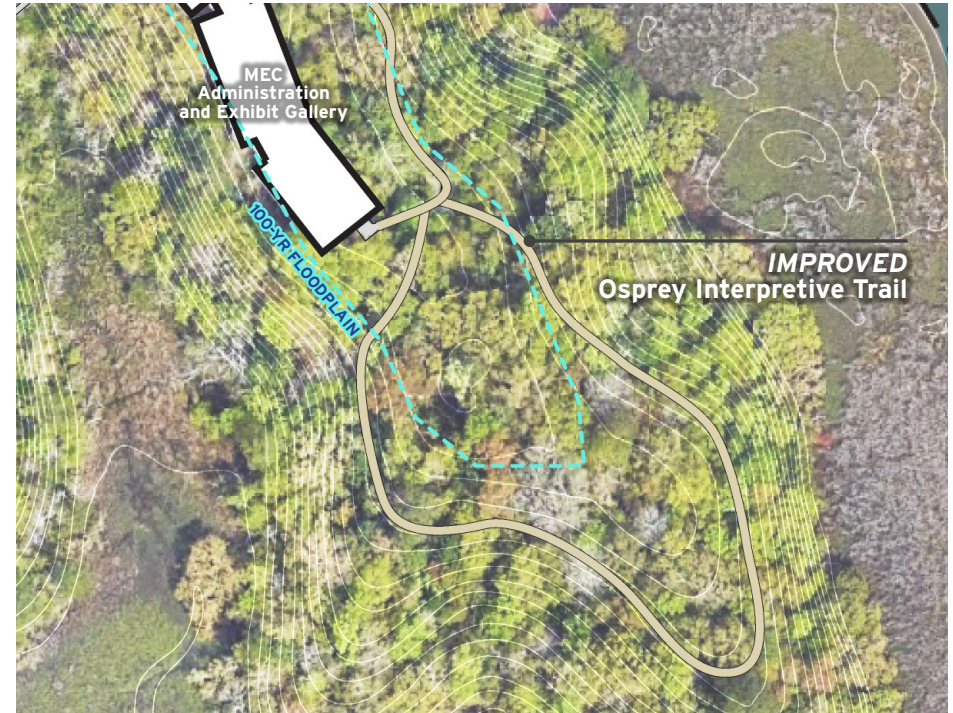
Hawkins Circle Gathering Area

- ▶ Develop **new gathering area** within Hawkins Circle to provide a centralized outdoor space for gathering, lunch, breaks, and respite
- ▶ Develop **new pathways** to easily access area from surrounding research labs



Parking Lot

- Improve parking lot by:
 - **Expanding the paved area** for additional parking
 - **Re-painting** with densified stall striping pattern
 - Incorporating **stormwater reduction strategies**, such as trees for shade coverage and rainfall capture (drainage review required), permeable paving, and bioswales
 - Developing **new pathway connections** to the Visitor's Pavillion, new office/dining/dormitory area, and the MEC
- Facilitates improved logistics and capability to host large events, particularly at the MEC



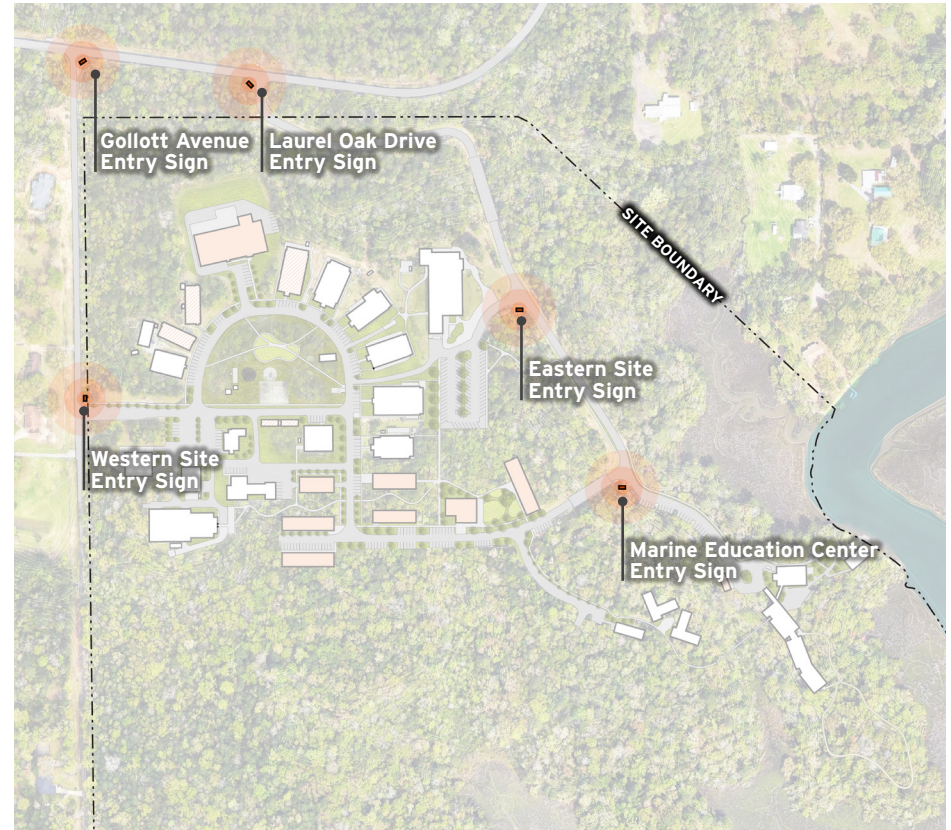
MEC Trail Improvement

- Improve accessibility of the **Osprey Interpretive Trail** with changes such as trail realignment to reduce grade changes, installing more accessible surfaces, and installing handrails where needed

Cedar Point Master Plan

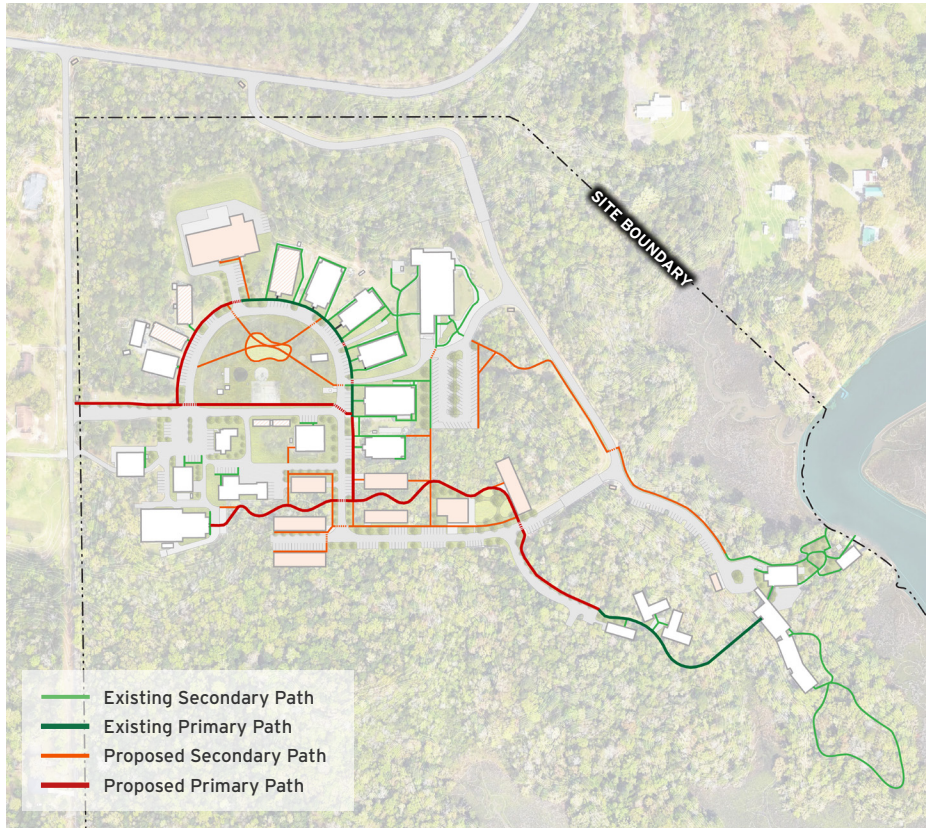
Key Open Space Elements

The open space systems at Cedar Point create a cohesive site environment that connects buildings, landscapes, and natural areas. Together, these open spaces enhance daily community life and strengthen the connection between research and education objectives with the surrounding environment.



Signage System

The open space plan also introduces a new system of signage positioned at key entry and circulation points throughout the site. Designed to improve wayfinding, visual identity, and the overall visitor experience, the signage system will help orient users as they enter and navigate the site. The system will be particularly oriented towards directing visitors to key destinations such as the Marine Education Center (MEC) and the Thad Cochran Marine Aquaculture Center (TCMAC) Visitor's Center.



Pathway System

The proposed pathway system represents a major improvement to the overall Cedar Point experience. It completes missing links—such as those around Hawkins Circle—while strengthening connections between key program areas across the site. The upgraded network also addresses accessibility needs and enhances safety, wayfinding, and visibility, reinforcing Cedar Point’s identity as a cohesive, functional, and welcoming working field station.







PROJECT PHASING

Phased Project Approach

The implementation plan outlines a phased approach to site development over the next decade. In the near term (0-3 years), efforts focus on high-impact foundational improvements, including selective demolition to enable the master plan, consolidation of storage, and new housing and dining facilities at Halstead. The mid-term phase (3-6 years) expands to include building renovations at Halstead, new housing, dining, and office buildings at Cedar Point, and upgrades to parking, pathways, and signage that strengthen site connectivity and identity. In the long term (6-10 years), attention shifts to future renovation needs and visionary projects—such as the Incubator Facility and the Hawkins Circle gathering area—that will further advance GCRL's mission and long-range growth.



	Halstead	Cedar Point
Current Implementation	▶ Site-wide gas system emergency replacement ▶ Pedestrian, Bicycle, and Parking Plan (Project 1) ▶ Harbor boat launch	▶ Oyster Hatchery and Research Center ▶ MERL renovation ▶ Living shorelines project at MEC
Near-Term (0-3 Years)	▶ Demolish cottages and Fisheries Lab and develop new consolidated boat barn ▶ Demolish existing storage buildings and replace/develop new consolidated storage area ▶ Develop new suite-style housing building ▶ Renovate Dining Hall ▶ Implement Pedestrian, Bicycle, and Parking Plan (Projects 2, 3, and 10)	▶ Develop new consolidated storage building ▶ Develop small storage building at MEC
Mid-Term (3-6 Years)	▶ Renovate Oceanography Building ▶ Renovate Director's House with visitor's center expansion ▶ Renovate Chemical Storage Building ▶ Renovate Dormitory or demolish/develop new Dormitory in same general location ▶ Implement Pedestrian, Bicycle, and Parking Plan (Projects 4, 5, and 6)	▶ Develop new dormitory ▶ Develop new dining hall ▶ Develop new office building ▶ Renovate Invertebrate Growout #1, Advanced Aquaculture Growout, and Workshop ▶ Develop new patio space between dormitory, dining hall, and office building ▶ Develop new entry/navigation signage system ▶ Improve/expand pathway system ▶ Improve/expand parking lot
Long-Term (6-10 Years)	▶ Renovate Caylor Building ▶ Demolish Faculty House and replace/develop new office building ▶ Implement Pedestrian, Bicycle, and Parking Plan (Projects 7, 8, and 9)	▶ Develop new incubator facility ▶ Develop new outdoor gathering area within Hawkins Circle ▶ Develop new outdoor exhibit/gathering areas at MEC

Potential Follow-up Studies and Plans

The GCRL Master Plan concludes with recommendations for follow-up studies and planning efforts to continue building upon this effort. While this plan establishes a high-level vision for GCRL, future studies and plans will provide opportunities to define specific objectives, strategies, and implementation steps in greater detail—ensuring that long-term decisions remain responsive to evolving program, development, and resilience needs.

Branding and Signage Plan

A branding and signage plan could establish a cohesive visual identity for both GCRL sites, improving identity, wayfinding, and overall site experience. This effort would unify on-site signage and environmental graphics under a consistent brand system that reflects GCRL's mission and strengthens its recognition within the University and surrounding community.

Coastal Resilience Design Studies

Building upon the Disaster Resistant University Plan and recognizing the known coastal risks at both sites, coastal resilience design studies could develop and evaluate site-specific strategies to protect site assets and natural systems from flooding, storm surge, and sea level rise. These studies would examine both hard and soft infrastructure solutions—such as living shorelines, elevated structures, and enhanced stormwater systems—to strengthen long-term resilience while preserving the distinct ecological character of each site.

Design Guidelines

Design guidelines would establish a clear framework of architectural and site design principles to guide all new construction and renovation projects at both GCRL sites. These guidelines would help to ensure design consistency and quality while promoting compatibility with the coastal setting. The effort could also align with or contribute to a broader USM system-wide design guidelines initiative.

Infrastructure and Utilities Review

An infrastructure and utilities review would assess the capacity and condition of critical systems—such as water supply and electrical distribution—across both sites. The review could evaluate opportunities to modernize aging systems, increase redundancy, and improve reliability to better support research operations and future facility growth.

Open Space Plan (Cedar Point)

GCRL could consider developing a comprehensive open space plan for Cedar Point, providing the same level of detail and design guidance established for Halstead. This plan would better define landscape character, circulation, and recreational opportunities across the site, ensuring future improvements support both site functionality and the natural coastal setting.

Project-based Facility and Financial Assessments

Project-based facility and financial assessments should be undertaken to evaluate the specific opportunities, costs, and constraints associated with each proposed project within this plan. These assessments would help prioritize investments, refine scope, and align funding strategies to ensure that project development proceeds in a realistic and financially sustainable manner.

Security System Plan

A security system plan could be developed to enhance safety and access control across both sites, with particular focus on research, laboratory, and MEC buildings. Improved security measures—such as updated access systems, surveillance, and monitoring—would not only strengthen site operations but could also support eligibility for certain research grants that require secure facilities.



