RESILIENCY AND GROWTH

URBANISM À LA CARTE IN DARIEN AND ST MARYS, GEORGIA

GEORGIA INSTITUTE OF TECHNOLOGY
MSUD, SPRING 2025

Georgia Tech College of Design
School of Architecture

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STUDIO INTRODUCTION

This studio was a collaboration between the Georgia Tech School of Architecture and the Georgia Conservancy during the 2025 spring semester. The urban design and high performance building students focused on two coastal cities in Georgia: Darien and St. Marys. Throughout the course of the semester, the students did site analysis, precedent research, framework studies, and created targeted urban design proposals. An introductory site visit to both cities in the beginning of the semester allowed students to meet stakeholders, listen to community concerns, and explore the sites. The studio concluded with community meetings in Darien and St. Marys where the student's design ideas were showcased and the public was invited to provide feedback and engage in conversation.

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- Srusthi Delhivala
- Sathish Velumathi

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- Kiana Layam
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View of salt marsh in St. Marys.



View of Darien River and Highway 17 bridge. Photos by Han- Syun Shih

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Resiliency and Growth is a collective work and a compilation of analysis, ideas, and design strategies that were completed by the urban design and high performance building students. The document is organized by city and the frameworks that were used to guide the proposed designs and strategies. An *à la carte menu*, this document provides a diversity of ideas and strategies that could be implemented independently of one another in order to address a variety of the unique urban design challenges facing these coastal cities. Some of these challenges include the preservation of historic character, the improvement of eco- tourism and recreation opportunities, sustainable economic growth, and sensitive infill development.

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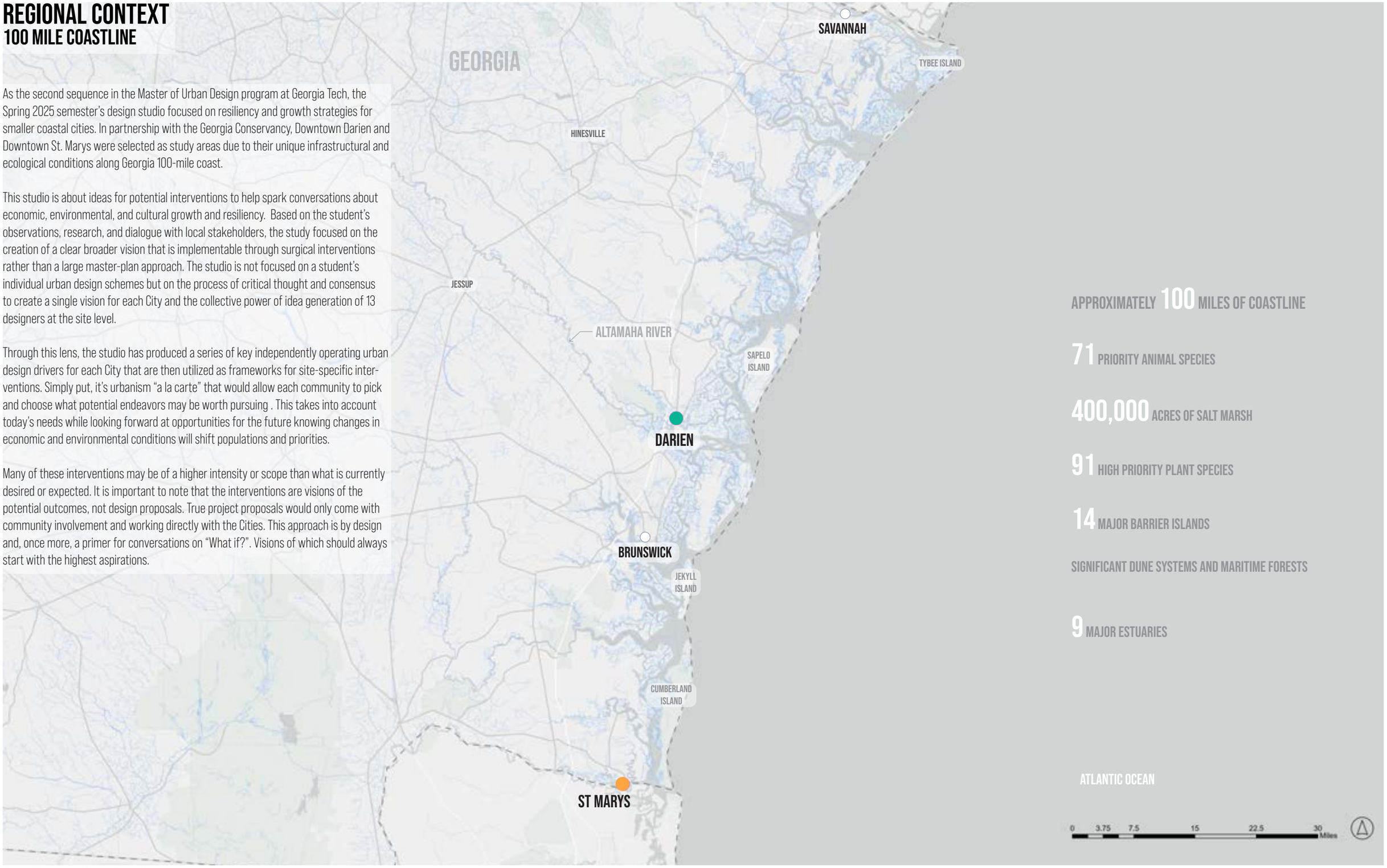
REGIONAL CONTEXT
100 MILE COASTLINE

As the second sequence in the Master of Urban Design program at Georgia Tech, the Spring 2025 semester's design studio focused on resiliency and growth strategies for smaller coastal cities. In partnership with the Georgia Conservancy, Downtown Darien and Downtown St. Marys were selected as study areas due to their unique infrastructural and ecological conditions along Georgia 100-mile coast.

This studio is about ideas for potential interventions to help spark conversations about economic, environmental, and cultural growth and resiliency. Based on the student's observations, research, and dialogue with local stakeholders, the study focused on the creation of a clear broader vision that is implementable through surgical interventions rather than a large master-plan approach. The studio is not focused on a student's individual urban design schemes but on the process of critical thought and consensus to create a single vision for each City and the collective power of idea generation of 13 designers at the site level.

Through this lens, the studio has produced a series of key independently operating urban design drivers for each City that are then utilized as frameworks for site-specific interventions. Simply put, it's urbanism "a la carte" that would allow each community to pick and choose what potential endeavors may be worth pursuing . This takes into account today's needs while looking forward at opportunities for the future knowing changes in economic and environmental conditions will shift populations and priorities.

Many of these interventions may be of a higher intensity or scope than what is currently desired or expected. It is important to note that the interventions are visions of the potential outcomes, not design proposals. True project proposals would only come with community involvement and working directly with the Cities. This approach is by design and, once more, a primer for conversations on "What if?". Visions of which should always start with the highest aspirations.



DARIEN
KEY ASSESSMENTS

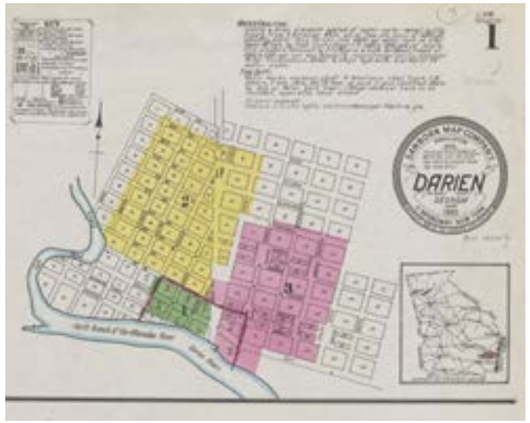
As part of this study an analysis of the existing conditions was conducted based on input from stakeholders, previous studies, and on-site assessment. While the analysis was broad, the information below is a synthesis of some of the key existing elements that create a basis from which to develop urban design drivers.

US17 AS A DIVIDER



The US 17 highway passing through Darien divides the east and west historic neighborhood. It is more of a thoroughfare where people drive through to different locations rather than driving to Darien, despite its strong geographical location and history. There is a lack of sense of arrival to the city, the US 17 highway being a major constraint than an opportunity.

SANBORN HISTORIC MAP



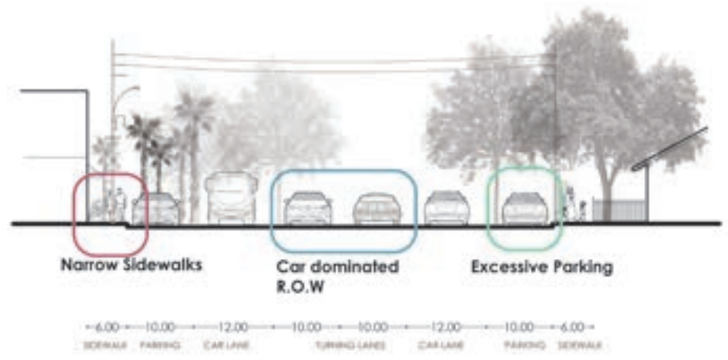
The historic sanborn map shows the historic oglethorpe plan and multiple sqaures that shapes the downtwon (only 3 of them exist now). The downtown is also divided into segrated into the respective land use that has evloved over time. The broad street holds the commercial character which is retained.

GEORGIA'S COASTAL ECOLOGICAL CORRIDOR

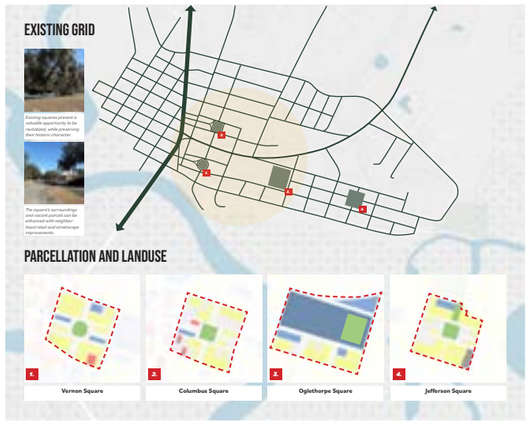


Darien is located at the confluence of the Altamaha River where fresh and tidal water mix to create a diversity of landscapes. Wildlife, particularly birds, thrive in this biodiverse and unique coastal ecosystem. Darien is easily accessible and is a convenient place from which to explore the abundance of wildlife and enjoy the variety of recreational opportunities.

SECTION THROUGH I-17



EXISTING GRID AND CHARACTER OF SQUARES



The existing grid in Darien has been significantly disrupted from Oglethorpe's original vision. While the historic squares remain, they are now primarily surrounded by residential development, with numerous vacant parcels that require immediate attention. These vacancies not only interrupt the urban fabric but also present an opportunity for strategic infill and revitalization.

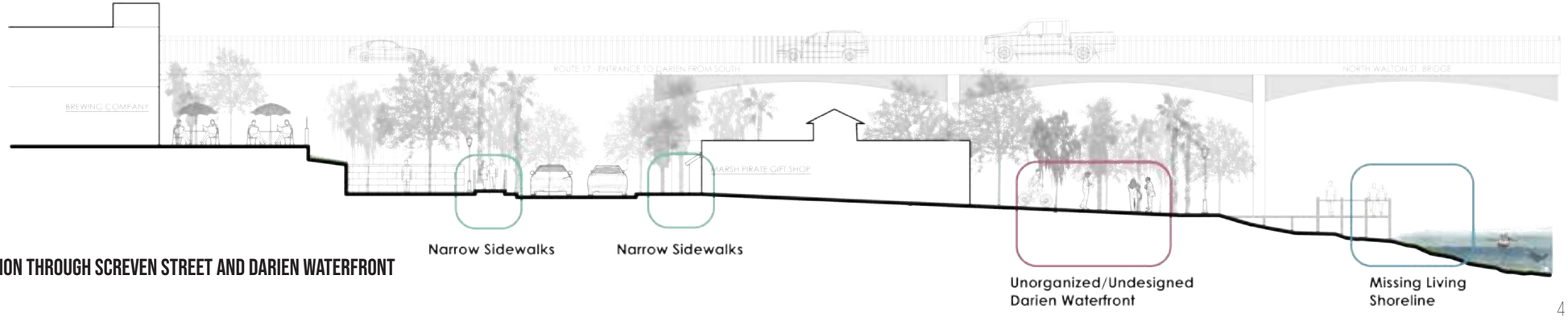
LOCAL TOURISM IN DARIEN



Darien is abundant in its natural resources, but currently is not using them to their strategic advantage economically. In an effort to help the city attract visitors, we are attempting to engage their natural beauty and highlight opportunities for environmental tourism.

KEY OBSERVATIONS

1. Automobile friendly streets (high speed, excessive space dedicated to car lanes)
2. Lack of well designed sidewalks, soft scape and hard scape elements,
3. Parking on both the sides of the streets, reducing the pedestrian friendly zones
4. Lack of well designed waterfront Park for Darien
5. Narrow sidewalks and cramped areas near the Historic Tabby Ruins



SECTION THROUGH SCREVEN STREET AND DARIEN WATERFRONT

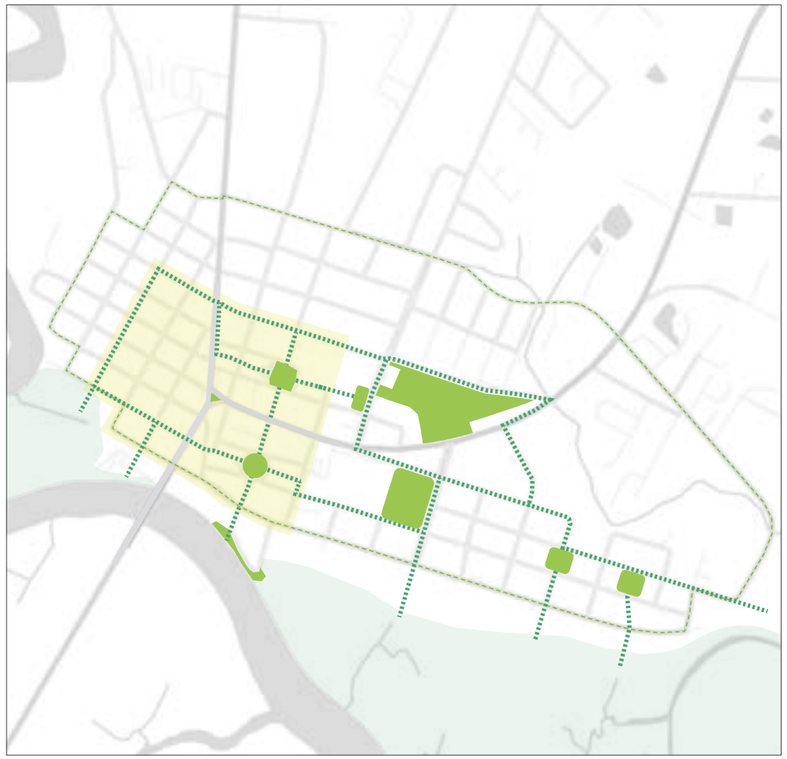
DARIEN
URBAN DESIGN DRIVERS

Based on the key assessments of the City, the urban design drivers below were developed to boil down the key broader urban design strategies that help tell a holistic story about fundamental needs for downtown. These " drivers" are independently operating and are utilized as frameworks for site-specific interventions geared toward reinforcing their intent.



ESTABLISH AN ARRIVAL TO DARIEN

Creating a sense of arrival is critical for establishing an active and welcoming experience as people enter Darien. Designing this transition zone to be welcoming and inviting is critical for encouraging people to stop, shop, and explore this historic town on the river.



ACTIVATE THE HISTORIC NEIGHBORHOOD

The history of Darien can still be seen in its urban form. Its remaining public squares are significant public spaces that create valuable opportunities for neighborhood life. These public spaces and their edges are an opportunity to strengthen the downtown core and historic neighborhood character.



STITCH THE SEAM BETWEEN STREET AND NATURE

The rivers and salt marshes are vital assets to the coastal community of Darien. Softening this waterfront edge with pedestrian connections and activating it with new uses will allow people to seamlessly enjoy both the downtown and nature. These connections will respond to both street and water and provide valuable public spaces for the community.

NTS

DARIEN
EXISTING CHARACTER


Looking south on Highway 17


Kit Jones, a wood- hull tugboat, outside the city hall


Shopping area on Broad St


Darien City Hall


Looking west on Wayne St towards Highway 17


View from Vernon Square looking towards Sugar Marsh Cottage


Paths, Live Oaks, and open space at Vernon Square


View of St Andrew's Episcopal Church from Washington S


Looking south on Screven St towards the Darien River


View from dock at Skipper's


Tabby ruins by Screven St


Looking south from Fort King George Dr towards the rive

DARIEN
MATRIX OF INTERVENTIONS AND TYPOLOGIES

The elements below are considered potential typological responses suitable for Darien and St. Marys. Precedent research was conducted for each typology to provide examples of existing projects and their attributes. The primary focus of these interventions lies in public realm projects with some influence or consideration for private development.

INTERVENTIONS ORGANIZED BY FRAMEWORK

A. ESTABLISH THE ARRIVAL TO DARIEN

B. ACTIVATE DARIEN'S HISTORIC NEIGHBORHOOD

C. STITCH THE SEAM BETWEEN STREET & NATURE

TYPOLOGIES ORGANIZED BY FOCUS

INTERVENTION TYPOLOGIES

STREETS & INFRASTRUCTURE
1. BOULEVARD DESIGN/ COMPLETE STREETS
2. GREEN STREETS/ GREEN INFRASTRUCTURE IN THE R.O.W WAY
3. BICYCLE BOULEVARD NETWORKS/ INTERSTATE TRAIL INFRASTRUCTURE
4. SHARED STREETS/ WOONERFS
5. MICROGRIDS/ ALTERNATIVE ENERGY

ECOLOGY & INFRASTRUCTURE
6. CREATED WETLANDS
7. FLOOD PARKS/ STORMWATER PARKS
8. ALTERNATIVE/ RE- USE MATERIALS FOR COASTAL ENVIRONMENTS
9. PRIVATE/ SINGLE PROPERTY GREEN INFRASTRUCTURE STRATEGIES
10. GREEN- GRAY INFRASTRUCTURE FOR COASTAL COMMUNITIES

WATER'S EDGE
11. OYSTER REEF/ SHRIMP HABITAT RESTORATION/ CREATION
12. RIPARIAN BUFFERS
13. TIDAL MARSH RESTORATION
14. LIVING SHORELINE
15. ECOLOGICAL/ SUSTAINABLE RIVERFRONT DESIGN
16. WATER ACCESS

ECOTOURISM & RECREATION
17. ECO- TOURISM VISITORS CENTERS/ VENUES
18. BIRDING TOURISM
19. CULTURAL/ HERITAGE TRAILS
20. COMMUNITY/ CULTURAL PARKS
21. MARSHLAND/ WETLAND TRAILS

DEVELOPMENT & INFILL
22. ECO- VILLAGE DESIGN
23. SOUTHERN COASTAL VERNACULAR ARCHITECTURE
24. INCUBATOR RETAIL IN SMALL TOWNS
25. WORKFORCE/ INDUSTRY HOUSING IN TOURISM COMMUNITIES
26. HISTORIC MAIN STREET INFILL DEVELOPMENT
27. FLOOD/ TIDE CONSCIOUS DEVELOPMENT

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
SPACE MAKING AT US-17/ GA 99	✓	✓		✓	✓			✓		✓									✓	✓							
SENSE OF ENTRY AT DARIEN'S SOUTHERN EDGE	✓									✓						✓				✓						✓	
US- 17 AS A CHARACTER DEFINING STREET	✓	✓	✓	✓														✓									
PLANNING FOR GROWTH ALONG US- 17					✓				✓																		
VERNON AND COLUMBUS SQUARES AS DOWNTOWN ANCHORS	✓	✓	✓																				✓	✓	✓	✓	
DARIEN CULTURAL TRAIL		✓	✓							✓									✓								
OGLETHORPE SQUARE CULTURAL PARKS	✓																✓					✓					
DOWNTOWN WATERFRONT	✓	✓				✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						✓
ECO- TOURISM IN DOWNTOWN: WEST PENINSULA	✓					✓										✓	✓	✓		✓	✓	✓					
EDGE OF THE BLUFF: BROAD ST TO WATERFRONT	✓																										
FORT KING GEORGE SITE: OPPORTUNITIES BEYOND STRUCTURE		✓				✓						✓	✓	✓	✓	✓		✓	✓	✓	✓						
GEORGIA COASTAL ECOLOGY NATURE CENTER											✓						✓	✓			✓						

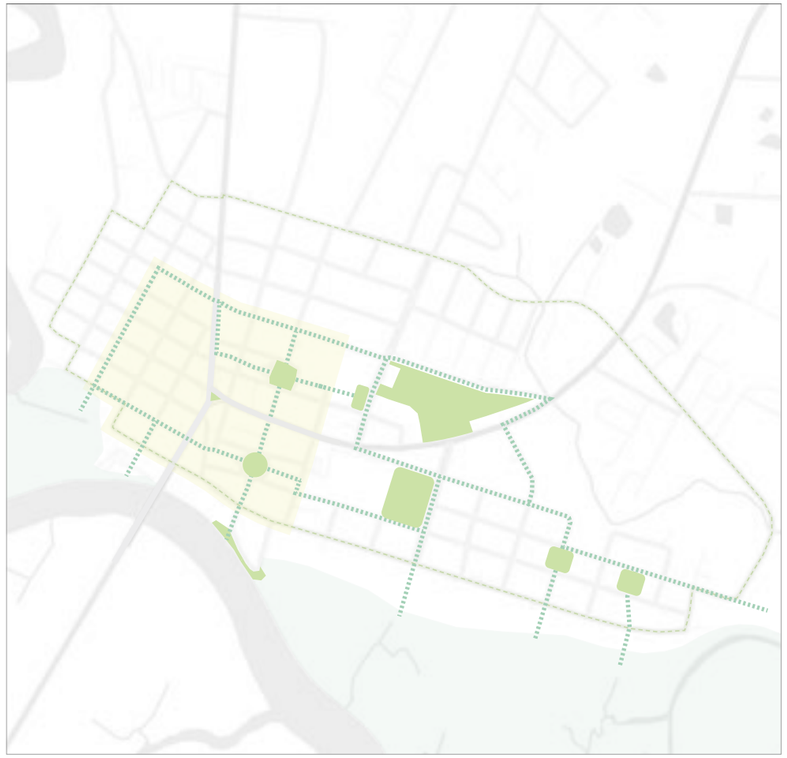
DARIEN
URBAN DESIGN DRIVER:

ESTABLISH AN ARRIVAL TO DARIEN



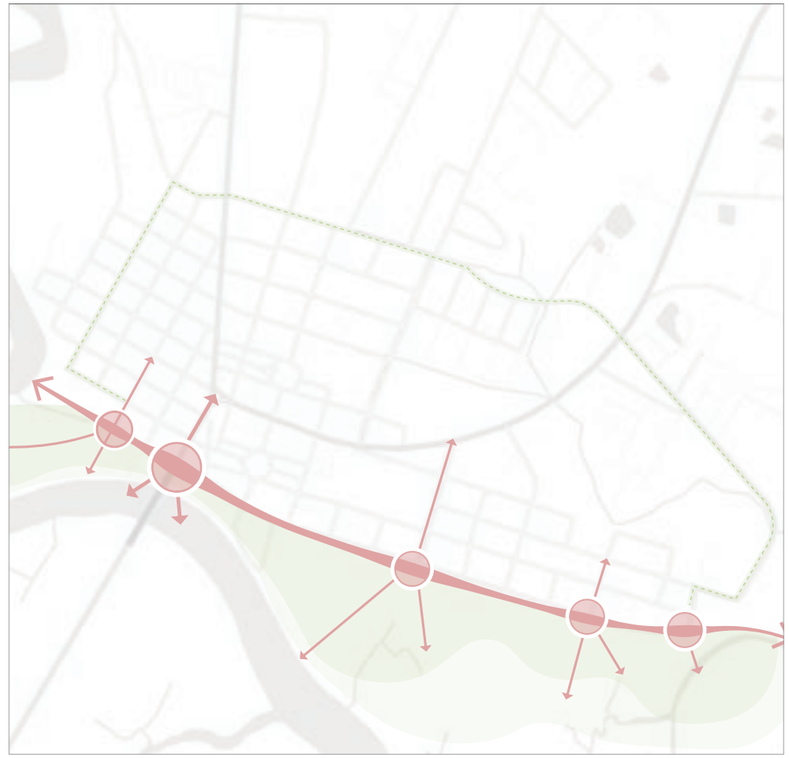
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NTS

DARIEN
FRAMEWORK 1
ESTABLISH AN ARRIVAL TO DARIEN

The existing corridors in Darien provide an opportunity to strengthen the historic character of this coastal city and create a sense of arrival.

INTERVENTIONS

[A-SPACE MAKING AT US-17 / GA 99]
This intervention looks at opportunities to redefine the intersection of these two major vehicular corridors.

[B- SENSE OF ENTRY AT DARIEN'S SOUTHERN EDGE]
Many visitors arrive to Darien from the south, driving on Highway 17 and crossing over the bridge. Creating a sense of entry at the southern edge of Darien is important in order to capture the attention and interest of people coming from this direction.

[C- US- 17 AS A CHARACTER DEFINING STREET]
US 17 is a major corridor that passes through Darien and has the potential to reflect the character of this coastal town, and respond to the needs of the community.

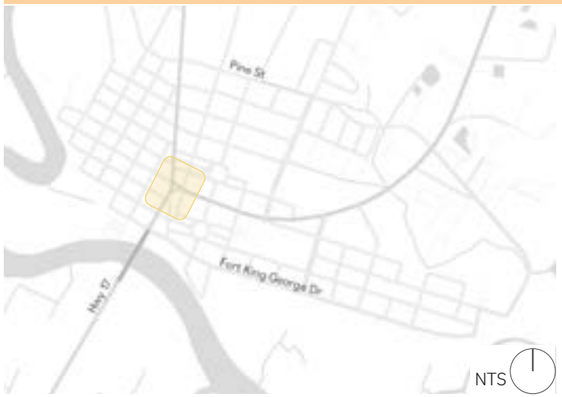
[D- PLANNING FOR GROWTH ALONG US- 17]
Future growth can be guided with sensitivity to the historical context of Darien and the need to be climate resilient.



DARIEN, FRAMEWORK 1

DESIGN DRIVER: ESTABLISH AN ARRIVAL TO DARIEN

A: SPACEMAKING AT AT US 17/ GA 99 [V.1]



OPPORTUNITY

Opportunity: Connecting east to west across US-17 is of paramount importance to the sense of place and pedestrian character of Darien. The intersection of US-17 and GA 99 is a unique condition with an ample amount of underutilized right of way. This proposal considers how reconfiguration could establish a contiguous public space that could act as an “arrival zone” or gateway.

INTERVENTION SCALES

STREET



REDUCE

Highway 17 is reduced to three travel lanes

BLOCK



CONSOLIDATE

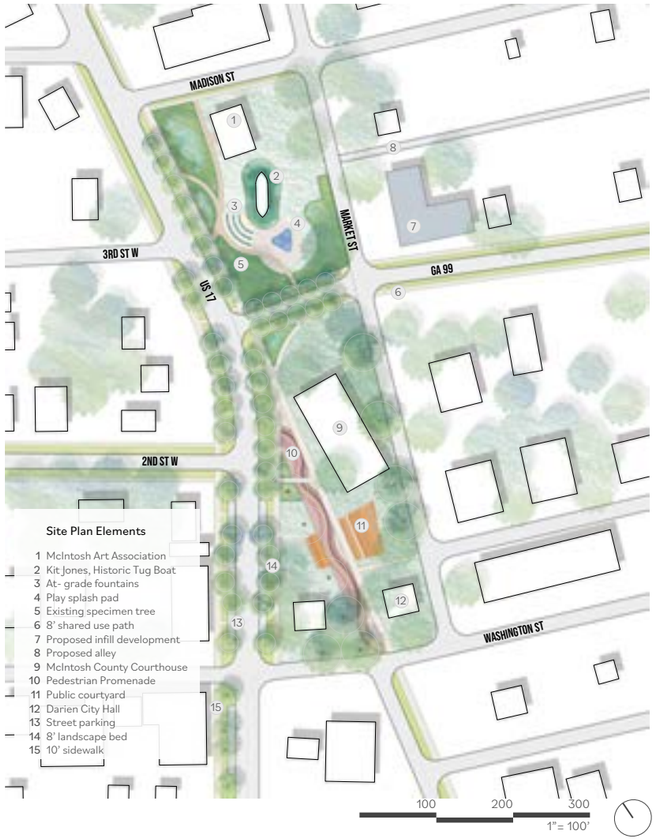
Fragments become part of adjacent blocks reducing the number of unnecessary intersections

PUBLIC SPACE NETWORK

CONNECT

More pedestrian spaces create a unified public realm the historic core of Darien

SITE PLAN

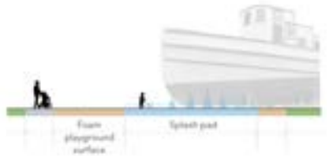


Site Plan Elements

1 McIntosh Art Association
2 Kit Jones, Historic Tug Boat
3 At- grade fountains
4 Play splash pad
5 Existing specimen tree
6 8’ shared use path
7 Proposed infill development
8 Proposed alley
9 McIntosh County Courthouse
10 Pedestrian Promenade
11 Public courtyard
12 Darien City Hall
13 Street parking
14 8’ landscape bed
15 10’ sidewalk

DEFINING THE PUBLIC SPACE

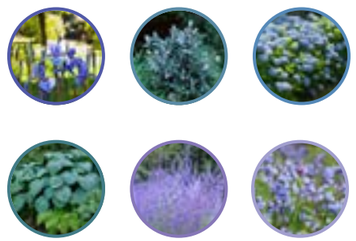
WATER AND PLAY



The pedestrian promenade and courtyard provide outdoor gathering spaces that could support planned events and passive recreation. A splash pad next to the Kit Jones tugboat provides an area for water play.

Water is a defining characteristic of Darien. It’s incorporation into the public space is both symbolic and functional. At grade fountains create a “ripple” around the base of the Kit Jones tugboat. A splash pad is provides a play for play.

MATERIALS



Billowy textures and shades of green, white, and blue create an undulating garden surrounding the Kit Jones. This garden mimics the waves and waters this respected tug boat used to navigate.

COMPARATIVE SECTIONS

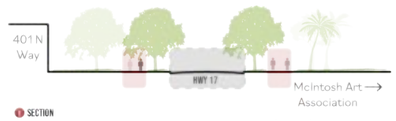
2025: HIGHWAY 17 AS A VEHICULAR CORRIDOR



SECTION

Highway 17 creates a large void through the Darien’s historic downtown. Pedestrians are directly adjacent to the roadway and have limited protected opportunities to cross the street.

VISION: HIGHWAY 17 AS A CONNECTIVE CORRIDOR

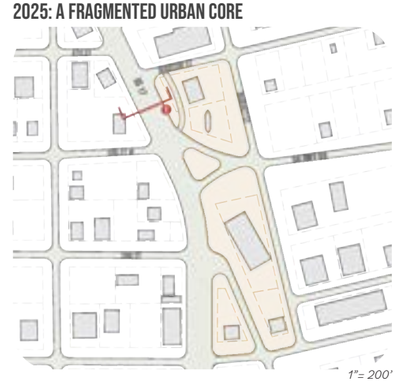


SECTION

Reduce width of the vehicular zone along Highway 17 from 70’ to 30’. Increase the planting area to provide shade and separation between pedestrians and vehicular traffic. Widen the sidewalks to 10’ so they can comfortably accommodate pedestrians and cyclists.

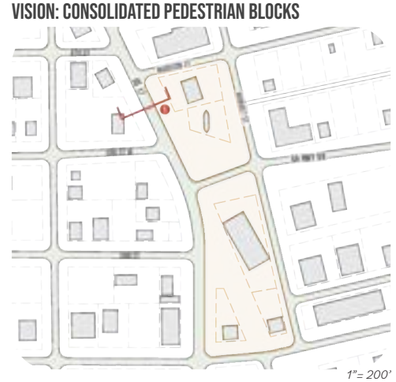
COMPARISON OF URBAN FORM

2025: A FRAGMENTED URBAN CORE



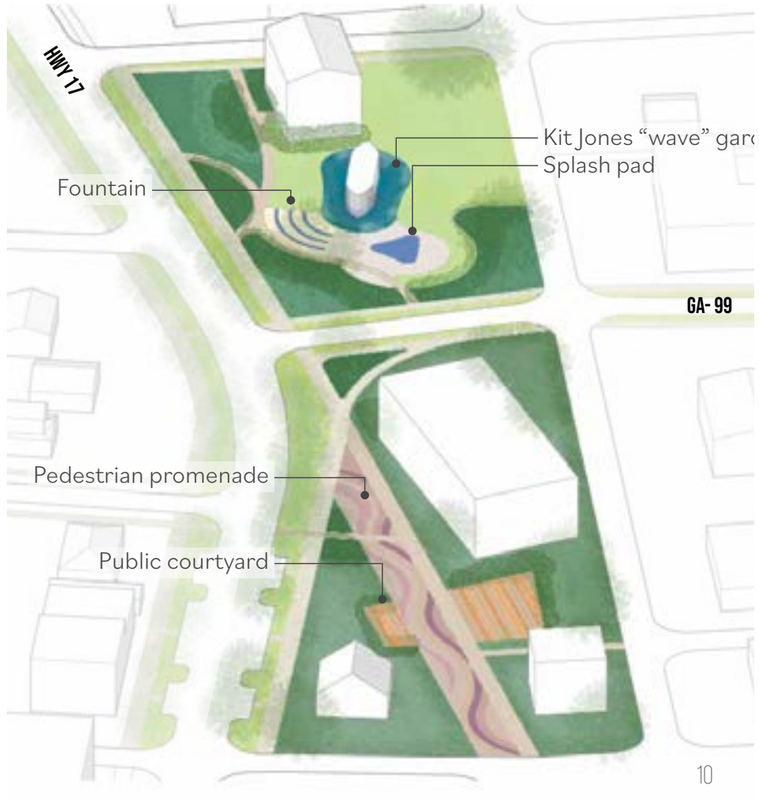
The intersection of Highway 17 and GA- 99 as currently designed is disjointed.

VISION: CONSOLIDATED PEDESTRIAN BLOCKS



The intersection of Highway 17 and GA-99 could be tightened and consolidated in order to create a more continuous public realm

PROPOSED BLOCK FORM AND PUBLIC SPACE ELEMENTS



For more information on this project, scan the QR code

Work by Anna McGovern

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

DARIEN, FRAMEWORK 1

DESIGN DRIVER: ESTABLISH AN ARRIVAL TO DARIEN

A: SPACEMAKING AT AT US 17/ GA 99 [V.2]



Plan

EXISTING CONSTRAINTS

Triangular Island – *Hosts the memorial, live oak tree, and Darien signage, but lacks clear spatial definition and coherence.*

Street Width – *The 75-foot-wide street currently accommodates only three lanes, leading to inefficient use of space.*

Large Interstitial Spaces – *Expanses between civic buildings are oversized and underutilized, needing correction and reduction for better spatial cohesion.*

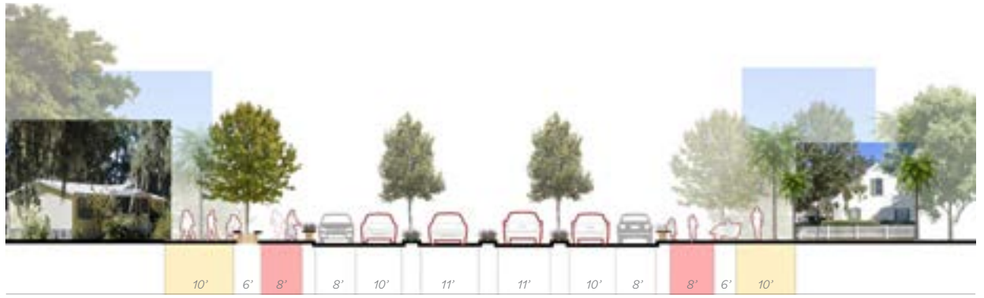


OPPORTUNITIES



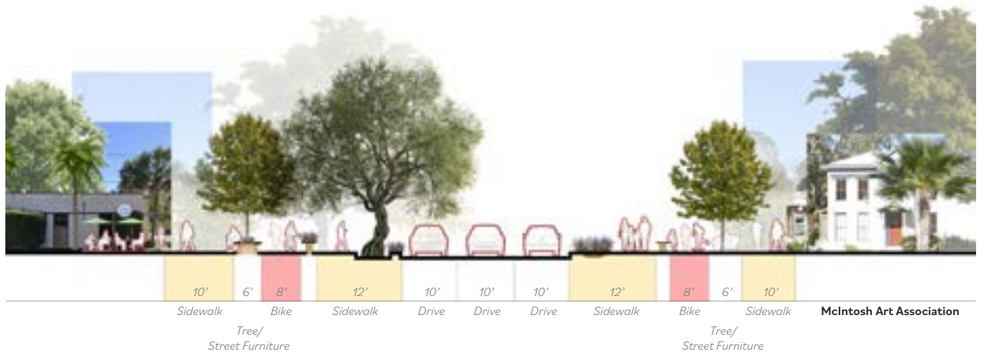
OPPORTUNITY

Connecting east to west across US-17 is of paramount importance to the sense of place and pedestrian character of Darien. The intersection of US-17 and GA 99 is a unique condition with an ample amount of underutilized right of way. This proposal considers how expanding the size of the existing triangular median could create occupiable space that makes crossing easier.



A. Typical street section of Re-imagined US17

A boulevard balancing neighborhood calm and speedy through traffic



B. Street section of US17 at the intersection

The intersection is more emphasized for pedestrians, exisiting trees and has only 3 lanes of traffic

1 **The island junction as seen from US17**
Emphasizing the human scale arrival at Darien, GA



2 **Character near McIntosh Art Association**
This anchor now also serves as the starting point of the Darien Cultural Trail.



The City of Darien seeks to establish a cultural heritage trail that celebrates its rich historical legacy, the McIntosh Art Association serving as a fitting start point for the trail.

Reviving the Junction through wider walkways, welcoming spaces and prioritizing pedestrians

The defined island has been made accessible, establishing a strong visual and spatial anchor at the entrance to downtown Darien.

From corner convenience store to a local market and grocery place, a local hub re-imagined fostering community access to fresh goods



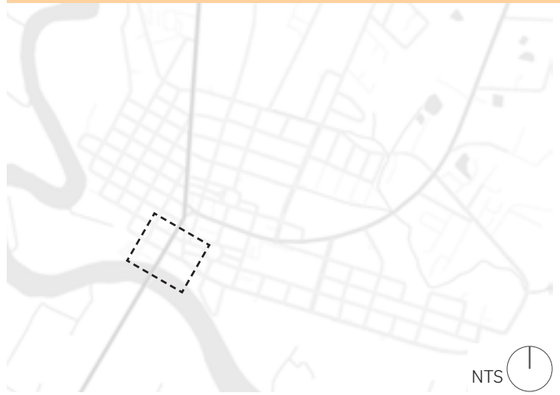
For more information on this project, scan the QR code

Work by Shannon Maria

DARIEN, FRAMEWORK 1

DESIGN DRIVER: ESTABLISH AN ARRIVAL TO DARIEN

B: SENSE OF ENTRY AT DARIEN'S SOUTHERN EDGE [V.1]



OPPORTUNITY

The current urban form and arrival when coming off the US-17 bridge lacks a sense of identity. This proposal considers the redesign of the intersection with Broad St. & The reutilization of the land at the northern corners to create welcoming open space anchored by a welcome center / community center.

OPPORTUNITIES FOR CREATING A LANDING ZONE



Existing gas station and vacant lot on either sides of US17 as identified sites for development



Redesigning the intersection and creating a landing zone marking the arrival to Darien

AERIAL OF THE DESIGNED LANDING ZONE



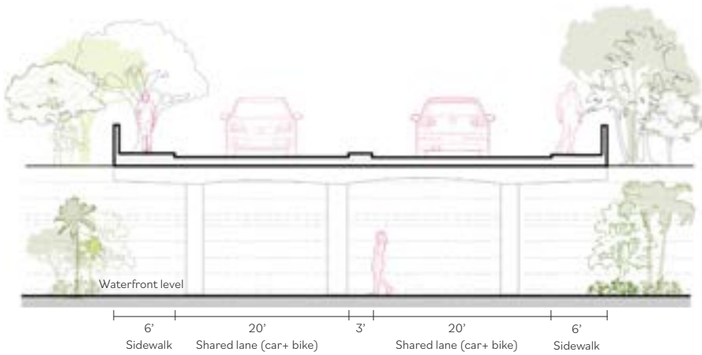
INTERSECTION OF BROAD ST AND US17 AS THE FIRST THRESHOLD



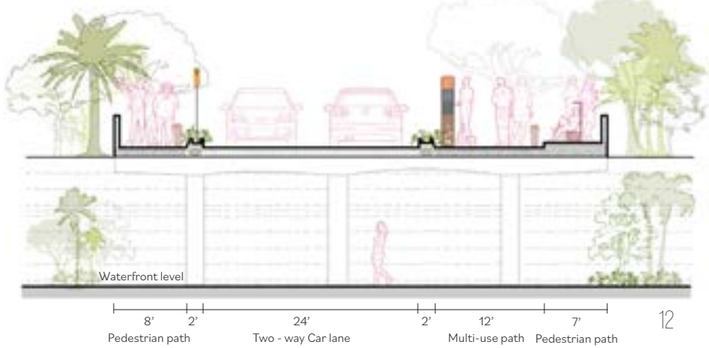
1. Redesigned intersection creating a welcoming arrival and pause
2. Arrival public plaza
3. Public green space at arrival
4. Relocated gas station store forming a welcoming pause point
5. Way to the waterfront
6. Pedestrian connection from the bridge to the waterfront
7. Waterfront Park
8. Visitors' Parking
9. Gas station
10. Community space
11. Public plaza for residents

N WALTON ST - ARRIVAL BRIDGE AS A WELCOMING AND PEDESTRIAN FRIENDLY WAY

Existing section



Proposed section

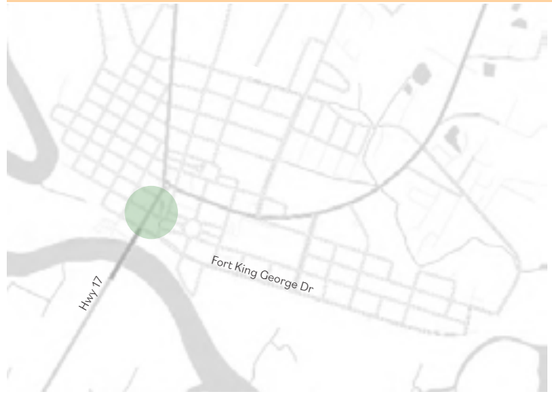


For more information on this project, scan the QR code

Work by Ojaswi Ajay Chauthaiwale
Georgia Tech | Urban Design Studio 2
Resiliency & Growth: Darien and St Marys, GA

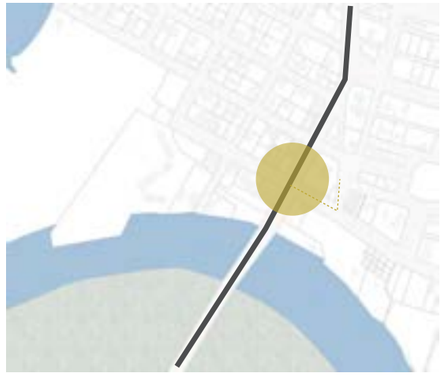
DESIGN DRIVER: ESTABLISH AN ARRIVAL TO DARIEN

B: SENSE OF ENTRY AT DARIEN'S SOUTHERN EDGE [V.2]



OPPORTUNITY

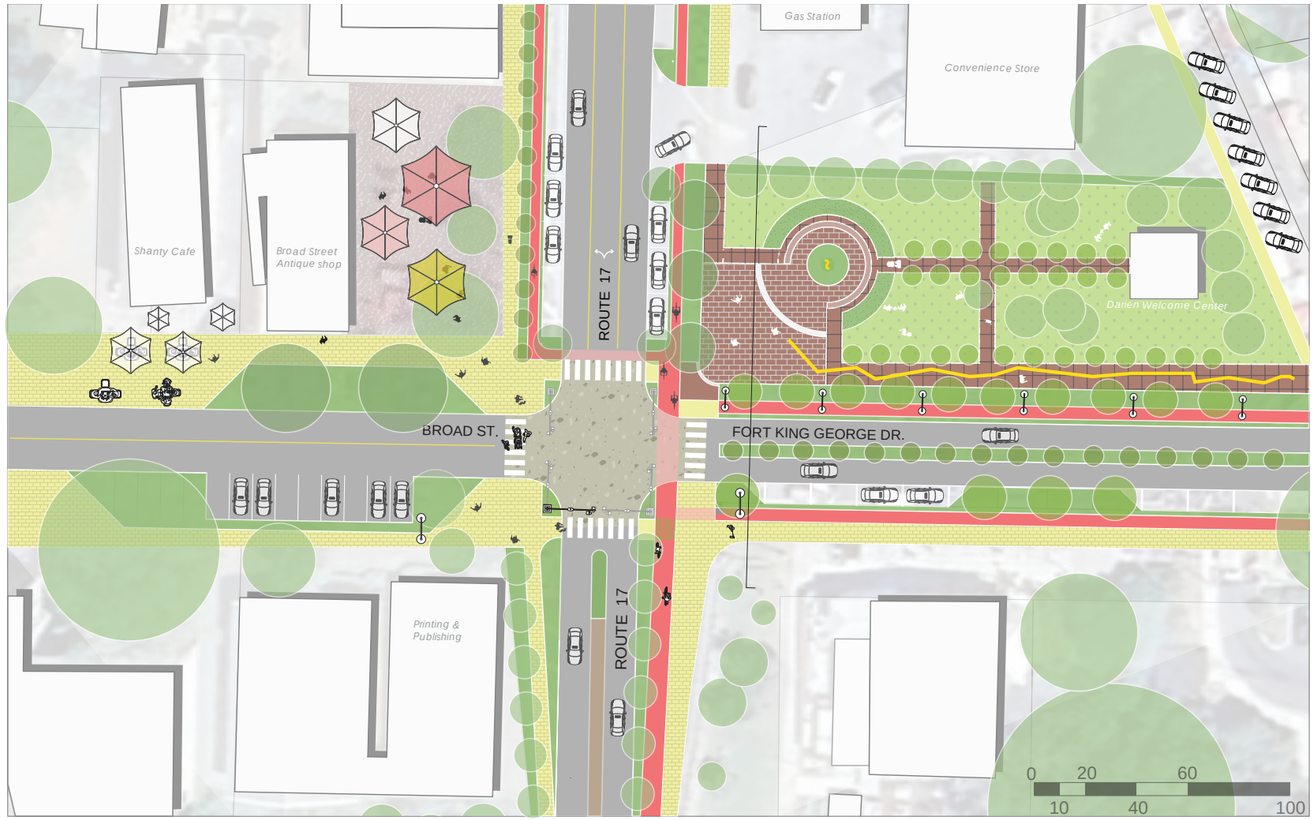
The current urban form and arrival when coming off the US-17 bridge lacks a sense of identity. This proposal considers the redesign of the intersection with Broad St. & The reutilization of the land at the northern corners to create welcoming open space anchored by a welcome center / community center.



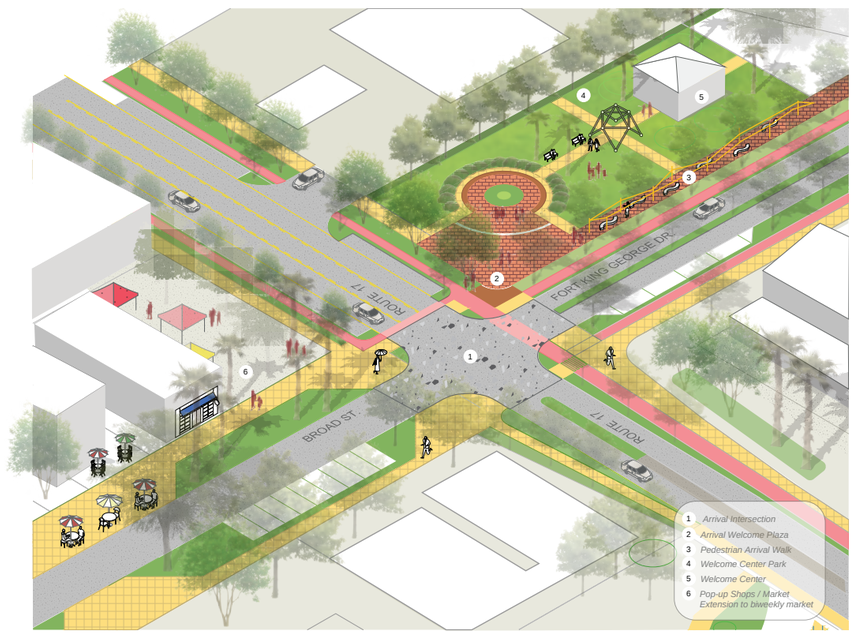
Strategy 1 - Creating Arrival Point (Plaza and Welcome Center)



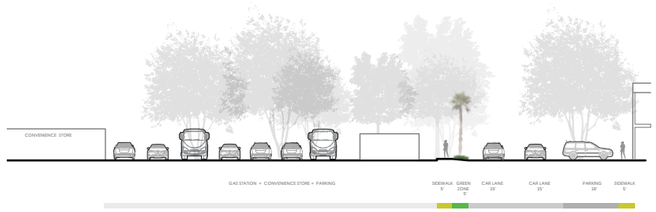
Strategy 2 - Space - Making arrival Route along Fort King George Drive



Master Plan - Arrival at US17 and Fort King George Drive - Spce making at Intersection



View of Intersection of US17, Broad St. and Fort King George Dr. - space-making through tactile urbanism, vibrant and welcoming arrival



Existing Section through Gas Station and Convenience store at the intersection corner of arrival



Proposed section through Darien Welcome center, exhibit area and new R.O.W of Fort King George Dr.



Precedent Image - Welcome Center Arrival Plaza



Pedestrian Arrival walk along Fort King George Dr.

Work by Aarti Gandhi
Georgia Tech I Urban Design Studio 2
Resiliency & Growth: Darien and St Marys, GA

DARIEN, FRAMEWORK 1

DESIGN DRIVER: ESTABLISH AN ARRIVAL TO DARIEN

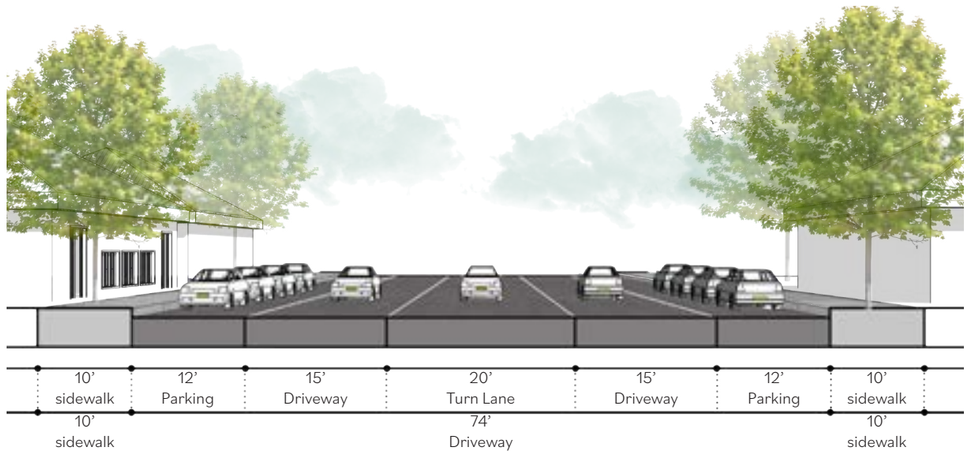
C: US 17 AS A CHARACTER DEFINING STREET [V.1]



OPPORTUNITY

The current design of US-17 reflects that of a 50+ mph road rather than a 3-lane “Main Street”. Creating a street condition that reflects the charm and speed of Darien is paramount to the City’s identity. This proposal considers the potential for a “complete street” approach to US-17

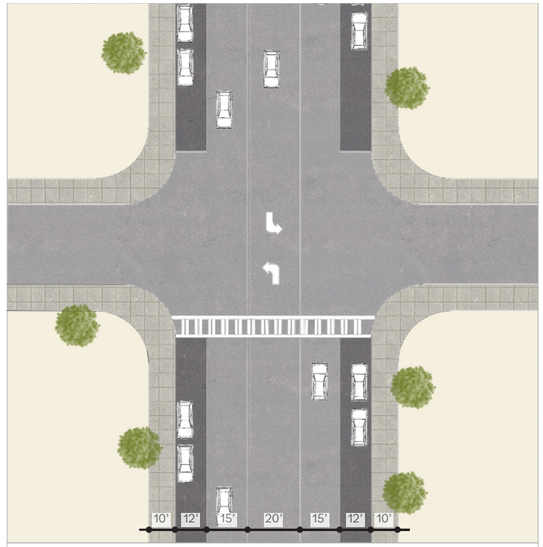
EXISTING STREET CHARACTER



POTENTIAL STREET CHARACTER WITH A CENTRAL GREEN MEDIAN WHILE RETAINING FEW PARKING ON THE EDGES TO SLOW DOWN THE TRAFFIC

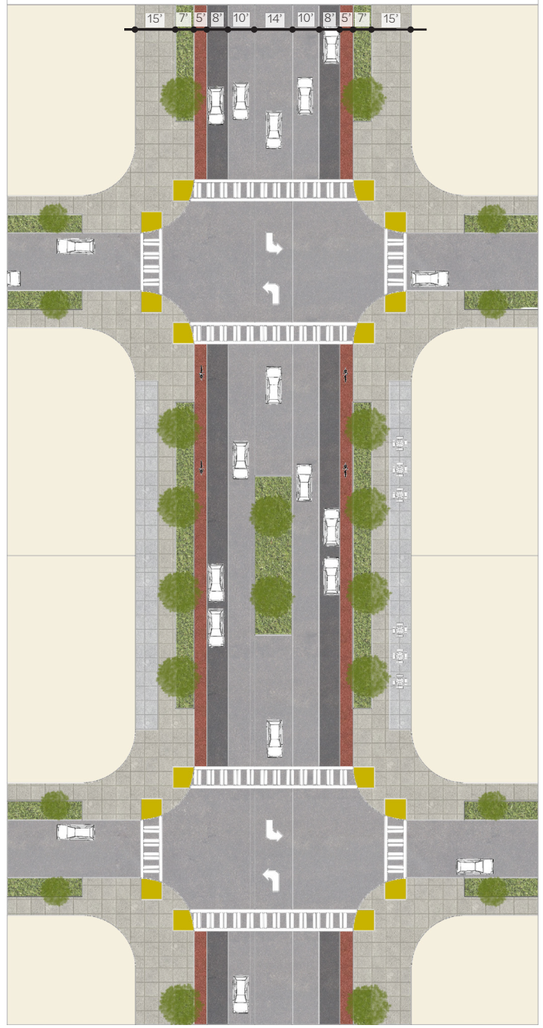






EXISTING STREET CHARACTER

The existing condition of US-17 features three 15’ wide travel lanes, wide on street parking with minimal canopy and a small pedestrian zone.



REIMAGINING US-17 CORRIDOR: A PEOPLE-CENTERED STREETSCAPE FOR DARIEN

For more information on this project, scan the QR code

Work by Nitiksha Mota

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

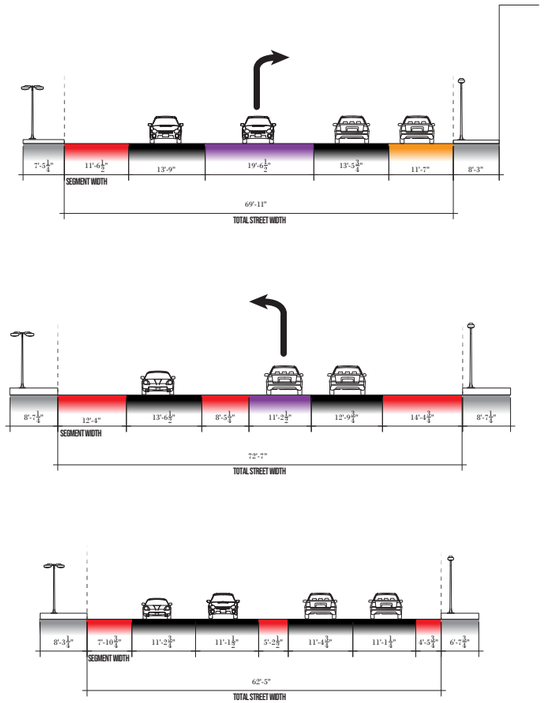
DESIGN DRIVER: ESTABLISH AN ARRIVAL TO DARIEN

C: US 17 AS A CHARACTER DEFINING STREET [V.2]



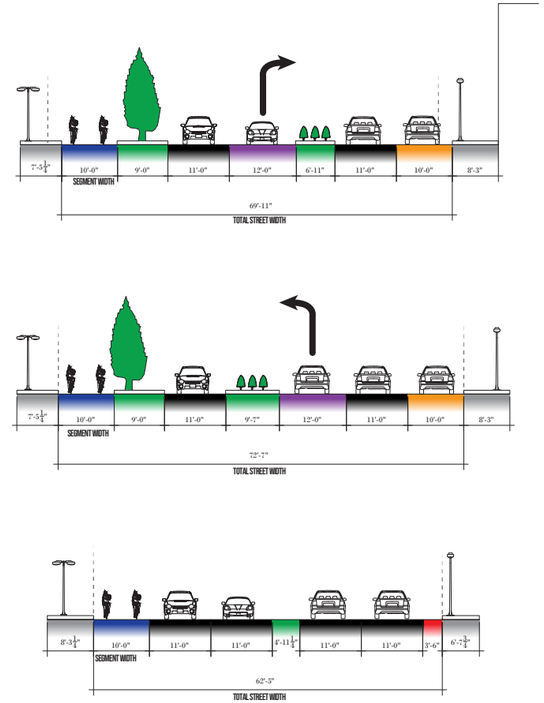
OPPORTUNITY

The current design of US-17 reflects that of a 50+ mph road rather than a 3-lane “Main Street”. Creating a street condition that reflects the charm and speed of Darien is paramount to the City’s identity. This proposal considers the potential for a “complete street” approach to US-17



The current design of US-17 as it runs through downtown Darien functions less like a small-town main street and more like a speedway. Travel lanes are excessively wide, and in some areas, center turn lanes exceed 19.5 feet, far beyond what’s necessary. Additionally, there are segments along one or both sides of the street that feature 11.5 to 12.5 feet of essentially unused, restricted space—paved but uninviting, contributing nothing to walkability or urban character. This layout encourages high-speed driving, creates an oppressive heat island effect, and visually fragments the heart of town.

The proposed redesign recalibrates the scale of the street to reflect Darien’s small-town identity and human-centered values. By narrowing lanes to safer, standard widths and reclaiming excess space, the plan introduces on-street parking, vegetative buffer zones, and a protected bike lane. These changes will slow down traffic, improve safety, and encourage walking and cycling. The added greenery and reduced asphalt area will help cool the corridor and soften its aesthetic, transforming US-17 from a hot, hostile thruway into a shaded, vibrant, and welcoming gateway that reflects the unique charm of Darien



EXISTING CONDITIONS



PROPOSED REDESIGN



SIDEWALK · TURN LANE · STREET PARKING · RESTRICTED ZONE · BIKE LANES · PLANTED BARRIER

ALTERNATIVE OPTIONS



Large Median



Large Median with bike lane



Large Median with bike lane and turn lanes



All interventions with bike lane on top

DARIEN, FRAMEWORK 1

DESIGN DRIVER: ESTABLISH AN ARRIVAL TO DARIEN

D: PLANNING FOR GROWTH ALONG US 17



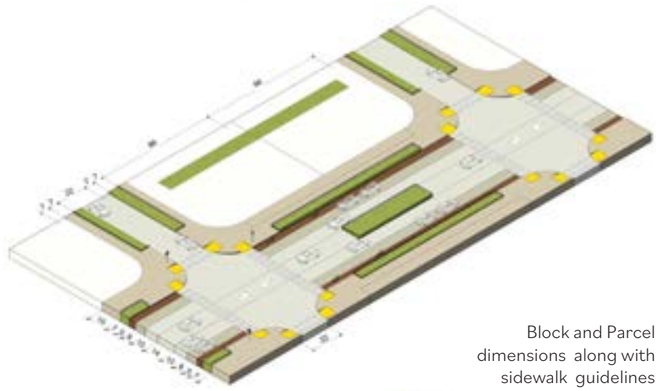
OPPORTUNITY

As the primary corridor for potential future development with many underutilized parcels, future growth in Darien could be focused around this corridor. This proposal contemplates potential form-based guidelines for context-sensitive design along the corridor, including considerations how development impacts comfort along the street.

FORM-BASED CODE GUIDELINES FOR INFILL DEVELOPMENT ALONG US-17



Existing Conditions



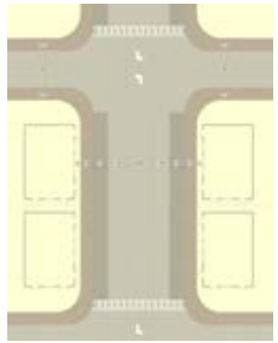
Block and Parcel dimensions along with sidewalk guidelines

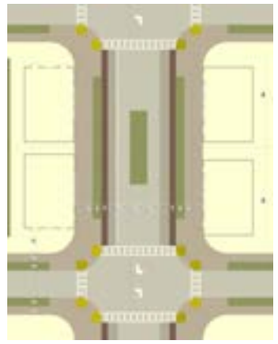


Retail Front for 1 floor height - 15 ft tall



The floors above to be 10 ft







70% openings to be observed on the fron facade of retail



Incase of 4 floors, set back of 10' on 3rd floor should be followed

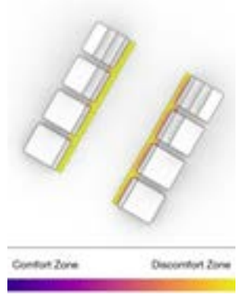
MICRO-GRID FEASIBILITY: OUTDOOR THERMAL COMFORT & SOLAR ENERGY



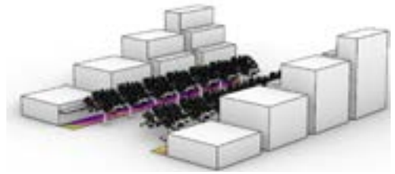
Building Heights 10, 20, 30, 40, 50 ft

Pedestrian path width 12 ft

Overhang Depth 5ft



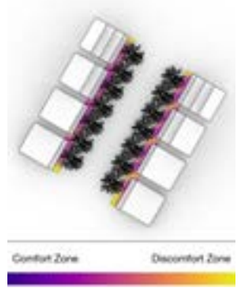
In summer, the outdoor areas at Darien are likely to experience greater thermal discomfort than those at St. Mary's, primarily due to the building layout and lack of adequate shading—especially along the pedestrian zone on the east side.



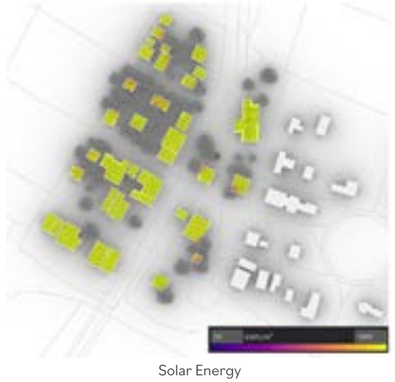
Building Heights 10, 20, 30, 40, 50 ft

Pedestrian path width 12 ft

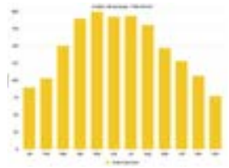
Overhang Depth 5ft



Similarly, outdoor thermal comfort at Darien during summer can be significantly improved by planting trees along the pedestrian zone with 20-foot spacing.



Solar Energy



Solar Exposure Monthly Plot



EUI of SIte Building

Annual Solar Radiation	1769 kWh/m2/yr
Total Roof Area	8563.7 m2
PV Panel Coverage	80%
Panel Efficiency	18%
Inverter Efficiency	96%

Projected target energy use:
7180466.67 kWh
(351 x 20457.17 = 7,180,466.67)
Percentage covered by the PV system: 29.17%
(2,094,223.38 / 7,180,466.67 = 0.2917)



For more information on this project, scan the QR code

Work by Nitiksha Mota

Georgia Tech I Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

DARIEN, FRAMEWORK 1

DESIGN DRIVER: ESTABLISH AN ARRIVAL TO DARIEN

D: DOWNTOWN ENERGY RESILIENCY HUB



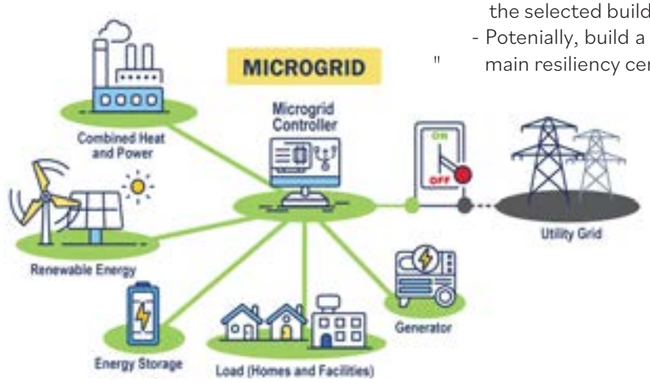


DOWNTOWN RESILIENCY HUB

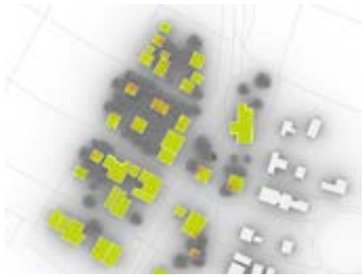
Microgrid Powered "Downtown Resilience Hub" as a pilot program:

Connect ~20 existing buildings as inital resilience hub:
- Buildings along U.S. Route 17 maintain high sun expsoure
- Buildings with high traffic and public use to promote renewable energy usage

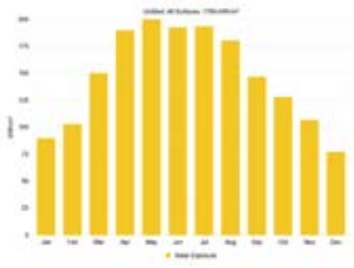
Resiliency:
- In case of blackouts during severe weather, local residents and visitors can come to these buildings for essential needs
- Energy stored in batteries
- Complete reliance on renewable solar energy for the selected buildings
- Potenially, build a dedicated structure to act as the main resiliency center



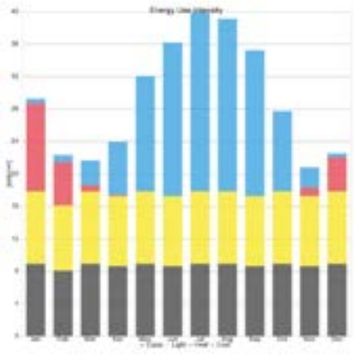
SOLAR ENERGY



Photovolataic Panel Location on top of buidlings



Solar Exposure Monthly Plot



EUI of Site Building

MICROGRID COST BREAKDOWN

Total Roof Area: 8,563.7 m²
PV Panel Coverage: 80%
Solar Radiation: 1,769 kWh/m²/year
Panel Efficiency: 18%
Inverter Efficiency: 96%
Total Annual Solar Generation: 2,094,223.38 kWh
Projected Annual Energy Use: 7,180,466.67 kWh
PV Coverage: 29.17%

Effective system efficiency = 0.18 x 0.96 = 0.1728
1 kW PV system typically occupies ~6m² of roof space

Energy Yield per kW = Annual Radiation x System Efficiency x Area per kW
= 1769 kWh/m²/yr x 0.1728 x 6 m²/kW
= 1,834 kWh/kW-yr

Typical performance ratio is roughly 80% = 1,834 x 0.78 = **1,430kWh/kW-yr**

Description	Quantity	Unit Cost ($/W)	Cost (USD)	Source/Reference
PV System Size (kW)	~1,464 kW*	$2.00	$2,928,000	NREL & Solar Reviews

Average Daily Energy Use = (7,180,466.67 kWh/yr) / (365 days/yr) = 19,672.51 kWh/day

A battery system typically does not aim to cover 100% daily use, but rather the most critical loads - assuming about 15% of daily energy use is critical (emergency lighting, refrigeration, IT systems, critical services)

Critical load/day = 19,672.51 x 0.15 = 2,950.9 kWh/day = **3,000 kWh/day (approx.)**

Description	Size	Unit Cost ($/kWh)	Cost (USD)	Source
Lithium-ion Battery Storage	3,000 kWh	$400.00	$1,200,000	NREL & BloombergNEF

Component	Quantity	Cost per unit	Total Cost (USD)	Source
Underground Cabling & Trenching	1.5 miles (~7920 ft)	$100/ft	$792,000	RSMeans Construction
Smart Switchgear & Microgrid Controls	1 central system	Lump Sum	$250,000	Schneider Electric
Smart Building Interface Controllers	20 units	$15,000 each	$300,000	Eaton & ABB

Average Daily Energy Use = (7,180,466.67 kWh/yr) / (365 days/yr) = 19,672.51 kWh/day

Assuming a downtown district load profile with a 10-hour peak demand period:

Average Hourly Peak Demand = (19,672.51 kWh/day) / (10 hours/day) = 1,967.25kW

Backup generators in microgrids typically cover critical peak loads, not full load of all buildings.

Assuming 25% of estimated peak demand as the critical load coverage = 1,967.25 kW x 0.25 = 491.81kW = **500 kW (approx.)**

Description	Size	Cost per kW	Total Cost (USD)	Source
Natural Gas Backup Generator	500 kW	$900/kW	$450,000	Generac & CAT Power

Description	Percentage	Cost (USD)
Soft Costs (Eng., Legal, Mgmt.)	15%	$865,000
Project Contingency	5%	$249,000

Total Project Cost (approximate)

Category	Cost (USD)
Solar PV Installation	$2,928,000
Battery Storage	$1,200,000
Infrastructure	$1,342,000
Backup Generator	$450,000
Soft Costs & Contingency	$1,180,000
Total Project Cost	**$7,100,000**

With Federal ITC @30% of (Solar PV Installation + Battery Storage) = 0.3 x (2,928,000 + 1,200,000) = $1,238,400

Final microgrid cost can be brought down to **$5,861,600** ($7,100,000 - $2,238,400)

Cost per resident: **$1419.27** ($5,861,600/4,130 residents)

OPPORTUNITY

This proposal considers the potential needs and opportunities for a solar micro-grid along US-17 that could act as a potential resiliency hub for the community during major power outages and help with discourse on the potential of solar infrastructure in Darien.

TAX INCENTIVES

SCENARIO-1: System is owned by Business or Local Government or Homeowners

Federal Tax Incentives
Investment Tax Credit (ITC): Available for businesses, local governments, and homeowners investing in solar systems
- Tax Credit Values: offers a 30% tax credit on the total cost of solar energy system installations

Modified Accelerated Cost Recovery System (MACRS): Allows business owners to recover the cost of a solar panel system over a period of 5 years, enabling them to depreciate the cost over five years

State/Local Incentives
Georgia Environmental Finance Authority (GEFA) Loans: Offer financing for energy efficiency and renewable energy projects in Georgia
- Eligibility: local governments, water and sewer authorities, infrastructure authorities. Private entities not eligible

Community Solar Cooperative: community members come together to form a cooperative entity to develop and own a shared solar energy system

SCENARIO-2: System is leased or using a PPA

Solar Leasing: Pay a fixed monthly fee to use solar panels installed on your property. Solar installer owns the system and is responsible for maintenance and repairs

Power Purchase Agreements (PPAs): A third party developer installs, owns, and maintains the system. You purchase electricity generated by the system at a predetermined rate per kWh which is typically LOWER than your utility's rate

For more information on this project, scan the QR code

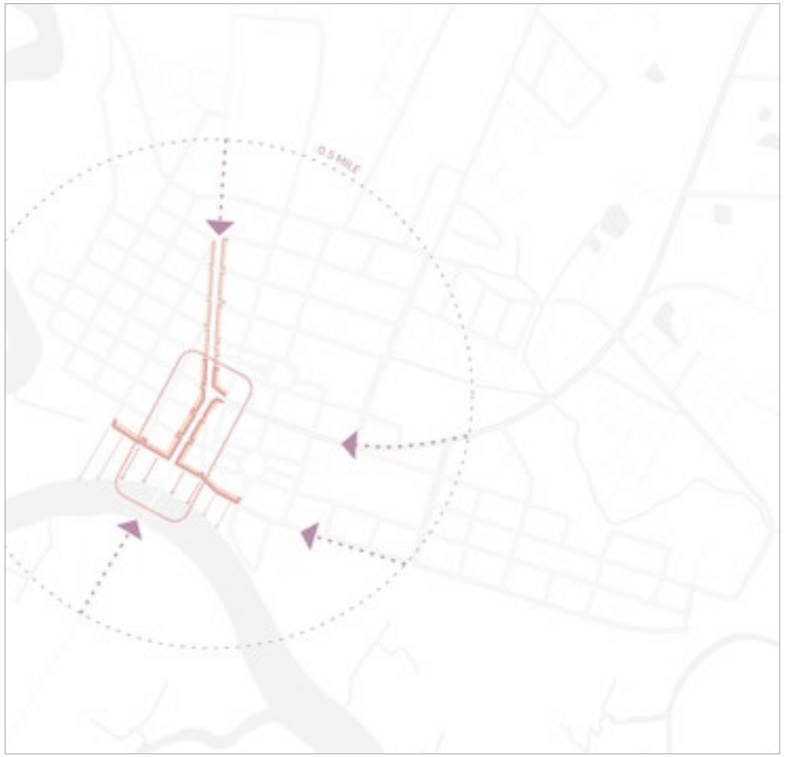
Work by HPB students

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

DARIEN
URBAN DESIGN DRIVER:

ACTIVATE THE HISTORIC NEIGHBORHOOD



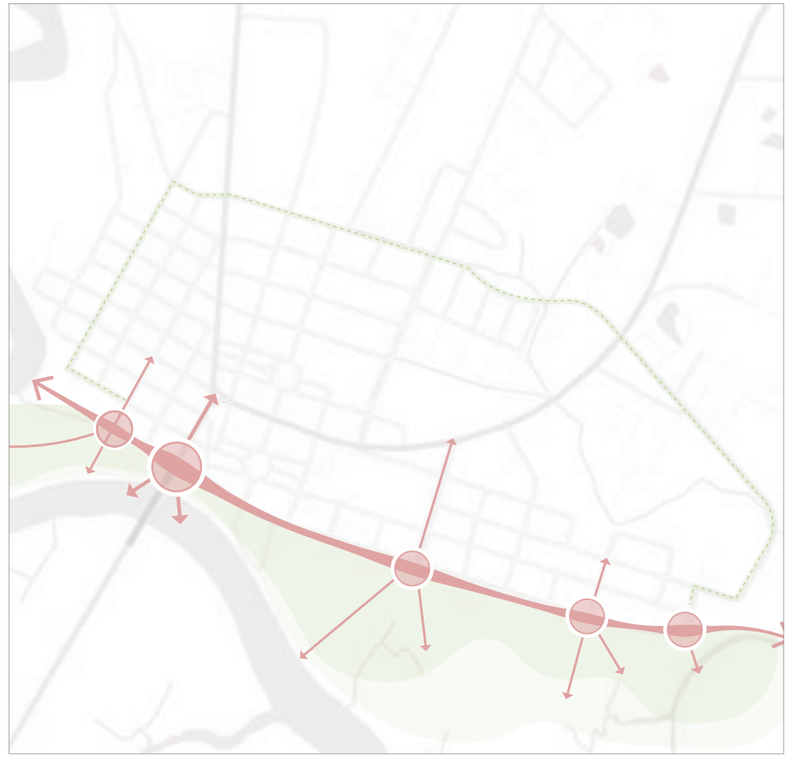
ESTABLISH AN ARRIVAL TO DARIEN

Creating a sense of arrival is critical for establishing an active and welcoming experience as people enter Darien. Designing this transition zone to be welcoming and inviting is critical for encouraging people to stop, shop, and explore this historic town on the river.



ACTIVATE THE HISTORIC NEIGHBORHOOD

The history of Darien can still be seen in its urban form. Its remaining public squares are significant public spaces that create valuable opportunities for neighborhood life. These public spaces and their edges are an opportunity to strengthen the downtown core and historic neighborhood character.



STITCH THE SEAM BETWEEN STREET AND NATURE

The rivers and salt marshes are vital assets to the coastal community of Darien. Softening this waterfront edge with pedestrian connections and activating it with new uses will allow people to seamlessly enjoy both the downtown and nature. These connections will respond to both street and water and provide valuable public spaces for the community.

NTS

DARIEN
FRAMEWORK 2
ACTIVATE DARIEN'S HISTORIC NEIGHBORHOODS

The coastal city of Darien has historic assets located throughout the core downtown neighborhood. This framework aims to enhance the character of the historic core and strengthen community identity.

INTERVENTIONS

[A- VERNON & COLUMBUS SQUARES AS DOWNTOWN ANCHORS]
The historic public squares of Darien are cultural and historic landscapes. These projects aim to activate these public spaces and restore their role as community gathering spaces.

[B- DARIEN CULTURAL TRAIL]
This project aims to highlight the cultural and historic landmarks found throughout Darien through an accessible and comprehensive trail.

[C- OGLETHORPE SQUARE CULTURAL PARKS]
Oglethorpe Square is a gateway into the city. This project proposes to elevate this park as a welcoming arrival experience by making it a community anchor.



DARIEN, FRAMEWORK 2

DESIGN DRIVER: ENGAGE THE HISTORIC NEIGHBORHOOD FABRIC

A: VERNON & COLUMBUS SQUARES AS ANCHORS [V.1]



OPPORTUNITY

The area around the existing squares was historically designed to be for civic structures to promote the use of the squares. Some of that exists today but much of the area around the squares and the connections to them lack a sense of identity and activation. This proposal studies potential activation and development considerations to enhance these conditions.

EXISTING CONSTRAINTS

Park-Waterfront Link - *The 50 foot wide street, currently serving only two lanes, is underutilized.*

Inactive Vacant Lots - *Surrounding lots lack active uses, weakening the connectivity and vibrancy of the area.*

Weak Loop-US17 Link - *The Loop's connection to US-17 lacks clear multi modal access and way finding.*



OPPORTUNITIES



1 **Sunday Farmer market character**
Inside the Vernon square



2 **Franklin St with the median, boulevard tree lane**
Starts from the Columbus square





Neighborhood cafe

A. Franklin St.
Section of the Street connecting the two historic squares
The center lane of trees enhances the prominence of the squares

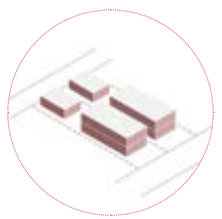


B. Washington St.
Section of the Street connecting US17 and the historic squares

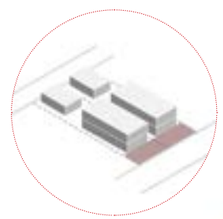


C. New Alley
Section of the Alley of the live work units

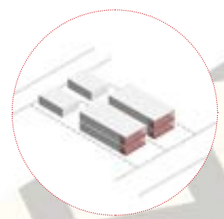
Design Guidelines
Development near the squares



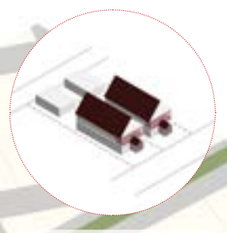
Massing Scale
2 floor (max) (20-25ft)
Historic Proportions



Setback and Frontage
10 ft setback
(20 ft in case of front furniture for neighborhood retail)



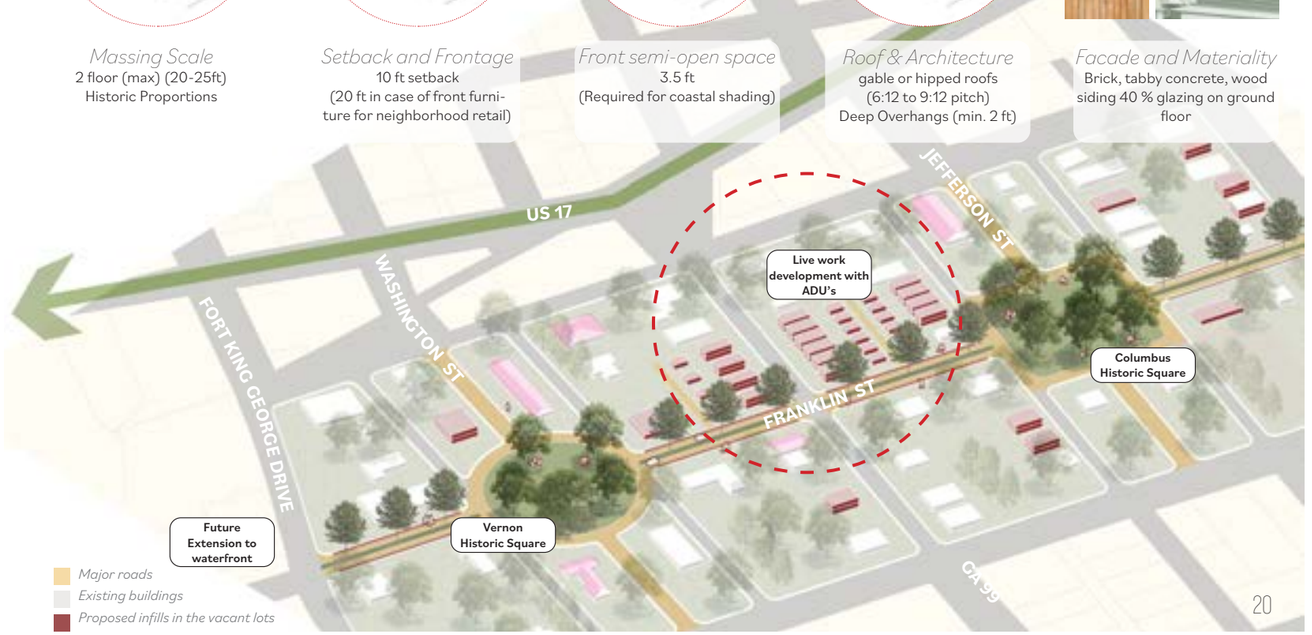
Front semi-open space
3.5 ft
(Required for coastal shading)



Roof & Architecture
gable or hipped roofs
(6:12 to 9:12 pitch)
Deep Overhangs (min. 2 ft)



Facade and Materiality
Brick, tabby concrete, wood siding 40 % glazing on ground floor



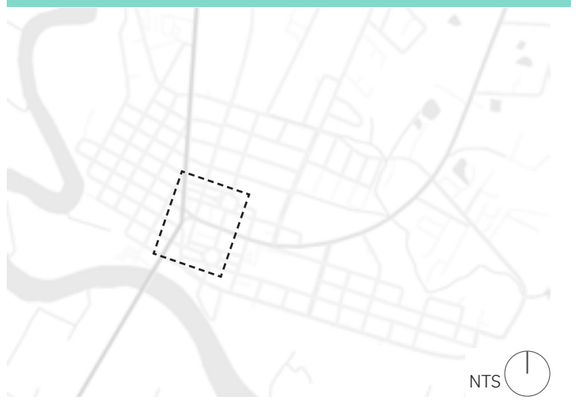
For more information on this project, scan the QR code

Work by Shannon Maria
Georgia Tech | Urban Design Studio 2
Resiliency & Growth: Darien and St Marys, GA

DARIEN, FRAMEWORK 2

DESIGN DRIVER: ENGAGE THE HISTORIC NEIGHBORHOOD FABRIC

A: VERNON & COLUMBUS SQUARES AS ANCHORS [V.2]



OPPORTUNITY

The area around the existing squares was historically designed to be for civic structures to promote the use of the squares. Some of that exists today but much of the area around the squares and the connections to them lack a sense of identity and activation. This proposal studies potential activation and development considerations to enhance these conditions.

EXISTING CONDITIONS AND OPPORTUNITIES



Current condition showing the under utilized squares - need to activate the squares to embrace their historic significance



Activating the squares by redefining a loop tying them to US17, GA99 - through edge activation, street scape improvements and infill development

COHESIVE STREET SCAPE DESIGN CONNECTING TWO SQUARES



ACTIVATED SQUARES AND STREETSCAPE ELEMENTS



People heading to the weekly market in Vernon square from the Washington street with a public plaza by the Church

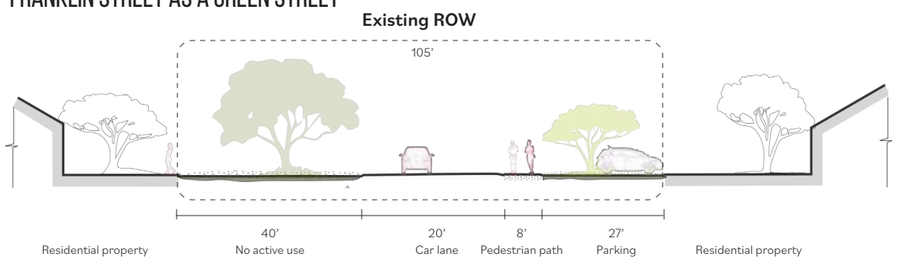


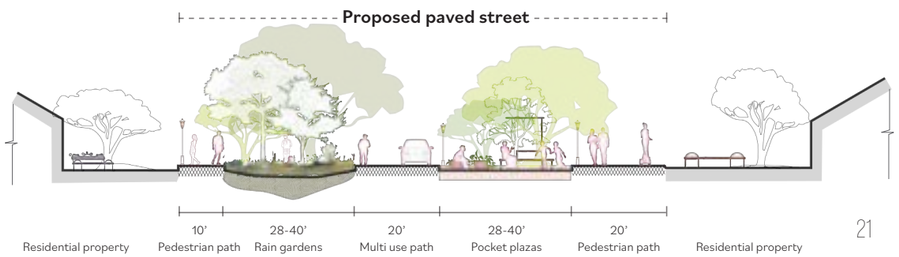
People gathered for the Blessing of the Fleet festival at Columbus square, public plaza by the Baptist Church marking the entry to the square



Franklin Street as a green pedestrian link - linear park connecting the 2 squares

FRANKLIN STREET AS A GREEN STREET





For more information on this project, scan the QR code

Work by Ojaswi Ajay Chauthaiwale

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

DESIGN DRIVER: ENGAGE THE HISTORIC NEIGHBORHOOD FABRIC

B: DARIEN CULTURAL TRAIL



OPPORTUNITY

Darien's existing cultural assets create the potential to formalize a cultural trail that meanders through the historic street grid. This low-intensity intervention explores the ways that this could be implemented along with its potential character

PATH STRUCTURE



I am thinking of using a painted surface that doesnt require any actual construction processes to minimally set up the trail.

We could have the city participate by using students or a city artist to give the trail personality and a creatively welcomed flair



PROGRAMMING THE TRAIL



The historical trail would be accompanied by a map as well as a landing platform for each site, perhaps made out of tabby

A Darien Scavenger hunt ecouraging the users to analyze what is on the walk. We also have the idea of adding either workout stations or a playground for added engagement





Example image of a historical site with the trail intervention.



HISTORIC DISTRICT



SCENIC TRANSITION



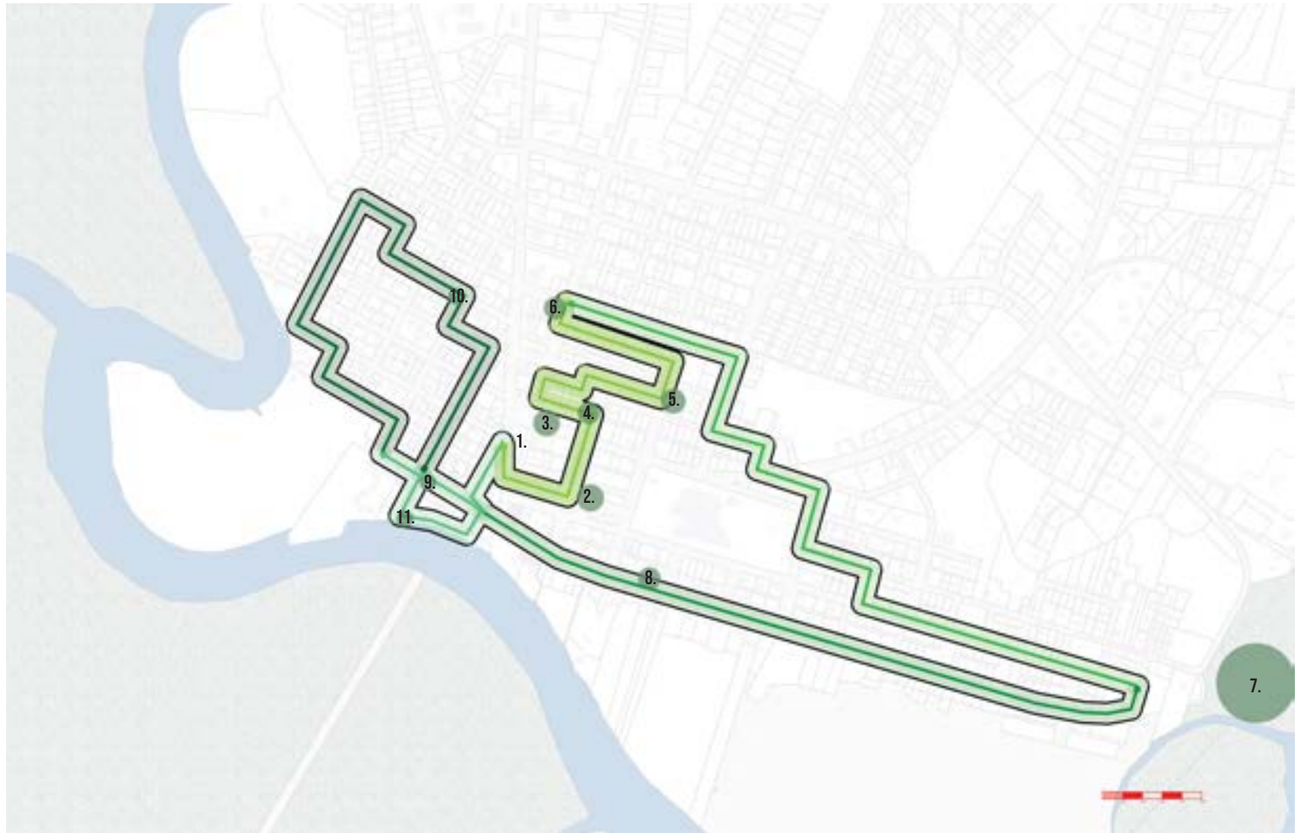
FORT KING GEORGE DR.



RESIDENTIAL ZONE



BOARDWALK + COMMERCIAL DISTRICT



HISTORICAL TRAIL

Historical Markers:
1. Old Jail Art Center and Museum (1888)
Why It's Important: This building once housed Darien's prisoners and now serves as a museum preserving local history.

2. The Old Darien Bank Building (Early 1900s)
Why It's Important: One of the earliest banking institutions in Darien, reflecting its role as a commercial hub.

3.First African Baptist Church (Founded 1834, Current Structure 1869
Why It's Important: One of the oldest Black congregations in Georgia, originally founded by enslaved and freed African Americans.

4. The Adam Strain Building (1813, Burned in 2019)
Why It's Important: One of Darien's oldest commercial buildings, it was a key part of the city's trade and economy

5. Vernon Square-Columbus Square Historic District (1800s-Present)
Why It's Important: Darien's historic district, containing multiple antebellum and post-Civil War structures. It was the center of town life in the 19th and early 20th centuries

6. Olde Darien City Hall (1900)
Why It's Important: The heart of local government since the early 20th century, this building has seen Darien's growth and changes

7. Fort King George (1721) – The Oldest British Fort in Georgia
Why It's Important: The earliest British outpost in Georgia, built in 1721 before the official founding of the colony by James Oglethorpe. It played a key role in securing British claims in the region

8. St. Cyprian's Episcopal Church (1876) – Built by Freed Slaves
Why It's Important: This African American church was built by formerly enslaved people after the Civil War using tabby concrete, a mix of oyster shells, lime, and sand

9. The Adam Strain Building (1813, Burned in 2019)
Why It's Important: One of Georgia's oldest commercial buildings, it was a key part of the city's trade and economy.

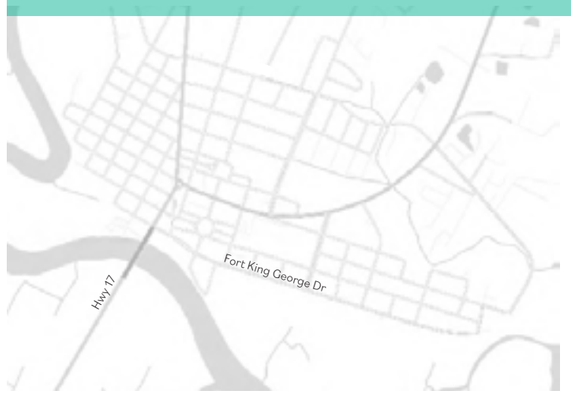
10. West Darien Historic African American Community
Why It's Important: This district represents the freedmen settlements established by African Americans after the Civil War.

11. Darien's Historic Waterfront
Why It's Important: This riparian zone is where many of Darien's old industries started and ended. Today there are still docks in use, as it links Darien to the rest of the regions aquatic networks

DARIEN, FRAMEWORK 2

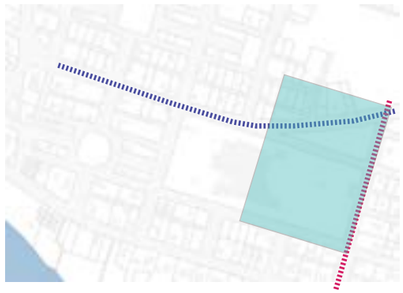
DESIGN DRIVER: ENGAGE THE HISTORIC NEIGHBORHOOD FABRIC

C: OGLETHORPE SQUARE CULTURAL PARKS [V.1]

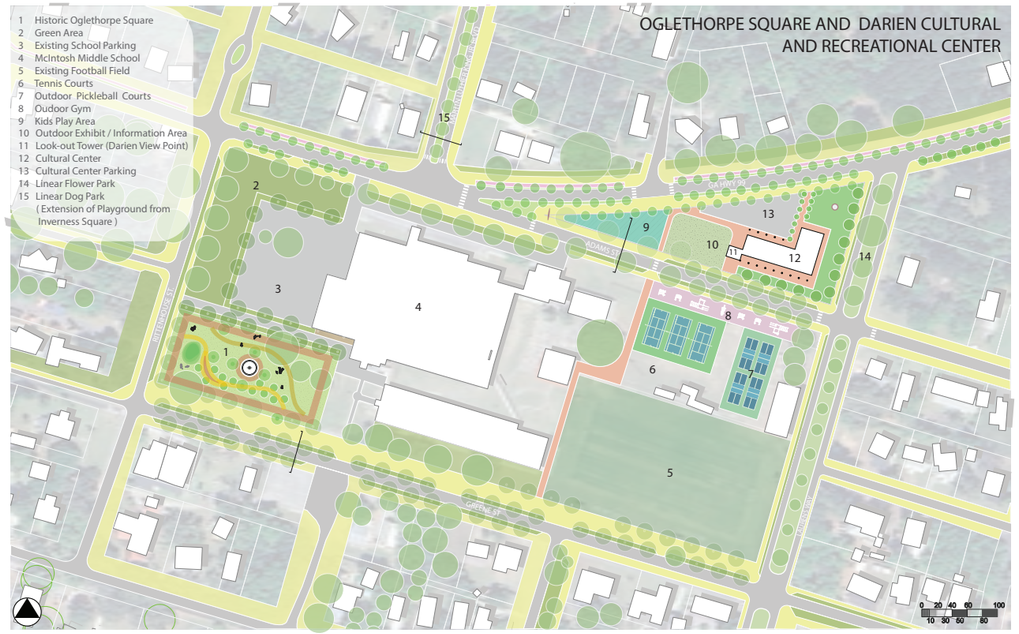




Strategy 1 - Design of Square and activating the edges of the Square.



Strategy 2 - Planning of Eastern Gateway Cultural Center at the intersection of GA 99 and Mcintosh school Campus



Master Plan - Oglethorpe Square and Cultural Center of Darien



Play Area for Kids near Cultural Center



Oglethorpe Square



Typical landscape detail for edgeGreen area / Planting Zone

OPPORTUNITY

The recent reintegration of the Oglethorpe Square historic location presents an opportunity to rethink what it could be as a public space as well as study the potential assets around it. This proposal considers opportunities to connect the redesigned square with a potential “landing zone” location via cultural / visitor’s center that creates a welcome point for the City along GA-99

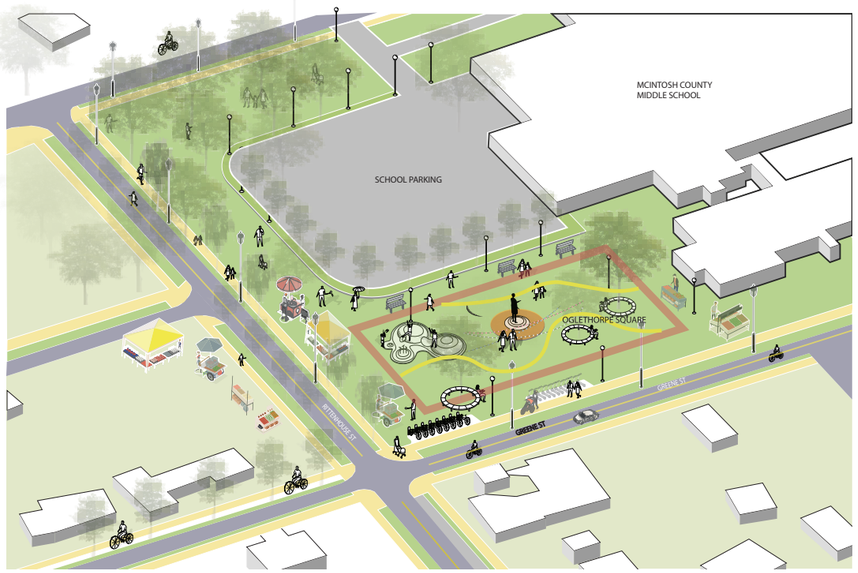
Historic Square of Oglethorpe has opportunity to be envisioned as a place of heritage and community. Like Savannah, it has history worth learning and it can be a great public place for various activites like understanding legacy of Oglethorpe, play area, weekend events etc,. The statue of Oglethorpe in the center, would remember this legacy and educate people. The vision of the Square is also to be lush green area with local plants and trees making it beautiful place to be in.



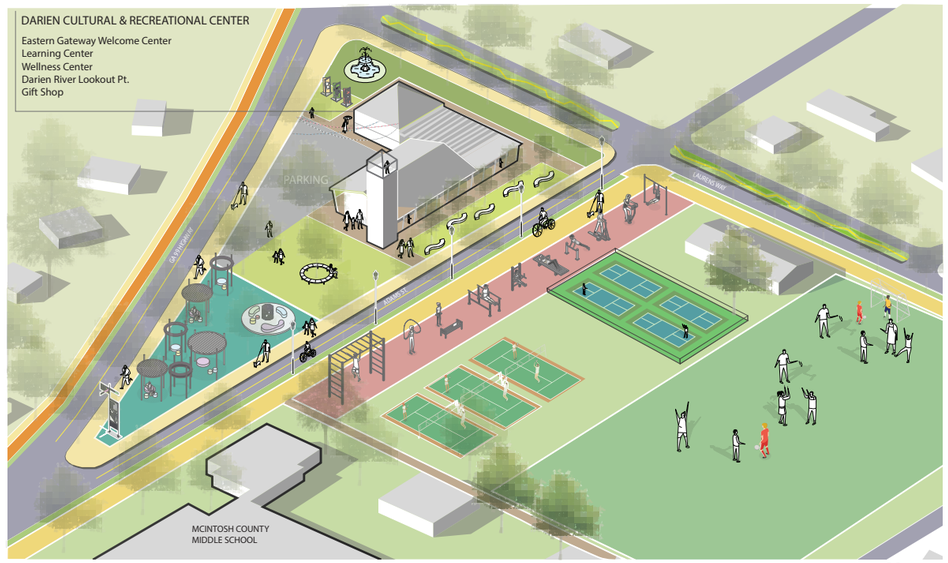
Section through Greene St - Activating the edges of Oglethorpe Square



Section through MLK Jr. Blvd - Activating the edges of Oglethorpe Square - Extending from Inverness square



View of Oglethorpe Square and edges of Greene St. and Rittenhouse St.

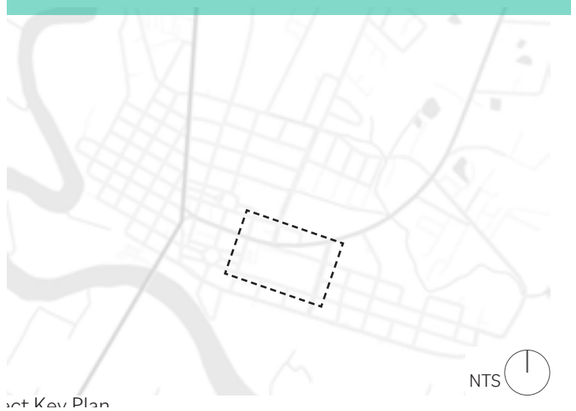


View of Eastern Gateway Welcome Center / Cultural Center with recreational facilities around it.

DARIEN, FRAMEWORK 2

DESIGN DRIVER: ENGAGE THE HISTORIC NEIGHBORHOOD FABRIC

C: OGLETHORPE SQUARE CULTURAL PARKS [V.2]

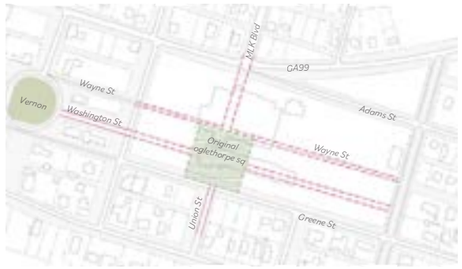


ıct Key Plan

OPPORTUNITY

The recent reintegration of the Oglethorpe Square historic location presents an opportunity to rethink what it could be as a public space as well as study the potential assets around it. This proposal considers opportunities to connect the redesigned square with a potential “landing zone” location via cultural / visitor’s center that creates a welcome point for the City along GA-99

HISTORIC PLAN AS REFERENCE



Original location of the Oglethorpe square according to the historic grid

DESIGN FRAMEWORK



Extension of existing streets guiding framework of the cultural park forming an anchor and marking an arrival from GA99

OGLETHORPE CULTURAL PARK PLAN



0 50 100 200'

1. Sculpture and exhibit park
2. Information and indoor exhibit for visitors
3. Existing school building
4. School + visitors’ parking
5. Existing football field
6. Linear Park
7. New Oglethorpe Square
8. Vernon Square

HIGHLIGHT SPACES FROM THE CULTURAL PARK



A New Oglethorpe Square

The relocated Oglethorpe square acts as a vibrant neighborhood recreational space for community gathering, markets and daily leisure activities, thereby activating the Greens St and Rittenhouse St



B Linear park along Greene Street

A linear park runs parallel to the Greene St acting as an active edge, becoming the play area of the school as well as for the residents with a continuous path connecting Vernon square to the Adams St



C Sculpture Park and exhibit at arrival

The corner triangular parcel becomes a welcoming sculptural park marking an arrival to Darien along GA99. The park has indoor and out door exhibits reflecting Darien’s history, open event space, pop - up markets, community gardens

For more information on this project, scan the QR code

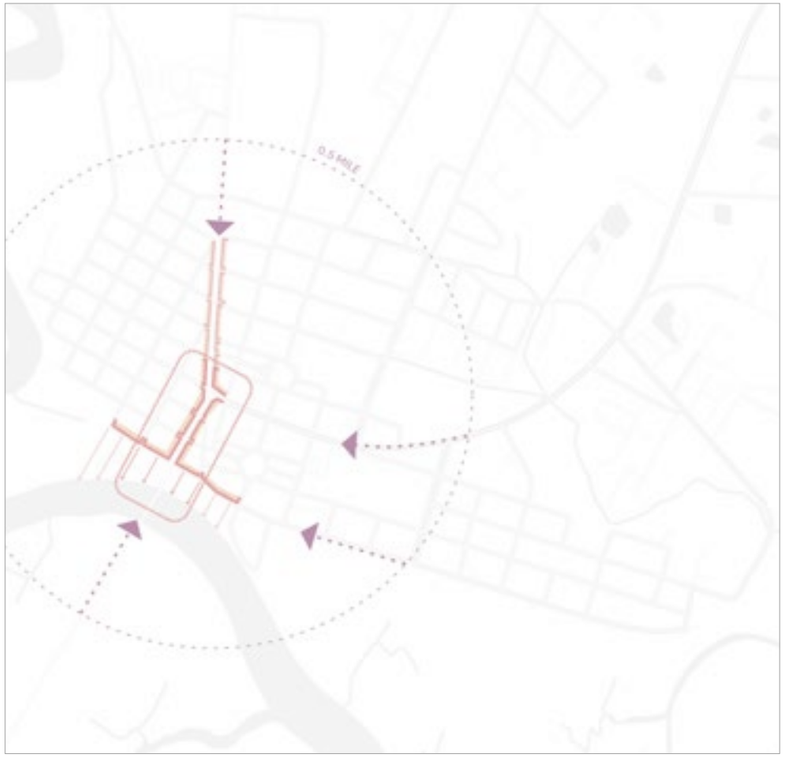
Work by Ojaswi Ajay Chauthaiwale

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

DARIEN
URBAN DESIGN DRIVER:

STITCH THE SEAM BETWEEN STREET & NATURE



ESTABLISH AN ARRIVAL TO DARIEN

Creating a sense of arrival is critical for establishing an active and welcoming experience as people enter Darien. Designing this transition zone to be welcoming and inviting is critical for encouraging people to stop, shop, and explore this historic town on the river.



ACTIVATE THE HISTORIC NEIGHBORHOOD

The history of Darien can still be seen in its urban form. Its remaining public squares are significant public spaces that create valuable opportunities for neighborhood life. These public spaces and their edges are an opportunity to strengthen the downtown core and historic neighborhood character.



STITCH THE SEAM BETWEEN STREET AND NATURE

The rivers and salt marshes are vital assets to the coastal community of Darien. Softening this waterfront edge with pedestrian connections and activating it with new uses will allow people to seamlessly enjoy both the downtown and nature. These connections will respond to both street and water and provide valuable public spaces for the community.

NTS

DARIEN
FRAMEWORK 3
STITCH THE SEAM BETWEEN STREET & NATURE

The marsh landscapes that surround Darien provide many recreational and cultural opportunities. The projects of this framework identify opportune areas where the connection between neighborhoods and the river can be strengthened, and where ecologically responsive interventions can highlight the unique beauty of the landscape.

INTERVENTIONS

[A- ECO- TOURISM IN DOWNTOWN: WEST PENINSULA]
The western peninsula is an opportunity to highlight the native ecology and invite people to immerse themselves in the marshland landscape.

[B- EDGE OF THE BLUFF: BROAD ST TO WATERFRONT]
This project proposes pedestrian access between Broad Street to the water

[C- DOWNTOWN WATERFRONT]
The downtown waterfront is a significant public space for Darien because it provides gathering spaces and an important connection to the water. These projects looks at opportunities to redefine these spaces and imagine new ways to create a vibrant and active waterfront park.

[D- GEORGIA COASTAL ECOLOGY NATURE CENTER]
Darien's unique coastal ecology attracts visitors every year. This project proposes a nature center that is centrally located and provides a connection to the ecology and coastal landscape.

[E- FORT KING GEORGE SITE: OPPORTUNITIES BEYOND STRUCTURE]
The Fort King George Historic Site currently feels disconnected from Darien. However, because it is located adjacent to the East Coast Greenway and the marshes, it provides many unique recreational and cultural design opportunities.



DARIEN, FRAMEWORK 3

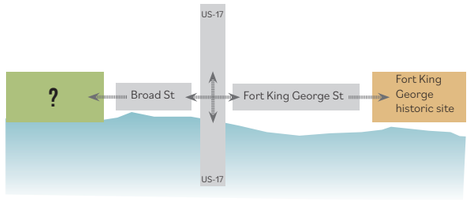
DESIGN DRIVER: STITCH THE SEAM BETWEEN STREET & NATURE

A: ECO- TOURISM IN DOWNTOWN: WEST PENINSULA

OPPORTUNITY

Eco-tourism is a signature attraction for the region. While currently privately owned, this intervention considers the possibility of this largely undevelopable land as an eco-tourism destination that is an anchor and walkable from Downtown.

AN OPPORTUNITY FOR A WESTERN ANCHOR FOR DOWNTOWN DARIEN





10 FEET ABOVE THE CURRENT MEAN HIGH HIGHER WATER LEVEL (MHHW)



TRAIL LOOPS AND CHARACTER AREA



PROPOSING A CONNECTION BETWEEN THE EXISTING BIRD WATCH TRAIL AND THE MARSHES



ACTIVITY ZONE AT THE KAYAK LAUNCH PAD



PANAROMIC VIEWS OF THE MARSHES AT THE BIRD WATCHING DECK



SECTIONAL VIEW AT THE INTERSECTION OF BIRDWATCH TOWER, MAIN TRAIL AND KAYAK LAUNCH



For more information on this project, scan the QR code

Work by Nitiksha Mota

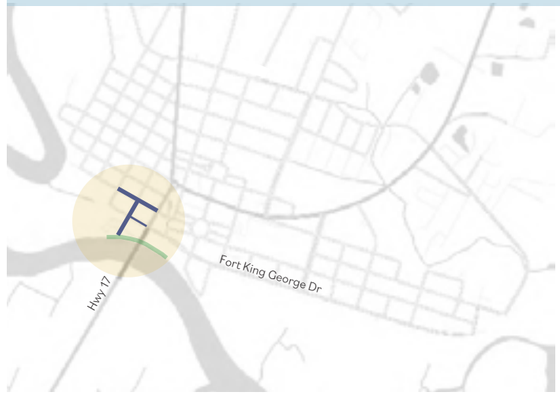
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Resiliency & Growth: Darien and St Marys, GA

DARIEN, FRAMEWORK 3

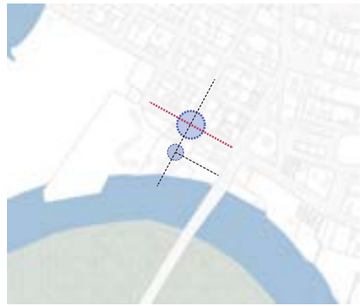
DESIGN DRIVER: STITCH THE SEAM BETWEEN STREET & NATURE

B: EDGE OF THE BLUFF, BROAD ST TO WATERFRONT

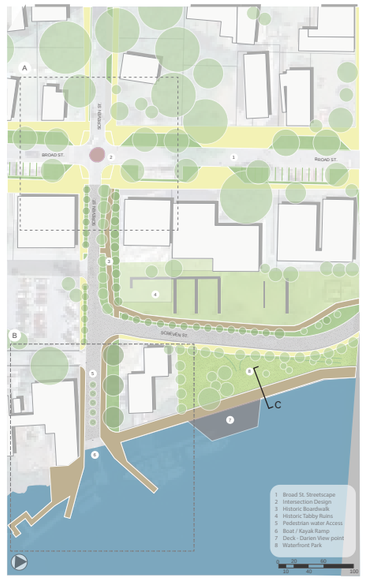


OPPORTUNITY

The connection at Screven St & Broad St to the water's edge is key to Downtown activation. This proposal considered opportunities for improving the street intersection and connection to the water in a way that enhances the sense of place and encourages a more pedestrian oriented environment.



Strategy 1 - Activating and enhancing character of Screven St. and Broad St.



Overall Plan - showcasing proposed street design and Waterfront design.



Strategy 2 - Rethinking the water's edge

The sections below show the existing condition of Broad St. and the proposed design. Dedicating more space to green/Trees and larger sidewalks encourages pedestrian movement. Restricting the lane widths and putting speed restrictions (around 20 mph) creates safe and walkabale community.



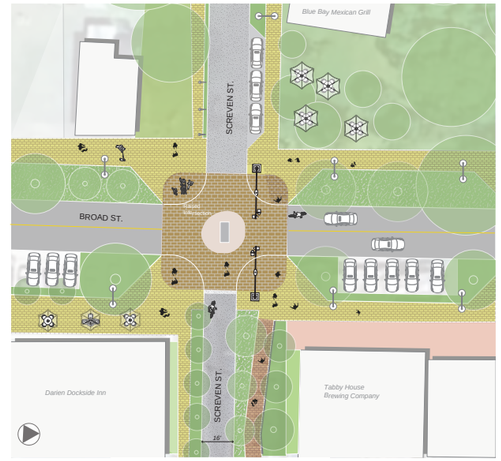
Existing section of Broad St.



Proposed Section of vibrant and active Broad St.



B - Detail Plan - Boat /Kayak Ramp Detail and Living Shoreline



A - Detail Plan - Raised Intersection at Broad St and Screven St.

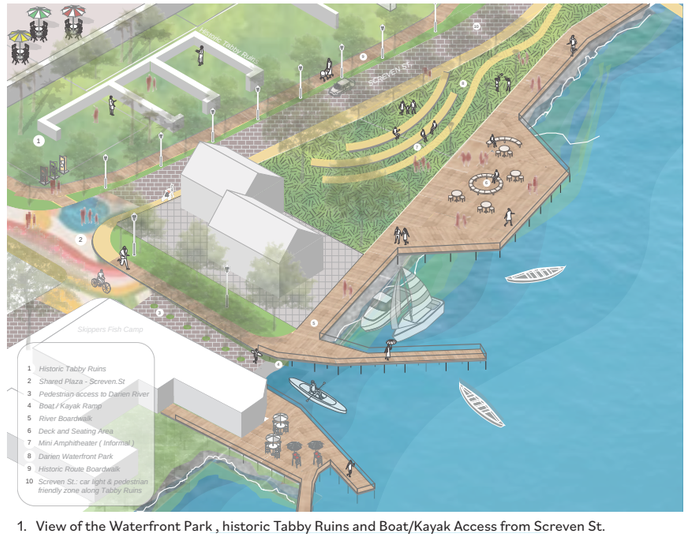
Boat Ramp at the end of Screven St. has a unique opportunity to be celebrated as entance to water edge . Design includes boardwalk s on the both edges of the ramp going beyond into the river creating the views to the Darien river itself. The street from the shared plaza of historic Tabby Ruins to the boat ramp is completely pedestrianised for enhanced boating and Kayaking activities. .



Precedent Image - Boat/ Kayak Ramp with Boardwalks



C - Proposed Section of Darien Waterfront Boardwalk



1. View of the Waterfront Park , historic Tabby Ruins and Boat/Kayak Access from Screven St.

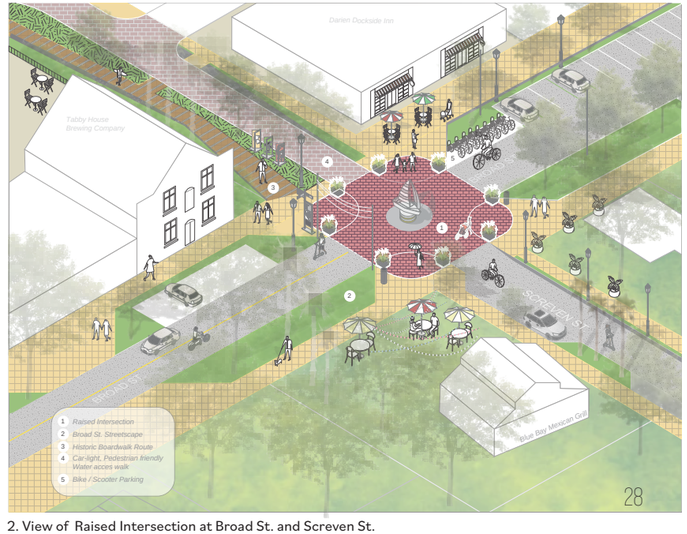
1. View of the Waterfront and Boat / Kayak Ramp

Proposal showcases the edge condition between land the river Darien . The design focuses on pedestrian and bicycle access to water and opportunity of walking along the river through river boardwalk . The waterfront park is the extension of the park on the eastside of the river with amphitheater for local performing programs and also caters as seating for visitors enjoying the beauty of river Darien . Similarly, the deck which extends out into river also provides gathering space and stage area for informal amphitheater . This would create a vibrant and thriving riverfront with tourism opportunities for local residents and visitors. Access to water for Boating and Kayaking created an infinite view of river Darien , with boardwalks on both the sides ,

2. View of intersection of Broad St. and Screven St.

Design of Raised Intersection at Broad St and Screven St. encourages pedestrian and biking access to restaurants, coffee shops in the area. The change in materiality and street elements forces cars to move slowly along the way. The intersection with yacht (as sculptural element at the center also makes it pedestrian friendly space with creating identity to Screven St., which is the part of historic walk route. The boardwalk starts at the entrance of Tabby House Brewing Company which take us to historic Tabby Ruins and also towards the scenic river Darien,

.



2. View of Raised Intersection at Broad St. and Screven St.

DARIEN, FRAMEWORK 3

DESIGN DRIVER: STITCH THE SEAM BETWEEN STREET & NATURE

C: DOWNTOWN WATERFRONT [V.1]



EXISTING CONSTRAINTS

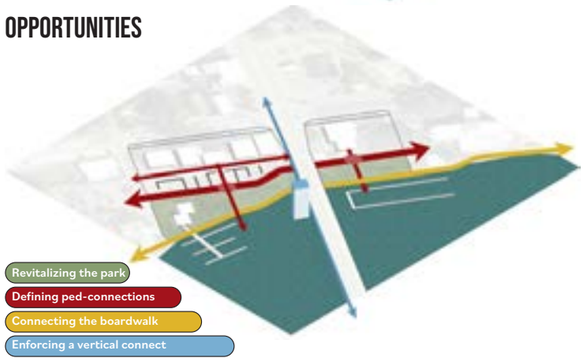
Underutilized Waterfront Park - *The park lacks programming and activation, missing its potential as a dynamic public space.*

Undefined driveway - *A car-centric access route lacks purpose and disrupts the pedestrian flow.*

Bridge as a Barrier - *The highway bridge creates a visual and physical divide between downtown and the waterfront..*



OPPORTUNITIES





OPPORTUNITY

The public connections between the Broad Street and the water's edge is minimally celebrated. In addition, the area in between lacks activation and is largely car-oriented. This intervention shows the potential to create a more people focused condition at these points that expands its usability, while maintain car access.

1 **View from the pedestrian path towards the brewery.**
Integrating Tabby Ruins as part of waterfront design



2 **View of the Blessing of the Fleet festival**
The yearly shrimp festival at Darien as seen from one of the Wine and Brewery restaurants

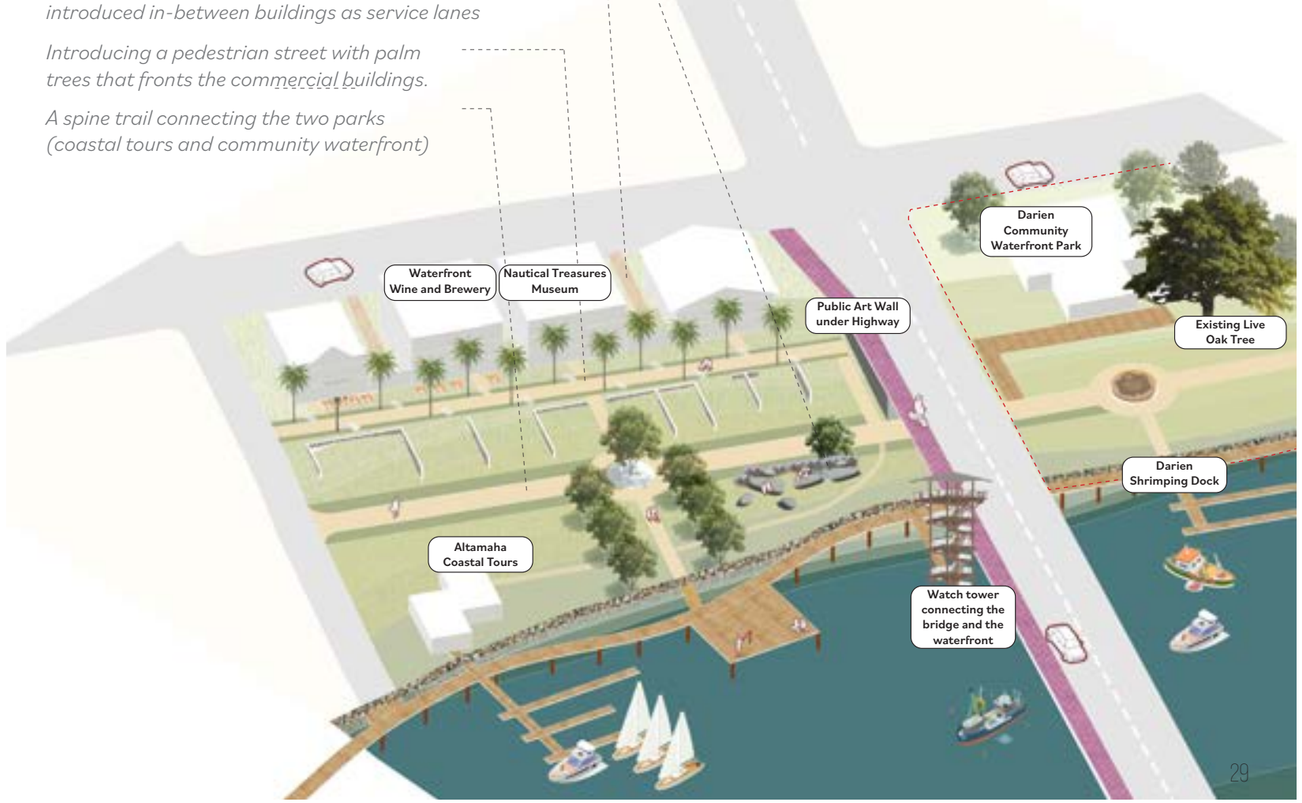


Framing the river as the heart of the city, the new waterfront envisions a pedestrian-first landscape—layered with spaces for leisure, celebration, and connection, honoring Darien's coastal identity.

In the case of two building front, side pathways introduced in-between buildings as service lanes

Introducing a pedestrian street with palm trees that fronts the commercial buildings.

A spine trail connecting the two parks (coastal tours and community waterfront)



For more information on this project, scan the QR code

Work by Shannon Maria

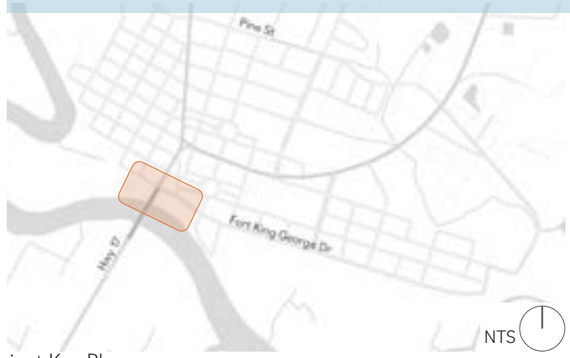
Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

DARIEN, FRAMEWORK 3

DESIGN DRIVER: STITCH THE SEAM BETWEEN STREET & NATURE

C: DOWNTOWN WATERFRONT [V.2]



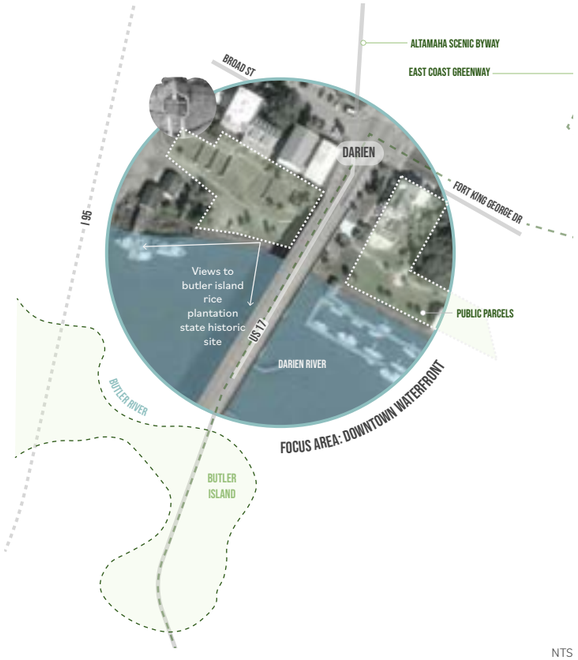
ject Key Plan

ERVENTION INTENT

OPPORTUNITY

The water edge condition between Screven St and the HWY 17 overpass is currently slightly eroded and inactive. This proposal seeks to establish a more natural edge that creates a unique public space destination while highlighting and improving the ecological / infrastructural resilience of the edge.

SITE CONTEXT



NTS

Darien is located at the intersection of many significant infrastructure corridors, recreational networks, natural systems, and cultural heritage overlays. The water front is an important public space that could respond to these influences and amplify their relevance.

SITE PLAN

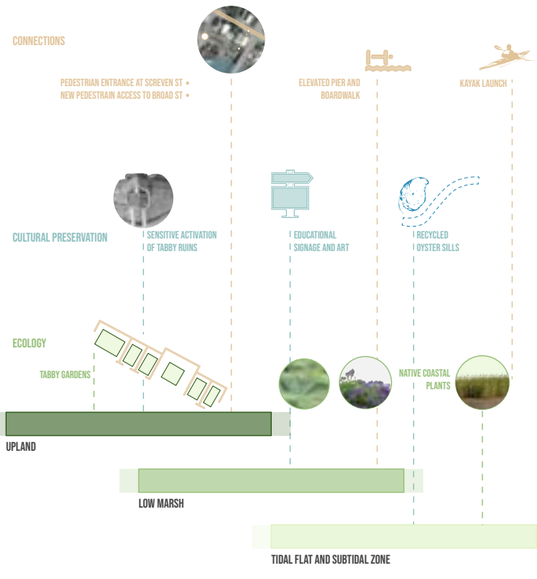
Site Plan Elements

1 12' Pedestrian promenade
2 Shaded tree grove
3 Existing tree grove
4 Gravel courtyard
5 Stone path to water
6 Open lawn
7 Path connection to Broad St
8 Tabby gardens, and public art
9 Crushed stone
10 Boulder scramble
11 Boardwalk
12 Planted islands
13 Slope plantings
14 Screven St. Pedestrian access
15 Boardwalk and pier
16 Kayak Launch
17 Public Plaza
18 Oyster Sills
19 Sculpture Garden

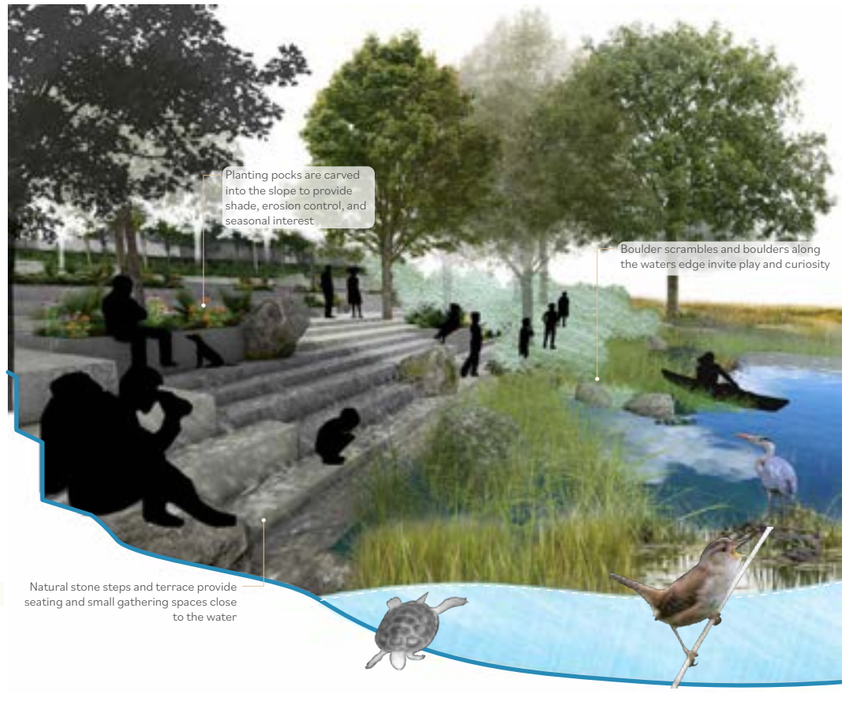


50 100 150
1"= 50'

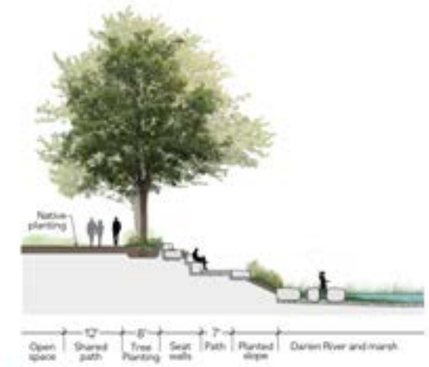
Naturalizing the rivers edge, providing additional connections to Broad Street, and creating interactive ways to engage with the water are some of the primary strategies used to re-imagine what the downtown waterfront could become.



The salt marshes are the comm between the various components of the site. Plants can strengthen the shoreline and improve aquatic habitat while also helping to define that character of the different spaces.

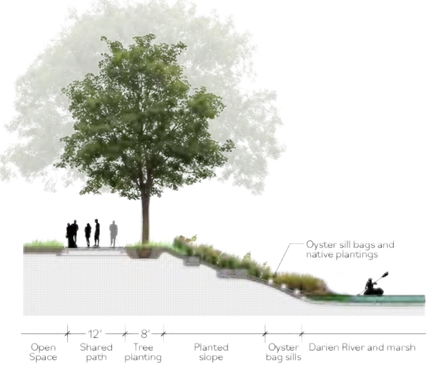


SHORELINE STRATEGIES



SECTION- NATURALIZED SHORELINE: BOULDER SCRAMBLE

A shared use path is shaded by native trees and provides pedestrians and cyclists access and views of the Darien River and marshes. Boulders and natural stone ledges create spaces for people to sit. The river bank is planted with native marsh grasses and perennials. These plantings stabilize the shoreline, provide valuable habitat for wildlife, and create seasonal interest all year.



SECTION- NATURALIZED SHORELINE: LIVING EDGE

A 3:1 slope is planted with native plants such as Red Maple, River Birch, American Beautyberry, Butterfly Milkweed, and Switchgrass. Oyster shell bags are used to protect the shore, provide habitat, and improve water quality.



SECTION- NATURALIZED SHORELINE: STONE TERRACE

A paved plaza along the shared use path provides a gathering space for people at the waterfront. Stone steps take visitors down to a paved terrace, and cut boulders provide seating with river views. Trees and vegetation are planted along the slope to provide slope stabilization and wildlife habitat.

1"= 16'

For more information on this project, scan the QR code

Work by Anna McGovern

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

DESIGN DRIVER: STITCH THE SEAM BETWEEN STREET & NATURE

D: DARIEN NATURE & COASTAL ECOLOGY CENTER



OPPORTUNITY

As a potential destination that establishes Darien as a hub for Eco-tourism, this potential draw contemplates the creation of a nature center utilizing a potentially empty shrimping structure and the area around it. It is well situated for its use given its visibility from the bridge and water with potential connections to the marsh.

Connections & approach



The nature center proposal lines up neatly and conveniently with the layout of Darien. It would be easily accessible from the town's commercial district, as well as line up directly with the fabric of the Oglethorpe squares.





Vision & elements













An elevated birding platform in a National Wildlife Refuge known for rare species like the Aplomado Falcon.

A similar elevated tower in could be built on top of the new nature center, saving space and resources.



A birdhouse garden is an excellent method of bringing the wildlife up close. It is a potential interactive and educational opportunity that also can bring a sense of community and engagement if the homes are built by the locals.



A long-term initiative restoring oyster reefs to filter water and provide marine habitats. Uses recycled oyster shells from restaurants.Darien's shrimping industry could collaborate with local restaurants for shell recycling to help build reefs. This can be attached to the nature center and used as an educational opportunity as well as an environmental one.



Strategic wooden blinds allow birdwatchers to view waterfowl without disturbing them.

Bird blinds could be added near tidal marshes and estuaries to observe migratory shorebirds

Broader opportunities



This scheme also contemplates the future potential of a boardwalk utilizing undevelopable land along the coast. Via acquisition or easements, this supplemental vision to the nature center would expand its educational and recreation opportunities.







Eco-tourism does not need to be solely based off land/water formations and exploring wildlife. A small botanical garden of local vegetation would be a great program to used to help visualize a microcosm of Darien's plant life, while also providing pollinator opportunities.

Darien has intentions but no hard plans on building a nature center. I propose that the redesigned existing building can focus on the aquatic life in Darien, whereas the new structure can be based on the terrestrial wildlife. This Nature Center would act as the heart of the boardwalk.

The boardwalk location enables connections to the proposed historical trail, combining the two interventions, making a cohesive and attractive activity plan for the town's tourism goals.

DARIEN, FRAMEWORK 3

DESIGN DRIVER: STITCH THE SEAM BETWEEN STREET & NATURE

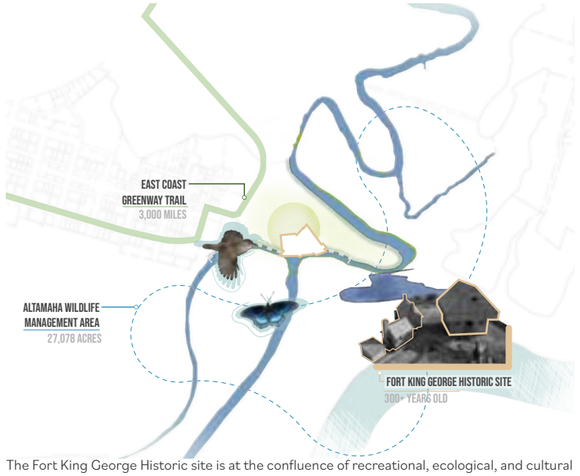
E: FORT KING GEORGE: OPPORTUNITIES BEYOND STRUCTURE



OPPORTUNITY

As one of the most notable tourism destinations, the site to access Ft. King George is ripe for activation and requires a better connection to Fort King George Drive. This intervention contemplates pedestrian connections to the site and the potential recreational and ecological opportunities between the Fort and Fort King George Drive.

SITE CONTEXT



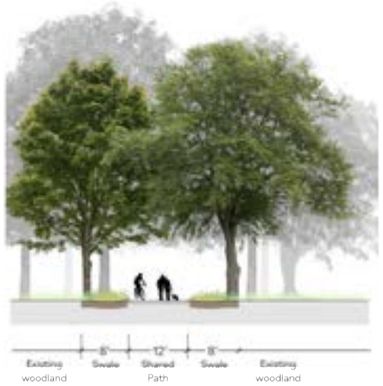
The Fort King George Historic site is at the confluence of recreational, ecological, and cultural influences.

SITE PLAN



Site Plan Elements

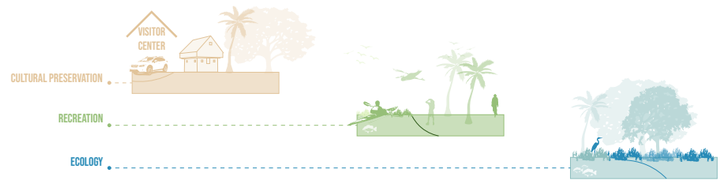
1 Visitor Center
2 Visitor parking
3 Created wetlands
4 Coastal meadow
5 Active Oval
6 East Coast Greenway Connector Trail
7 Congress Street easement access
8 Existing specimen tree
9 Circular bird blind
10 Marshland planting
11 Tree House bird blind
12 Kayak launch
13 Board walk and panel bird blind
14 Boardwalk
15 Fort King George
16 Boardwalk to Fort



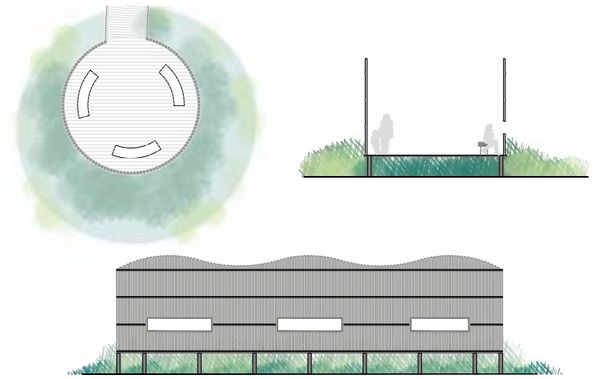
SECTION - FORT KING GEORGE DRIVE TRAIL

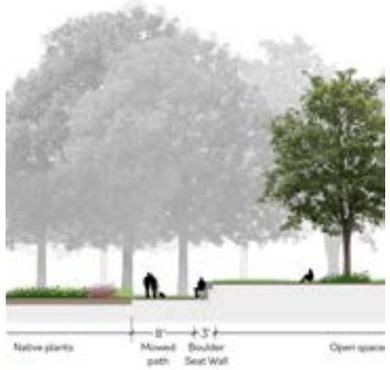
A permeable asphalt path brings pedestrians and cyclists from Fort King George Drive directly into the historic landscape. Existing trees remain and are protected. Additional native trees are infilled along the woodland edge to create an immediate sense of enclosure and arrival. The permeable path allows water to infiltrate its surface, but gentle swales adjacent to the trail can treat any additional runoff before reaching the marshaldnand river.

SITE LAYERS



BIRD BLIND: PLAN, SECTION, ELEVATION OF ONE TYPOLOGY

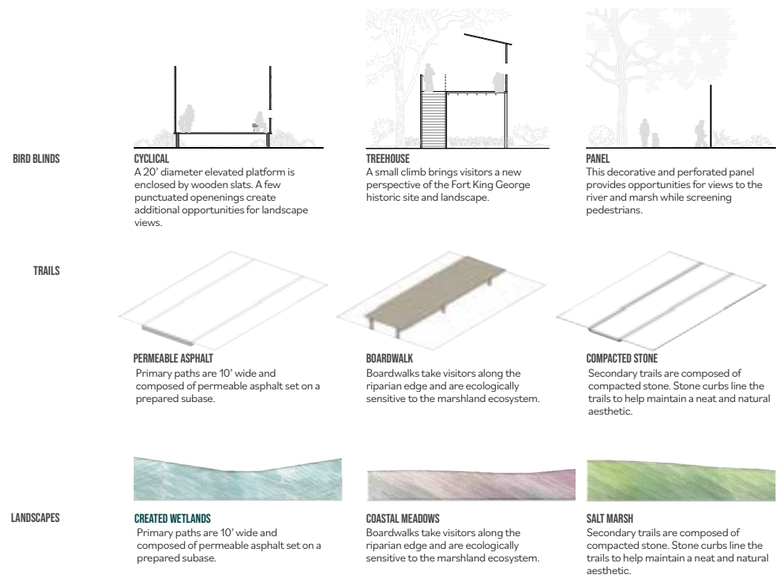




SECTION - ACTIVE OVAL

The active oval recreation trail and adjacent gardens preserves existing trees and reintroduces native plants. Seat walls and a gravel pathway allow places to rest and move as people explore the historic site

TYPOLOGY MATRIX: BIRD BLINDS, TRAILS, AND PERFORMATIVE LANDSCAPES



BIRD BLINDS

CYCLICAL
A 20' diameter elevated platform is enclosed by wooden slats. A few punctuated openenings create additional opportunities for landscape views.

TREEHOUSE
A small climb brings visitors a new perspective of the Fort King George historic site and landscape.

PANEL
This decorative and perforated panel provides opportunities for views to the river and marsh while screening pedestrians.

TRAILS

PERMEABLE ASPHALT
Primary paths are 10' wide and composed of permeable asphalt set on a prepared subase.

BOARDWALK
Boardwalks take visitors along the riparian edge and are ecologically sensitive to the marshland ecosystem.

COMPACTED STONE
Secondary trails are composed of compacted stone. Stone curbs line the trails to help maintain a neat and natural aesthetic.

LANDSCAPES

CREATED WETLANDS
Primary paths are 10' wide and composed of permeable asphalt set on a prepared subase.

COASTAL MEADOWS
Boardwalks take visitors along the riparian edge and are ecologically sensitive to the marshland ecosystem.

SALT MARSH
Secondary trails are composed of compacted stone. Stone curbs line the trails to help maintain a neat and natural aesthetic.



For more information on this project, scan the QR code

Work by Anna McGovern

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS
KEY ASSESSMENTS

As part of this study an analysis of the existing conditions was conducted based on input from stakeholders, previous studies, and on-site assessment. While the analysis was broad, the information below is a synthesis of some of the key existing elements that create a basis from which to develop urban design drivers.

ECONOMIC DRIVER



With a predominantly marine-based economy, St. Mary's Downtown faces a constraint in job diversity, prompting many residents to commute to nearby areas like Jacksonville, Kingsland, and Cumberland Island for a broader range of employment opportunities.

ANCHORING THE IDENTITY OF ST MARYS



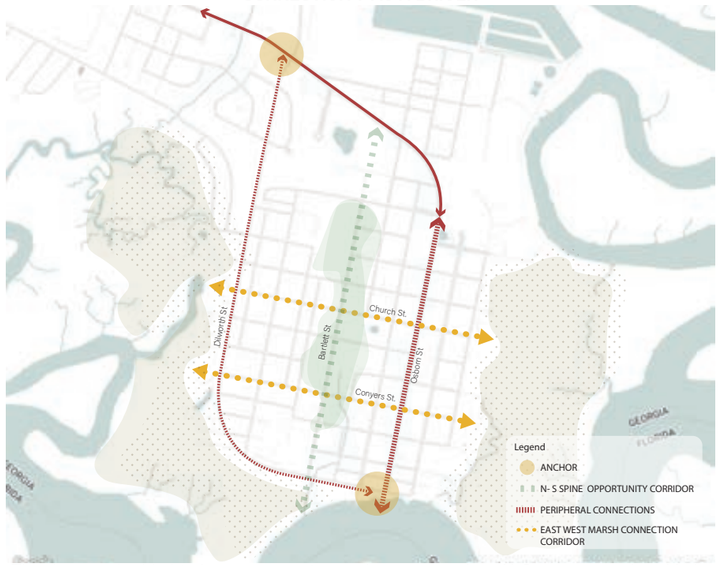
St. Marys the gateway to Cumberland Island, is a pass-through, as visitors drive directly along Osborne Street toward the ferry terminal on St. Marys Street. Reimagining Osborne Street's streetscape and intersections to create deliberate pauses, encouraging visitors to slow down and engage with the city.

TURNING FLOODS INTO OPPORTUNITY IN ST. MARYS



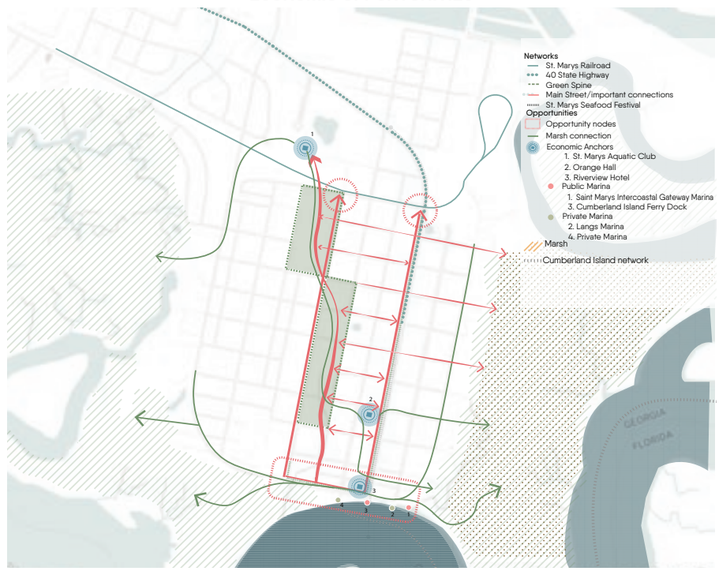
The diagram reimagines flooding as a catalyst for resilience, highlighting catchment areas, green spaces, and marsh mitigation. It shows how four feet of water impacts the historic district while presenting opportunities for adaptive development.

CONNECTIVITY AS A DRIVER



The diagram highlights key movement corridors—an anchor, N-S spine, peripheral links, and an E-W marsh connection—emphasizing their role in enhancing urban accessibility and cohesion.

ECONOMIC OPPORTUNITIES



The site contains valuable existing resources with the potential to act as economic drivers, attracting future development through the integration of established networks, natural infrastructure, and current economic anchors

ST. MARYS
URBAN DESIGN DRIVERS

Based on the key assessments of the City, the urban design drivers below were developed to boil down the key broader urban design strategies that help tell a holistic story about fundamental needs for downtown. These “ drivers” are independently operating and are utilized as frameworks for site-specific interventions geared toward reinforcing their intent.



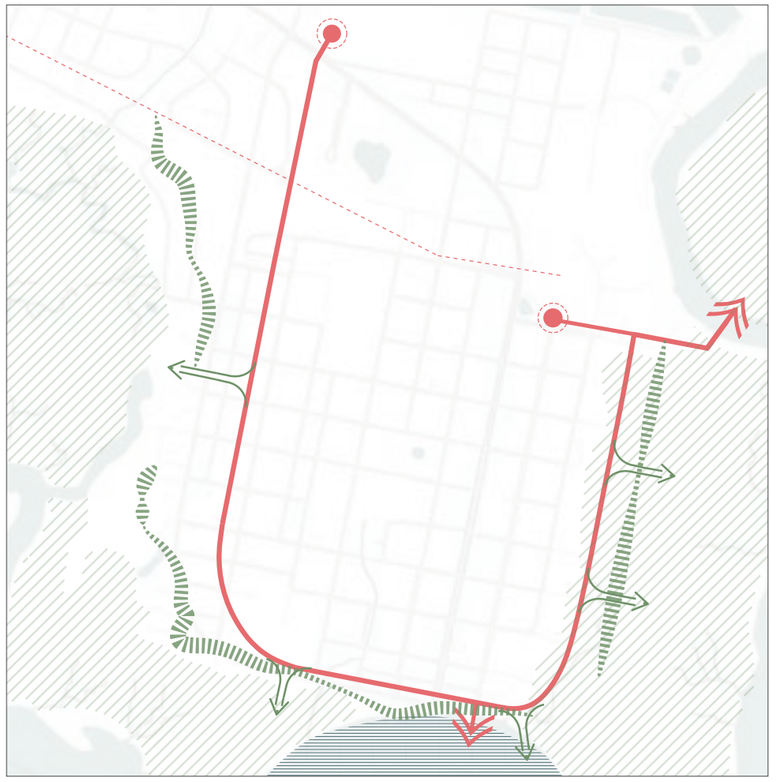
WEAVE THE SPINE WITH THE ST. MARYS COMMUNITY

The middle spine is a crucial connection to the riverfront which can evolve into a dynamic green space, extending towards Osborne Street to support community interaction and recreation. Given the site’s susceptibility to flooding, this challenge can be reframed as an opportunity for adaptive landscape design, incorporating resilient features that enhance both usability and appeal.



STRENGTHENING OSBORNE’S ROLE AND PROMINENCE IN DOWNTOWN ST.MARYS

Osborne Street serves as a vital connector, linking I-95 and State Highway 40 to the St. Marys riverfront. As the city’s commercial and retail spine, it has the potential to be revitalized into a more vibrant and engaging corridor. Enhancing the streetscape, activating key intersections, and fostering east-west connections to the spine and marsh edge can create a more walkable and inviting environment. Strengthening these linkages will not only support local businesses but also encourage community interaction, reinforcing Osborne Street’s role as a dynamic and accessible downtown destination.

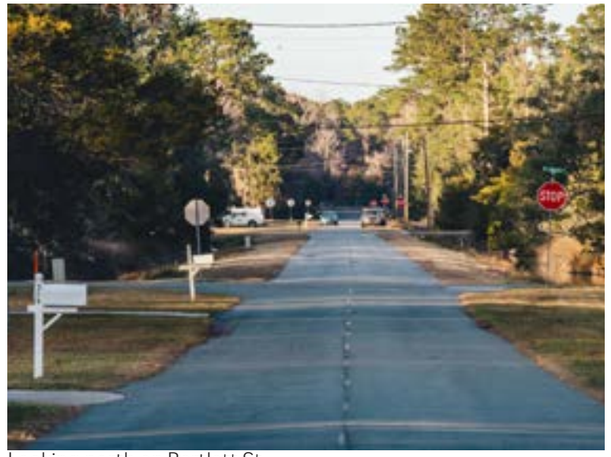


INTEGRATING THE COASTAL AND NEIGHBORHOOD EDGES

Dilworth Rd and St. Marys St. forms the hard edge where the community meets the migrating marsh, creating challenges for resilience. Rising sea levels and storm surges threaten the boundary, requiring adaptive strategies. Enhancing permeability through green infrastructure, marsh walks, piers and wetlands can buffer flooding while maintaining access. Waterfront Development can integrate public spaces, streetscape, ensuring long term ecological, economical and community resilience.

ST. MARYS
EXISTING CHARACTER


Looking south on Highway 17


Looking north on Bartlett St


Wood Stork spotted in the wetlands


Residential neighborhood near the spine


Intersection of St Marys St and Osborne St


Shopping area on Osborne St


Shopping area on Osborne St


Looking south on Osborne St towards the St. Marys River


Dock views from St. Marys waterfront park


View looking east towards marshlands


View looking east towards marshlands


Boat launch area on Wheeler St

ST. MARYS
MATRIX OF INTERVENTIONS AND TYPOLOGIES

The elements below are considered potential typological responses suitable for Darien and St. Marys. Precedent research was conducted for each typology to provide examples of existing projects and their attributes. The primary focus of these interventions lies in public realm projects with some influence or consideration for private development.

A. INTERVENTIONS ORGANIZED BY FRAMEWORK

B.

C.

TYPOLOGIES ORGANIZED BY FOCUS

INTERVENTION TYPOLOGIES

STREETS & INFRASTRUCTURE
1 BOULEVARD DESIGN/ COMPLETE STREETS
2 GREEN STREETS/ GREEN INFRASTRUCTURE IN THE R.O.W WAY
3 BICYCLE BOULEVARD NETWORKS/ INTERSTATE TRAIL INFRASTRUCTURE
4 SHARED STREETS/ WOONERFS
5 MICROGRIDS/ ALTERNATIVE ENERGY

ECOLOGY & INFRASTRUCTURE
6 CREATED WETLANDS
7 FLOOD PARKS/ STORMWATER PARKS
8 ALTERNATIVE/ RE- USE MATERIALS FOR COASTAL ENVIRONMENTS
9 PRIVATE/ SINGLE PROPERTY GREEN INFRASTRUCTURE STRATEGIES
10 GREEN- GRAY INFRASTRUCTURE FOR COASTAL COMMUNITIES

WATER'S EDGE
11 OYSTER REEF/ SHRIMP HABITAT RESTORATION/ CREATION
12 RIPARIAN BUFFERS
13 TIDAL MARSH RESTORATION
14 LIVING SHORELINE
15 ECOLOGICAL/ SUSTAINABLE RIVERFRONT DESIGN
16 WATER ACCESS

ECOTOURISM & RECREATION
17 ECO- TOURISM VISITORS CENTERS/ VENUES
18 BIRDING TOURISM
19 CULTURAL/ HERITAGE TRAILS
20 COMMUNITY/ CULTURAL PARKS
21 URBAN FARMING STRATEGIES IN SMALL TOWNS
22 MARSHLAND/ WETLAND TRAILS

DEVELOPMENT & INFILL
23 ECO- VILLAGE DESIGN
24 SOUTHERN COASTAL VERNACULAR ARCHITECTURE
25 INCUBATOR RETAIL IN SMALL TOWNS
26 WORKFORCE/ INDUSTRY HOUSING IN TOURISM COMMUNITIES
27 HISTORIC MAIN STREET INFILL DEVELOPMENT
28 FLOOD/ TIDE CONSCIOUS DEVELOPMENT

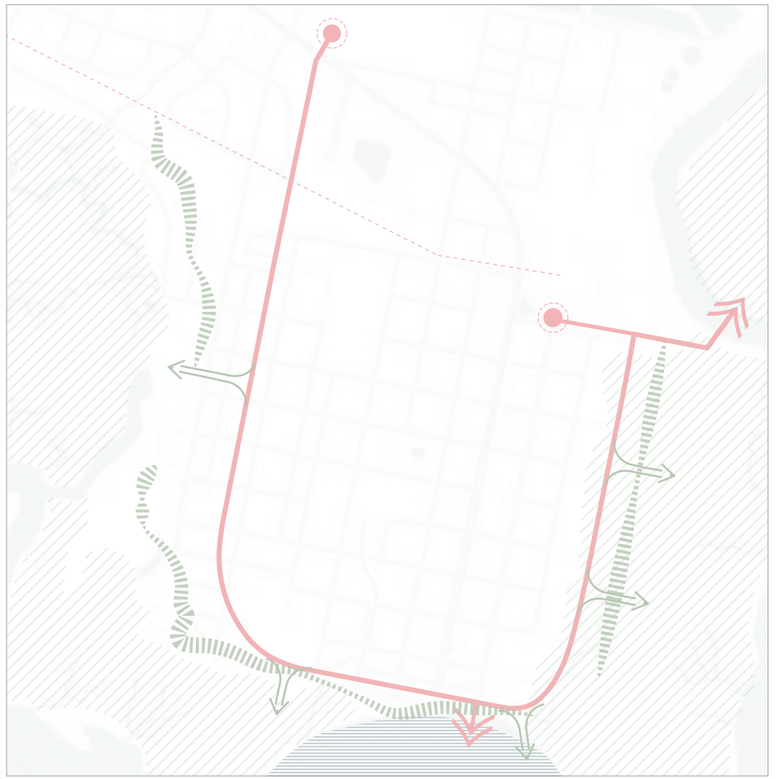
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
WEAVE THE SPINE WITH THE ST MARYS COMMUNITY																												
THE SPINE CORRIDOR AND CHARACTER	☐	☐	✓	☐	☐	✓	✓	✓	☐	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	☐	☐	✓	☐	☐	✓	✓
RETHINKING BARTLETT STREET	✓	✓	✓	☐	☐	✓	✓	☐	☐	✓	☐	✓	☐	☐	☐	✓	☐	✓	✓	✓	☐	☐	☐	☐	☐	☐	☐	✓
ECOLOGICAL TRAILHEAD	✓	✓	✓	✓	☐	✓	✓	✓	☐	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	☐	☐	☐	☐	☐	☐	✓
SPINE NORTH	☐	✓	☐	☐	☐	✓	✓	☐	☐	☐	☐	✓	✓	☐	☐	☐	✓	✓	☐	☐	✓	☐	☐	☐	☐	☐	☐	✓
SPINE CENTRAL	✓	✓	✓	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
STRENGTHENING OSBORNE'S ROLE AND PROMINENCE																												
RETHINKING OSBORNE STREET	✓	✓	✓	✓	☐	☐	✓	☐	✓	☐	☐	☐	☐	☐	☐	✓	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	✓
OSBORNE CORNER CONDITIONS	✓	✓	✓	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
OSBORNE'S STREETS AND INTERSECTIONS	✓	✓	✓	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
OSBORNE NORTHERN GATEWAY	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	✓	✓
PLANNING FOR GROWTH ON OSBORNE STREET	✓	✓	✓	✓	☐	☐	✓	✓	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
EAST- WEST CONNECTIONS TO THE SPINE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
INTEGRATING COASTAL AND NEIGHBORHOOD EDGE																												
ST MARYS STREET EAST: WATERFRONT EDGE OPPORTUNITIES	✓	✓	✓	✓	☐	✓	✓	☐	☐	✓	☐	☐	✓	☐	✓	☐	✓	✓	☐	☐	✓	☐	☐	☐	☐	☐	☐	✓
EASTERN MARSHWALK AND ECOLOGICAL HUB	✓	✓	✓	✓	☐	✓	✓	✓	☐	✓	☐	✓	☐	✓	☐	✓	✓	✓	✓	☐	✓	☐	☐	✓	☐	☐	☐	✓
ST MARYS STREET: AMPLIFYING THE DRAINAGE BASIN	✓	✓	✓	✓	☐	✓	✓	✓	☐	✓	✓	☐	✓	✓	✓	✓	☐	✓	✓	✓	☐	☐	☐	☐	✓	✓	✓	✓
RIVER FRONT ACTIVATION AND EDGE CONDITION	✓	✓	✓	✓	☐	✓	✓	✓	☐	✓	✓	✓	✓	✓	✓	☐	☐	✓	✓	✓	✓	☐	☐	☐	✓	✓	☐	✓
ECOLOGICAL TRAILHEAD TO THE SPINE AND WATERFRONT	✓	✓	✓	✓	☐	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	☐	✓	✓	✓	✓	✓	☐	☐	✓	✓	☐	☐	✓
CONTEXT SENSITIVE DEVELOPMENT ALONG ST MARYS STREET	✓	✓	✓	✓	✓	☐	☐	✓	✓	✓	☐	☐	☐	☐	☐	☐	✓	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	✓

ST. MARYS
URBAN DESIGN DRIVER:

WEAVE THE SPINE WITH THE ST. MARY'S COMMUNITY







WEAVE THE SPINE WITH THE ST. MARYS COMMUNITY

The middle spine is a crucial connection to the riverfront which can evolve into a dynamic green space, extending towards Osborne Street to support community interaction and recreation. Given the site's susceptibility to flooding, this challenge can be reframed as an opportunity for adaptive landscape design, incorporating resilient features that enhance both usability and appeal.

STRENGTHENING OSBORNE'S ROLE AND PROMINENCE IN DOWNTOWN ST.MARYS

Osborne Street serves as a vital connector, linking I-95 and State Highway 40 to the St. Marys riverfront. As the city's commercial and retail spine, it has the potential to be revitalized into a more vibrant and engaging corridor. Enhancing the streetscape, activating key intersections, and fostering east-west connections to the spine and marsh edge can create a more walkable and inviting environment. Strengthening these linkages will not only support local businesses but also encourage community interaction, reinforcing Osborne Street's role as a dynamic and accessible downtown destination.

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ST. MARYS

FRAMEWORK 1

WEAVE THE SPINE WITH THE ST. MARYS COMMUNITY

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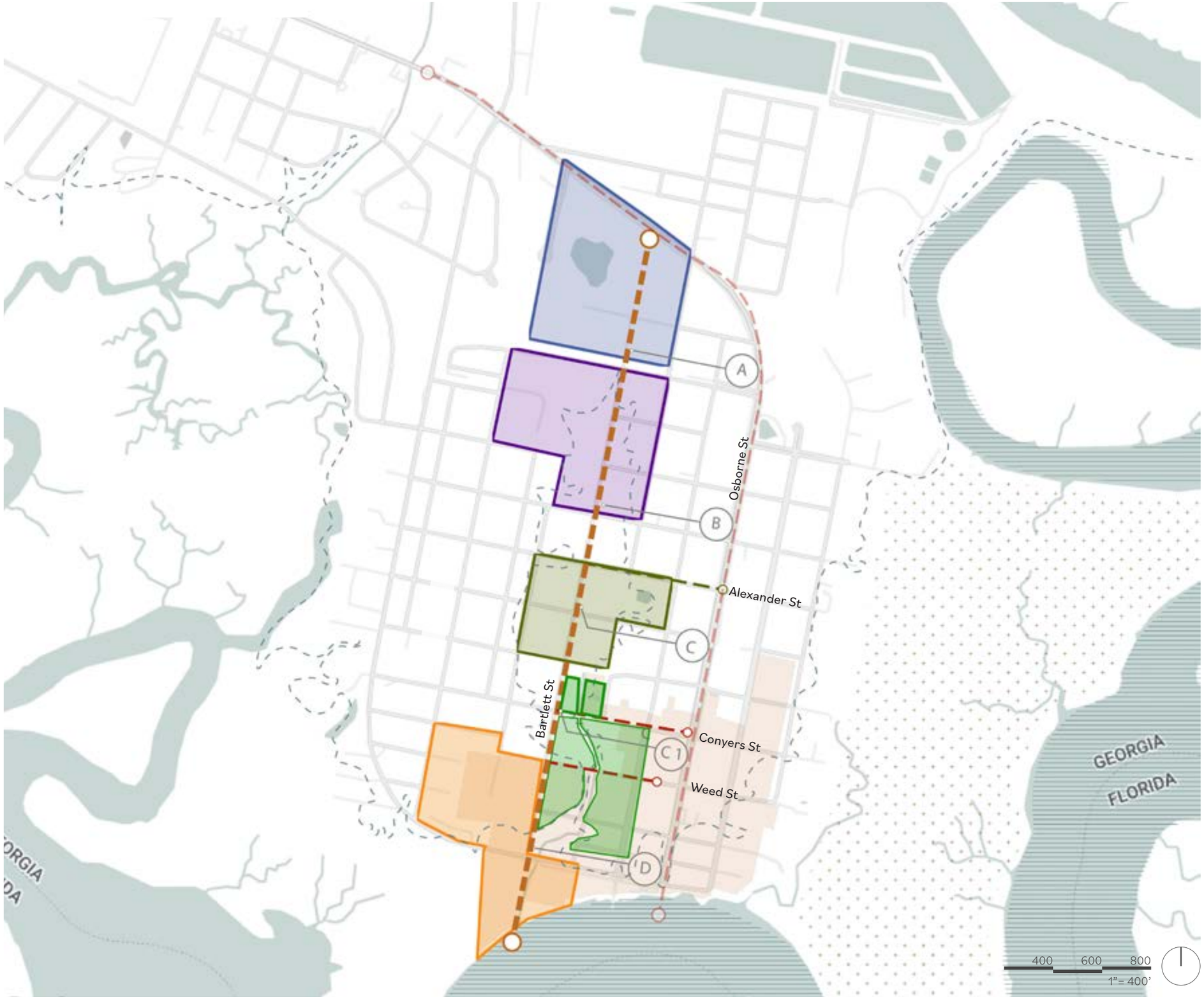
INTERVENTIONS

THE SPINE CORRIDOR & CHARACTER

THE SPINE NORTH: ECO- RECREATION CENTER

WATERFRONT TRAILHEAD

THE SPINE CENTRAL: GREEN- SCAPE



ST. MARYS, FRAMEWORK 1

DESIGN DRIVER: WEAVE THE SPINE WITH ST. MARYS COMMUNITY

THE SPINE CORRIDOR & CHARACTER



As the City of St. Marys looks to address flood resilience alongside eco-tourism, this proposal explores typological strategies along the entire spine corridor. It presents a holistic framework for the phased and consistent implementation of the spine eco trail and open space network. The proposal also emphasizes integrating the historic Oak Grove Cemetery and the St. Marys History Walk into the spine as key cultural and ecological assets. By connecting the Tabby Trail in the south to the Trail with Rail in the north, the spine becomes a continuous eco-trail that links the city's natural systems with its historic fabric. This study lays the groundwork for future design guidelines for ecological sensitive development along the spine.

OPPORTUNITY

As the Spine becomes a formalized entity, it will be important to identify typologies for intervention in order to promote a cohesiveness in character, material, and constructability. This proposal looks at the spine corridor as a whole to begin to establish those typologies





HISTORIC CEMETERY



BOARDWALK



WATERLOO PARK



SPORTS PARK

For more information on this project, scan the QR code

Work by Sathish Velumathi

Georgia Tech | Urban Design Studio 2

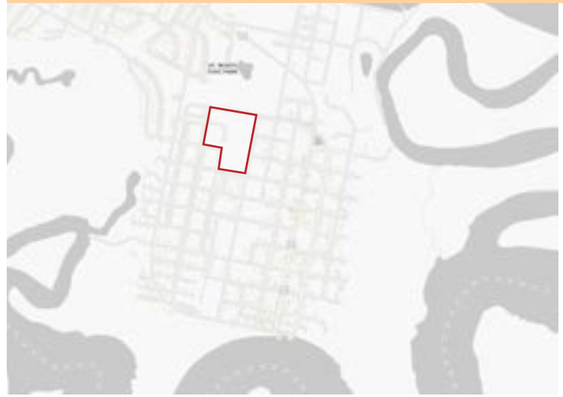
Resiliency & Growth: Darien and St Marys, GA

Curated Vistas · Shorebirds · Flood Protection · Public Intervention · Wading birds · Sediment Reduction

ST. MARYS, FRAMEWORK 1

DESIGN DRIVER: WEAVE THE SPINE WITH ST. MARYS COMMUNITY

THE SPINE NORTH: ECO- RECREATION CENTER [V.1]



OPPORTUNITY

This area of the potential spine alignment has a large amount of publicly owned but already impacted/developed land. This presents an opportunity for more intensive eco-tourism related program mixed with re-wilding and preservation of existing canopy along the eastern side of the study area

KEY DESIGN CONSIDERATIONS



Existing site conditions showing downward-sloping contours, a detention pond, and low-lying areas.

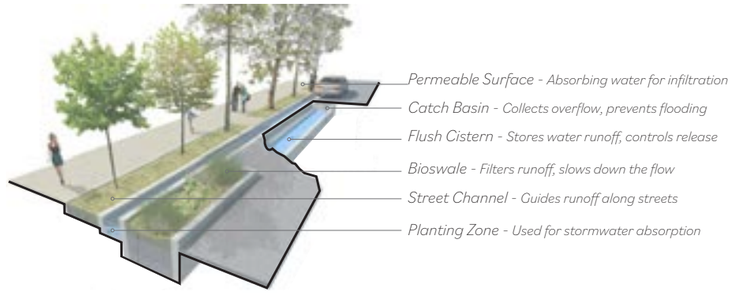


Utilizing site contours with added ponds and a bioswale along Bartlett Street to manage low-lying areas



Establishing east-west and north-south links through boardwalks; development on disturbed land

GREEN INFRASTRUCTURE ALONG BARTLETT STREET - BIOSWALE



ENGAGEMENT SPACE



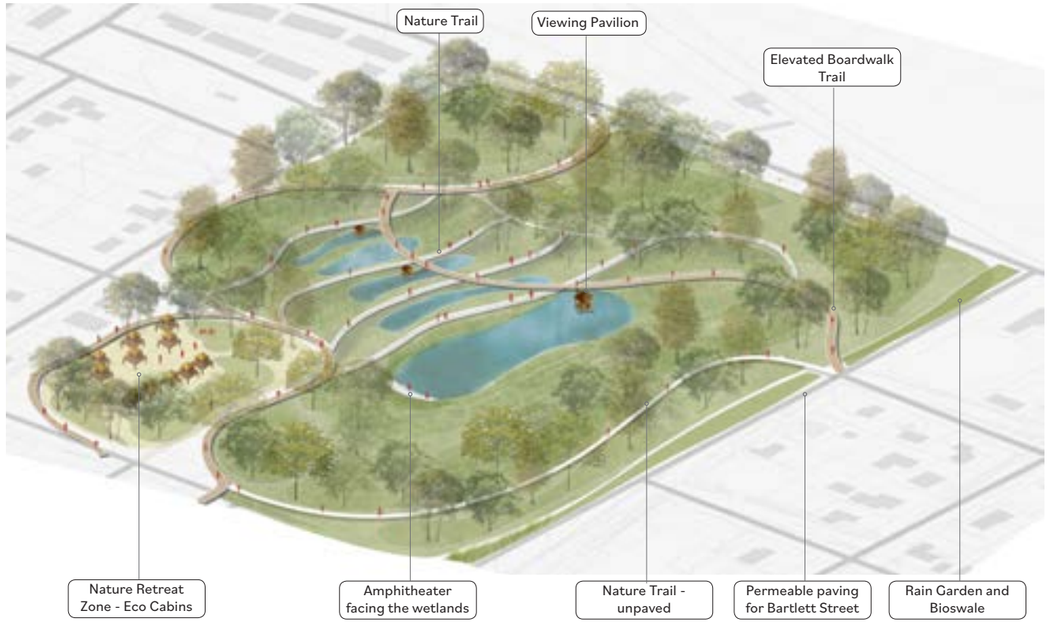
Amphitheater built on disturbed land, offering an engagement space for people within the wetlands

ECOLOGICAL ACTIVATION ALONG THE CREATED WETLANDS



1. *Detention pond*
2. *Elevated boardwalk trail*
3. *Nature trail*
4. *Multi-use trail*
5. *Amphitheater*
6. *Smaller detention ponds*
7. *Bird-watching trail*
8. *Scenic trail*
9. *Rain Garden and Bioswale*
10. *Nature Retreat zone*
11. *Recreation zone*

SPINE AS A PERFORMATIVE LANDSCAPE



SECTION THROUGH THE DETENTION PONDS AND WETLAND



For more information on this project, scan the QR code

Work by Drishti Shah

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 1

DESIGN DRIVER: WEAVE THE SPINE WITH ST. MARYS COMMUNITY

WATERFRONT TRAILHEAD [V.1]



OPPORTUNITY

The intersection of the Spine, St.Marys Street and the water's edge creates is a tremendous opportunity to bring all the of the major ecological assets of St.Marys together as a trail-head or gateway. This proposal contemplates the potential programmatic and public realm interventions that could enable this type of place-making

DIAGRAMS



Trail head to the Spine and St Marys St



Existing hard edge condition

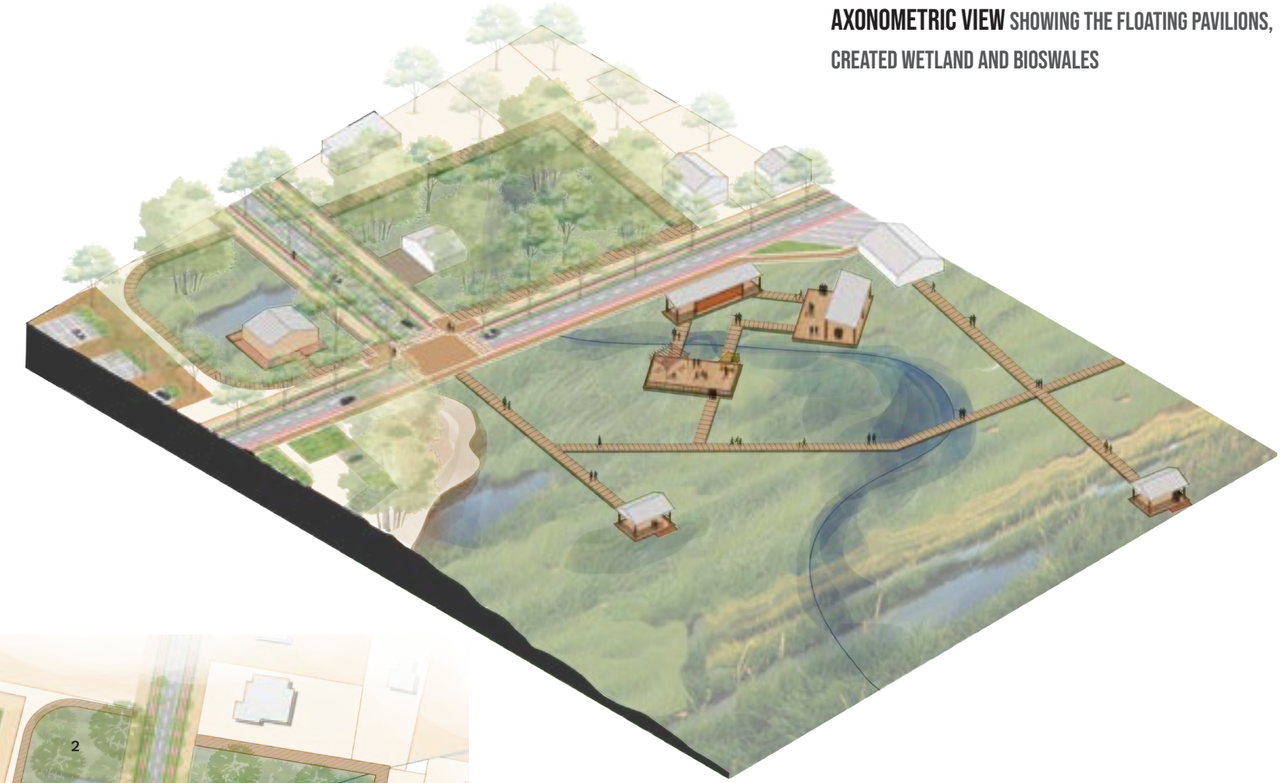


Soften edges for marsh performative landscapes

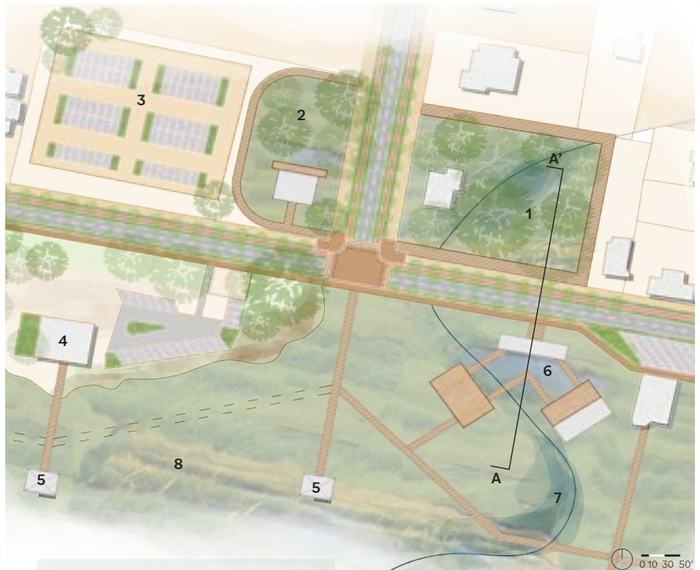


Viewpoints to celebrate marsh

AXONOMETRIC VIEW SHOWING THE FLOATING PAVILIONS, CREATED WETLAND AND BIOSWALES



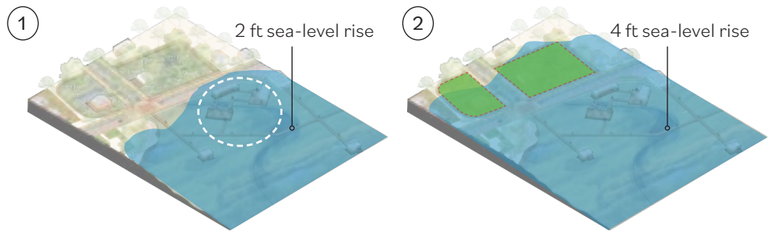
THE SPINE HEAD PLAN



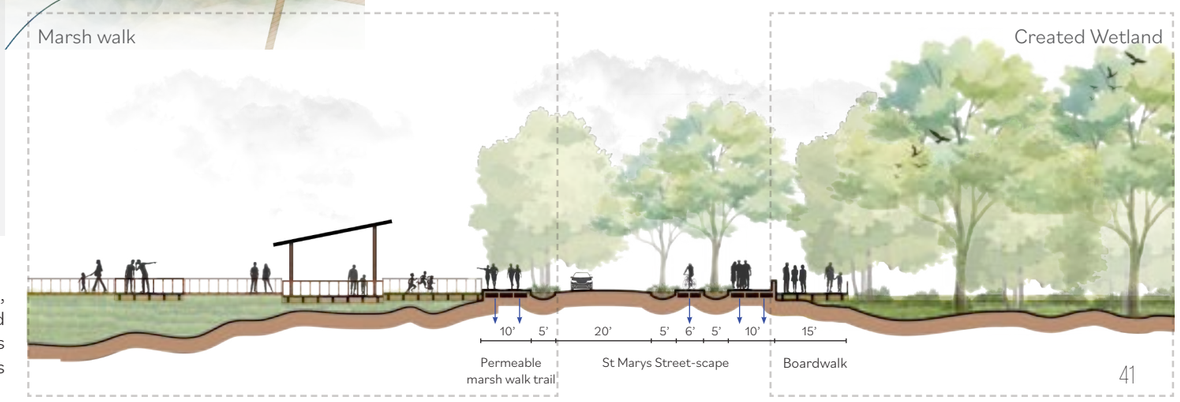
LEGEND

1	Created wetland
2	Bioswale and visitor center
3	Permeable parking
4	Existing Restaurant
5	Viewing deck
6	Public pavilions
7	Stormwater park
8	Untouched marsh

Permeable pavements, rain gardens, and floodable parks are introduced to capture stormwater. St. Marys Street is enhanced with bike lanes and widened sidewalks



Designed for flood mitigation, the proposal uses resilient boardwalk materials and situates stormwater parks and detention ponds nearby



For more information on this project, scan the QR code

Work by Srushti S Delhivala

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 1

DESIGN DRIVER: WEAVE THE SPINE WITH ST. MARYS COMMUNITY

WATERFRONT TRAILHEAD [V.2]



OPPORTUNITY

This area of the potential spine alignment has a large amount of publicly owned but already impacted/developed land. This presents an opportunity for more intensive eco-tourism related program mixed with re-wilding and preservation of existing canopy along the eastern side of the study area

FLOOD ZONE ASSESSMENT

Analyzing Flood Impact Zones



50-Year Flood Predicted Depths



Categorizing Levels of Potential Preservation



Connecting to Neighborhoods



FLOOD RESILIENCE LANDSCAPE & DESIGN STRATEGIES

Gateway to the St. Marys Spine



Ecologically sensitive zones



A: Primary Boardwalk

Elevated boardwalk with environmental center and multi-use floodable park zone for recreation and storm water management.



B: Secondary Trail

Low-impact raised trail through inner wetlands, designed for water accommodation, wildlife immersion, and birdwatching.



A restored wetland spine weaving boardwalks, trails, and green infrastructure to strengthen flood resilience and reconnect St. Mary's community with nature.

For more information on this project, scan the QR code

Work by Jeel Patel

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 1

DESIGN DRIVER: WEAVE THE SPINE WITH ST. MARYS COMMUNITY

WATERFRONT TRAILHEAD [V.2]



ject Key Plan

OPPORTUNITY

The intersection of the Spine, St.Marys Street and the water's edge creates is a tremendous opportunity to bring all the of the major ecological assets of St.Marys together as a trail head or gateway. This proposal contemplates the potential programmatic and public realm interventions that could enable this type of place-making



PROPOSED GATEWAY AT ST MARYS ST AND BARTLETT ST INTERSECTION

Scan for more info

For more information on this project, scan the QR code

Work by Sathish Velumathi

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 1

DESIGN DRIVER: WEAVE THE SPINE WITH ST. MARYS COMMUNITY

THE SPINE CENTRAL: GREEN- SCAPE [V.1]



OPPORTUNITY

At the core of the potential spine alignment, this proposal explores the potential ways in which trails and infrastructure can be implemented with certain intensities. Opportunities exists for elevated trails throughout but final alignments will depend on ecological sensitivity and desired approach.

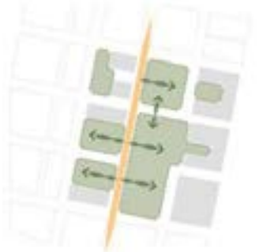
STITCH THE GREEN SPINE WITH BARTLETT STREET AS A CORRIDOR



Preserving and restoring existing green infrastructure with minimal interventions



Establishing Bartlett St as a connective corridor with big interventions



Integrating the green infrastructure with the corridor as a cohesive corridor

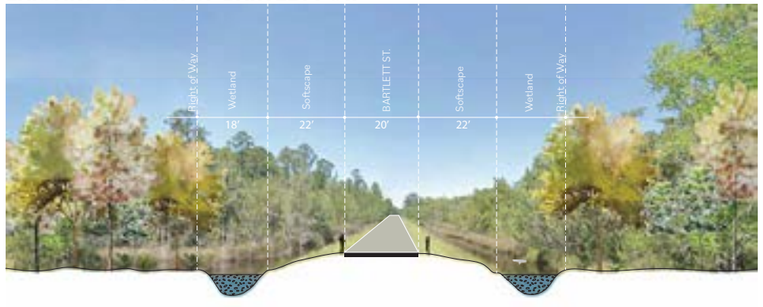
ISOMETRIC VIEW



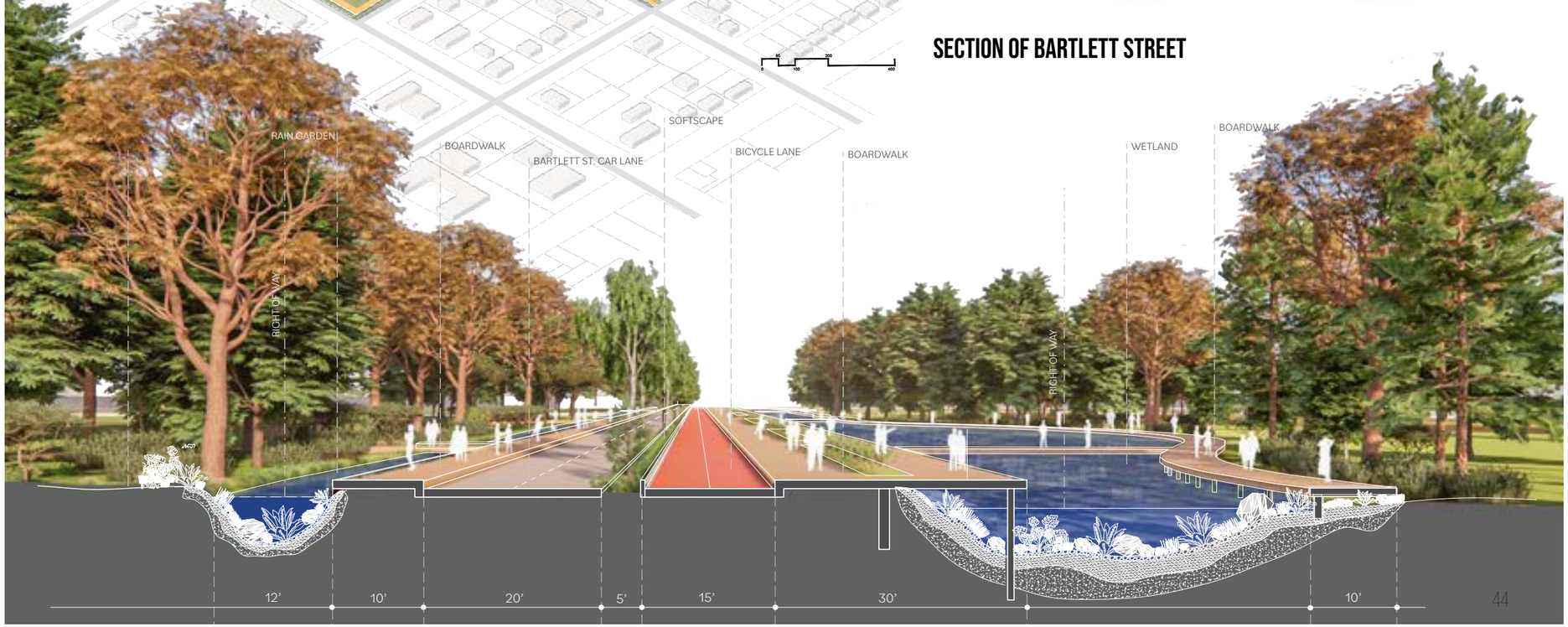
VIEW OF SPINE TRAIL



EXISTING SECTION OF BARTLETT ST.



SECTION OF BARTLETT STREET



For more information on this project, scan the QR code

Work by Ana Lugones Saucedo

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 1

DESIGN DRIVER: WEAVE THE SPINE WITH ST. MARYS COMMUNITY

THE SPINE CENTRAL: GREEN- SCAPE [V.2]



OPPORTUNITY

At the core of the potential spine alignment, this proposal explores the potential ways in which trails and infrastructure can be implemented with certain intensities. Opportunities exists for elevated trails throughout but final alignments will depend on ecological sensitivity and desired approach.

DEFINING THE SPINE
KEY DESIGN STRATEGIES



Ravine Spine Identified
(Highlights the green, continuous ravine corridor as a structuring spine)



Low-Lying Developable Parcels
(Shows city-owned, flood-prone land with potential for development)



Vacant Land Reimagined
(Illustrates transformation into usable space with detention integration)

GATHERING SPACES VIEWS



Garden-like open space with bioswales and a multigenerational play area, blending nature, play, and community use. **View at E**



Open space with playful paths, bird-watching zones, and heritage signage, open detention pond space integrated into community garden, ***View at A***

AERIAL VIEW SHOWING INTEGRATED GREEN INFRASTRUCTURE AND THE SPINE CONNECTING ST. MARYS COMMUNITY.



A- *Flexible Detention Play Zone*
Multi-use space with bioswales and seasonal retention ponds; usable for play when dry.

B *-Existing extention to drainage*
Extenting the drainage system and intigrating earth berms

C - *Pocket Floodable pods*
Small pockets and moveable marhses, into the spine

D- *Continuation of the Riverine Spine*
Extends green spine with bioswales, paths, and seating to connect the park network.

E *- Central Pavilion Hub*
Community heart with shelter, seating, and event space.

F - *Interactive Garden Trail*
Path with educational/native planting zones and play pockets.

SECTION THROUGH THE LOW LAYING AREA OF SPINE- PROPOSED



10ft Stormwater | 10ft Bioswales | 18ft Bioswales integrated with walkway | 10ft Bioswales | 10ft Stormwater | 60ft- Extention Earth Berms

SECTION THROUGH THE LOW LAYING AREA OF SPINE- EXISTING



13ft Stormwater | 13ft Green Space | 20ft Car Lane | 13ft Green Space | 13ft Stormwa- ter | 60ft- Extention Drainage

For more information on this project, scan the QR code

Work by Aarya More
Georgia Tech | Urban Design Studio 2
Resiliency & Growth: Darien and St Marys, GA

ST. MARYS
URBAN DESIGN DRIVER:

STRENGTHEN OSBORNE'S ROLE & PROMINENCE IN DOWNTOWN ST. MARYS



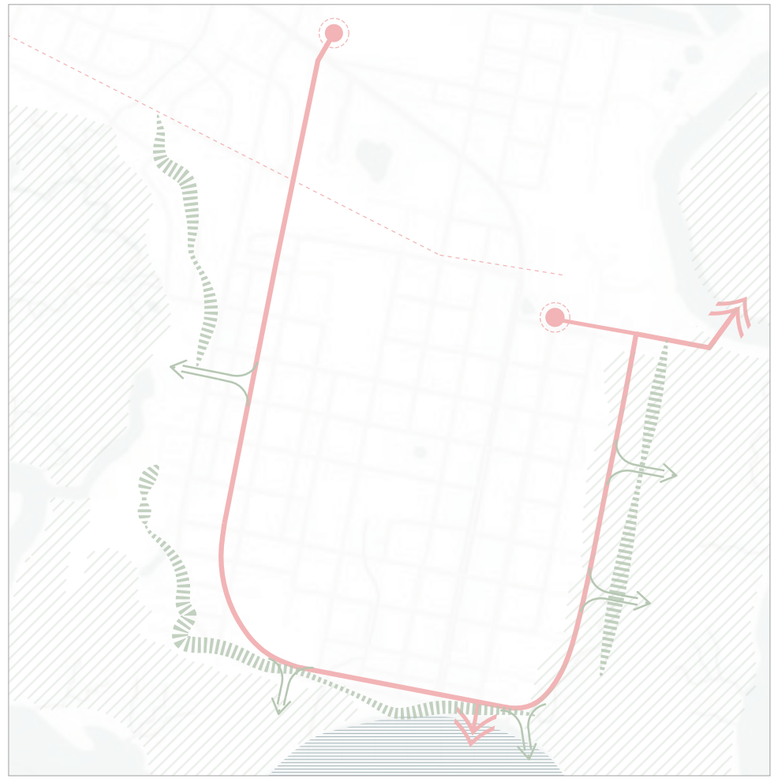
WEAVE THE SPINE WITH THE ST. MARYS COMMUNITY

The middle spine is a crucial connection to the riverfront which can evolve into a dynamic green space, extending towards Osborne Street to support community interaction and recreation. Given the site's susceptibility to flooding, this challenge can be reframed as an opportunity for adaptive landscape design, incorporating resilient features that enhance both usability and appeal.



STRENGTHENING OSBORNE'S ROLE AND PROMINENCE IN DOWNTOWN ST.MARYS

Osborne Street serves as a vital connector, linking I-95 and State Highway 40 to the St. Marys riverfront. As the city's commercial and retail spine, it has the potential to be revitalized into a more vibrant and engaging corridor. Enhancing the streetscape, activating key intersections, and fostering east-west connections to the spine and marsh edge can create a more walkable and inviting environment. Strengthening these linkages will not only support local businesses but also encourage community interaction, reinforcing Osborne Street's role as a dynamic and accessible downtown destination.



INTEGRATING THE COASTAL AND NEIGHBORHOOD EDGES

Dilworth Rd and St. Marys St. forms the hard edge where the community meets the migrating marsh, creating challenges for resilience. Rising sea levels and storm surges threaten the boundary, requiring adaptive strategies. Enhancing permeability through green infrastructure, marsh walks, piers and wetlands can buffer flooding while maintaining access. Waterfront Development can integrate public spaces, streetscape, ensuring long term ecological, economical and community resilience.

ST. MARYS

FRAMEWORK 1

WEAVE THE SPINE WITH THE ST. MARYS COMMUNITY

This framework strengthens Osborne Street's role as a vibrant, accessible corridor that enhances its commercial, cultural, and mobility functions. Pedestrian- friendly streetscape improvements, intersection enhancements, and multimodal infrastructure make it more inviting and navigable.

INTERVENTIONS

PLANNING FOR GROWTH ALONG OSBORNE STREET

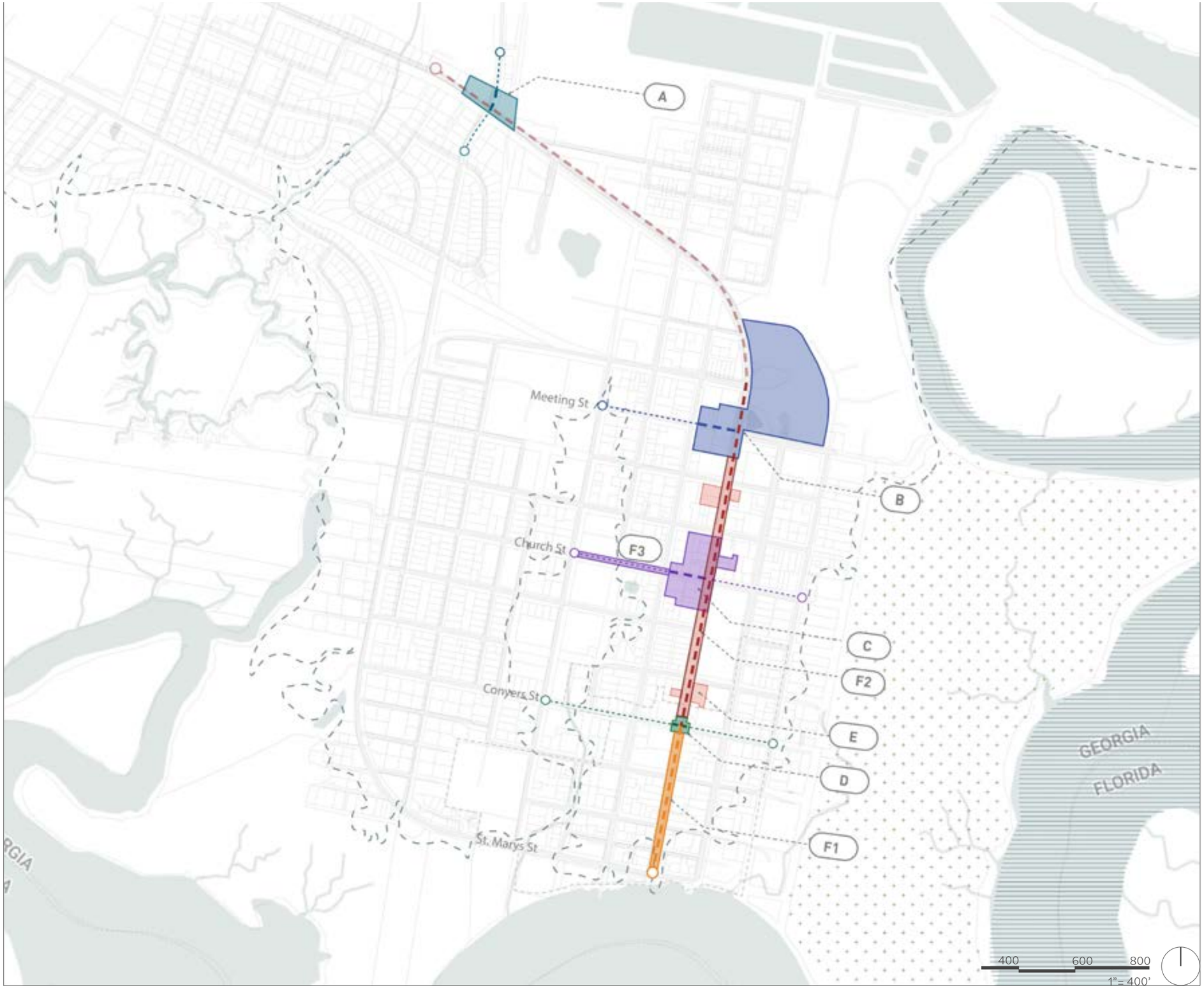
OSBORNE'S INTERSECTION TYPOLOGIES

OSBORNE'S MEDIAN AS A CHARACTER DEFINING STREETSCAPE FEATURE

EXPANDING PEOPLE SPACES ALONG OSBORNE STREET & STABLE ALLEY

EAST- WEST CONNECTIONS TO THE SPINE

DOWNTOWN ENERGY RESILIENCY HUB



ST. MARYS, FRAMEWORK 2

DESIGN DRIVER: STRENGTHEN OSBORNE STEET'S PROMINENCE IN DOWNTOWN

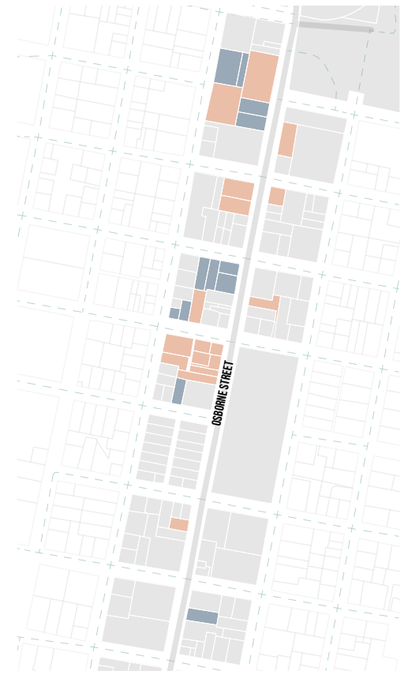
PLANNING FOR GROWTH ALONG OSBORNE STREET



OPPORTUNITY

As the primary commercial corridor for Downtown St. Marys future infill develop should seek to be sensitive to the mass and scale of the area. This intervention considers potential form-based guidelines for infill development along the corridor

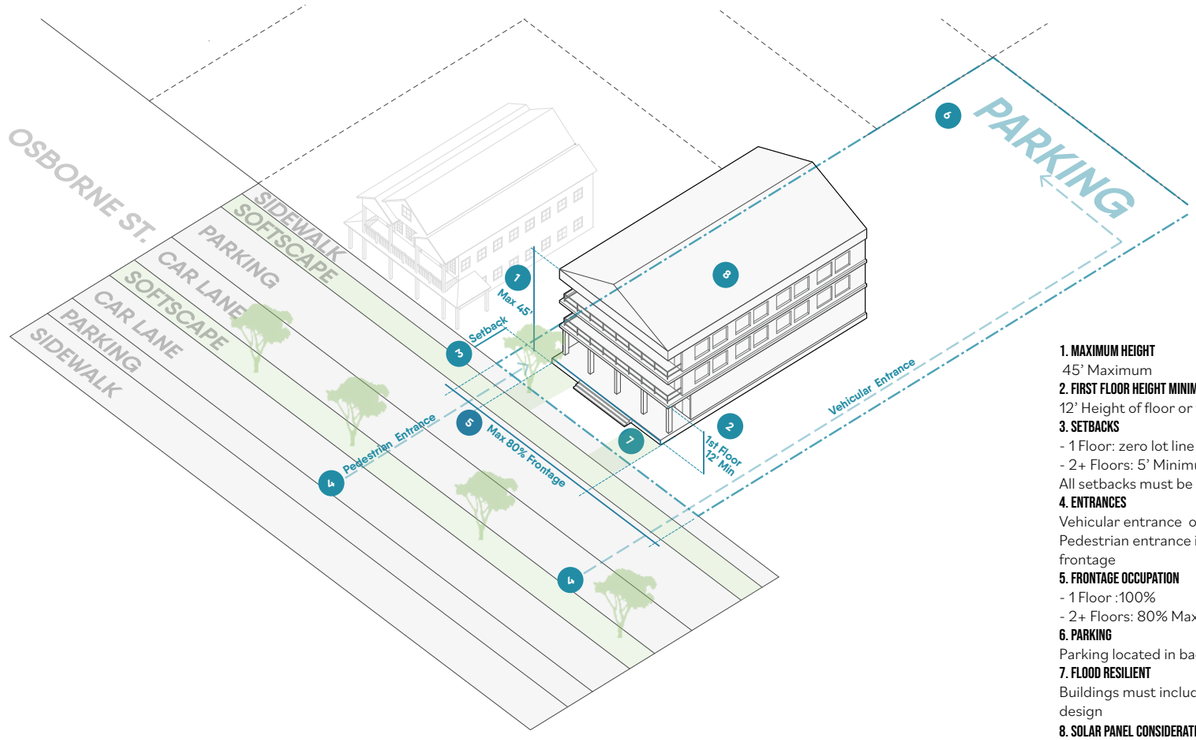
POTENTIAL SITES FOR DEVELOPMENT AND RE-DEVELOPMENT



Potential parcels for re-development (privately owned)

Potential parcels for development (privately owned)

AXONOMETRIC BUILDING DEVELOPMENT MANUAL



1. MAXIMUM HEIGHT
45' Maximum
2. FIRST FLOOR HEIGHT MINIMUM
12' Height of floor or window line
3. SETBACKS
- 1 Floor: zero lot line
- 2+ Floors: 5' Minimum
All setbacks must be of public use
4. ENTRANCES
Vehicular entrance on side of lot
Pedestrian entrance in front of primary frontage
5. FRONTAGE OCCUPATION
- 1 Floor :100%
- 2+ Floors: 80% Max
6. PARKING
Parking located in back of lot
7. FLOOD RESILIENT
Buildings must include flood resistant design
8. SOLAR PANEL CONSIDERATIONS

INTENT

PRESERVE & MAINTAIN

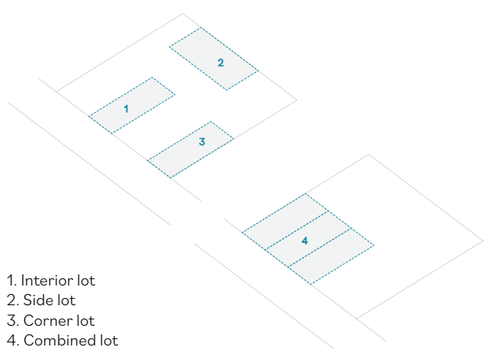


EVOLVE & GROW

ELEVATE CHARACTER



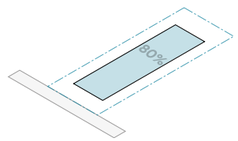
LOT TYPES



1. Interior lot
2. Side lot
3. Corner lot
4. Combined lot

VARIATIONS

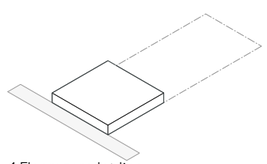
LOT OCUPATION



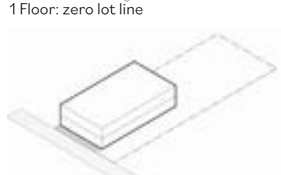
80% parcel ocupation maximum

SETBACK STRATEGY

All setbacks must be open to public use

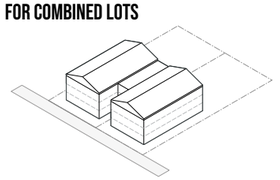


1 Floor: zero lot line

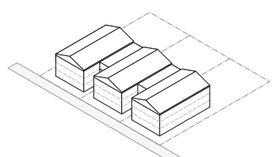


2+ Floors: 5' Minimum

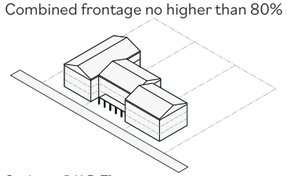
FRONTAGE VARIATIONS REQUIREMENTS FOR COMBINED LOTS



2+ Lots (VAR 1):
Combined frontage no higher than 80%

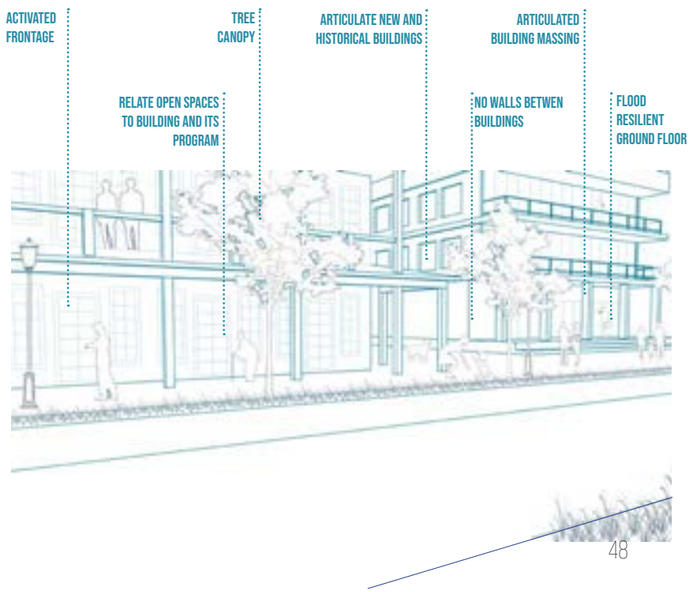


2+ Lots (VAR 2):
Combined frontage no higher than 80%



2+ Lots (VAR 3):
Combined frontage no higher than 80%

OPEN SPACE INTENTIONS



For more information on this project, scan the QR code

Work by Ana Lugones Saucedo

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 2

DESIGN DRIVER: STRENGTHEN OSBORNE STEET'S PROMINENCE IN DOWNTOWN

OSBORNE'S INTERSECTION TYPOLOGIES



OPPORTUNITY

Osborne Street has key intersection typologies that can help establish a sense of threshold and connectivity to the surrounding areas of the City. This proposal explores those typologies and the potential character they can achieve to create a collective character for the street itself.

DIAGRAM



INTERSECTION TYPOLOGIES



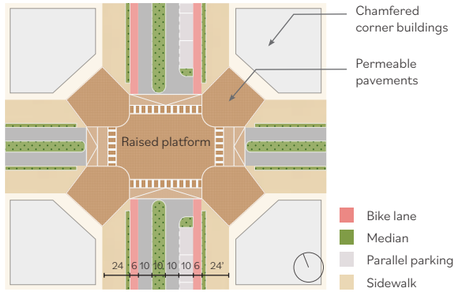
DESIGN ITERATIONS THROUGH PLANS

EXISTING



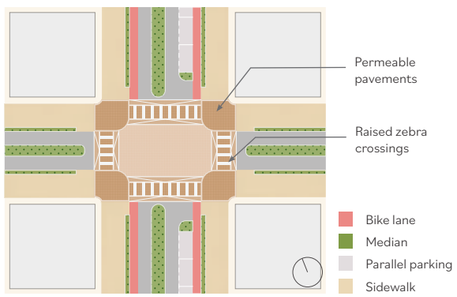
The existing intersections feature irregular crosswalks, excessive parking areas, and inefficiently designed sidewalks

PRIMARY



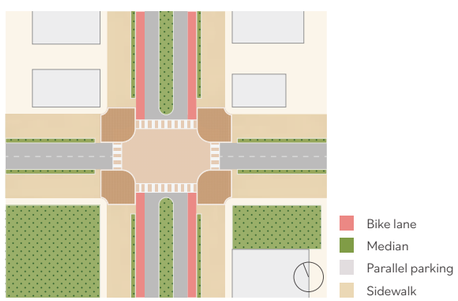
The main commercial intersection features a raised platform to calm traffic and highlight its importance, allowing shop activities to spill out during key events

SECONDARY



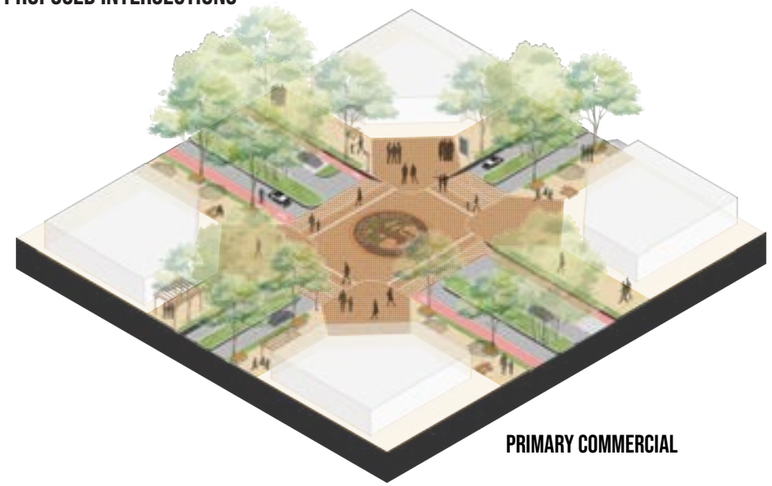
The secondary commercial intersection has a raised crosswalk that slows traffic and draws more attention to surrounding commercial activity

RESIDENTIAL



The quieter neighborhood street follows the same design language as the others, featuring a standard residential intersection

PROPOSED INTERSECTIONS



PRIMARY COMMERCIAL



SECONDARY COMMERCIAL



NEIGHBORHOOD RESIDENTIAL

For more information on this project, scan the QR code

Work by Srushti S Delhivala

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 2

DESIGN DRIVER: STRENGTHEN OSBORNE STEET'S PROMINENCE IN DOWNTOWN

OSBORNE'S MEDIAN AS A CHARACTER DEFINING STREETSCAPE FEATURE



OPPORTUNITY

This intervention considers the opportunities for place making and space making within the current right-of-way of Osborne Street by invigorating the size and use of the street's signature median as a performative landscape and occupiable space.

STREET TYPOLOGY CATEGORIZATION



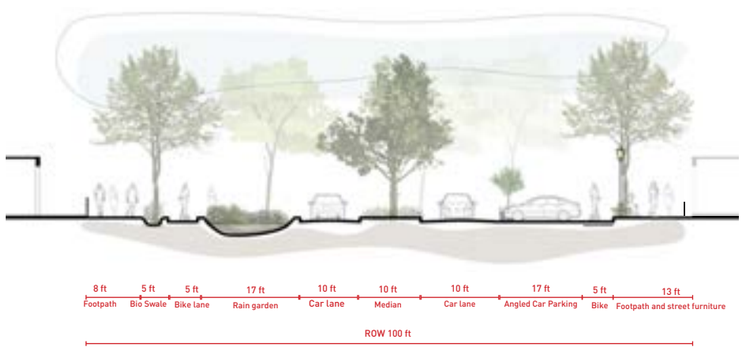
Street A
Entry to St.Marys downtown
- Median as a performative landscape

Street B
Entry to Historic District & Waterfront
- Median as a celebration space

Street C
E-W connection
- An extension to the spine

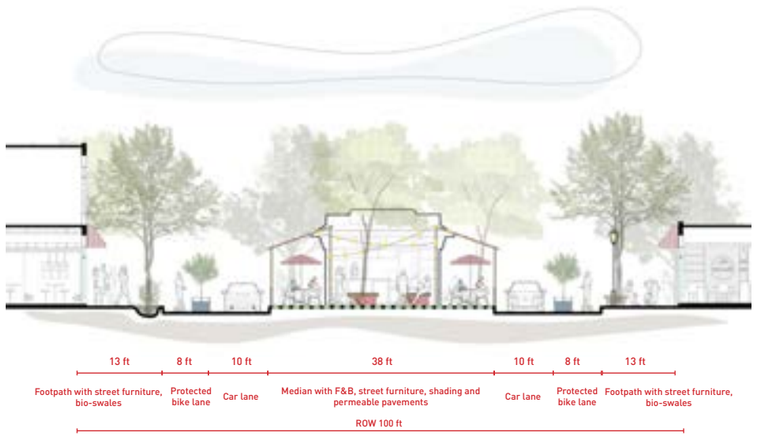
Infill Parking
block for the slow car zone of Street B

STREET A : RAIN GARDENS AND POCKET PARKS



Section through Osborne **Street A** integrating storm water management and pedestrian friendly landscape design for downtown St. Marys

STREET B : RECREATION AND RETAIL

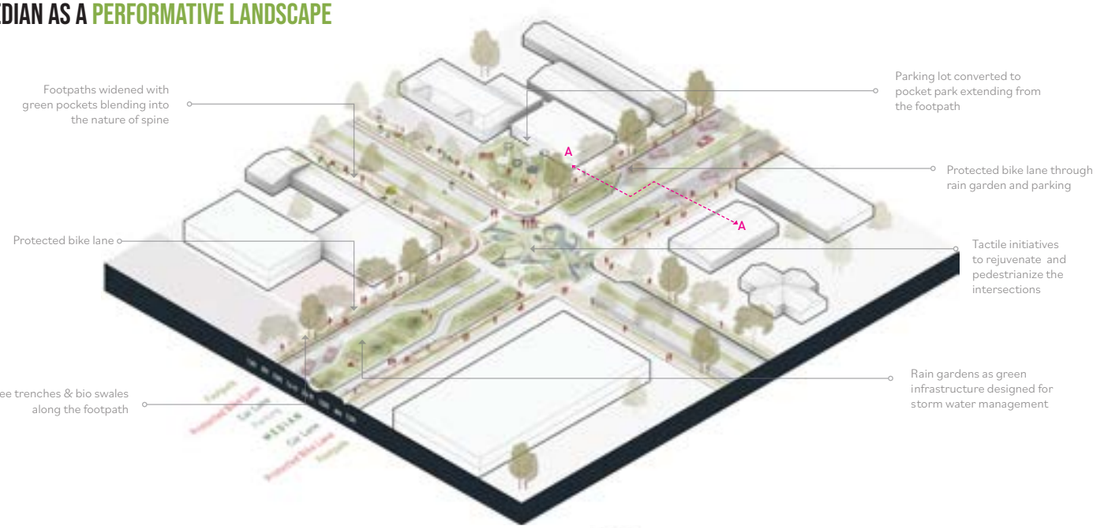


Section through Osborne **Street B** as vibrant, walkable retail corridor with F&B plaza, integrated storm water design.

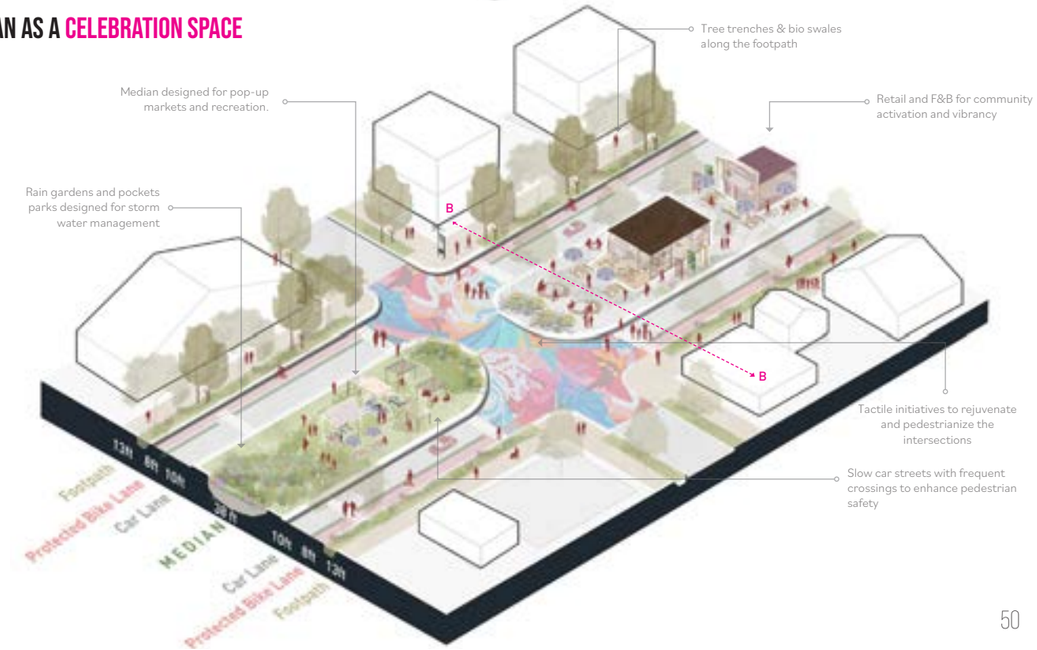
MEDIAN AS AN OPPORTUNITY



MEDIAN AS A PERFORMATIVE LANDSCAPE



MEDIAN AS A CELEBRATION SPACE



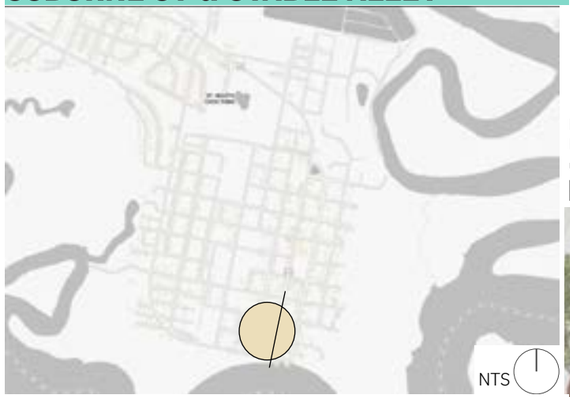
For more information on this project, scan the QR code

Work by Jeel Patel
Georgia Tech I Urban Design Studio 2
Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 2

DESIGN DRIVER: STRENGTHEN OSBORNE STEET'S PROMINENCE IN DOWNTOWN

EXPANDING PEOPLE SPACES ALONG OSBORNE ST & STABLE ALLEY



OPPORTUNITY

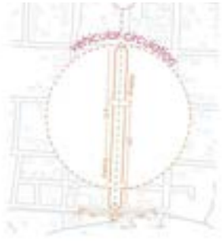
The blocks proximate to the water's edge along Osborne Street will arguably have the most amount of pedestrians. Through this lens, this proposal looks at opportunities to create streets that focus on pedestrian and bike movement, while still allowing for vehicles. This street character would create threshold that would slow vehicles down while enhancing the sense of place.

MAKING OSBORNE A VIBRANT COMMERICAL STREETSCAPE

KEY DESIGN STRATEGIES



Existing Street Character
Highlights pedestrian zones and underused alleys.



Vehicular Circulation
Shows traffic flow and calming potential.



Public Street Activation
Proposes pedestrian-first commercial corridor.

REIMAGINED STREET ENVIRONMENTS



/iew showing a redesigned street character where expanded medians and reclaimed parking areas are ransformed into active pedestrian spaces and public zones.



View highlighting the transformation of Stable Street into a pedestrian-oriented corridor, prioritizing walkability, social interaction, and community use.

AERIAL VIEW OF STREET CHARACTER

SHOWS A WALKABLE STREET WITH GREENERY, ACTIVE FRONTAGES, AND SAFE CROSSINGS.



A- *– Tactical Urbanism Node*
Flexible, low-cost intervention for quick activation.

B- *Stable Alley Redesign*
Converted into a pedestrian-friendly corridor.

C *– Street Crossing Zone*
Enhanced safe pedestrian connectivity.

D- *Activated Median Space*
Widened median used for events and seating.

E- *Entry to Historic Infill*
Gateway into context-sensitive development zone.

F- *Parklets + Bike Design*
Pocket spaces and safe, conscious bike lanes.

G- *Local Access Lane*
Slower traffic lane integrated with public space.

H- *Shared Street Spine*
Mixed-use street promoting walkability and community use.

SECTION THROUGH RIVER SIDE HOTEL AND OSBORNE STREET- EXISTING SECTION



PROPOSED SECTION SHOWING A GREEN, WALKABLE STREET ALONGSIDE THE RIVERSIDE HOTEL.



For more information on this project, scan the QR code

Work by Aarya More

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 2

DESIGN DRIVER: STRENGTHEN OSBORNE STEET'S PROMINENCE IN DOWNTOWN

EAST- WEST CONNECTIONS TO THE SPINE



OPPORTUNITY

As the Spine becomes a prominent entity in Downtown St. Marys, it will be important to create intentional connections to it from Osborne Street. This intervention considers the opportunities along Church and Conyers St. However, the intent could be transferable to other streets.

PUBLIC REALM TYPOLOGIES IN TRANSITION ZONES



1.Church Street
Typology: Residential Green-way Street
Low-Impact Residential Cor-ridor

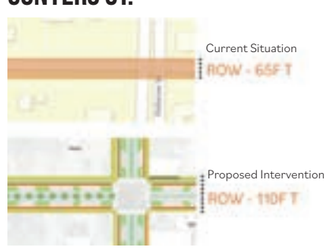
2. Conyers Street
Typology: Mixed-Use Urban Edge
Neighborhood Connector Street

RE-FRAMING CHURCH AND CONYERS STREET IN ST. MARYS

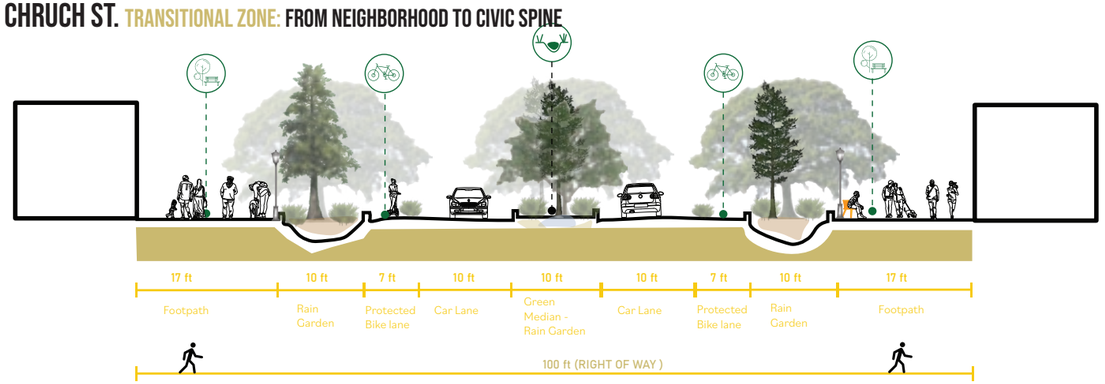
CHURCH ST.



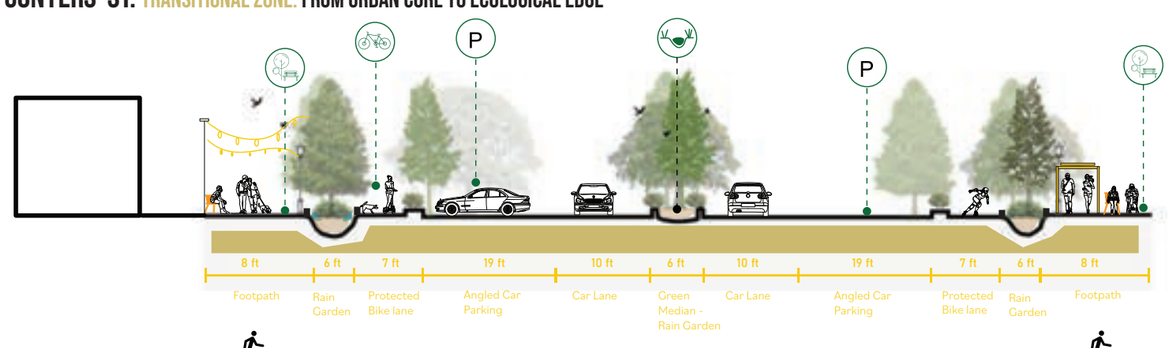
CONYERS ST.

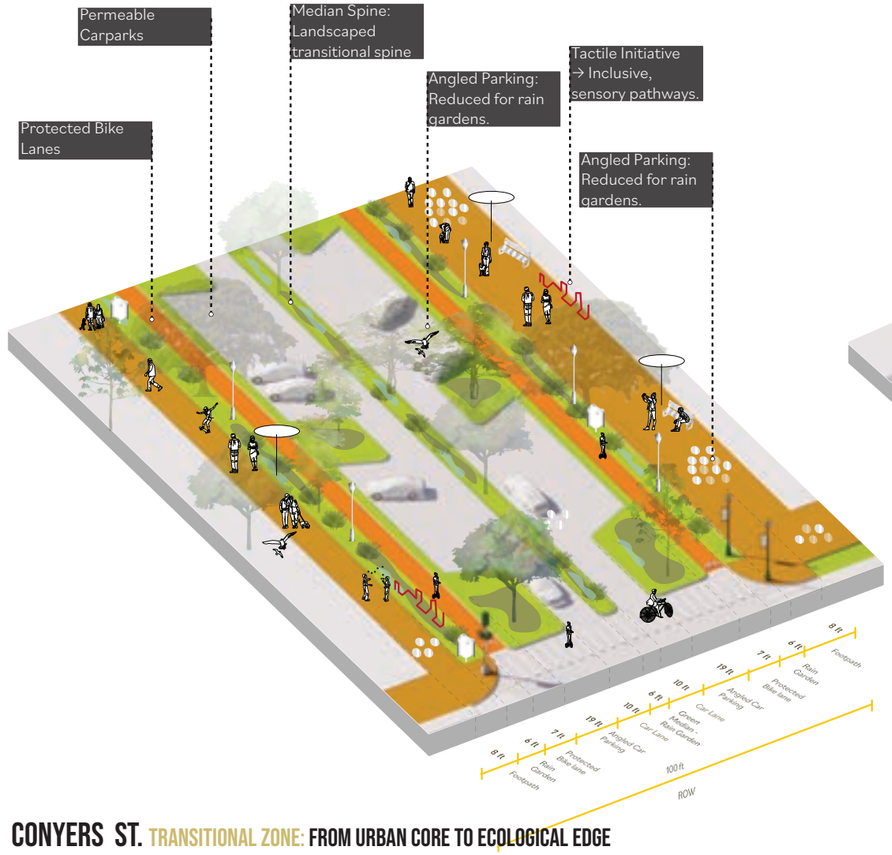


CHRUCH ST. TRANSITIONAL ZONE: FROM NEIGHBORHOOD TO CIVIC SPINE

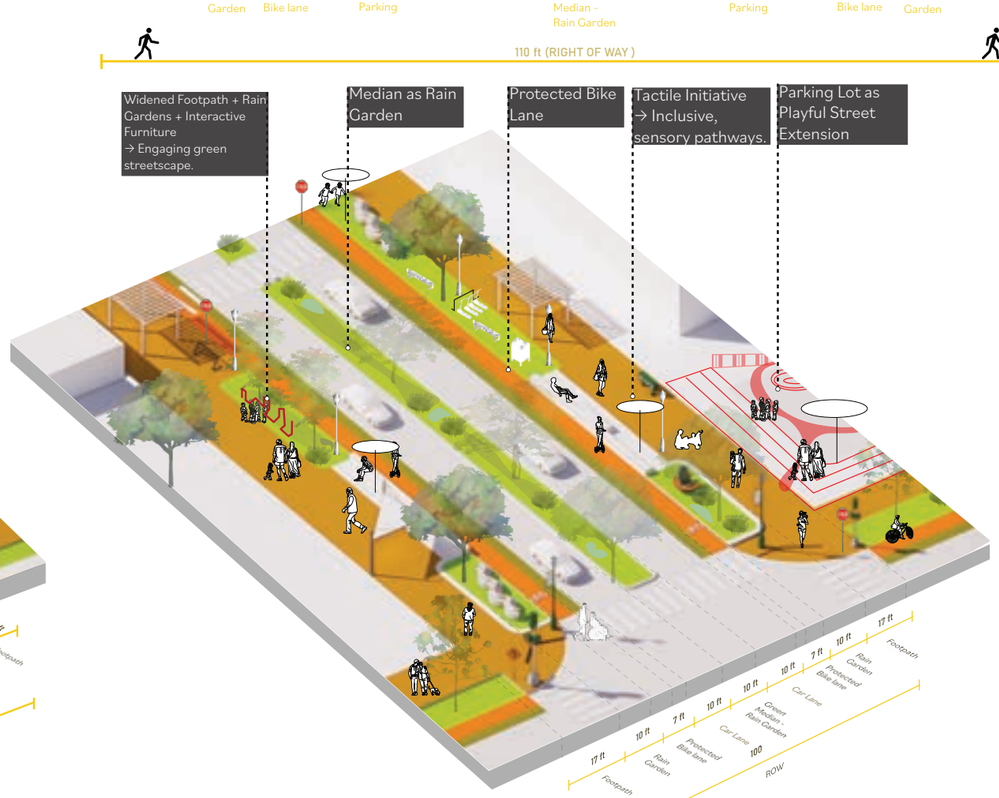


CONYERS ST. TRANSITIONAL ZONE: FROM URBAN CORE TO ECOLOGICAL EDGE





CONYERS ST. TRANSITIONAL ZONE: FROM URBAN CORE TO ECOLOGICAL EDGE



CHRUCH ST. TRANSITIONAL ZONE: FROM NEIGHBORHOOD TO CIVIC SPINE

For more information on this project, scan the QR code

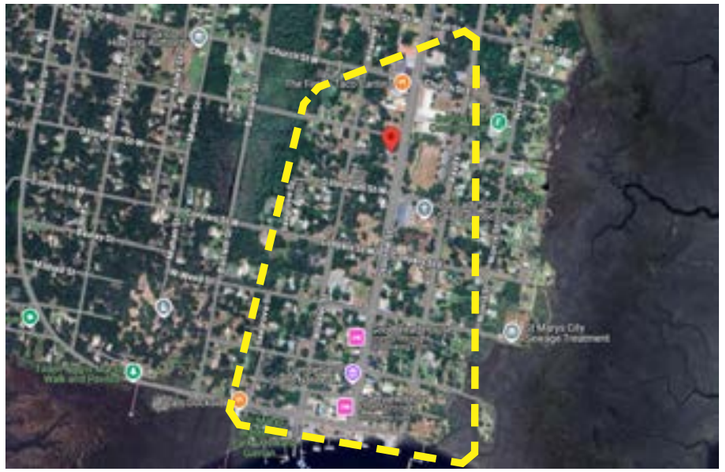
Work by Shaiba Bano Siddiqui
Georgia Tech I Urban Design Studio 2
Resiliency & Growth: Darien and St Marys, GA

DOWNTOWN ENERGY RESILIENCY HUB



OPPORTUNITY

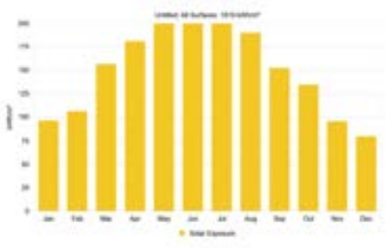
This proposal considers the potential needs and opportunities for a solar micro-grid along Osborne St. that could act as a potential resiliency hub for the community during major power outages and with discourse on the potential of solar infrastructure in St. Marys.



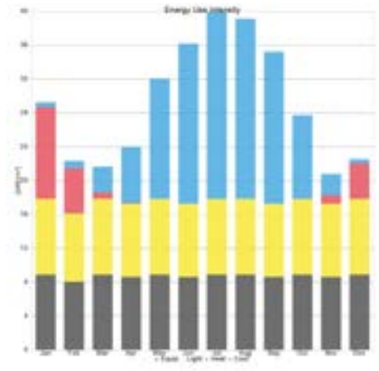
SOLAR ENERGY



Photovolataic Panel Location on top of buidlings



Solar Exposure Monthly Plot



EUI of Site Building

MICROGRID COST BREAKDOWN

Total Roof Area: 15897.64 m²
PV Panel Coverage: 80%
Solar Radiation: 1819 kWh/m²/year
Panel Efficiency: 18%
Inverter Efficiency: 96%
Total Annual Solar Generation: 39,97,597.66 kWh
Projected Annual Energy Use: 1,25,46,333.54 kWh
PV Coverage: 31.86%

Effective system efficiency = 0.18 x 0.96 = 0.1728
1 kW PV system typically occupies ~6m² of roof space

Energy Yield per kW = Annual Radiation x System Efficiency x Area per kW
= 1819 kWh/m²/yr x 0.1728 x 6 m²/kW
= 1,885.93 kWh/kW-yr

Typical performance ratio is roughly 80% = 1,885.93 x 0.79 = **1,471kWh/kW-yr**

Description	Quantity	Unit Cost ($/W)	Cost (USD)	Source/Reference
PV System Size (kW)	~1,471 kW*	$2.00	$2,942,065	NREL & Solar Reviews

*Calculated: (2,094,223.38 kWh / 1,430 kWh/kW-yr approximate yield)

Average Daily Energy Use = (1,25,46,333.54 kWh/yr) / (365 days/yr) = 34,373.51 kWh/day

A battery system typically does not aim to cover 100% daily use, but rather the most critical loads - assuming about 15% of daily energy use is critical (emergency lighting, refrigeration, IT systems, critical services)

Critical load/day = 34,373.51 x 0.15 = 5,156.02 kWh/day = **5,000 kWh/day (approx.)**

Description	Size	Unit Cost ($/kWh)	Cost (USD)	Source
Lithium-ion Battery Storage	5,000 kWh	$400.00	$2,000,000	NREL & BloombergNEF

Component	Quantity	Cost per unit	Total Cost (USD)	Source
Underground Cabling & Trenching	1.5 miles (~7920 ft)	$100/ft	$792,000	RSMeans Construction
Smart Switchgear & Microgrid Controls	1 central system	Lump Sum	$250,000	Schneider Electric
Smart Building Interface Controllers	20 units	$15,000 each	$300,000	Eaton & ABB

Average Daily Energy Use = (1,25,46,333.54 kWh/yr) / (365 days/yr) = 34,373.51 kWh/day

Assuming the Osborne Street load profile with a 10-hour peak demand period:

Average Hourly Peak Demand = (34,373.51 kWh/day) / (10 hours/day) = 34,37.351kW

Backup generators in microgrids typically cover critical peak loads, not full load of all buildings.

Assuming 25% of estimated peak demand as the critical load coverage = 34,37.35 kW x 0.25 = 859.33kW = **800 kW (approx.)**

Description	Size	Cost per kW	Total Cost (USD)	Source
Natural Gas Backup Generator	800 kW	$900/kW	$540,000	Generac & CAT Power

Description	Percentage	Cost (USD)
Soft Costs (Eng., Legal, Mgmt.)	15%	$821,000
Project Contingency	5%	$302,000

Total Project Cost (approximate)

Category	Cost (USD)
Solar PV Installation	$2,942,065
Battery Storage	$2,000,000
Infrastructure	$1,342,000
Backup Generator	$5,40,000
Soft Costs & Contingency	$11,23,000
Total Project Cost	**$7,947,065**

With Federal ITC @30% of (Solar PV Installation + Battery Storage) = 0.3 x (2,942,065 + 2,000,000) = $14,82,619.5

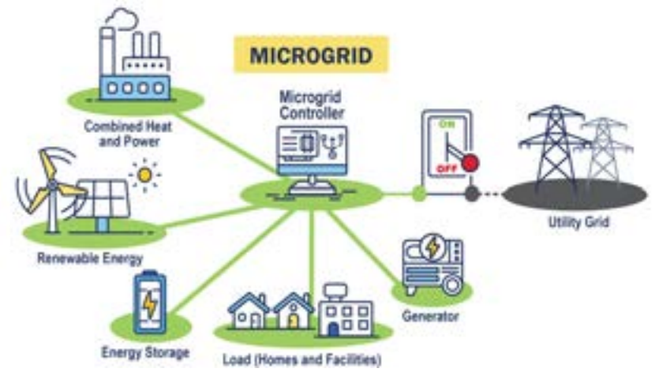
Final microgrid cost can be brought down to **$6,464,445.5** ($7,947,065 - $14,82,619.5)

Cost per resident: **$1539.15** ($6,464,445.5/4,200 residents)

OSBORNE ~ RESILIENCY HUB

Microgrid Powered "OSBORNE STREET Resilience Hub" as a pilot program:

Connect ~40+ existing buildings entirely run off microgrid
In St. Marys - around Osborne Street
Potentially build a dedicated structure in the downtown area powered by microgrid



TAX INCENTIVES

SCENARIO-1: System is owned by Business or Local Government or Homeowners

Federal Tax Incentives
Investment Tax Credit (ITC): Available for businesses, local governments, and homeowners investing in solar systems
- Tax Credit Values: offers a 30% tax credit on the total cost of solar energy system installations

Modified Accelerated Cost Recovery System (MACRS): Allows business owners to recover the cost of a solar panel system over a period of 5 years, enabling thvvem to depreciate the cost over five years

State/Local Incentives
Georgia Environmental Finance Authority (GEFA) Loans: Offer financing for energy efficiency and renewable energy projects in Georgia
- Eligibility: local governments, water and sewer authorities, infrastructure authorities. Private entities not eligible

Community Solar Cooperative: community members come together to form a cooperative entity to develop and own a shared solar energy system

SCENARIO-2: System is leased or using a PPA

Solar Leasing: Pay a fixed monthly fee to use solar panels installed on your property. Solar installer owns the system and is responsible for maintenance and repairs

Power Purchase Agreements (PPAs): A third party developer installs, owns, and maintains the system. You purchase electricity generated by the system at a predetermined rate per kWh which is typically LOWER than your utility's rate

ST. MARYS
URBAN DESIGN DRIVER:

INTEGRATING THE COASTAL & NEIGHBORHOOD EDGES



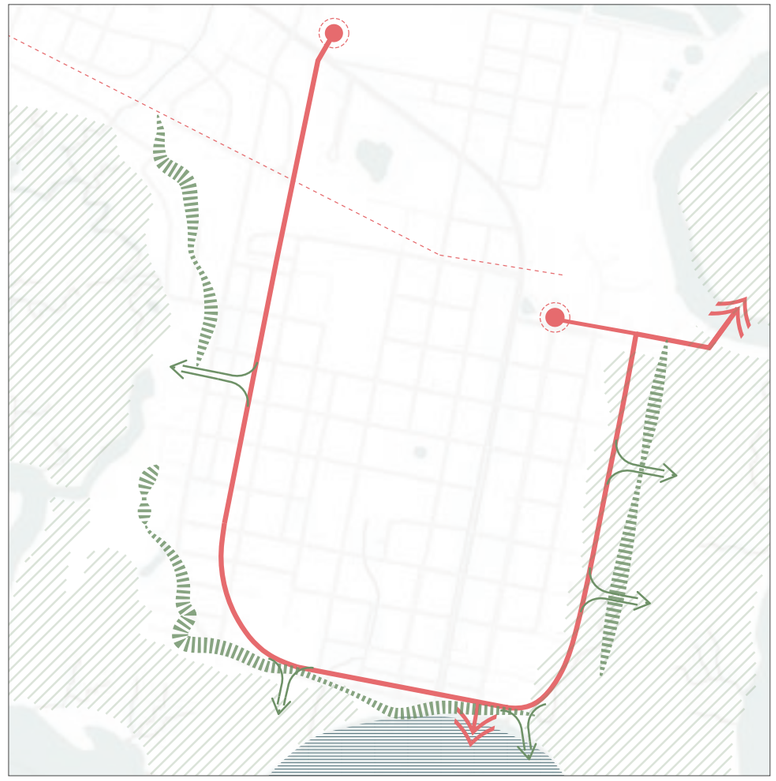
WEAVE THE SPINE WITH THE ST. MARYS COMMUNITY

The middle spine is a crucial connection to the riverfront which can evolve into a dynamic green space, extending towards Osborne Street to support community interaction and recreation. Given the site's susceptibility to flooding, this challenge can be reframed as an opportunity for adaptive landscape design, incorporating resilient features that enhance both usability and appeal.



STRENGTHENING OSBORNE'S ROLE AND PROMINENCE IN DOWNTOWN ST.MARYS

Osborne Street serves as a vital connector, linking I-95 and State Highway 40 to the St. Marys riverfront. As the city's commercial and retail spine, it has the potential to be revitalized into a more vibrant and engaging corridor. Enhancing the streetscape, activating key intersections, and fostering east-west connections to the spine and marsh edge can create a more walkable and inviting environment. Strengthening these linkages will not only support local businesses but also encourage community interaction, reinforcing Osborne Street's role as a dynamic and accessible downtown destination.



INTEGRATING THE COASTAL AND NEIGHBORHOOD EDGES

Dilworth Rd and St. Marys St. forms the hard edge where the community meets the migrating marsh, creating challenges for resilience. Rising sea levels and storm surges threaten the boundary, requiring adaptive strategies. Enhancing permeability through green infrastructure, marsh walks, piers and wetlands can buffer flooding while maintaining access. Waterfront Development can integrate public spaces, streetscape, ensuring long term ecological, economical and community resilience.

ST. MARYS

FRAMEWORK 3

INTEGRATING THE COASTAL & NEIGHBORHOOD EDGES

This framework balances the ecological preservation with community access, ensuring a connected and protected waterfront. The proposed interventions improve waterfront public spaces, streetscapes, marsh walks, and pavilions to support economy and resilience.

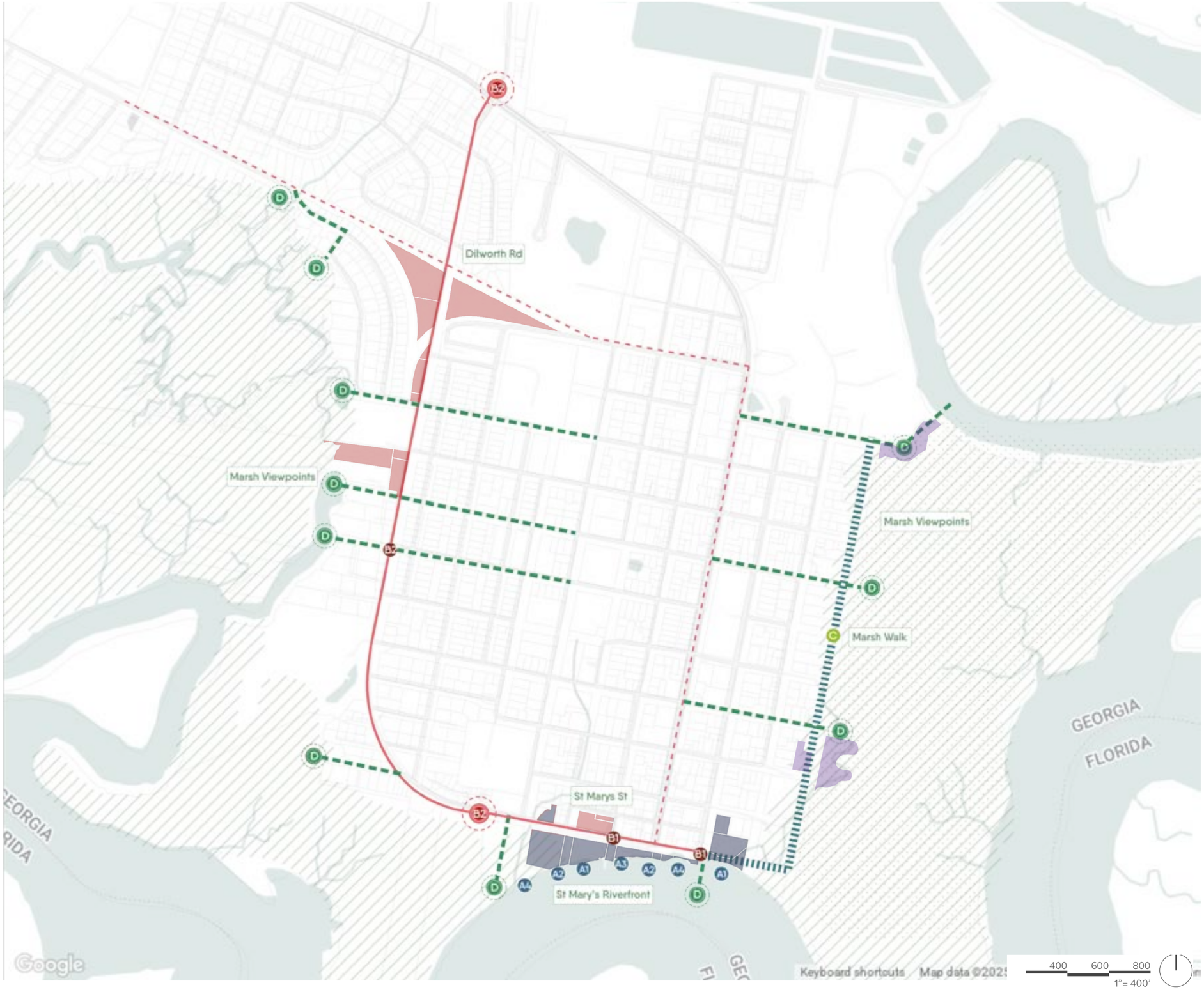
INTERVENTIONS

AMPLIFYING THE DRAINAGE BASIN

RIVERFRONT ACTIVATION & EDGE CONDITION

EASTERN WATERFRONT EDGE OPPORTUNITIES

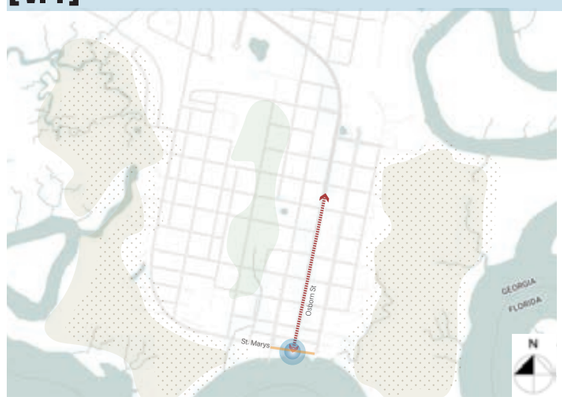
CONTEXT SENSITIVE DEVELOPMENT ALONG ST. MARYS STREET



ST. MARYS, FRAMEWORK 3

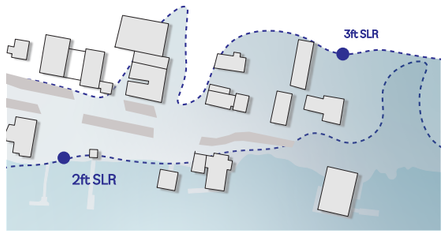
DESIGN DRIVER: INTEGRATE THE COASTAL & NEIGHBORHOOD EDGE

AMPLIFYING THE DRAINAGE BASIN [V.1]



OPPORTUNITY

This proposal considers the placemaking opportunities that come with creating a performative landscape that can help ameliorate current and future flooding conditions.



1. Inadequate public access along the riverfront.

2. Riverfront occupied by surface parking.

3. Frequent flooding due to low elevation.

4. Lack of green and flood-resilient infrastructure.

EXISTING SITUATION



1. Reclaim parking areas to enhance public riverfront access.

2.Connect foot paths to the waterfront via green corridors.

3.Elevate land and integrate flood-resilient landscapes.

4.Expand green infrastructure with rain gardens and permeable surfaces.

DESIGN INTERVENTIONS

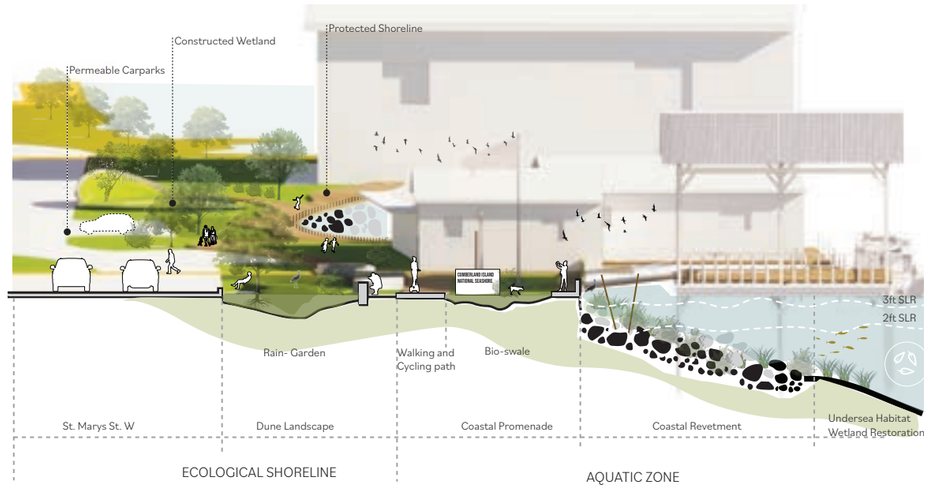


Water Level Managed by Flood Gate System

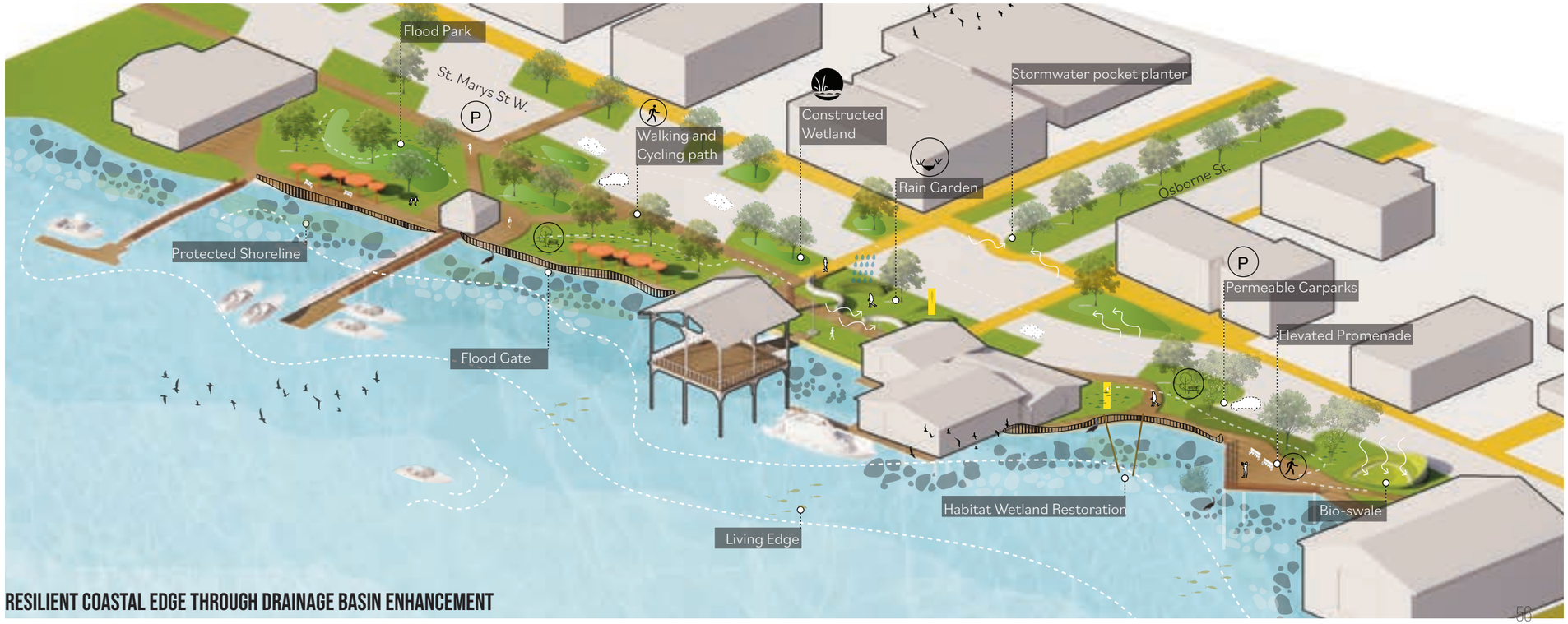
FLOOD RISK AND PROTECTION STRATEGY



1. Protected Shoreline
2. Flood park
3. Walking and Cycling Path
4. Constructed Wetlands
5. Rain Garden
6. Habitat wetland Restoration
7. Elevated Promenade
8. Bioswale
9. Permeable Car parks
10. Storm water Pocket Planter
11. Floodgate



ADAPTIVE SHORELINE DESIGN



RESILIENT COASTAL EDGE THROUGH DRAINAGE BASIN ENHANCEMENT

For more information on this project, scan the QR code

Work by Shaiba Bano Siddiqui

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 3

DESIGN DRIVER: INTEGRATE THE COASTAL & NEIGHBORHOOD EDGE

AMPLIFYING THE DRAINAGE BASIN [V.2]



OPPORTUNITY

This proposal considers the placemaking opportunities that come with creating a performative landscape & streetscape that can help ameliorate current and future flooding conditions.

This proposal reimagines the St. Marys waterfront, stretching from the Creek Delta Gateway to the Osborne Street Gateway, as a vibrant, flood-resilient, and pedestrian-first public realm. Prioritizing walkability and social life, the design transforms auto-dominant streets into people-centric spaces with widened sidewalks, shaded seating, and parklets that double as stormwater landscapes. The waterfront becomes a lively edge with markets, music, splash pads, and destination dining, while adaptive infrastructure like floodable parks and living shorelines enhance resilient city edges. Framing key views, integrating native landscapes, and linking trail systems, the revitalized waterfront celebrates everyday life, ecological importance, and cultural identity in a unified vision for St. Marys.



PROPOSED IMPROVED STREETSCAPE OF ST MARYS ST

For more information on this project, scan the QR code

Work by Sathish Velumathi

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 3

DESIGN DRIVER: INTEGRATE THE COASTAL & NEIGHBORHOOD EDGE

RIVERFRONT ACTIVATION & EDGE CONDITION [V.1]



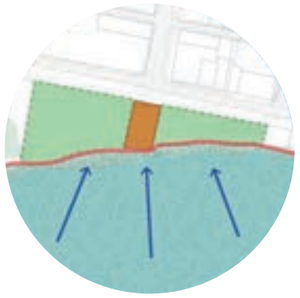
OPPORTUNITY

This proposal considers opportunities for further stitching together the water's edge via streetscape design, alternative retail models, and open space design.

DIAGRAMS



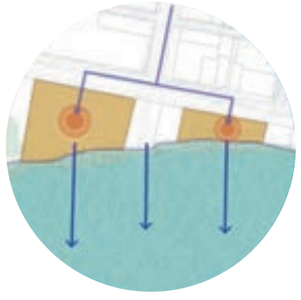
Water- Edge- Condition
No continuous walkway



Site performance targets
Potential water mitigation areas

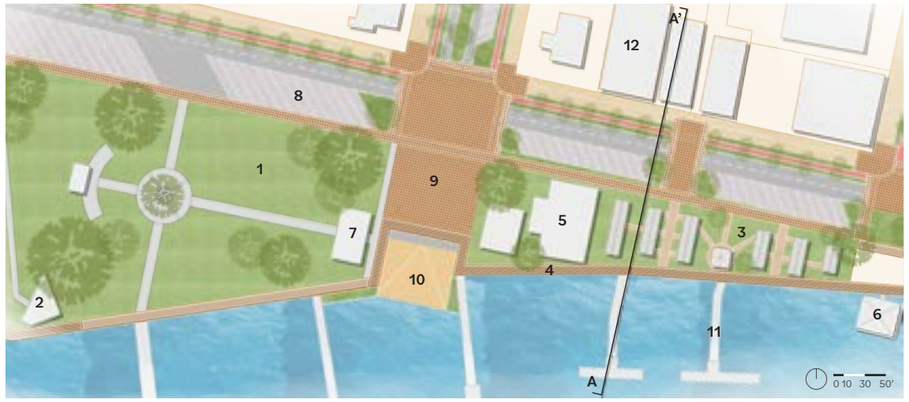


Street edges
Enhancing permeability and streetscape



Potential site reactivation
A median to Cumberland

THE RIVERFRONT PLAN



LEGEND

1 St Marys Waterfront park
2 Amphitheater
3 Multi-functional retail space
4 Riverfront trail
5 Cumberland Island Visitor Center
6 St Marys Water Pavilion
7 Kayak Adventures
8 Boat Parking
9 Permeable paving boat access
10 Boat Ramp
11 Piers
12 Commercial shops

AN ADAPTIVE SPACE



The market space is multi-functional and adaptable, able to transform into a flea market, weekend farmers market or even a waiting area during peak Cumberland season, depending on the city's needs





For more information on this project, scan the QR code

Work by Srushti S Delhivala
Georgia Tech | Urban Design Studio 2
Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 3

DESIGN DRIVER: INTEGRATE THE COASTAL & NEIGHBORHOOD EDGE

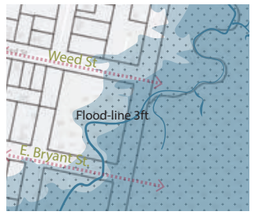
RIVERFRONT ACTIVATION & EDGE CONDITION [V.2]



OPPORTUNITY

The site of previous water treatment plant presents an opportunity to establish an eco-tourism hub via a potential nature/aquatic/research center that can act as a launching point for a trail system along the marsh.

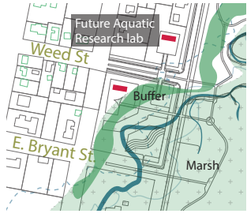
MARSH WALKWAY VISION: LINKING COMMUNITY & COAST



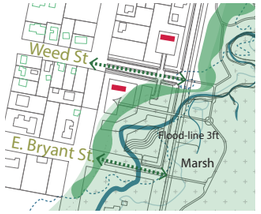
Existing Situation - SLR



Existing Situation- Marsh

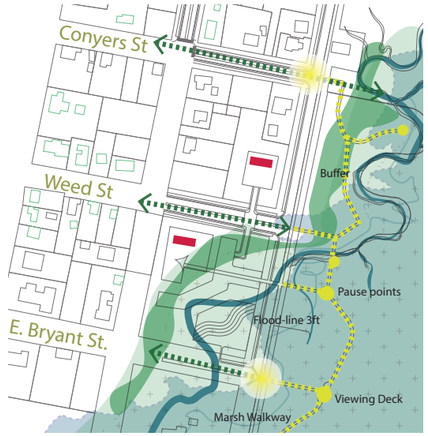


Proposed Edges (Transition Zones / Entry)



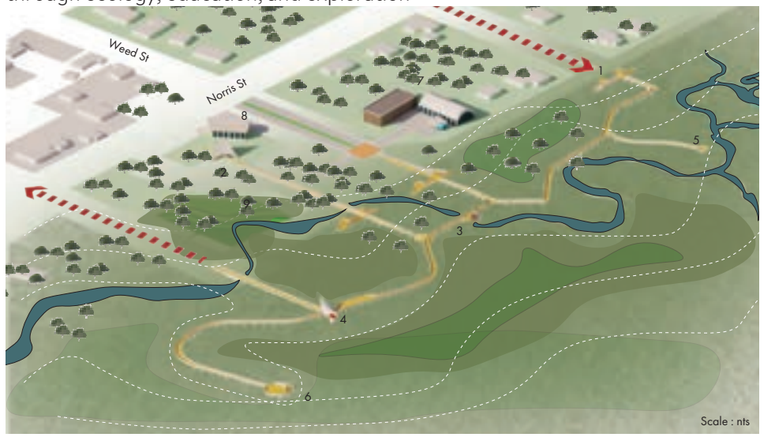
Future Aquatic Lab (Destination & Anchor)

AQUATIC RESEARCH LAB CONNECTOR: BRIDGING ECOLOGY, EDUCATION & ACCESS



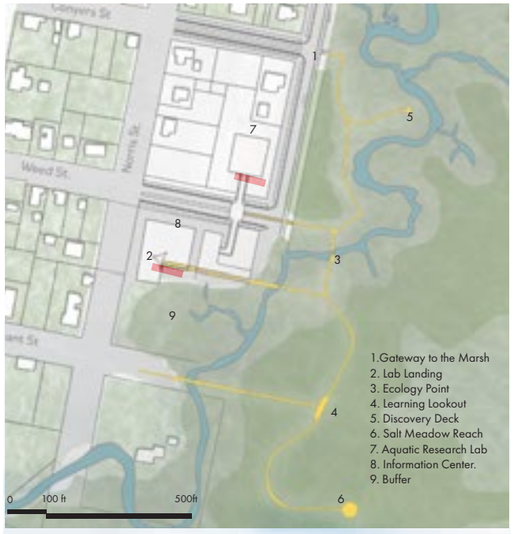
ECOLOGICAL WALKWAY AND COASTAL CONNECTOR Marsh Walkway (Experience + Journey+Research+Education)

An elevated marsh walkway linking neighborhood edges to the coast through ecology, education, and exploration



1.Gateway to the Marsh
2. Lab Landing
3. Ecology Point
4. Learning Lookout
5. Discovery Deck
6. Salt Meadow Reach
7. Aquatic Research Lab
8. Information Center.
9. Buffer

EDGE OF THE TIDES: AN EDUCATIONAL JOURNEY THROUGH THE MARSH



1.Gateway to the Marsh
2. Lab Landing
3. Ecology Point
4. Learning Lookout
5. Discovery Deck
6. Salt Meadow Reach
7. Aquatic Research Lab
8. Information Center.
9. Buffer

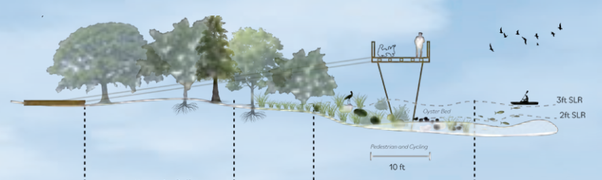
EDGE TO ECOLOGY: WALKING THE FUTURE WETLANDS

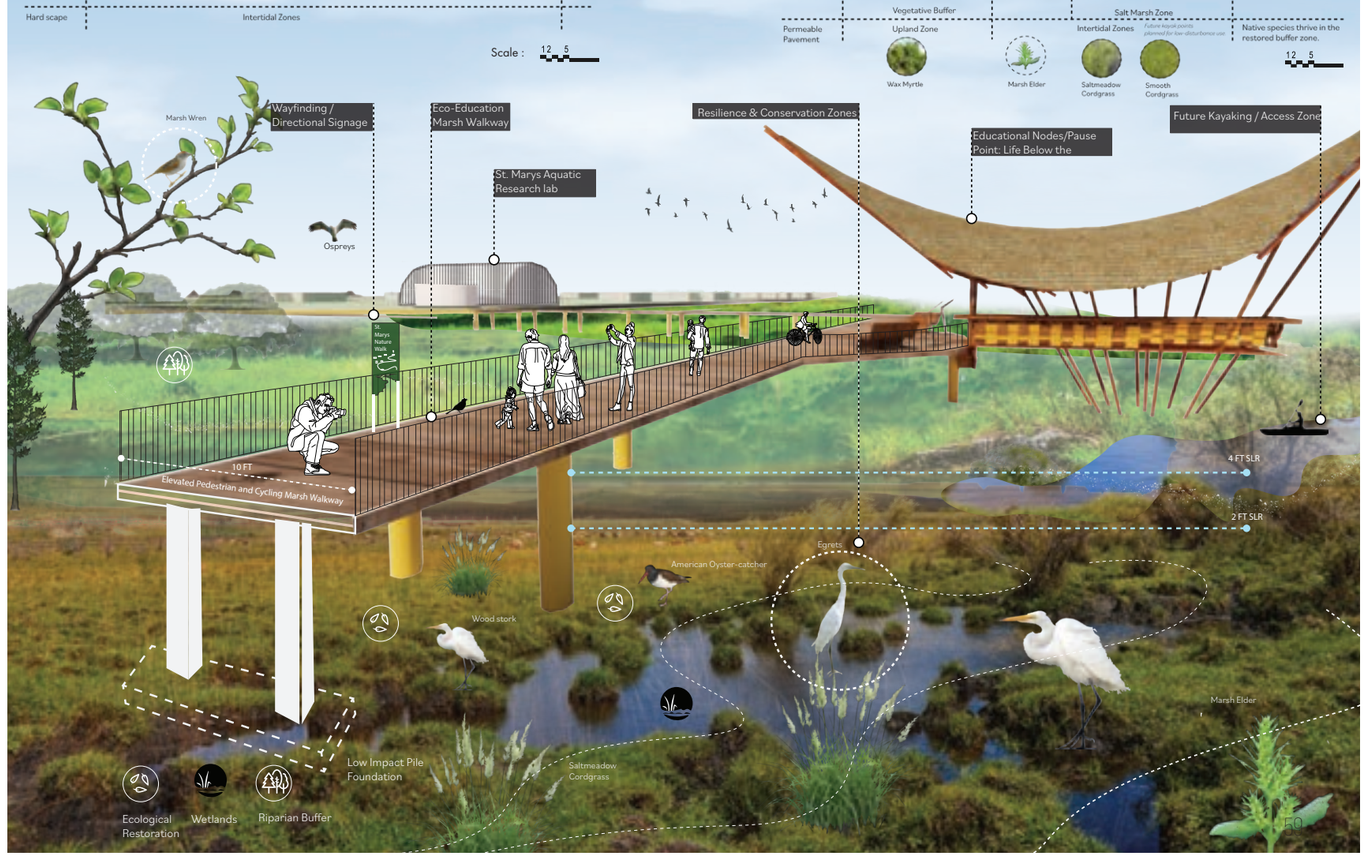


PRESENT STATE: ECOLOGY, ACCESS, AND COMMUNITY



2045 OUTLOOK: REIMAGINING ACCESS, EDUCATION, AND HABITAT





For more information on this project, scan the QR code

Work by Shaiba Bano Siddiqui

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 3

DESIGN DRIVER: INTEGRATE THE COASTAL & NEIGHBORHOOD EDGE

EASTERN WATERFRONT EDGE OPPORTUNITIES [V.1]

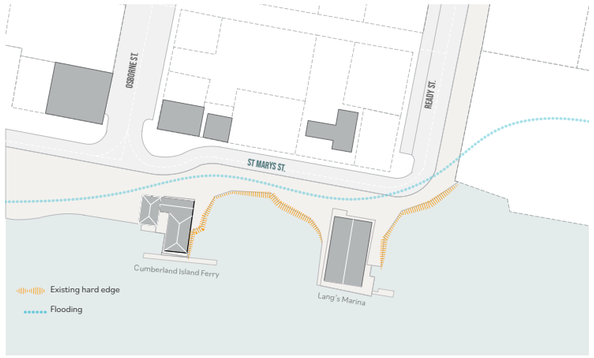


OPPORTUNITY

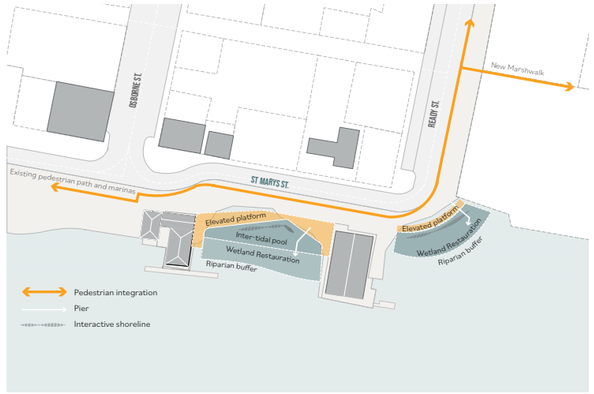
The existing deteriorated waterfront adjacent to Langs Marina requires attention from both a placemaking & flooding standpoint. This intervention contemplates the opportunities for a more ecologically / water sensitive approach that creates a unique condition to engage with along the water's edge.

EXISTING CONDITIONS

Saint Marys waterfront presents constraints and opportunities for growth and resilience:
- Deteriorated and eroted hard edge
- Prone to flooding
- Underutilized waterfront
- Building on existing destinations



CONCEPTUAL PROPOSAL

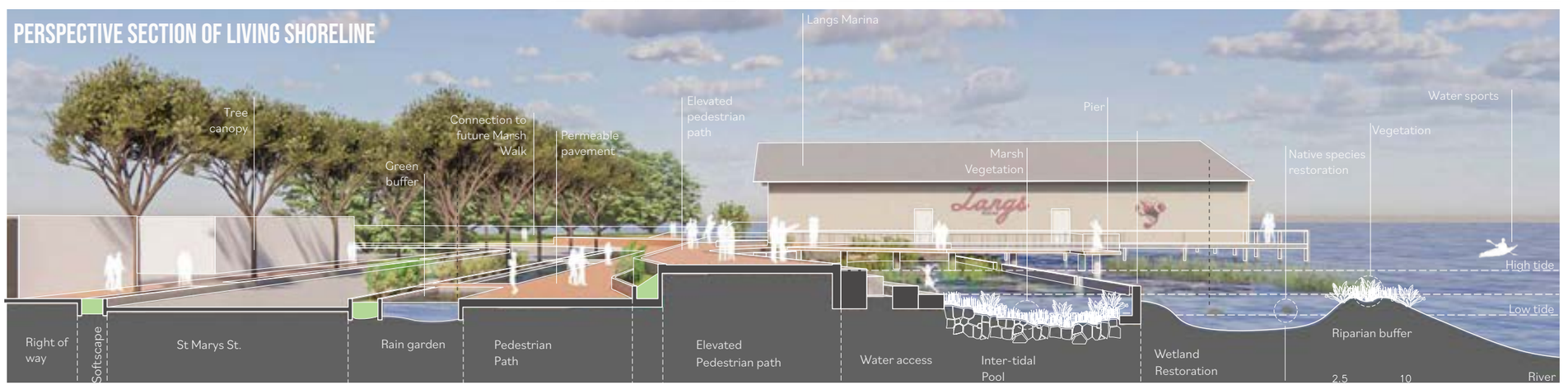


SITE PLAN



PERSPECTIVE OF WATERFRONT

PERSPECTIVE SECTION OF LIVING SHORELINE



For more information on this project, scan the QR code

Work by Ana Lugones Saucedo

Georgia Tech | Urban Design Studio 2

Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 3

DESIGN DRIVER: INTEGRATE THE COASTAL & NEIGHBORHOOD EDGE

EASTERN WATERFRONT EDGE OPPORTUNITIES [V.2]

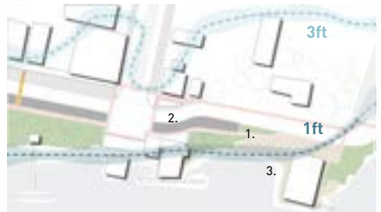


ject Key Plan

OPPORTUNITY

The existing deteriorated water front adjacent to Langs Marina requires attention from both a placemaking & flooding standpoint. This intervention contemplates the opportunities for a more ecologically / water sensitive approach that creates a unique condition to engage with along the water's edge.

EXISTING



1. No adequate public right of way
2. Riverfront space allocated to parking
3. Lacks flood resilience / underdeveloped

PROPOSED



1. Connecting existing footpaths and marinas
2. Extending recreational green infrastructure at water's edge
3. Elevated land with flood-resilient landscape

RIVER FRONT PARK



1. Entry Pavilion
2. Multi use lawn (floodable bioswales)
3. Meandering boardwalk
4. Deck area and amphitheater facing the sea
5. Botanical garden
6. Flood park
7. Wetland edge / Water access zone
8. Flood wall - Resilient Edge
9. Rain Garden
10. Parking for St. Marys St



The design strengthens the river's edge through a sequence of flood-resilient landscapes integrating bioswales, raised parks, and levee systems to protect inland neighborhoods and create public waterfront spaces.

FLOOD RESPONSE



Flood level: 1-2 ft
Protected by Levee wall and Revetment

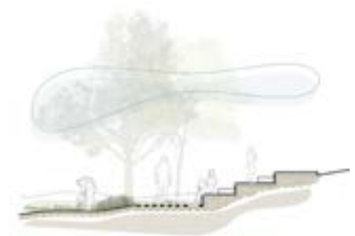


Flood level: 3-4 ft
Partial park and boardwalk protected by flood park

Flood level: 5 ft and above
St.Marys St protected by rain gardens, floodable bioswales



A: Floodable bioswale and elevated park buffer protecting St. Mary's Street



B: Permeable pavement and flood park with raised levels through integrated steps



C: Levee wall and revetments providing edge stabilization and erosion protection

For more information on this project, scan the QR code

Work by Jeel Patel

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ST. MARYS, FRAMEWORK 3

DESIGN DRIVER: INTEGRATE THE COASTAL & NEIGHBORHOOD EDGE

CONTEXT SENSITIVE DEVELOPMENT ALONG ST. MARYS STREET [V.1]



ject Key Plan

OPPORTUNITY

This intervention contemplates potential infill development that takes into consideration historic building sizes and block porosity. It contemplates a potential low-rise typology for mixed-use along an area with currently little developmental controls.

CONTEXT SENSITIVE DEVELOPMENT ALONG ST. MARYS STREET

KEY DESIGN STRATEGIES



Flood-Informed Site Analysis
Shows flood lines, drainage, and access.



Green Spine & Open Network
Links stormwater flow with walkways and pocket parks.



Resilient Infill Strategy
Live-work zones with raised, adaptable spaces.

ACTIVATED PUBLIC SPACE VIEWS



Elevated Sidewalk for Resilience
Raised 2 feet to address flooding while ensuring access and comfort.



Transformed Shared Alley
Stable alley turned into vibrant public space.



Green Market and Water Zone
Flexible space with market stalls, shade, and water features.



Raised Walkway with Play
Elevated path with dry access and playful edges.

AERIAL VIEW SHOWING SENSITIVE INFILL WITH COMMUNITY-CENTERED GREEN CONNECTIVITY



A- *Raised Walkway*
Flood-adaptive path ensuring dry access during high water conditions.

B- *Inclined Entry Plaza*
Sloped entrance responding to flood line, guiding access into public spaceusable for play when dry.

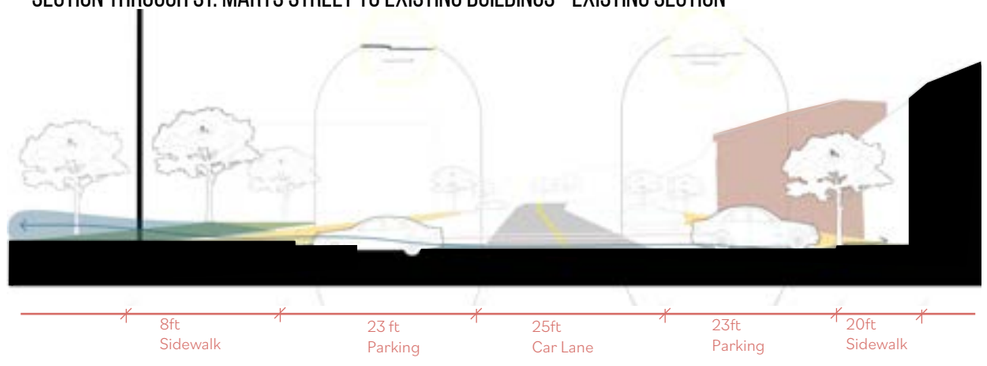
C- *Car-Lite Shared Street*
Pedestrian-prioritized street with limited vehicle access and integrated green edge

D **–** *Corner Market Hub*
Community market and fish stall area activating the public edge.

E- *Central Connector Spine*
Key link to stable alley, merging open space with circulation.

F- *Linear Residential Link*
Pedestrian corridor connecting row housing and surrounding community fabric.

SECTION THROUGH ST. MARYS STREET TO EXISTING BUILDINGS - EXISTING SECTION



ST. MARYS SECTION FROM VEHICULAR ZONE TO SHARED PUBLIC SPACE.



For more information on this project, scan the QR code

Work by Aarya More

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Resiliency & Growth: Darien and St Marys, GA

ST. MARYS, FRAMEWORK 3

DESIGN DRIVER: INTEGRATE THE COASTAL & NEIGHBORHOOD EDGE

CONTEXT SENSITIVE DEVELOPMENT ALONG ST MARYS STREET [V.2]



OPPORTUNITY

This intervention contemplates potential infill development that takes into consideration historic building sizes and block porosity. It contemplates a potential higher-rise / density typology for mixed-use along an area with currently little developmental controls.

KEY STRATEGIES



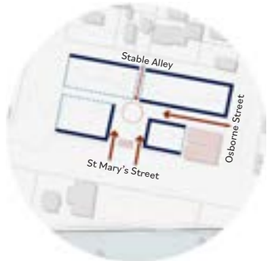
Existing site structures with unplanned entrances within a flood risk zone. 1. Riverside Hotel 2. Facade



Elevating the block, preserving structures, adding green infrastructure, and activating St. Marys Street as a gateway

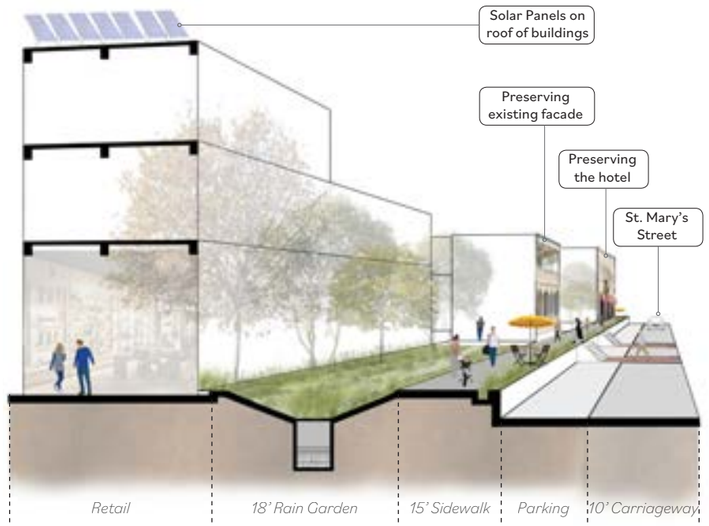


Zoning the block with a central space dedicated to community interaction



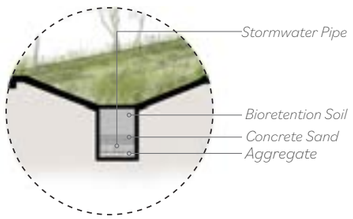
Orienting building fronts to respond to the surrounding context and enhance site integration

SECTION THROUGH RAIN GARDEN AND ST MARY'S STREET

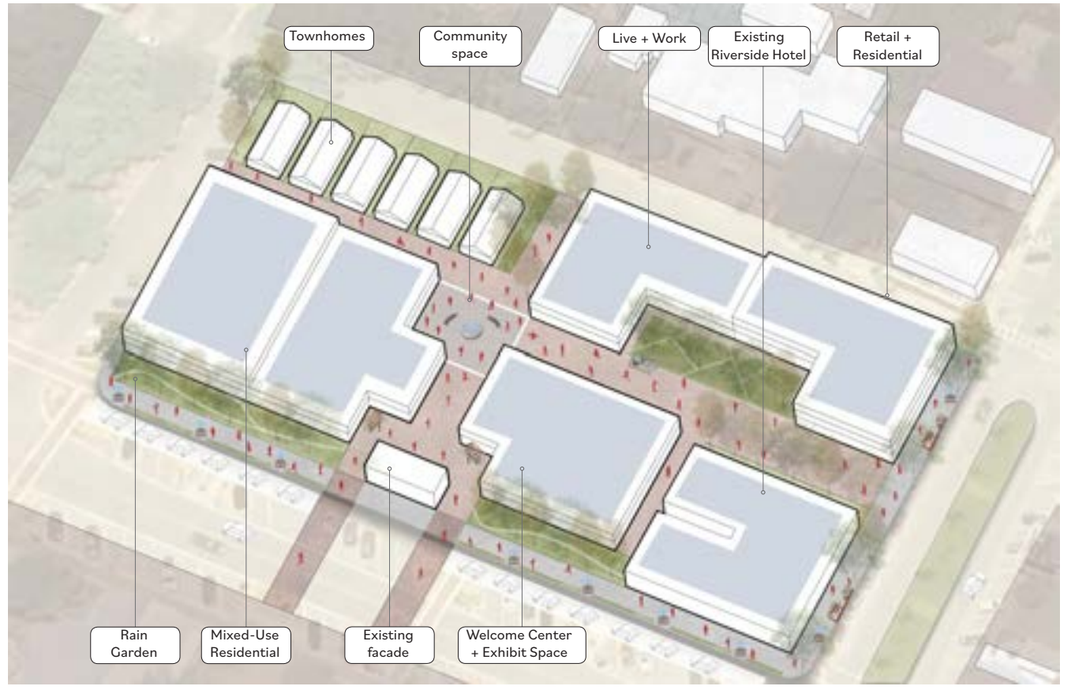


Solar panel on roof at an angle of 30 degrees



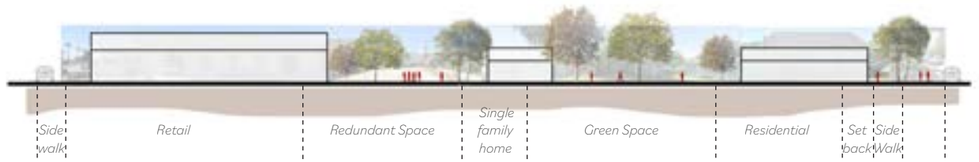


MIXED-USE CONTEXT-SENSITIVE DEVELOPMENT

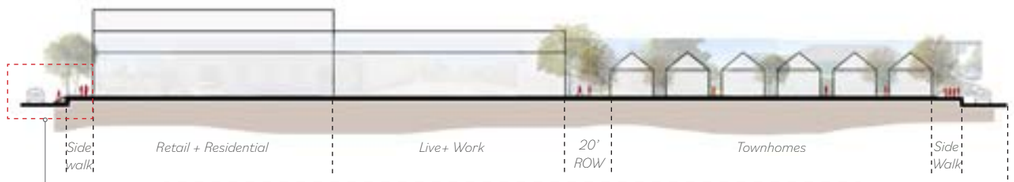


EXISTING SECTION

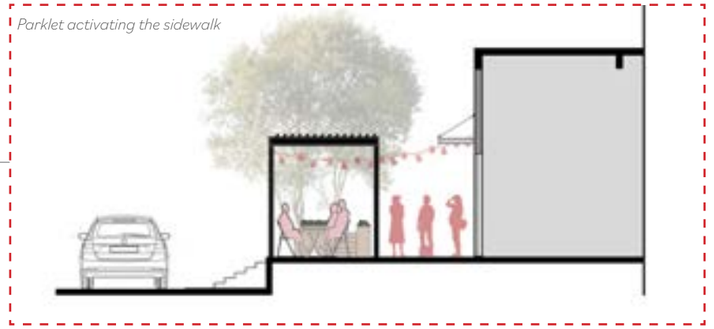
Existing section with sidewalks level with building entrances, increasing flood risk and also has a lot of redundant space between buildings.



PROPOSED SECTION



PARKLET



For more information on this project, scan the QR code

Work by Drishti Shah

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Resiliency & Growth: Darien and St Marys, GA

RESILIENCY AND GROWTH

URBANISM À LA CARTE IN DARIEN AND ST MARYS, GEORGIA

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