

Miami's Forgotten River: Redefining Waterfront Development to Sustain Community, Ecology, and Industry

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TABLE OF CONTENTS

LIST OF FIGURES	vi
ACKNOWLEDGEMENTS	ix
CHAPTER 1: INTRODUCTION	3
A FORGOTTEN RIVER RUNS THROUGH IT	3
CHAPTER 2: RIVER CORRIDOR, THEN AND NOW	7
SETTLEMENT PERIOD	7
CONTEMPORARY PERIOD	10
EXISTING CONDITIONS OF THE MIAMI RIVER CORRIDOR	12
PRESENT PLANNING AND DEVELOPMENT EFFORTS	19
CRITICAL STANCE	26
CHAPTER 3: THEORETICAL FRAMEWORK	27
MIAMI DROSS	27
CASE STUDIES	30
WALLER CREEK	31
LOUISIANA CHILDREN'S MUSEUM	32
CULIACAN BOTANTICAL GARDENS	33
ARCHITECTURAL USE OF CANOPIES	34
MIAMI ART MUSEUM	35
CHAPTER 4: PROGRAM DEVELOPMENT	36
TWO SCALE APPROACH	36
RIVER CORRIDOR SCALE	36
NEIGHBORHOOD SCALE	39
SITE DESCRIPTION	43

TABLE OF CONTENTS

CHAPTER 5: DESIGN	43
SITE DESCRIPTION	43
CONCEPT DESIGN	48
SPATIAL APPLICATION	48
CHAPTER 6: CONCLUSION	61
A RIVER RE-ENVISIONED	61
END NOTES	63
FIGURE CREDITS	66
REFERENCES	70
APPENDIX	76

LIST OF FIGURES

LIST OF FIGURES

FIGURE 1: View of Lower Miami River Zone.	3
FIGURE 2: Miami River 1918	6
FIGURE 3: Historic map of the mouth of Miami River at Biscayne Bay	7
FIGURE 4: Seminole Indians with dugout canoes on the Miami River.	7
FIGURE 5: Dredging of the Miami River, ca. 1920	8
FIGURE 6: Polluted waters of the Miami River entering Biscayne Bay.	8
FIGURE 7: (Opposite page) Diagram of the history course and landscape of the Miami River	8
FIGURE 8: Head waters of the Miami River	10
FIGURE 9: Man-made changes to the Miami River	10
FIGURE 10: Satellite Image of Miami, 2013	11
FIGURE 11: River Zones Diagram	13
FIGURE 12: Neighborhoods of the Miami River Corridor	14
FIGURE 13: Map diagram of Neighborhoods in the Miami River Corridor	15
FIGURE 14: Existing Public Space Diagram of the Miami River Corridor	16
FIGURE 15: Existing Demographics Diagram of the Miami River Corridor	17
FIGURE 16: Existing Land Uses Diagram of the Miami River Corridor	18
FIGURE 17: New public space masterplan for City of Miami Based on MPOS	19
FIGURE 18: City of Miami Riverwalk, portion built to date, Lower River Zone	20
FIGURE 19: Map Diagram outlining City of Miami Riverwalk and Greenway Proposal	21

LIST OF FIGURES

FIGURE 20: City of Miami Riverwalk Proposal	22
FIGURE 21: Built City of Miami Riverwalk segments that currently are not using bridge underspaces.	22
FIGURE 22: Existing public spaces and parks on the Miami River	23
FIGURE 23: Riverine transitions	24
FIGURE 24: Images of the dredging process.	24
FIGURE 25: Questionable streetscape improvements.	25
FIGURE 26: Alternative shading options	26
FIGURE 27: Drosscapes within the Miami River Corridor.	29
FIGURE 28: Waller Creek as it was, and sectional rendering of MVVA design.	30
FIGURE 29: Images of MVVA design for Waller Creek in Austin Texas	31
FIGURE 30: Images of Mithun's design for Louisiana Children's Museum	32
FIGURE 31: Images of completed site interventions to date at Culiacan Botanical Gardens	33
FIGURE 32: In response to climate, Rudolph explored various canopy and overhang forms.	34
FIGURE 33: Design Development of the Miami Art Museum by Herzog and de Mueron.	35
FIGURE 34: Before and After rendering of potential bridge installation, A	36
FIGURE 35: Before and After rendering of potential bridge installation, B	37
FIGURE 36: Before and After rendering of existing parks/public space upgrades.	38
FIGURE 37: Program Goals	39
FIGURE 38: Program Diagram	42
FIGURE 39: (Above) Satellite image with outline of Little Havana neighborhood and site.	43

LIST OF FIGURES

FIGURE 40: (Left) Satellite image detail of site, 1001 7th Avenue.	43
FIGURE 41: “Rio Miami”, 2007 (unbuilt) proposal for a private development on the 1001 7th Avenue site.	44
FIGURE 42: View of site (right side) from 12th Ave bridge, looking east. Downtown visible beyond.	44
FIGURE 43: Site Analysis Diagram	45
FIGURE 44: Existing 12th Ave. Bridge, under utilized space for pedestrian enhancements.	46
FIGURE 45: Children enrolled in the Digital Access program at Lummus Park.	46
FIGURE 46: Site Context Diagram	46
FIGURE 47: Site Diagram Series	48
FIGURE 48: Program Layout Diagram	49
FIGURE 49: Site Plan	50
FIGURE 50: Section A- Public Wing	52
FIGURE 51: Perspective rendering of Community Entry	53
FIGURE 52: Perspective rendering of Kayak Pier	54
FIGURE 53: Section D- Community Foyer	54
FIGURE 54: Section E- Community Room	56
FIGURE 55: rendering of Great Hall within the Community Room	57
FIGURE 56: Section C- Learning Landscape	58
FIGURE 57: Section B- Semi Private Wing	58
FIGURE 58: Rendering of Semi-Private Wing with Riverwalk as it pulls away from program volumes	60
FIGURE 59: Rendering of Semi-Private Wing with Riverwalk, during a rainstorm	62

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Miami's Forgotten River:

Redefining Waterfront Development to Sustain Community, Ecology and Industry



MIAMI'S FORGOTTEN RIVER: REDEFINING WATERFRONT DEVELOPMENT TO SUSTAIN COMMUNITY, ECOLOGY, AND INDUSTRY

CHAPTER 1: INTRODUCTION

A FORGOTTEN RIVER RUNS THROUGH IT

The city of Miami, Florida is a highly urbanized and fast growing cosmopolitan city. Despite supporting a population of 5.5 million people over a 55 square mile area, Miami is distinctive in its lack of public space. In a city defined by its waters, the Miami River has traditionally been overlooked in its potential to support public life. While the river has undergone several transformations to accommodate the changes in the city's economic base and population growth, current land uses along the river prioritize marine industrial function over public ones. The Miami River poses a unique opportunity to remedy a deficit in public space and define a new kind of waterfront for the city.

This thesis examines the intersection of the city and its waters: their past, current and possible future relationships. The city of Miami has forged itself from amphibious terrain, a unique subtropical riverine wetland landscape that shifted between wet and dry conditions dictated by weather and seasons. At the turn of the eighteenth century, ambitious negotiations between the nascent city and the Miami River watershed (Everglades and Biscayne Bay) took place. A brief historical background will illustrate the urban, political and economic forces that drove decisions to ultimately subvert the Miami River in a hard edged, channelized course supporting vital trade relationships with Latin America, isolating the residential communities along its borders. To alter this static and subservient relationship the city has with the river, the City of Miami has developed a Riverwalk proposal for creating an 11-mile loop connecting the north and south shores of the river from the mouth of the river to Palmer Lake, approximately

FIGURE 1: View of Lower Miami River Zone.

This aerial image clearly shows the buildup of the urban form and the Miami River is barely legible within the city grid.

five and a half miles inland. By establishing an understanding of contemporary Miami through the lens of its history, the Miami River and many of the sites along its banks can be understood as drosscapes, marginalized sites that are voids in the urban fabric of the city and the imagination of its Miamians. Alan Berger's concept of dross provides an apt characterization of the river. While the existing Riverwalk proposal strives to meet tourism centric goals, it lacks a strong programmatic vision to sustain the river as a destination over circulation, as understood by dross. By using the strength of the Riverwalk proposal as a circulation framework, this thesis proposes the implementation of a public program drive network of interventions that operate at multiple scales within the Riverwalk's area of influence as a strategy to reconnect the culturally diverse communities of Miami to their riverfront that recognizes community needs for public space, respects the demands of a "working river" and maritime industries, while instilling an ecological consciousness. The goal of this thesis is to re-imagine the Miami riverfront as a richly layered system that is capable of sustaining diverse uses and users.

The chapters that follow present analysis, critique and a resultant design proposal exploring ways the Miami River could sustain urban public life. Chapter two introduces the Miami River with historical context followed by contemporary conditions, and a critique of current development efforts. After establishing a contextual understanding of the river, a critical stance is presented based on the weaknesses of the existing Riverwalk proposal to provide continuous river access and engage the communities and natural resources of the river corridor. Chapter three builds a theoretical framework for the thesis through interpretation of Alan Berger's drosscape and Pierre Bourdieu's concept of field and habitus as ways of understanding the urban, social, and cultural challenges of the river. Chapter three concludes with a presentation of relevant case studies with diverse projects: Waller Creek design by Michael Van Valkenburgh and Associates, Louisiana Children's Museum by Mithun, Miami Art

Museum by Herzog and de Meuron, and various works of architect Paul Rudolph. Chapter four layers the regional and local conditions of Miami with the social and cultural imperative provided by the theoretical framework to formulate a public program framework that would guide the development of riverfront public space. At the larger urban scale of the river corridor program takes the form of a blueway network providing active and passive recreation and leisure options. At the local neighborhood scale, after school education spaces with community gathering space is proposed. In chapter five, a specific site within the neighborhood of Little Havana provides spatial application of the ideas discussed. Finally, chapter six provides a summary and reflections upon the opportunity provided by the Miami Riverwalk as an agent for place-making.



FIGURE 2: Miami River 1918

CHAPTER 2: RIVER CORRIDOR, THEN AND NOW

SETTLEMENT PERIOD

The Miami River was a vital access corridor and resource for water and food supporting the initial settlement of Miami as a city of refuge. Miami's unique subtropical climate attracted many, recreational fisherman eager to explore Biscayne Bay and wealthy northerners seeking refuge from city life and a chance to reconnect with nature and diversion and vacation.¹ Overtime people from other classes settled in Miami for health reasons, seeking a respite from illness and the harsh cold winters and snow. The year round warm temperatures lead to economic aspirations in agricultural. Prior to modern development, the Miami River was a key freshwater resource in the area and an important outlet from the Everglades to Biscayne Bay. The historic river was only 4 miles long, with a fall of 20" per mile.² The river was the primary source of potable water through a series of natural springs along its course. Additionally, the mouth of the river at Biscayne Bay supported a thriving estuary providing abundant fishing for subsistence and trade (Figure 3).

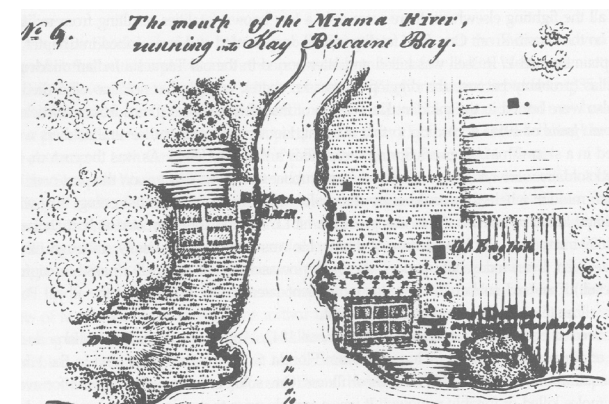


FIGURE 3: Historic map of the mouth of Miami River at Biscayne Bay



FIGURE 4: Seminole Indians with dugout canoes on the Miami River.

During the early stages of development the Miami River was a critical trade corridor. South Florida was one of America's last geographic frontiers. The challenges of the swamp and marsh landscapes of the Everglades which in the 1800's covered majority of the state, made access to goods and trade difficult. As a result, early settlers relied heavily on the Miami River for trade with the Calusa and Seminole tribes³ (Figure 4). These tribes would trade natural goods from the glades: waterfowl, crustaceans, plants, wild bird plumes, feathers, organic materials for common textiles etc. with settlers for bead, and modern sewing equipment.⁴ Due to high water levels and unpredictable weather during the wet season (hurricane season June-

October), settlers relied on trade with Native Americans, over imports from the north.



FIGURE 5: Dredging of the Miami River, ca. 1920

Ecologically, the Miami River was a vibrant habitat corridor (Figure 7). The source of the river in the Everglades, emerged from a sawgrass and slough landscape within marshes and swamps which transitioned to rockland pine and flatwood forest, and finally into a tropical hardwood hammock habitat upon reaching the Atlantic coastal ridge.⁵ Each landscape supporting unique subtropical flora and fauna, more similar to the Caribbean and Latin America than the rest of the continental U.S. The Atlantic coastal ridge on which Miami sits is “terra firma”-- made of oolitic limestone. As Miami grew, population and development pressures forced expansion, and the western extents of Miami pushed further and further into the Everglades. In 1896 large scale alterations to the river’s course began. The rapids were blasted, shallow areas deepened, course widened and narrowed, and areas filled.⁶ By 1908 large scale draining of the Everglades had become a reality (Figure 5). As modern technologies and infrastructures emerged, the river was no longer a vital freshwater resource and was used to move sewage and waste out to sea (Figure 6).



FIGURE 6:Polluted waters of the Miami River entering Biscayne Bay.

In the 1930’s a new environmental and ecological awareness emerged. The work of journalist and environmentalist Marjorie Stoneman Douglas was influential in bringing improvements to the Everglades, Miami River and Biscayne Bay. “There are no other Everglades in the world. They are, they have always been, one of the unique regions of the earth; remote, never wholly known. Nothing anywhere else is like them”.⁷

FIGURE 7: (Opposite page) Diagram of the history course and landscape of the Miami River



Everglades



Rockland
Pinelands



Tropical
Hardwood
Hammock



Biscayne
Bay Estuary





FIGURE 8: Head waters of the Miami River prior to blasting that occurred in 1908

CONTEMPORARY PERIOD

In less than 200 years the image of the river has been polarized. In the late 1800's during the settlement of Miami the river was a vital lifeline, providing freshwater, food, and goods for trade. The river wove together natural systems and human occupation, creating a dynamic image of the river as a place in flux, an amphibious terrain between land and water, nature and city.

The waters of Miami: the sea (saltwater) and the river (freshwater) have become dividing forces. The river became a mechanism to conquer water in order to conjure more land for Miami's urban growth. The river channel was manipulated to accommodate large shipping vessels for economic gains (Figure 8), and bridges were constructed for ease of access, the Miami River has become a vital lifeline to new pressures: urban growth, political exigencies, and globalization (Figures 9-10). The Miami River is celebrated as a working river, heavily engineered and dominated by economic interest, yet isolated from the public realm. The more the river was manipulated the more it was anesthetized from popular imagination. This can be seen in current development of the river corridor. Saltwater lands such as beach front property are iconic of the popular image of Miami, being desirable recreation and social hot spots while freshwater lands, like the riverfront is seen as part of the economic infrastructure of city, not a place for public or civic life.

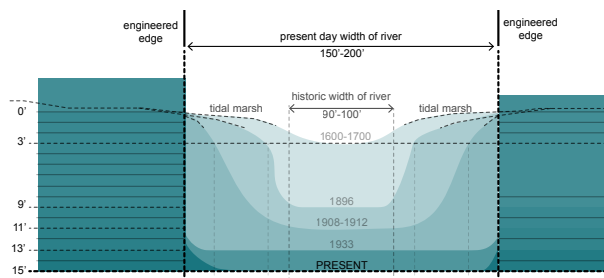


FIGURE 9: Man-made changes to the Miami River sectional diagram illustrating changes to Miami River and gradual channelization over time.



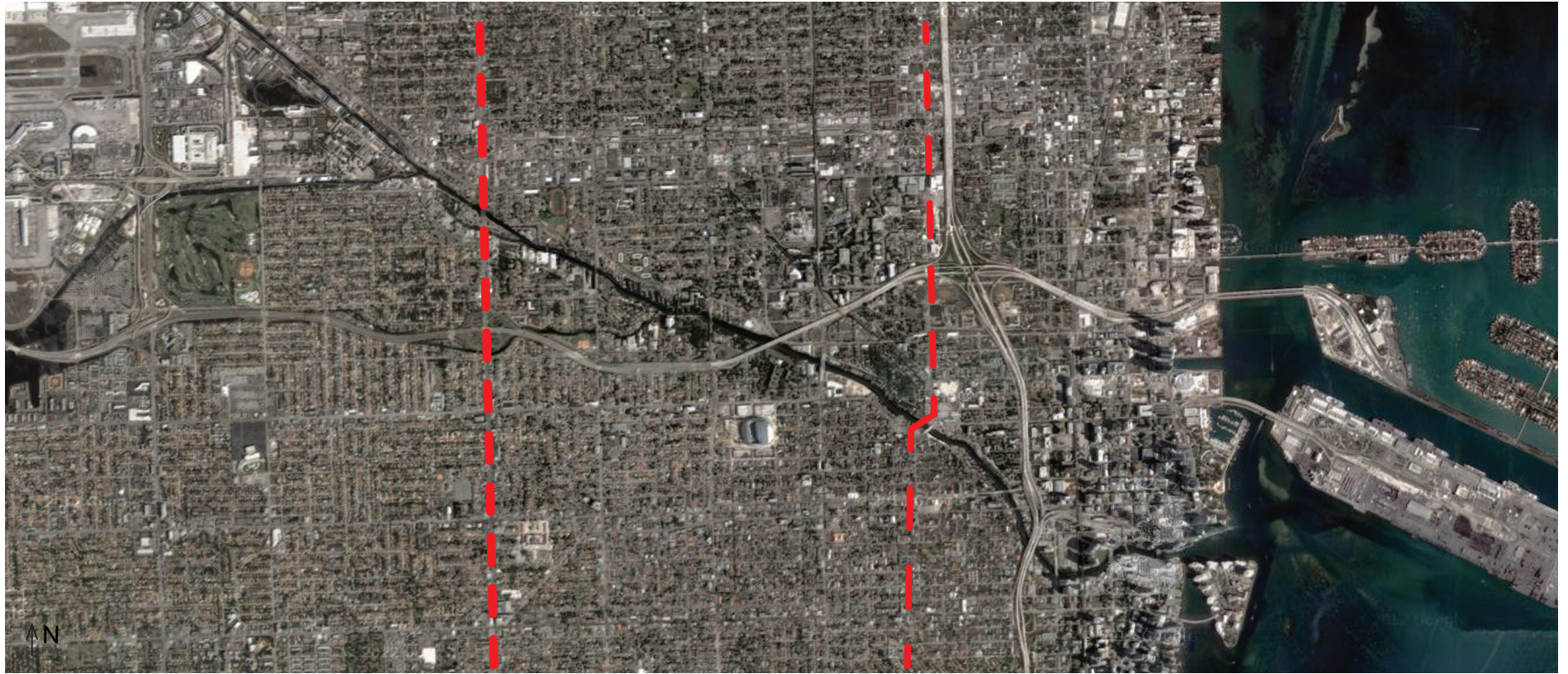
FIGURE 10: Satellite Image of Miami, 2013

Present day city of Miami with the original course of the Miami River overlaid.

EXISTING CONDITIONS OF THE MIAMI RIVER CORRIDOR

The 5.5 mile Miami River corridor consists of three zones: Lower River, Middle River, and Upper River by the City of Miami based on general land use and development patterns (Figure 11). These categorizations contribute to the character of the 5 distinct neighborhoods that comprise the Miami River corridor (Figure 12). The lower river consists of the area from Biscayne Bay to the 5th Street Bridge.⁸ This area includes the Central Business/Financial District, Miami Government Center, and the only portions of the Riverwalk built to date. This section of the river is densely urban consisting of high-rise residential and commercial, retail, office, hospitality, and waterfront restaurants, and institutional land uses. The Middle River area reaches from the 5th Street Bridge to the NW 22nd Avenue Bridge.⁹ This portion of the river has the highest residential concentration, with primarily single family and multi-family housing. Additional land uses include the Civic Center, and new and growing Medical Complex. The Upper River area extends from 22nd Avenue to Palmer Lake. This section is known as the Miami Industrial area and includes the Miami International Airport, the river industrial complex and the planned Miami Inter modal Center. These facilities serves as the transfer point for cargo and for the construction, service and repair of freight and recreational watercraft.¹⁰

The river and its corresponding zones flow through five diverse and in some cases disparate neighborhoods of Miami: Downtown/Brickell, Overtown, Little Havana, Allaphatta and Flagami. A brief description is presented here to provide and understanding of the various people and interests that have a stake in the Miami River corridor.



Upper River

Middle River

Lower River

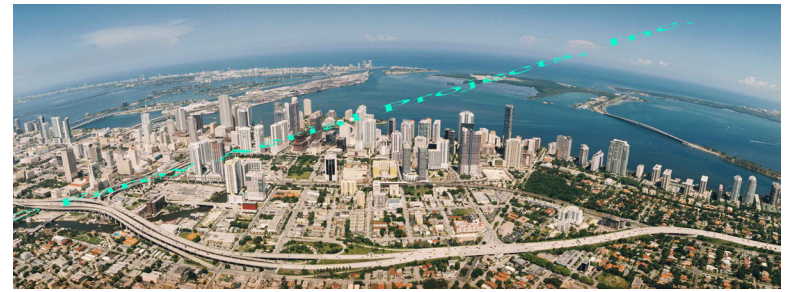
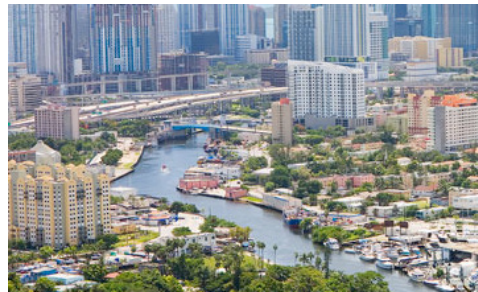
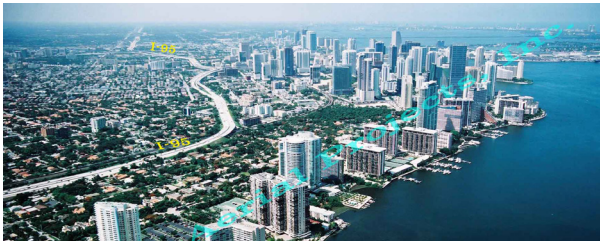


FIGURE 11: River Zones Diagram



- Downtown/Brickell: is the entirety of the Lower river zone. Aggressive gentrification had occurred with the wave of new oceanfront development in the early 2000's.
- Overtown: Miami's historically Black neighborhood, known as Miami's "Harlem". This neighborhood suffered from urban renewal plans which centered Interstate 95 (highway) directly through the neighborhood, effectively breaking it into 2 disconnected sites. This neighborhood struggled, but now in the 2000's thanks to new awareness and city funding, is slowly revitalizing.¹¹
- Little Havana: This neighborhood was historically the Jewish neighborhood of Miami, but in the 1950's and 1960's with Castro's rise to power Cuban immigrants and refugees flooded the neighborhood and today it is predominately Hispanic (Cuban, and Latin Americans). Little Havana has the highest residential density in Miami.¹²
- Allaphatta: This neighborhood has single family and multifamily housing, and is also home to large scale whole sale produce markets.¹³
- Flagami: mostly residential and is the most suburban feeling of the neighborhoods.¹⁴

FIGURE 12: Neighborhoods of the Miami River Corridor

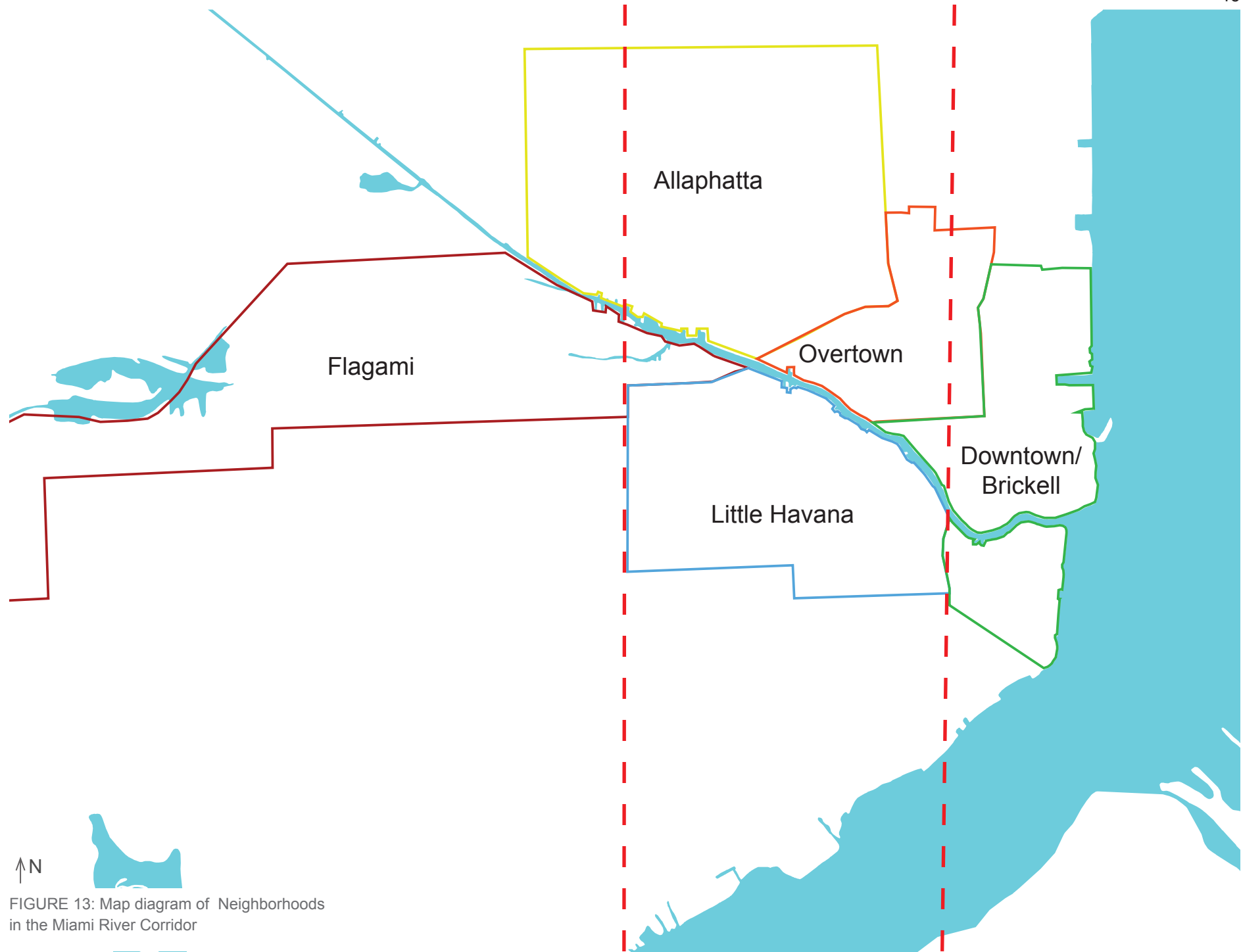


FIGURE 13: Map diagram of Neighborhoods in the Miami River Corridor

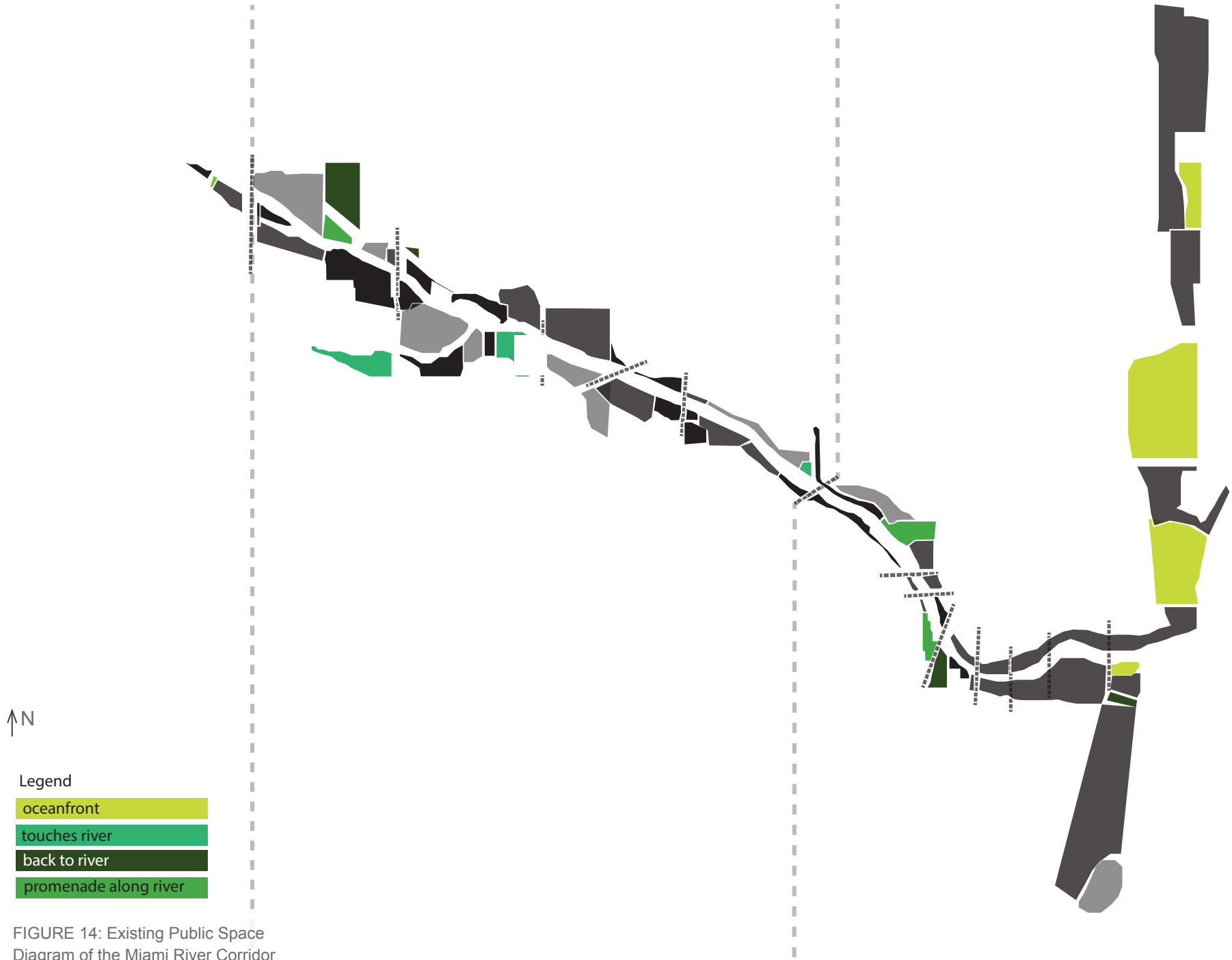


FIGURE 14: Existing Public Space
Diagram of the Miami River Corridor

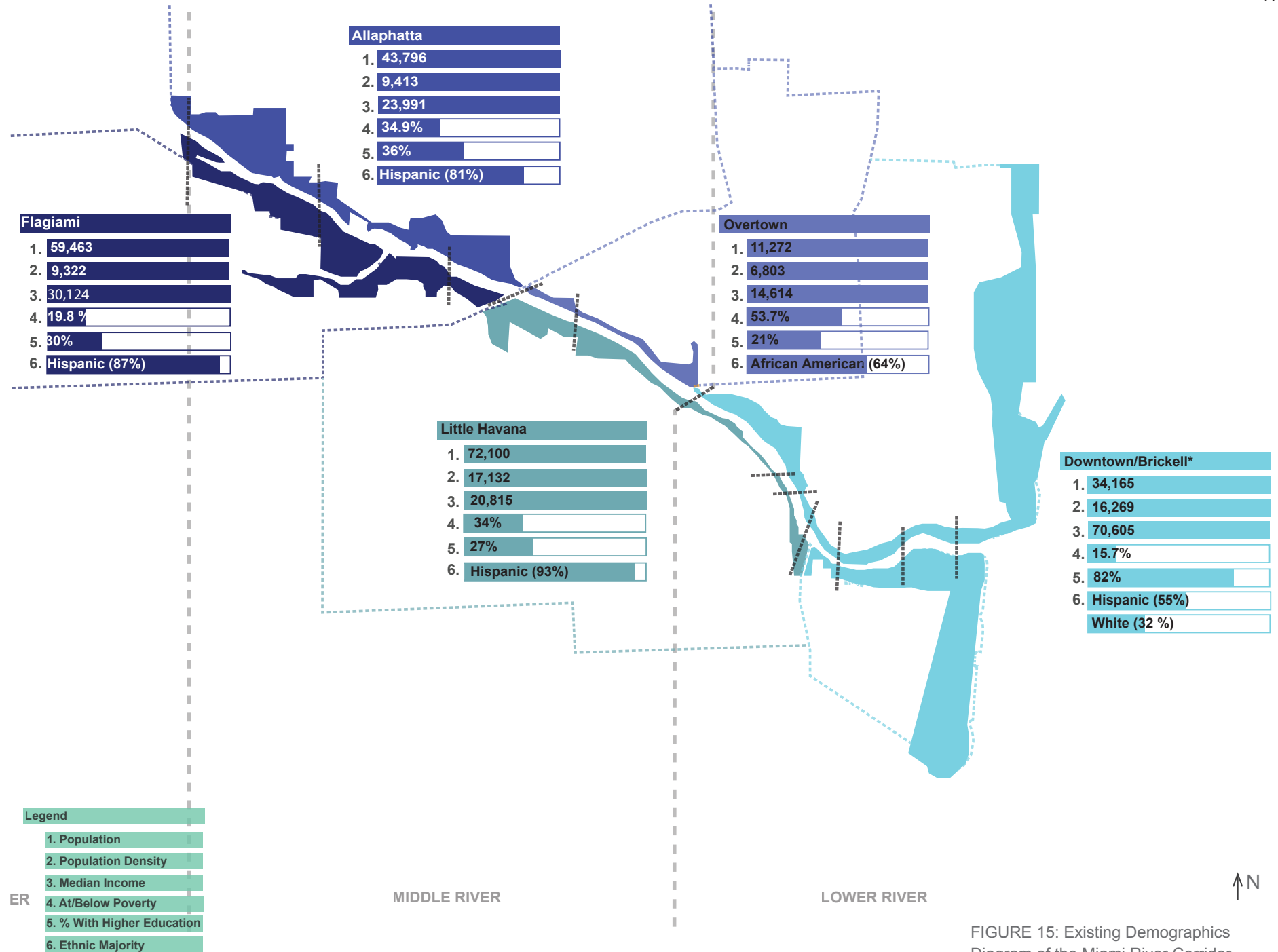


FIGURE 15: Existing Demographics Diagram of the Miami River Corridor

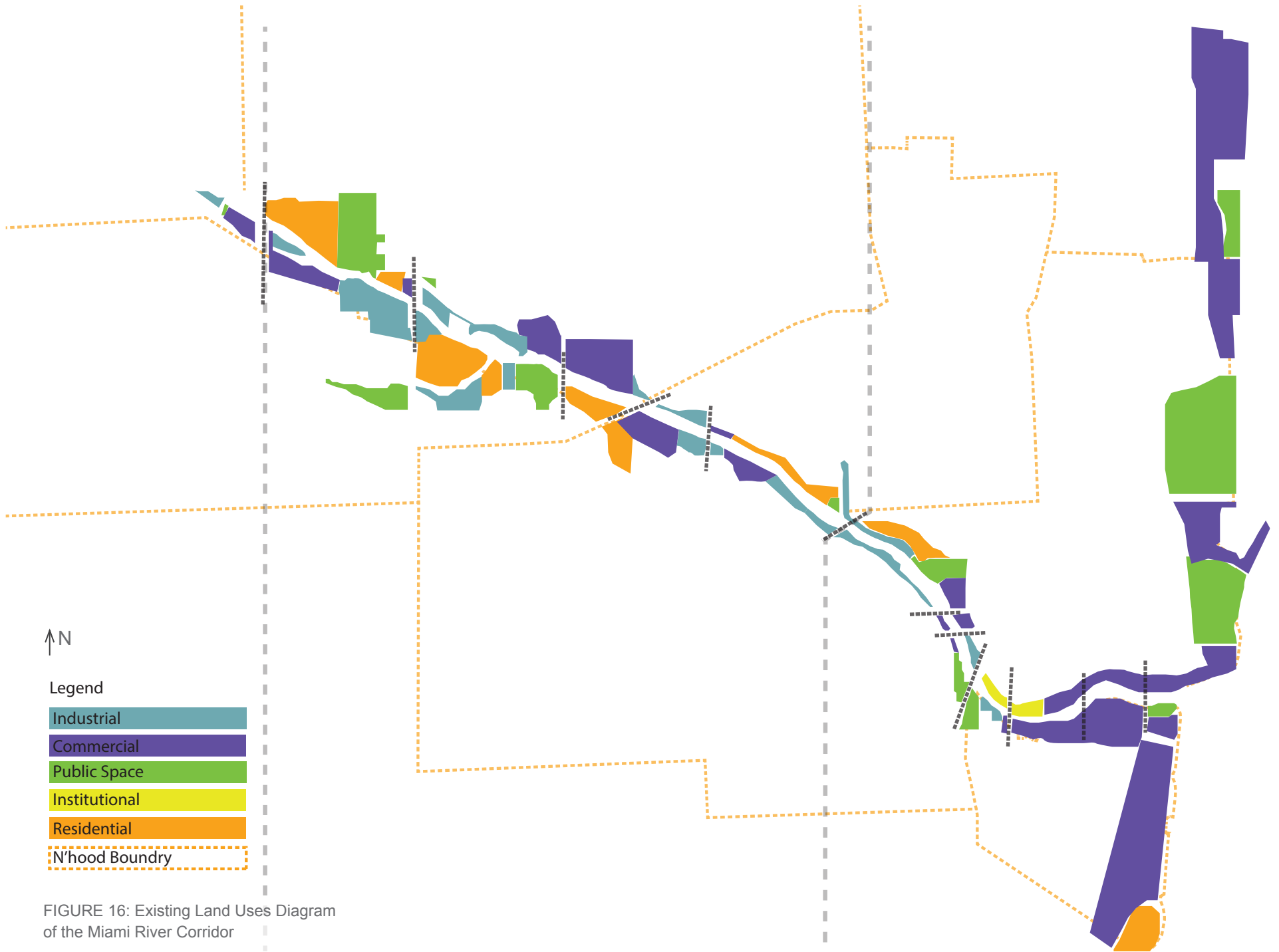


FIGURE 16: Existing Land Uses Diagram of the Miami River Corridor

Neighborhoods like Allaphatta, Little Havana, Overtown, and Flagami account for more than 60% percent of Miami's population. Demographics, land use, and public space analysis (Figures 14-16) reveals these neighborhoods have smaller scale and in total less acreage of parks and public space, compared to the oceanfront neighborhoods, further compounded by fragmented land use patterns. Based on the dominating presence of marine industrial, unlike Miami's oceanfront developments, these riverfront developments lack access and therefore a sense of identity with the river. In these neighborhoods the image of the river is a shadow.

PRESENT PLANNING AND DEVELOPMENT EFFORTS

At the turn of the 20th century Miami, like many of America's cities, realized the need for public access and the potential of the riverfront to sustain a vibrant urban public life. "With the surge in private sector development, the question of public accessibility to the river has been brought to the forefront. Miami's waterfront is a priceless resource that must not be lost to the general public."¹⁵ From 1991- 2008 the legislative and planning framework was established to create the Miami Riverwalk Proposal. A Miami River Commission was created as an inter-governmental agency to coordinate and oversee the project. As part of these efforts, the City of Miami commissioned the Miami Parks and Open Spaces Master Plan (MPOS) and the Miami River Greenway Regulatory Design Standards and Guidelines (GRDSG). The MPOS specifically addresses issues of public space and set forth relevant and site specific recommendations based on an intensive community process, and the GRDSG provides technical and aesthetic standards to create a consistent character as additional portions of the Riverwalk are realized. The City of Miami's Riverwalk proposal illustrates a direct response to address the key points of the MPOS, but reveals larger unanswered questions of public program, accessibility and ecology that plaque the Riverwalk proposal.



FIGURE 17: New public space masterplan for City of Miami Based on MPOS

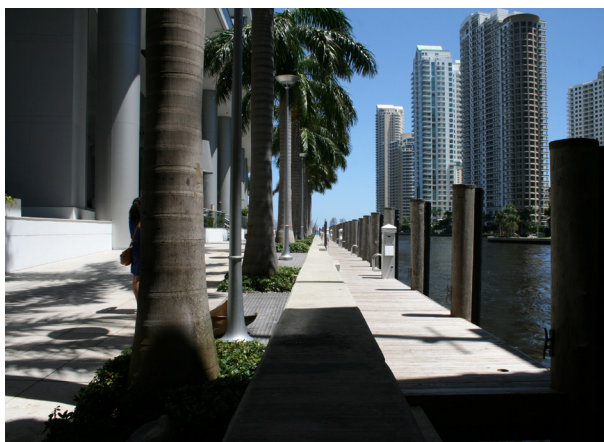


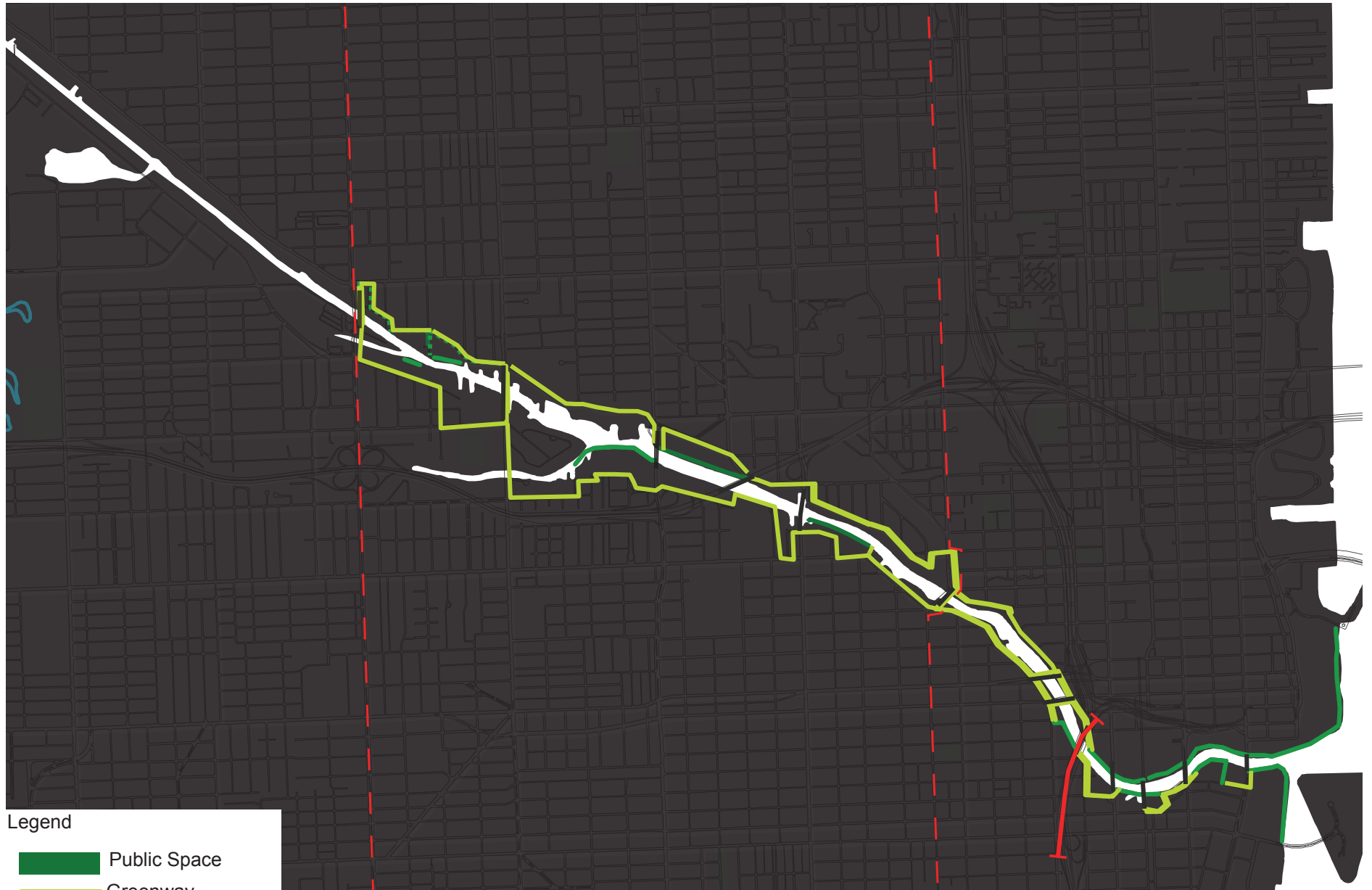
FIGURE 18: City of Miami Riverwalk, portion built to date, Lower River Zone

existing Riverwalk has hard edges to the river, and though there is a wide pedestrian promenade, there is little pedestrian engagement, and palm trees provide minimal shade.

The MPOS provides a thorough inventory and analysis of Miami's public spaces, and provides sound recommendations for extending and improving parks and open spaces, based on an intensive research and community engagement process. These recommendations include:

- more acreage of parks
- more access to water (and water features)
- more trees and shade
- more bike and pedestrian options/routes
- parks must serve a variety of needs for diverse communities, balancing active and passive uses.
- parks should be celebrated as part of a natural system¹⁶

These recommendations highlight Miami's public space needs, and the subsequent Miami Riverwalk and Greenway (MRG) proposal is one piece of a larger strategy (Figure 17) that the City of Miami is developing in response to the MPOS. The MRG proposal establishes public accessibility along the entire course of the river within Miami's larger metropolitan area from its mouth in Biscayne Bay all the way to 27th Ave near Palmer Lake (Figure 19). This proposal locates the path along the north and south banks of the river effectively providing an 11 mile loop of access and new public space through the river corridor's 5.5 lineal mile course.¹⁷ However, the irony of the proposal is that only 3.3 miles (approximately) of this public space loop actually touches the genuine edge of the river. Issues of imminent domain and the needs of marine industrial businesses requiring access to the working river impedes direct access to the water. Marine industrial business contribute over 500 million dollars to Miami's economy¹⁸ and therefore their access to the river cannot be compromised based on current economic trends. The remaining 7.7 miles of the Riverwalk proposal are considered "Greenway"--essentially green streets. These green streets are planted with street trees and



- Legend
- Public Space
 - Greenway
 - Riverwalk
 - River Zone
 - Extent of Riverwalk to date



FIGURE 19: Map Diagram outlining City of Miami Riverwalk and Greenway Proposal length of Greenways (7.7 miles) clearly outnumber Riverwalk areas (3.3 miles)



FIGURE 20: City of Miami Riverwalk Proposal

This conceptual rendering is supposed to illustrate application of MPOS and GRSDG to creating a successful Riverwalk.

provide directional signage and other urban furniture and amenities in hopes to create an aesthetically pleasing environment for pedestrians. The “greenway” navigates users often times several blocks away from the river, through shifting land uses of commercial, light industrial and even residential areas until it can reconnect to the water and become a river front path again. The Miami Riverwalk and Greenway proposal is more greenway than riverwalk. In an effort to address the issue of public space and public access, while balancing the needs of a working waterfront, the Riverwalk proposal is faced with the problem of discontinuous passage.¹⁹ While the Riverwalk and Greenway loop help establish a strong circulation corridor, the majority use of Greenway removes the amenity and draw of the river, and will create a challenge to sustain usership.



FIGURE 21: Built City of Miami Riverwalk segments that currently are not using bridge underspaces.

Bridge crossings are another related challenge for the Riverwalk proposal. There are 12 bridges that cross the river within the scope of the Riverwalk proposal. Typically these spaces under bridges tend to be dark and not well maintained. In a few sites small parks and public art have been inserted, but suffer from a lack of usership because they are isolated within the urban fabric and have no adjacent public uses. In some instances vegetation has over taken these pockets, in others they are used by the homeless. MPOS states, “Area under bridges are neglected spaces and private property owners are encouraged to coordinate with the appropriate agency to develop a usable space underneath the bridges that would enhance connectivity along the river.”²⁰ To date, no publicly accessible documents indicate proposals for new bridge installations to improve the pedestrian environment. Conditions under bridges further exacerbate the Riverwalk’s problem of discontinuous passage (Figure 21).

One of the key criteria for new public spaces in Miami based on the MPOS is the ability to serve a variety of needs for diverse communities, while balancing active and passive uses. Considering the diverse demographic makeup of the river corridor, the The Miami River

Greenway Regulatory Design Standards and Guidelines (GRDSG) and other documents provide little aid in achieving this goal. The GRDSG does not provide a programmatic framework that would establish programs in specific locations within the Riverwalk proposal. The GRDSG outlines standards for public and private development regarding street planting, sidewalk widths, architectural façade treatments and vehicular access. As private developers purchase the many empty parcels along the river walk, much of the new development consist of high rise development-- residential towers that provide some public amenity and access on ground level. Where public amenities do exist they take the form of light commercial, retail and restaurants. Planning documents, and renderings reference restaurants with boat pull up/docking and high end retail catering to the taste of the upper class and tourist demographic. Yet, based on the challenges, it is counter-intuitive and unlikely that tourists and non-local visitors would be willing to navigate away formal Riverwalk to Greenway in foreign surroundings.

This thesis projects that actual Riverwalk areas will become nodes of activity and Greenways will suffer from reduced usership. As a result, high rise development with tourist centric ground uses would only exacerbate current trends of fragmentation and isolate rather than connect the diverse communities of the river corridor to the river itself. The City of Miami has a distinct opportunity to implement land use and zoning changes that would steer new development of waterfront sites for civic and community based uses that gives voice and equity to the diversity of people who call the Miami river corridor home. To strengthen the Riverwalk proposal as a pedestrian circulation promenade requires the placement of community based program throughout the Riverwalk.

The Miami Riverwalk proposal takes a strong position to protect and enhance water quality, but does not to consider larger ecological issues of the physical river channel and

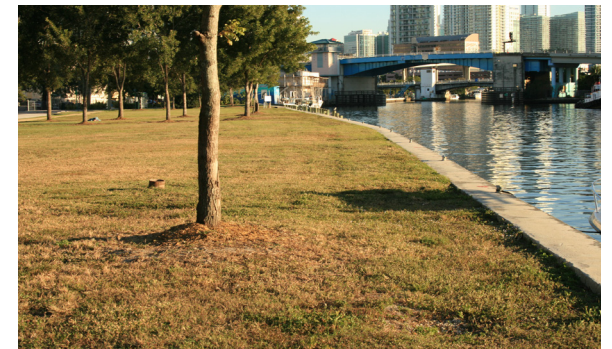


FIGURE 22: Existing public spaces and parks on the Miami River

These spaces have hard, blunt edges that do not engage the river and offer little pedestrian amenities.

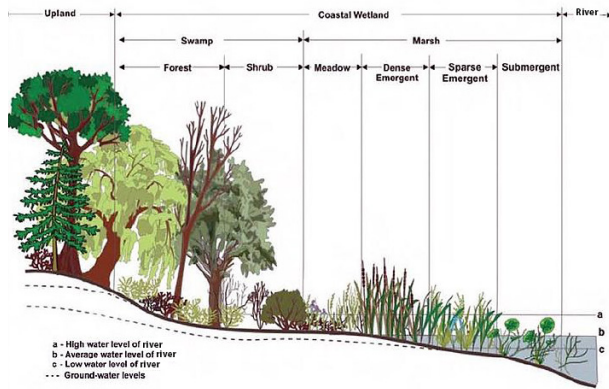


FIGURE 23: Riverine transitions

the designated planting palette as a link between natural systems and human usership. The Miami River is “The most significant remaining natural system that connects the Everglades to Biscayne Bay, it has been well documented as habitat for the manatee, and is a key link uniting remaining natural areas from Biscayne Bay to Palmer Lake”.²¹ However various Riverwalk planning documents strictly confine the conversation to conservation park sites like Virginia Key which is isolated from the city core and not easily accessible. Healthy rivers that are able to support a spectrum of biodiversity require soft edges created by planting and shallow slopes to support habitat and specie transitions, moderated temperature, and good water quality (Figure 23). The Miami River is an EPA designated Class III water body (swimmable and fishable), however 2001 data analysis revealed depressed levels of dissolved oxygen and elevated fecal coliforms.²² To improve water quality issues, The City of Miami updated and revised the Biscayne Bay Aquatic Preserve Act which puts stringent regulations on marine industrial businesses to control discharges into the river. Additionally, The Miami River Action Plan requires all new construction along the River to identify and control point source and non-point source pollution discharge to the river through required upgrades to storm water infrastructure.²³

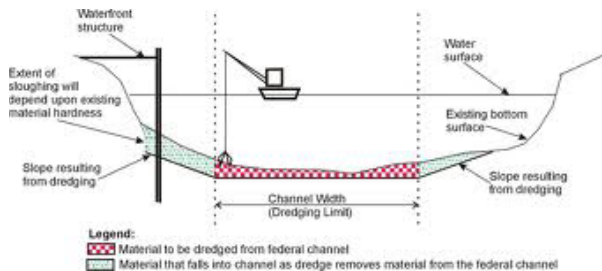


FIGURE 24: Images of the dredging process.

While these steps will improve water quality, the city has not yet considered the detrimental effects of dredging and the hard engineering of the sea wall to the river’s ecology (Figure 24). Dredging of the river channel allows for the removal of heavy metals and pollutants that have accumulated in sediment at the river bottom and maintains the necessary depth needed for large cargo ships and barges to navigate the river course. Though economically necessary, dredging creates steep slopes and a sharp gradient from surface to river bottom which inhibits habitat and biodiversity. Similarly, sea wall improvements and engineered edge solutions are necessary in some areas to control the effects of tidal

flux on older properties, where development often times is located just a few feet or inches from the sea wall and river's edge. However, hard engineered edges need not be the only solution. Existing park sites and current vacant sites have an opportunity to explore different siting options for new development that could allow for softer engineered edges and shallow gradients that could re-establish lost ecologies and further contribute to water quality and biodiversity. In this way, a waterfront site could be maintained while inviting the river into the space of the site, creating a truly unique experience.

Finally, one of the most important recommendations made by the MPOS is the need for more shade. In a subtropical climate like Miami, to create a comfortable and vibrant public space, requires shade for thermal comfort. While built shade structures are one option, the use of native planting would be an effective way to create shade and increase habitat. Iconic to the city of Miami is the image of the palm tree. While these trees speak to the “tropical” aesthetic Miami is famous for, it is a very poor shade tree (Figure 25). Even in natural habitats, palm trees are rarely found in a monoculture. Palm scrubs typically contain royal palms, sable palm and other plants such as: saw palmetto, american holly, highbush blueberry, wax myrtle and wild coffee to name a few.²⁴ To provide adequate shade, palm trees need to be planted in clusters and require an average of eight to ten years to mature. The city of Miami should challenge this non-functional aesthetic and look to its own 2007 publication: Street Tree Masterplan that highlights tree species that are native and/or well adapted to the climate and geography of the area that can provide wide tree canopies for shade (Figure 26). After all, “Miami needs to take advantage of every opportunity to create a strong network of resources that goes beyond the traditional to create an exciting tropical public realm worthy of a city of international importance.”²⁵



FIGURE 25: Questionable streetscape improvements. While paving details help identify continuity of the path, it is unclear how the palm trees are providing shade. In these images they appear to be an aesthetic choice rather than a technical or practical one.



In Barcelona, along the Las Ramblas-- a famous pedestrian promenade generously uses wide canopy street trees for shade in a Mediterranean climate.



In Miami, this cafe's outdoor seating has been carefully placed amidst rows of palm trees. Clearly not providing adequate shade, a shade sail system has been designed that directly attach to the trunks of the palm trees. Interesting to think how much money could have been saved by just choosing an alternative tree.

FIGURE 26: Alternative shading options

CRITICAL STANCE

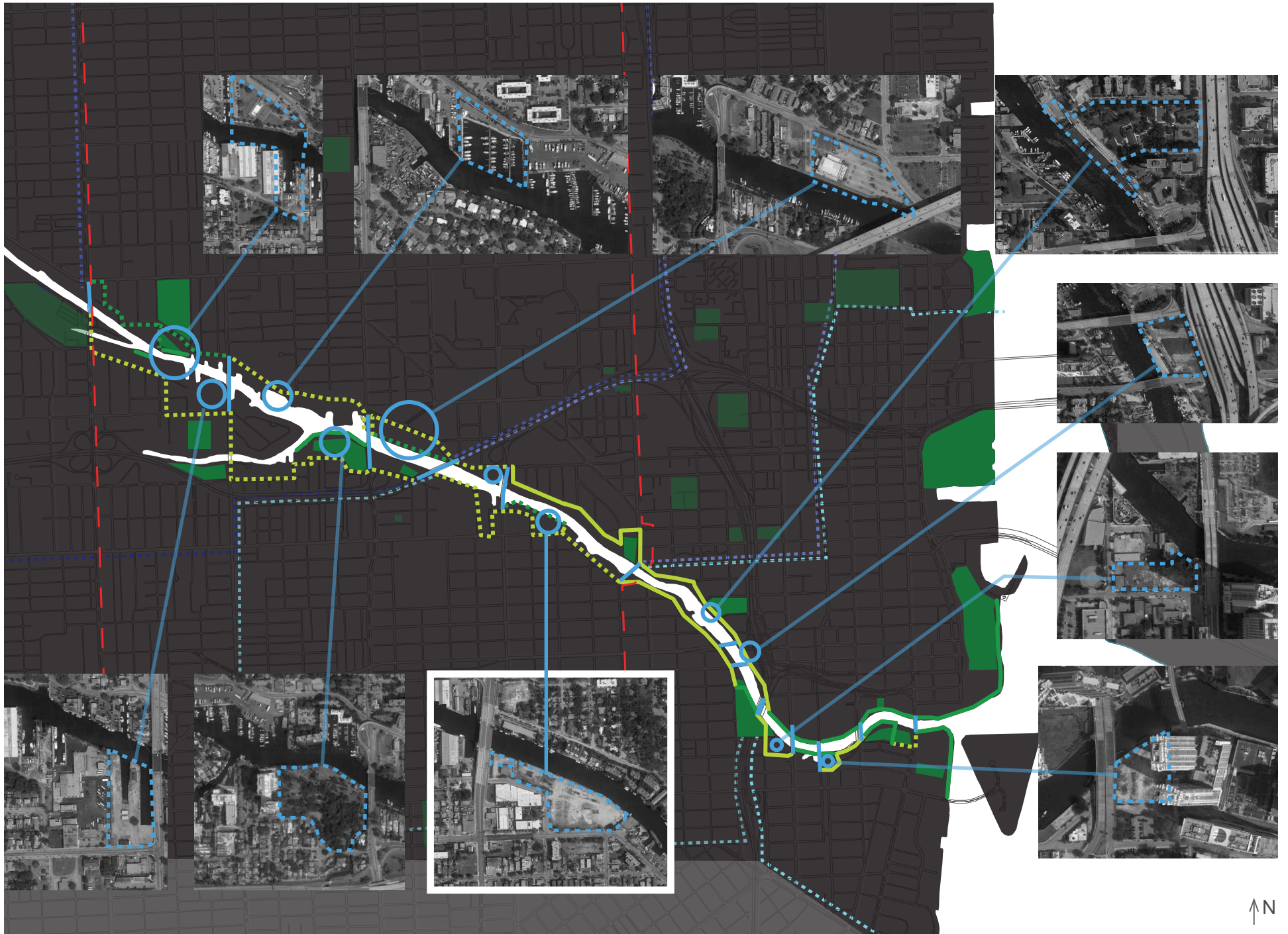
Present planning and development efforts regulating the Miami River are well intentioned, but fail to address the depth of the challenge to create a public Riverwalk proposal that can successfully coexist and integrate with a working waterfront. Miami is in desperate need of additional public space. In a time when many of our country's rivers are being seen a new, and translated into spaces for urban public life-- like the redevelopment of the Los Angeles River in Los Angeles, Allegheny river in Pittsburg, Waller Creek in Austin, and the East and Hudson rivers in New York City—Miami must take a more equitable stance. The city has put forth an upper class, tourist centric public Riverwalk proposal sustained by high end residential, commercial, retail and restaurants. This is a cosmetic solution that fails to grapple with the complex reality of the river corridor and public access. The Riverwalk proposal in its current form is not viable. To maintain a working waterfront, creates a discontinuous Riverwalk. This is an obstacle for use, creating an undesirable and complicated public path. Tourists and non-local visitors are less likely to explore unknown areas where the paths breaks often. To create a functioning Riverwalk public space proposal, it must be locally rooted in the immediately adjacent community. By taking a more introverted approach that draws on local connections to community and the neighborhood fabric is one way to overcome the problem of discontinuous passage. Local residents have a more intimate knowledge and would be able to contribute stronger usership to the river. Finally, existing and proposed public spaces lack a dialogue of stewardship with the river. Stewardship and the enhancement of riverine ecology offer an opportunity to create a unique public space linking Miami's past, current and future natural histories together in a new awareness of city and public use. The Miami River poses a unique opportunity to remedy a deficit in public access (space and program) and define a new kind of waterfront for the city.

CHAPTER 3: THEORETICAL FRAMEWORK

MIAMI DROSS

The Drosscape concept explores wasted sites within a city's urban fabric, and the design potential these sites hold in contributing to a new image of the city. Professor of Landscape Architecture and Urban Design, Alan Berger's concept of drosscape provides a theoretical framework to understand the relationship between urban growth and landscape. "Drosscape is the creation of a new condition in which vast, wasted land surfaces are modeled with new programs or values that remove real or perceived aspects of geographic and cultural space."²⁶ When applied to the city of Miami and its' relationship to the Miami River, drosscape provides a foundation to challenge the marine industrial monopoly on the river and delimit wasted sites for appropriation for civic and environmental uses. Drosscape makes the case for a Riverwalk proposal that goes beyond a pedestrian promenade, and actively engages liminal sites for public use. In this manner the Riverwalk can be transformed from a circulation corridor to a network that anchors the river within Miami and the various neighborhoods within Miami to the river. Building on the drosscape concept, social theorist Pierre Bourdieu's ideas of habitus and field supports the case for a public Riverwalk proposal that is community focused with public program over the existing proposal private development unchallenged. Kim Dovey explains Bourdieu's concepts of *habitus and field* as a call for socially engaged architecture, "Participation is a name we use for power when it is distributed evenly".²⁷ The habitus is constructed knowledge, what would traditionally be defined as architectural built form. The field is not a physical space, but a social space, it contains forces and resources like, behaviors, relationships, mores, and cultural traditions. "Those that can control the resources have the ability to shape and dictate the habitus"²⁸. To change the habitus, is to alter the field.

The landscape of the contemporary horizontal city is no longer a placemaking or condensing medium. Instead it is fragmented and chaotically spread throughout the city in small bits and pieces. Because it is so difficult to see in its entirety, the contemporary city's landscape escapes wholeness and public consciousness, once poignantly referred to as 'terra incognita'"²⁹



To truly become part of the identity of Miami, the Miami River must become part of the social space as Bourdieu defines it in neighborhoods like Allaphatta, Overtown, Little Havana and Flagami. The collective strength of this new field has the ability forage a new Riverwalk vision that can serve the architectural needs of these communities rather than that of private interest.

To most citizens the Miami River is a thing of myth—a liminal site within the city itself. Many falsely believe it is a large scale man-made canal for water drainage. This myth is perpetuated because of the hard edges of retaining walls, sheet pilings, riprap and revetment. As a water body, it is understood devoid of nature, simply a water highway, on special occasions providing coveted views of the choreography of tugboats pulling international freight liners out to sea, or rare glimpses into the lives of the wealthy as yachts and boats leave their mooring at local marinas and head out to Biscayne Bay for diversion. The marine industrial businesses and various drosscapes—as a result of changing economic tides-- create a barrier along majority of the river corridor on both the north and south shores. Yet, just outside this zone the adjacent neighborhoods are home to Miami's working class, over 200,000 people.³⁰ For these citizens the proximity to the river offers limited public space, passive engagement and no links to the field of cultural resources.

This thesis proposes expanding the City of Miami's Riverwalk proposal by incorporating drosscapes. The City of Miami has an opportunity to appropriate these sites for public space and public program, and doing so would make a bold statement privileging community place making over financially driven private development. Within the five city of Miami neighborhoods, a total of ten drosscapes were identified (Figure 27). The transformation of these wasted sites into a community based network linking the diverse neighborhoods of the river corridor through a shared programmatic theme would be a first step to imbue the Miami River into the life and imagination of area residents. This task is the heart of the habitus.

FIGURE 27: Drosscapes within the Miami River Corridor. These drosscapes are vacant, unused or underused sites along the river that have potential to become new public space.

CASE STUDIES

Following, are five case studies which provide precedent for many of the ideas discussed in this thesis, and provided inspiration for the final design strategies presented in chapter six. The work of Micheal Van Valkenburg and Associates for Waller Creek in the city of Austin illustrates how an urban river can be both ecologically functional and support public spaces in urban life. Mithun's Louisiana Children's Museum establishes a precedent of how building and landscape can have a symbiotic relationship rather than a hierarchical relationship with site. Mexican architect Tatiana Bilbao's work at the Culiacan Botanical Garden illustrates an alternative approach of how deconstructing the building and spreading the program throughout the site can create itinerary. The case studies close with review of works that respond to Florida's unique climatic situation. The works of architect Paul Rudolph (Sarasota School) were inspirational in his expressive use of architectural canopies to provide shade and create threshold. The new Miami Art Museum by Herzog and de Meuron also utilizes the canopy to create blur the line between architecture as object and landscape as a singular plane to create a new civic threshold.

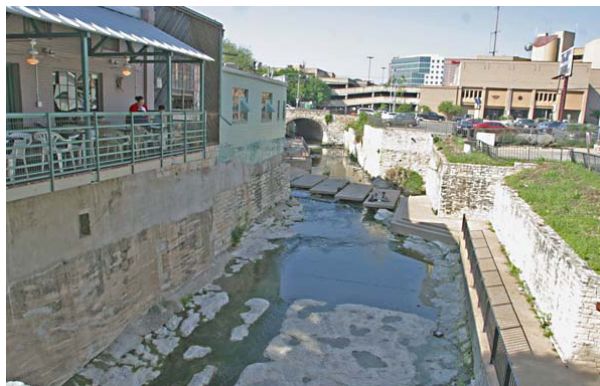


FIGURE 28: Waller Creek as it was, and sectional rendering of MVVA design.

WALLER CREEK

LOCATION: Austin, Texas

DESIGNER: Landscape Architecture -Michael Van Valkenburgh Associates (MVVA)

SIZE: 1.5 miles within downtown Austin

COMPLETION: 2012-ongoing

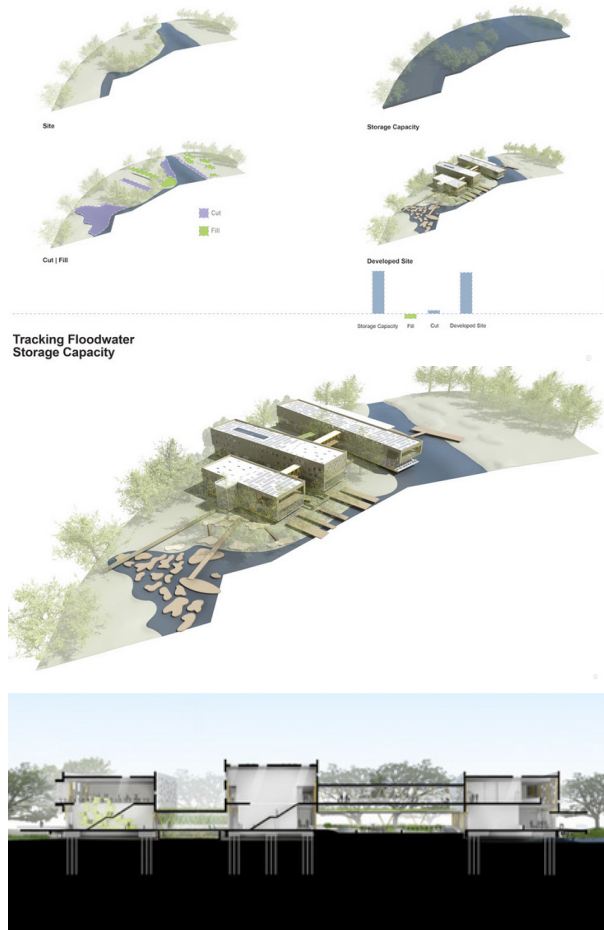
Waller Creek is a narrow urban riparian corridor that has been physically, ecologically and culturally isolated from the city. The winning MVVA proposal created five districts: The Lattice, The Grove, The Narrows, The Refuge and The Confluence. Each district has a distinctive character, and together "...offered the most substantial promise for transforming Waller Creek into a connected series of public spaces that are of an inclusive, democratic character supportive of the continuing transformation of Downtown Austin."³¹

- The Lattice: Transforms a liminal space between Lake and Creek into a vital green link supporting active and passive recreation.
- The Grove: Literally the planting of a new grove of live oaks to fill a broad slope between street and creek that will hosts a variety of community programs.
- The Narrows: The spatial configuration of the Narrows incentivizes new development while maintaining the character of the Austin patio lifestyle.
- The Refuge: Is a distinctive urban ecological infrastructure. The bridge pier on the site acts as an "ecological machine" that treats stormwater from the roadway and adjacent development before discharging it into a wetland habitat, housed in an architectural structure that hosts educational programs relating to creek habitat.
- The Confluence: This is the final link in the chain, the concrete vane for the channel is used as a structural support for a new floating lawn that reclaims parkland that would be otherwise lost to an infasture project.³²

Waller Creek is an important piece of urban infrastructural history. To both preserve its historical character and better sustain regional ecologies, the MVVA proposal employs durable bioengineering techniques and a native plant palette along the banks of the creek.³³



FIGURE 29: Images of MVVA design for Waller Creek in Austin Texas



LOUISIANA CHILDREN'S MUSEUM

LOCATION: New Orleans, Louisiana

DESIGNER: Architecture and Landscape Architecture-Mithun

SIZE: 11 acres, 92,000 sf facility

COMPLETION: 2008-ongoing

*"In a place that has experienced so much in the way of natural disasters – from Katrina to the recent oil spill to Mississippi River flooding – this offers hope for children and a way to understand the deep connection we have to the water and the land. It also demonstrates how we can participate in the process to restore, rebuild and revitalize our community."*³⁴

The facility will feature three glass-and-zinc-clad buildings linked by a series of courtyards that correspond to three different Louisianan landscapes: chenier's (natural sand levies), batture lands (Mississippi tidal flats) and canebrakes (dense bamboo groves).³⁵ Exterior circulation bridges move children through the site passing through the tree canopy and over water to a classroom floating on the lagoon.

The design team was inspired by the innovative program concept of co-mingling in which multiple partners were brought together within a new, non-profit institution created by the Louisiana Children's Museum. These partners range from centers for early childhood research, parenting, childcare, literacy, and social services.

As designed, the project was carefully sited among existing oaks on an 11 acre site in historic City Park and is planned to achieve LEED Platinum, Sustainable Sites Initiative and Net-Zero Energy goals. Sustainable strategies include photovoltaic panels on the roof, skylights for naturally lit interior circulation and a ground source heat-pump. Elevating the structures allows periodic immersion of portions of the site, and along with the restoration of the lagoon habitat, increases floodwater storage capacity.³⁶

FIGURE 30: Images of Mithun's design for Louisiana Children's Museum

CULIACAN BOTANTICAL GARDENS

LOCATION: Culiacán, Sinaloa (Mexico)

DESIGNER: original Landscape Architecture-Carlos Murillo, new Architecture and Landscape improvements- Tatiana Bilbao, with Taller de Operaciones Ambientales.

SIZE: 10 acres

COMPLETION: ongoing

Tatiana Bilbao's firm was asked to create a consolidated circulation plan, educational program spaces and provide siting for art pieces. In order to extend existing circulation but also respond to desire paths visitors had created, a conceptual strategy was taken. The team superimposed a blurry image of tree branches selected at random from the garden over the general plan of the Botanical Garden itself, and then work out the walkways responding to existing and suggested walkways. The paths that emerged from this process generated distinct areas in which different plant species were installed through out the park. Additionally, the works of 35 different artists-- such as Dan Graham, Richard Long, Teresa Margolles, Tercerunquinto, Francis Alÿs and Olafur Eliasson—were also placed.³⁷ The intersection of these paths was used to site three educational facilities and a small outdoor auditorium. The four structures designed by Bilbao are monolithic and distorted structures that stand distinct from their surrounding landscape. At the same time, they don't strive to provide stark contrasts. Even though austere, they follow the simple, even iconic forms that Tatiana Bilbao defines as "pre-described" geometries.³⁸



FIGURE 31: Images of completed site interventions to date at Culiacan Botanical Gardens



ARCHITECTURAL USE OF CANOPIES

LOCATION: Florida

DESIGNER: Paul Rudolph



Much of Paul Rudolph's early work is characterized as Sarasota Modern or Sarasota School of Architecture. It is a regional style of architecture that originated on Florida's Central West Coast, characterized by its attention to climate and terrain. Large sunshades, innovative ventilation systems, oversized sliding glass doors, overhangs, and walls of jalousie windows are prominent design features of these buildings.³⁹ Paul Rudolph's use of canopy and overhang structures are employed in diverse forms and materials to provide shade, and create thresholds that emphasize passage and entry.

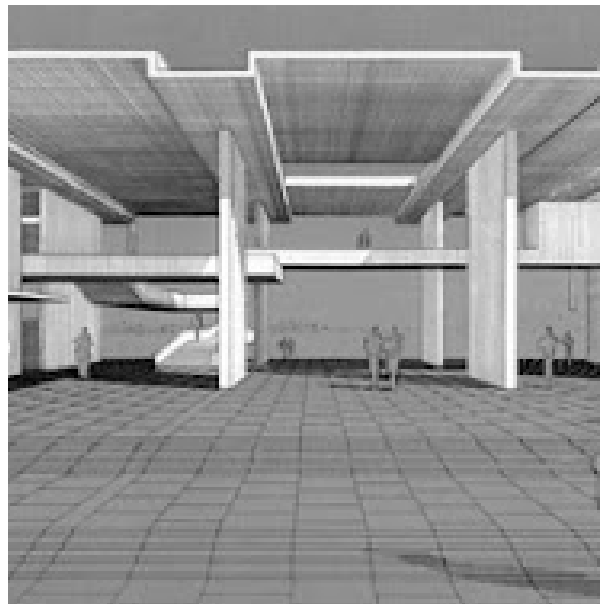


FIGURE 32: In response to climate, Rudolph explored various canopy and overhang forms.

MIAMI ART MUSEUM

LOCATION: Miami, Florida

DESIGNER: Herzog & de Mueron

SIZE: program area is 200,000 ft², interior area is 120,000 ft², and exterior area is 80,000 ft²

COMPLETION: 2011-2013

One of the main design goals for new Miami Art Museum was to create a climate responsive structure. The three-story building sits upon an elevated platform with a large oversized canopy above. Both platform and canopy extend far beyond the Museum's walls, creating a shaded veranda and plazas that bridge museum, park, and city.⁴⁰ The canopy is perforated in areas to allow in light, accommodate trees. Linear plant gardens (hanging vegetation columns) are interspersed amongst the columns, and creeping vines adhering to the vertical supports. These elements transform the veranda into a multi-dimensional garden. A set of stairs the width of the Museum will link the building to the bay walk in Museum Park. The design creates a series of transitions, as visitors gradually move from the outside to the inside, hot to cold, humid to dry, and from the street to park to the art.⁴¹

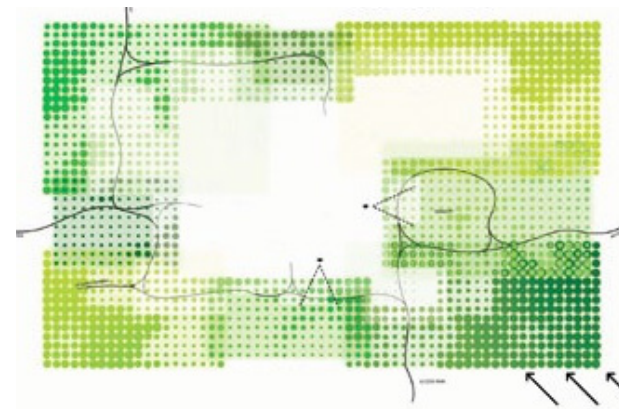
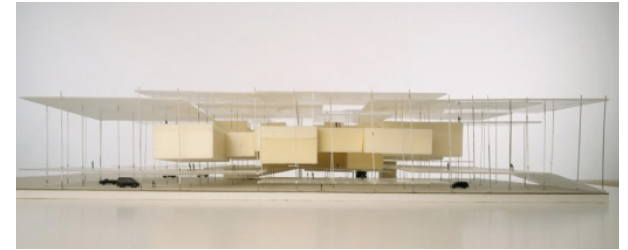


FIGURE 33: Design Development of the Miami Art Museum by Herzog and de Mueron.

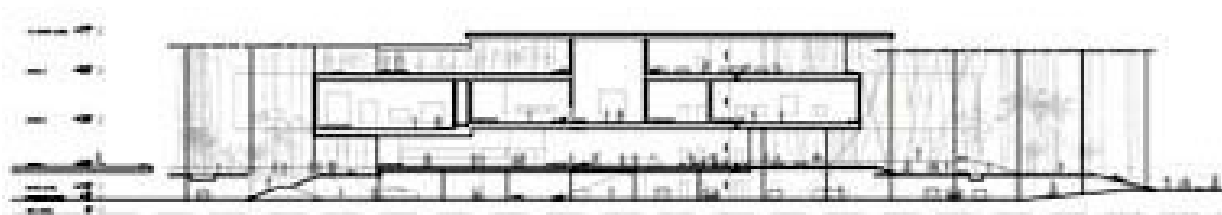




FIGURE 34: Before and After rendering of potential bridge installation, A

Approximately four of the 12 bridges that cross the Miami River are +70' tall. This height provides an opportunity to install active recreation options such as rock climbing to provide additional destinations to the Riverwalk.

CHAPTER 4: PROGRAM DEVELOPMENT

TWO SCALE APPROACH

This design schematic proposes a two part approach that works at the urban River Corridor and neighborhood scale, to reconnect city and river. At the urban scale existing parks and bridge crossings are used to host a series of interventions that challenge traditional spatial relationships of city and river, engage community and ecological processes, foster's a sense of community and stewardship, all the while preserving the needs of a working river. In this way the Riverwalk proposal forms an interconnected network linking multiple uses and users. This thesis term's this addition to the Riverwalk proposal a "blueway network".

RIVER CORRIDOR SCALE

The proposed blueway network would utilize the ten identified drosscapes along the river to create new public spaces. Space under bridge crossings are a type of drosscape Berger identifies as LIN: Waste Landscapes of Infrastructure.⁴² Existing parks can be considered liminal sites because of their limited use and poor edge conditions. Many of the parks along the river corridor have hard edges to community consisting of poorly marked entrances, blunt fencing and other barriers to entry, and use of revetment, seawall and riprap as hard edges to the river, allowing no means for the natural processes of the river's flows to be explored or revealed.

The blueway network's goal is to use bridge crossing spaces to introduce educational signage and exhibits, art, small scale commercial, retail, and recreational installations that would add active and passive public program, encouraging the use of the river walk despite the obstacles of discontinuous passage. Twelve bridges cross the river corridor, accounting

for a bridge crossing every five blocks. Specific bridge installations could be dictated by neighborhood, site conditions, and bridge height. Active recreation options include: kayak/canoe rental facility, and rock climbing (Figure 34). Commercial and retail installations could include small restaurant and café with riverside seating, information office or kiosk for City of Miami or Miami River commission operational for special events or the winter season (Figure 35). Art installations could range from a wide variety of installations, from music, lighting, sculpture and murals. Environmental signage and exhibits could explain how bascule bridges work, historic bridges versus modern bridges, highlighting manatee and fish zones, water flows and effects of litter on water quality, and water safety.



The second component of the blueway network are interventions in existing riverfront parks that would provide visitors a new understanding of the river and local marine setting. These interventions would be accessible by land and water. Specific interventions could consider existing park conditions and amenities and aim to strengthen the park's connection to the river and the neighborhood in which it is located. Interventions would include passive and active engagement options including the installation of site furniture and shade trees to promote leisure opportunities to rest and enjoy river views. Improved edge and railing conditions would not only meet life safety code, but also allow for environmental signage that could identify the marine industrial/commercial legacy of the river, from unique riverfront restaurants, historic fishing fleets, landmark marina's and boat yards. In this way, the working

FIGURE 35: Before and After rendering of potential bridge installation, B

Approxiamtely six of the 12 bridges that cross the Miami River are +20' tall. This height provides an opportunity to install various program options such as recreation rental equipment and cafe/resturante, encourage use of the Riverwalk.

river could be leveraged to engage in a dialogue with the city rather than turning its back to the city. Active uses could prioritize physical water access. Boat launches to facilitate kayaks and canoes would encourage recreational use of the river. Where possible, revetment and riprap should be removed to create a softer transition from public realm to river. Artistic or architectural interventions could help create an amphibious terrian where the river is extended into the site. The use of an architectural steeped seawall could be used to bring awareness and visual understanding for the river's tidal flux. Time of day would reveal different water levels allowing for an understanding of diurnal and seasonal variation (Figure 36). At sites where pollution and water/soil quality are of concern phyto-remediation landscapes could be installed and become a teaching and experimental tool. Finally installation of floating piers and docks would create new view points and could become secondary paths branching off the Riverwalk, creating a different scale of experience.

FIGURE 36: Before and After rendering of existing parks/public space upgrades.

Approximately six of the 12 bridges that cross the Miami River are +20' tall. This height provides an opportunity to install various program options such as recreation rental equipment and cafe/restaurant, encourage use of the Riverwalk.



NEIGHBORHOOD SCALE

The second part of this thesis proposal addresses the neighborhood scale and how the City of Miami's River walk proposal could transform its existing drosscapes into a community based network linking the diverse neighborhoods of the river corridor through a shared programmatic theme. The task of program is to imbue the Miami River into the life and imagination of area residents by means of challenging traditional spatial relationships of city and river, engaging community and ecological processes, fostering a sense of community and stewardship, while preserving the needs of a working river. In this manner river and place become anchored within community identity by connecting common needs. This thesis proposes pairing after school education and community gathering space to create a community responsive Riverwalk. Research, data analysis, and site visits revealed needs for both program types within the river corridor (Figure 37).

In independent discussions with local educators and community projects administrators, the need for affordable after school care and education programs became clear. Like many school districts in the US, Miami-Dade county schools has suffered from funding and budget cuts. Miami has one of the highest wealth disparities in the country. As illustrated by demographic analysis 27-32% of people live at or below the poverty line in the river corridor neighborhoods. Neighborhoods like Allaphatta, Flagami, Little Havana, and Overtown are predominately single, and multifamily households. After school program offerings vary greatly from school to school, based on the fiscal climate. In a telephone interview with Camile Betances, teacher with Miami-Dade County schools stated, while schools are bound together as being part of Miami-Dade school system, local conditions play a large role in a given schools resources which can create a lack of programs at one campus and an abundance

KEY USERS

families
school children
elderly
marine industry



COMMUNITY NEEDS

gathering spaces
after school care
leisure/recreation space
river stewardship



CHALLENGE

Traditional spatial relationships of city and river

ENGAGE

community and ecological processes

FOSTER

sense of community and stewardship

PRESERVE

working river

FIGURE 37: Program Goals

Diagram illustrating the combination of neighborhood needs and identification of user groups guide program goals

“Today, more than ever before, science holds the key to our survival as a planet and our security and prosperity as a nation. It’s time we once again put science at the top of our agenda and work to restore America’s place as the world leader in science and technology.”

- President Barack Obama

of programs at another. The school where Betances works currently has four independent after school programs (creative writing, debate, drama and sports) thanks to the initiative of individual faculty and local contributions.⁴³ However other schools may have limited or no after school options for parents. In a telephone interview with Sylvia Vieta, Community Relations Officer of the local Kiwanis Club Chapter stated a need for affordable after school programs. When both parents work, they need additional childcare. Most of the private and franchise after school programs are not feasible for working class families, and they seek city and county assistance.⁴⁴ Many parents look to community and social organizations like City of Miami Parks and Recreation, local Boy Scout/Girl Scout chapters, and YMCA’s to alleviate the deficit. Low cost or cost free after school care is needed in Miami and the few existing options are in high demand. Existing programs like Digital Access and Fit2Play are filled within hours of opening. The Digital Access Program run by Vieta’s team, provides computers and internet to low income families. Many of these households cannot afford in-home internet, so this program provides children a place to do after school where they have the tools and resources to complete homework assignments and other projects. Run by Miami-Dade Parks and Recreation, Fit2Play offers an innovative exercise, health and nutritional education focused after school program.⁴⁵

Thinking more specifically about the theme and content of an after school program woven into the Riverwalk proposal, this thesis proposes the implementation of an educational theme that leverages the fluency of Miami’s existing arts scene to help bring greater awareness to environmental and riverine science topics related directly to the Miami River through the aligned with the STEAM initiative. In this way site and program reinforce one another. The city of Miami has a vibrant cultural arts scene. Fine arts, dance, music, and theater appear throughout the city nuanced by their country of origin. However the sciences specifically natural

sciences like ecology, natural systems, hydrology, and environmental stewardship do not appear as frequently or receive the same amount of attention. In recent national discussions of America's education system, the merits of linking the arts and sciences has received new voice in the STEAM initiative. STEAM is a movement providing an update to the original STEM (Science, Technology, Engineering and Math) imperative, championed by Rhode Island School of Design (RISD) and is becoming widely adopted. The objectives of the STEAM movement are to: transform research policy to place Art + Design at the center of STEM, encourage integration of Art + Design in K–20 education, and influence employers to hire artists and designers to drive innovation.⁴⁶ In response to national education initiatives, and local needs in the Miami River Corridor, providing a series of after school education spaces through the river corridor that tie the arts and sciences together in a site specific manner would be an innovative approach to engage ecological processes and foster stewardship while providing much needed after school care.

In addition to after school education, this thesis proposes a community gathering space to expand usership and strengthen ties to the overall neighborhood by providing a unique riverfront asset. GIS analysis, research, and site visits revealed an informal and loosely connected network of community centers within the Miami River Corridor. Many community centers and gathering halls are affiliated or managed by religious, cultural or ethnic organizations. Few neighborhood scale community centers exist, and none engage the Miami River. The placement of a gathering space at the neighborhood level is an act of community building that would welcome the entire breadth of the neighborhood's demographic, families, elderly, children, visitors and Riverwalk goers alike. A community space would also extend the life of the site beyond after school hours, creating an active vibrant public space throughout the day and year (Figure 38).

PROGRAM COMPONENTS

community room



community meetings

after school childcare



dance studio

public space(riverwalk)



passive recreation



local domino league



riverine sciences/ water quality testing



active recreation



quinceañeras/special events



riverine sciences/ species and habitat study



community amenity

FIGURE 38: Program Diagram

CHAPTER 5: DESIGN

SITE DESCRIPTION

The integration of these themes is explored in a design proposal for 1001 7th Ave, based on its particular cross characteristics, immediate adjacencies and connectivity potentials at the neighborhood and river corridor scale, typical of the Miami River corridor. As a result, the site has the potential to become a precedent for the two-part approach of creating an integrated Riverwalk proposal that connects the river corridor (blueway) to city and neighborhood to its riverfront.

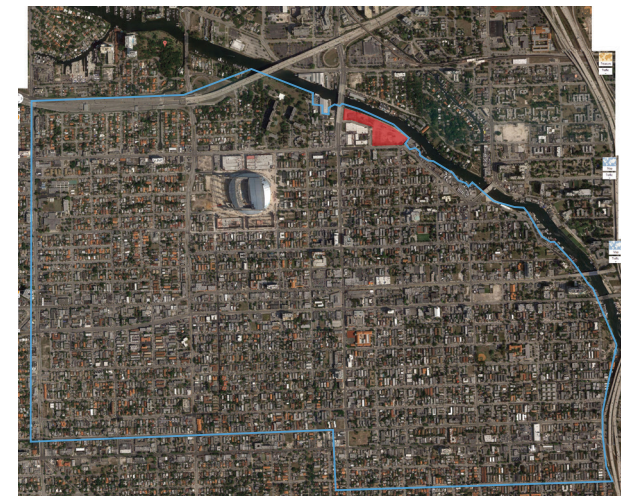


FIGURE 39: (Above) Satellite image with outline of Little Havana neighborhood and site.

FIGURE 40: (Left) Satellite image detail of site, 1001 7th Avenue.

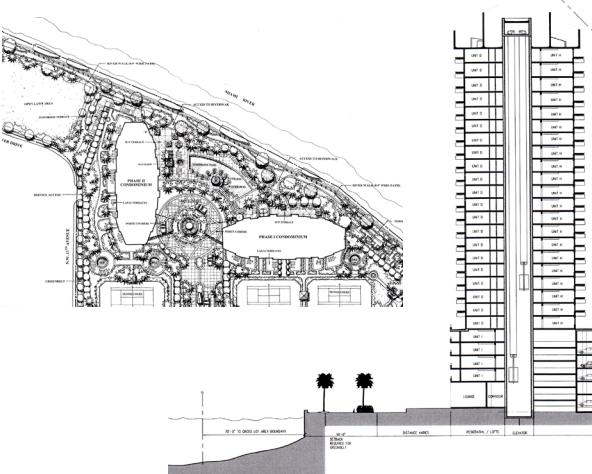


FIGURE 41: “Rio Miami”, 2007 (unbuilt) proposal for a private development on the 1001 7th Avenue site.

The 1001 7th Ave site is five and a half acres in size, and is along the Miami river in the Little Havana neighborhood. This site is a previously identified drosscape (chapter 3). Per Berger’s classification it is a LOT: Landscape of Transition, a parcel with latent fiscal value. Such parcels are real estate tools which allow land to be withheld, sold, rented or improved in order to create a profit.³³ The site is privately owned, and prior to the 2007 real estate crash, the site was proposed to be developed into “Rio Miami”-- a 25 story residential condo development with ground level retail and a 50 foot setback for the Riverwalk path (Figure 41). These plans are currently on hold, and future development of the site is unclear.

Diverse adjacent land uses complicate the site, but also make it typical of the river corridor. To the east of the site is a marine industrial business, to the west is a vacant City of Miami Parks and Recreation building. Immediately behind this structure is the 12th Ave Bridge that rises to a height of 34 feet, connecting Little Havana and the edges of Overtown and Allaphatta (Figure 42). The south edge of the site connects to the city grid via the 7th Ave arterial with low and mid-rise residential across the street. Also along 7th Ave is a large City of Miami Fire department facility. To the north, across the river are mid-rise riverfront condos, and townhouses complete with boat docking. The site’s location gives it desirable connectivity within the Miami River corridor and neighborhood of Little Havana.

FIGURE 42: View of site (right side) from 12th Ave bridge, looking east. Downtown visible beyond.



The neighborhood scale analysis (Figure 43) reveals the viability of the site for future development. Visual imagery clearly illustrates a development pattern that places high-rise buildings along arterials centered within the neighborhood along 1st Ave, Flager Street and Southwest 8th Street (Calle Ocho), with a gradual decrease in building height towards the river's edge. The proposed Rio Miami development disregards this and duplicates a development pattern typical of the oceanfront, making the project completely out of scale with the grain of the neighborhood in which it is located. The placement of such a large building on the riverfront would filter and restrict physical access and views to Little Havana's riverfront.

Centered along Little Havana's riverfront, the site is within twenty minutes walking time of the neighborhood boundaries and is well connected via vehicular arterials and public transportation. Bus route 7 stops directly at the site and new bicycle paths per City of Miami Bicycle Initiatives provides

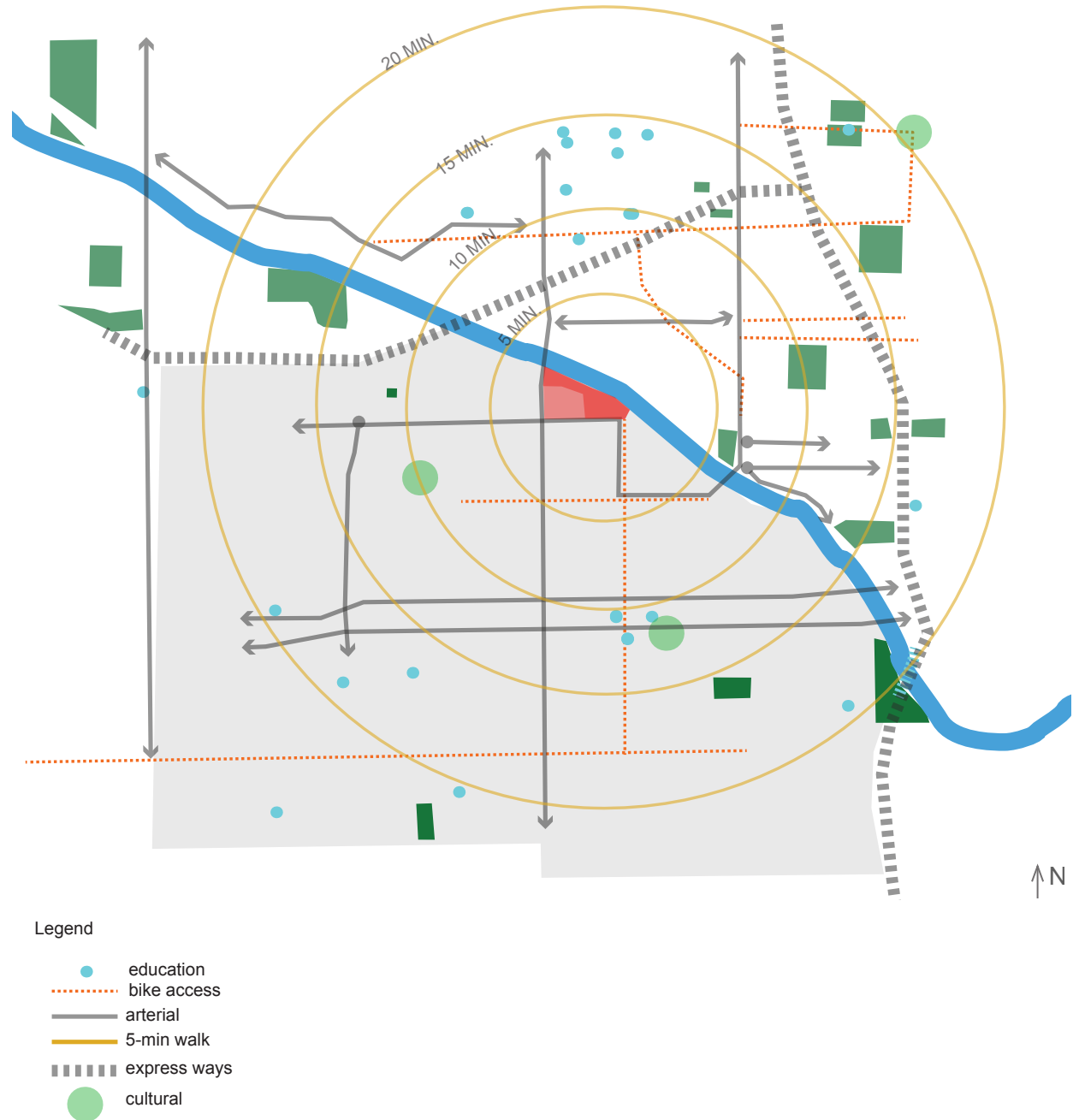


FIGURE 43: Site Analysis Diagram



FIGURE 44: Existing 12th Ave. Bridge, under utilized space for pedestrian enhancements.

connectivity across the river as well as within Little Havana. In addition, the 12th Avenue bridge and Lummus Park provide two key adjacencies that would allow the site to become a node within the river corridor. In addition to connecting the site to the north shore of the river, the bridge provides an underpass condition that would allow for a blueway intervention addressing the River Corridor scale, contributing to the network proposal (Figure 44). Lummus park is one of the few existing riverfront parks. It is currently the site of the Digital Access Program which provides after school computer and internet access (Figure 45). The after school education program proposal for the 1001 7th Avenue site would be a first step in connecting and extending the parks of the river corridor into an after school educational network that ties community resources to riverfront.



FIGURE 45: Children enrolled in the Digital Access program at Lummus Park.

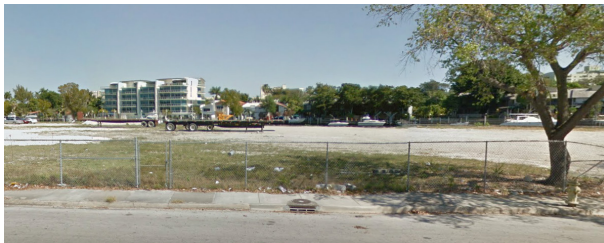
FIGURE 46: Site Context Diagram



EXISTING 12TH AVE BRIDGE



VACANT BUILDING: owned by Department of Parks and Recreation



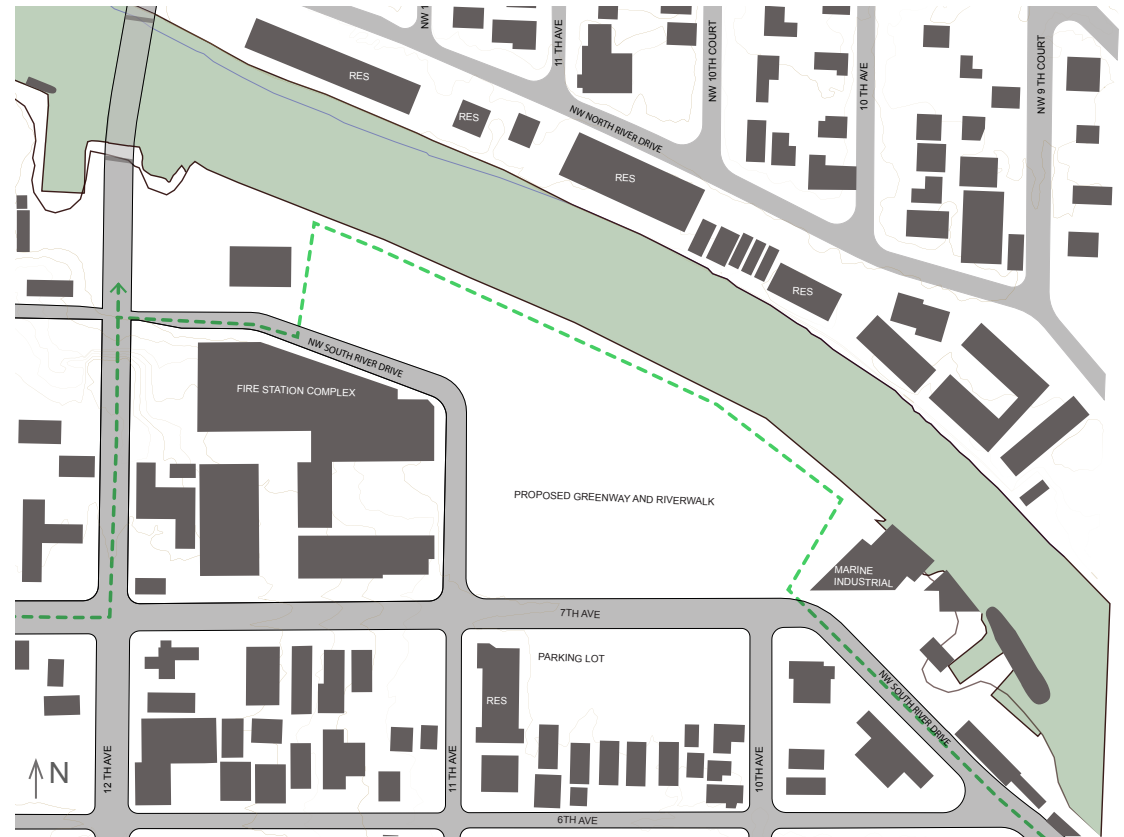
SITE: view from 7th Ave



SITE: view at entry of 10th Ave



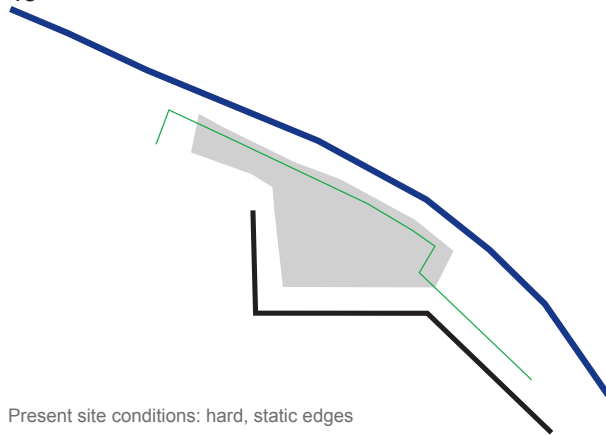
RESIDENTIAL: along north shore, mixture of condos and town homes.



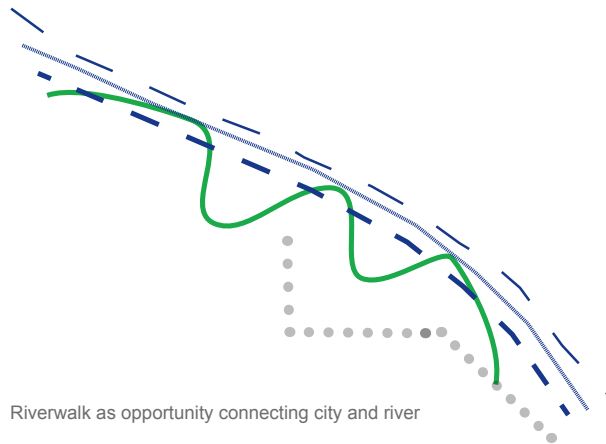
SITE: existing street scape along 7th Ave



MARINE INDUSTRIAL: Anchor Marine, boat repair business



Present site conditions: hard, static edges



Riverwalk as opportunity connecting city and river

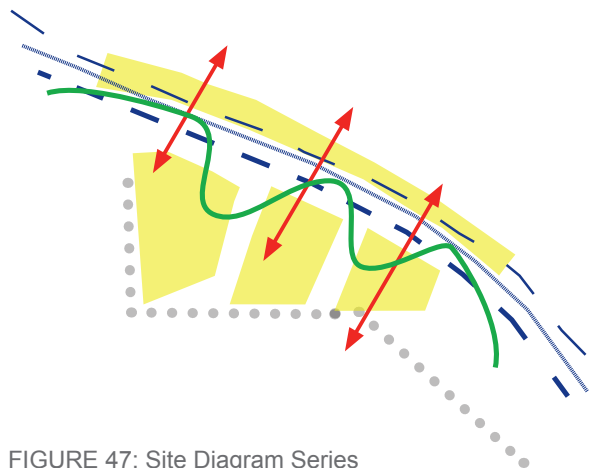


FIGURE 47: Site Diagram Series

CONCEPT DESIGN

The design proposal for the 1001 7th Avenue site consists of a two-fold approach to explore how building and landscape design can mediate the amphibious terrain at the intersection of river and city. By ‘re-wilding’ a riverfront site and embedding a community space and after-school education spaces, the Miami River will begin to recapture popular imagination. The site design and siting of program volumes within the 5.5 acre site is an effort to increase permeability and access of the site. The design concept was to break down and erode the hard urban edge and river edge that were isolating the site, resulting in a new landscape context for the city (Figure 47). Though clearly a constructed ecology, this new landscape would be natural functioning, and would work to re-establish a subtropical wetland ecology--amphibious terrain back into the city. The addition of public program spaces to this landscape gives the Riverwalk an opportunity to weaves public spaces and program through a unique subtropical landscape that is distinct to South Florida and Miami. Shifting the Riverwalk a peripheral path to a strong organizing path connecting river and city. This thesis envisions a Riverwalk that connects building and landscape through shared circulation linking various fields of occupation (Figure 48).

SPATIAL APPLICATION

To create a natural functioning river’s edge the steep slope from river bottom to grade must be altered. To achieve this, a series (three) of permeable gabion walls were designed. Each gabion wall is slightly higher than the last; the incremental height increase allows the gabion walls to create a gradual decrease in depth from the river bottom to existing grade.



FIGURE 48: Program Layout Diagram



FIGURE 49: Site Plan

50 200 300 400

This new shallow slope will be able to support a series of ecological zones and habitat, bringing natural flora and fauna back to the Miami River. The outermost wall (4th wall) of this proposal is an altered, shorter sea wall, this is necessary step which allows water from the river channel to flow into the newly created wetland but also provides the structural support to preserve the shipping channel. Ultimately 135 lineal feet along the length of the site was given back to the river, to re-wild the site into wetland conditions that would have naturally occurred within the Miami River corridor.

The intersection of 10th Avenue and 7th Street is an important entry point to the site and is therefore used to create a threshold between Riverwalk and public space and the Greenway within the marine industrial zone of the working river, extending the existing axis and creating a smooth transition. This entry positions the visitor at the center of the public volume, containing the community room which opens to a large exterior gathering space

(platform) a Riverwalk amenity space, a second community entry that directly faces 7th Ave, exterior community foyer which is an exterior tree lined courtyard facing the city/neighborhood, and access to the kayak pier. This pier provides tie-ups for kayaks and canoes encouraging use of the blueway network and water recreation. The semi-private volume houses the after school education program consisting of 1 dance studio, and 2 science lab rooms with a private entry/exit into the learning landscape. The learning landscape is planted with a typical upland plants palette with tables, benches and platforms interspersed through out, allowing classroom and studio activities to spill outdoors. All program spaces (public or semi-public) are individual structures with fully enclosed building envelopes connected by series of wood decks for circulation. These decks are extended in some areas to create secondary outdoor spaces, and cut away in some areas to allow the site and landscape to interact with the build forms. Two separate roof planes are used to highlight the public and semi-public program. However both roof planes have a shared tectonic expression unifying the design. The roof acts as a large solar canopy comprised of angled louvers for sunshade, reducing heat gains on the program volumes and helping create a cool and tolerable exterior environment. Similar to the wood floor decks, in some areas the roof louvers have been cut away to allow for the spread and growth of tree canopies, further increasing shade and reinforcing the interconnecting nature of built form and landscape.

The western most portion of the site is a recreation landscape, which focuses attention on an exterior multipurpose platform. The west edge of the recreation landscape is planted with a double tree line to provide shade from the western sun and visually filter the adjacent street and fire station complex. Additionally, the grading scheme of the site briefly rises from the sidewalk, but then gradually slopes down to the platform to create a buffering shoulder between recreation landscape and general street edge, while reinforcing sight lines to the platform.

Exclusive entry/exit, only accessible by after school education staff and participants.

Elevation view of semi-public volume (after school education) through the learning landscape, planted with rockland pines.

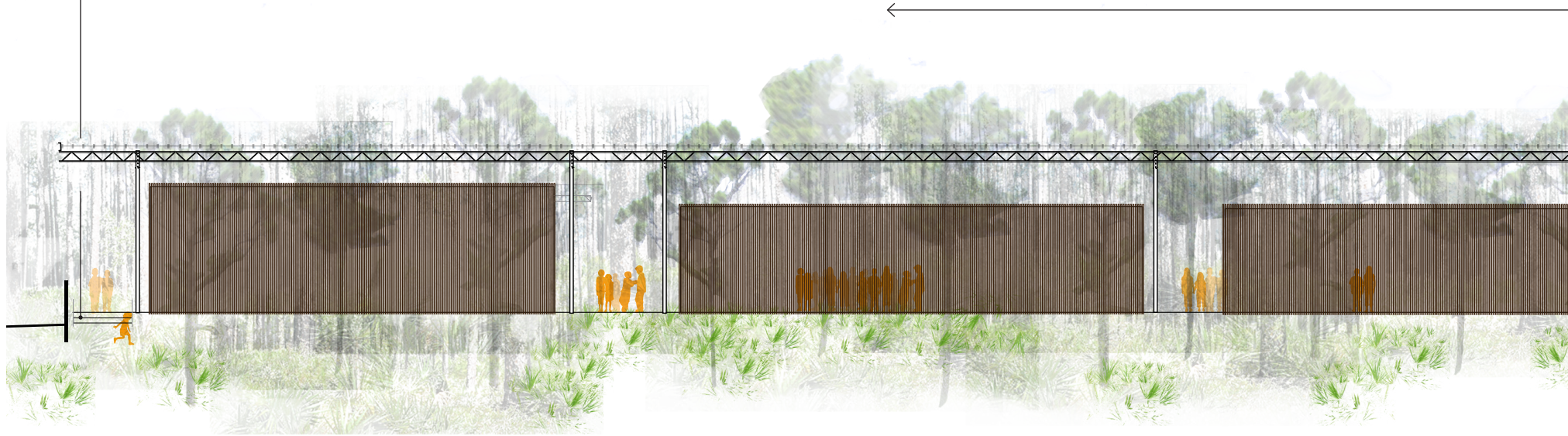


FIGURE 50: Section A- Public Wing





FIGURE 51: Perspective rendering of Community Entry



FIGURE 52: Perspective rendering of Kayak Pier

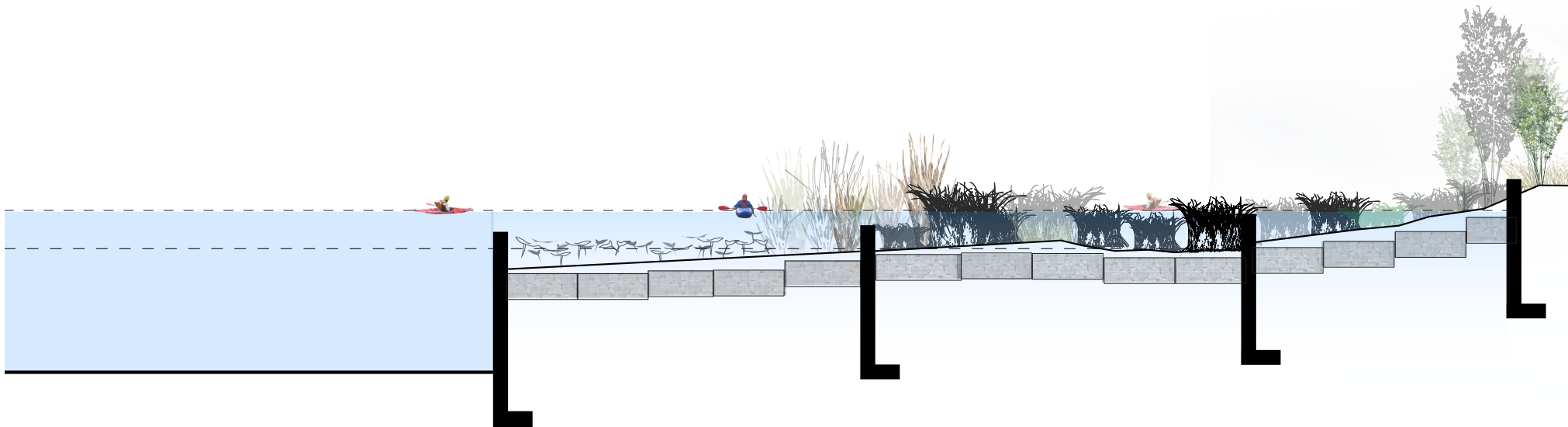
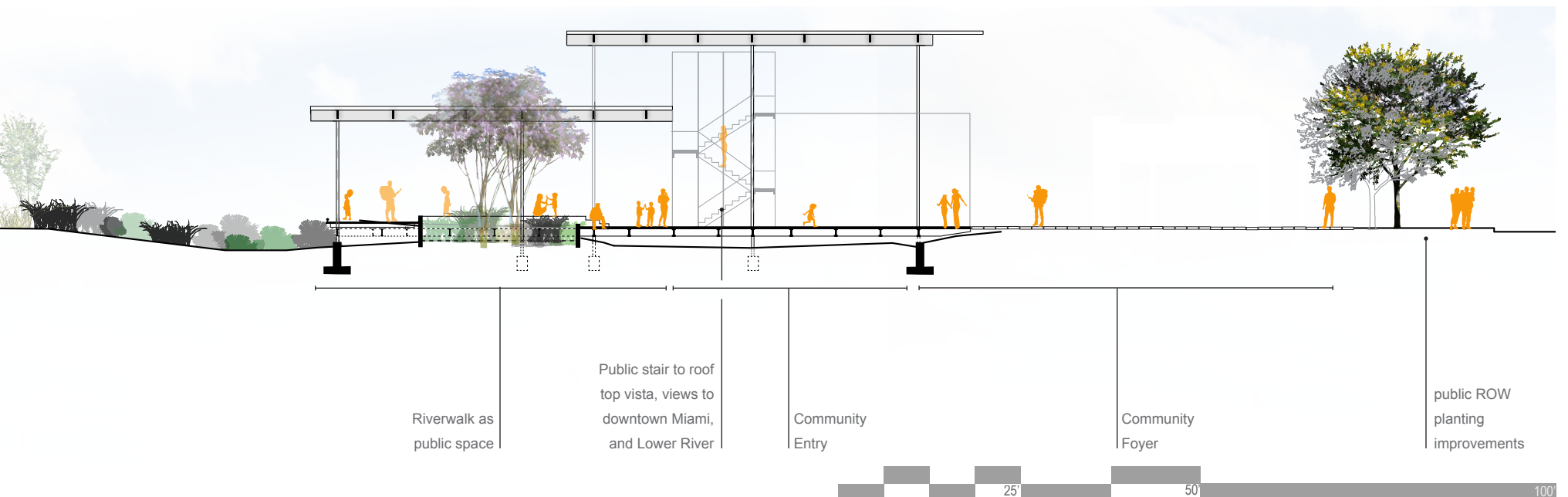


FIGURE 53: Section D- Community Foyer

Riverwalk is understood as a series of organizing boardwalks. To challenge preconceptions of the role of nature in the city, the Riverwalk becomes a means to engage ecological processes. The boardwalk pulls away from the building volumes to become a series of piers in the landscape. Each of the three piers takes the visitor to a different landscape zone within the reconstructed wetland, offering a different insight into what it means to occupy the amphibious terrain.

- **Kayak Pier-** Located at the south edge of the site, it extends out to the old location of the original seawall. It is a symbolic marker, and practical placement to provide docking ease for canoes and kayaks offering alternative access to the site.
- **Tidal Viewpoint-** This is the central pier, and meant to be a didactic tool. It is constructed at a height between low and high tide, allowing it to become inaccessible during high tide events. In this way, seasonal and diurnal flows are exposed to the visitor and new understanding of the river and its relationship to the larger watershed can be understood.
- **Riverwalk Viewpoint-** this is the north most pier on the site and easily accessible from the on-road Greenway. This viewpoint provides environmental signage and interpretive panels explaining the alternative seawall approach taken on the site and a brief description of the flora and fauna now supported by the site. This viewpoint also serves as an outdoor teaching space for the science labs.



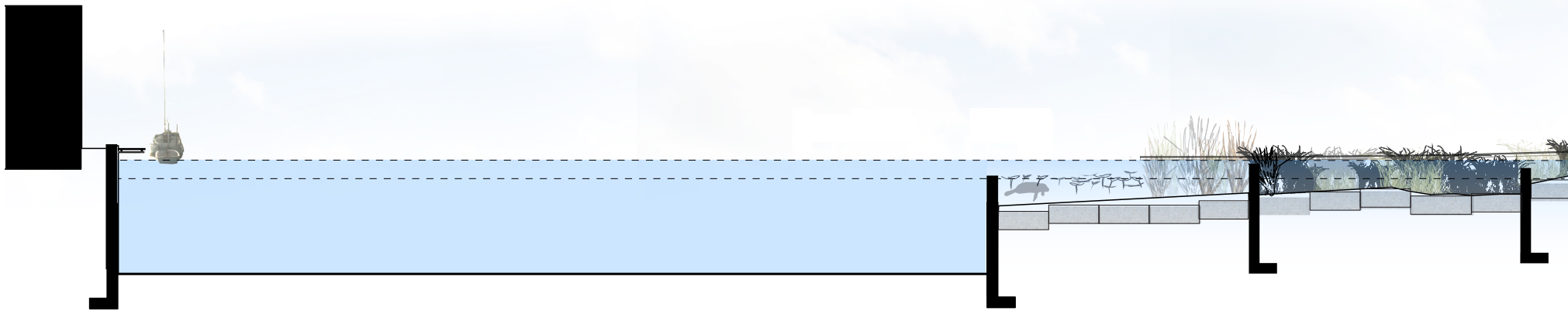
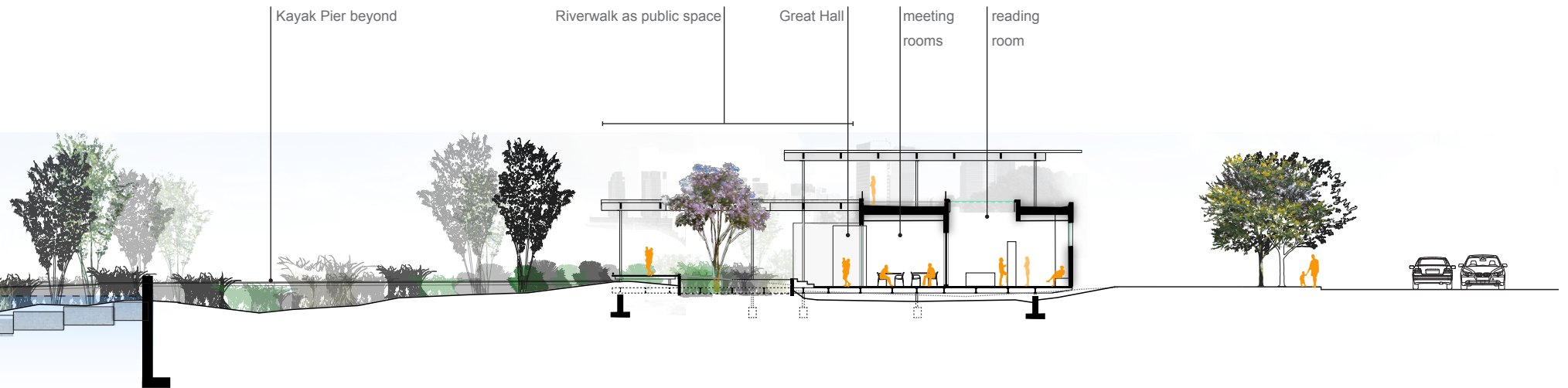


FIGURE 54: Section E- Community Room



FIGURE 55: rendering of Great Hall within the Community Room



emergent

marsh

WETLAND

american lotus:
Nelumbo lutea

common cattail:
Typha latifolia

white waterlily:
Nymphaea odorata

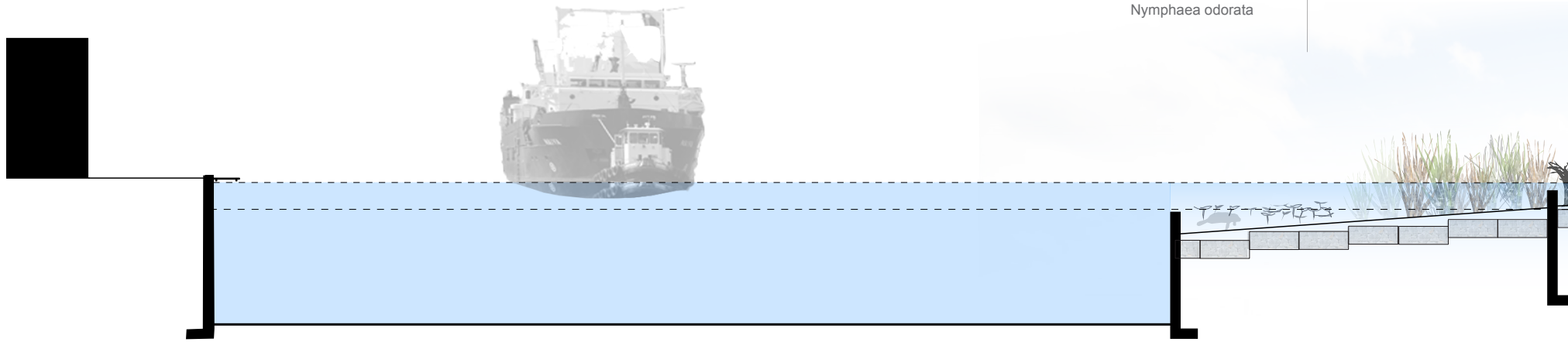


FIGURE 56: Section C- Learning Landscape

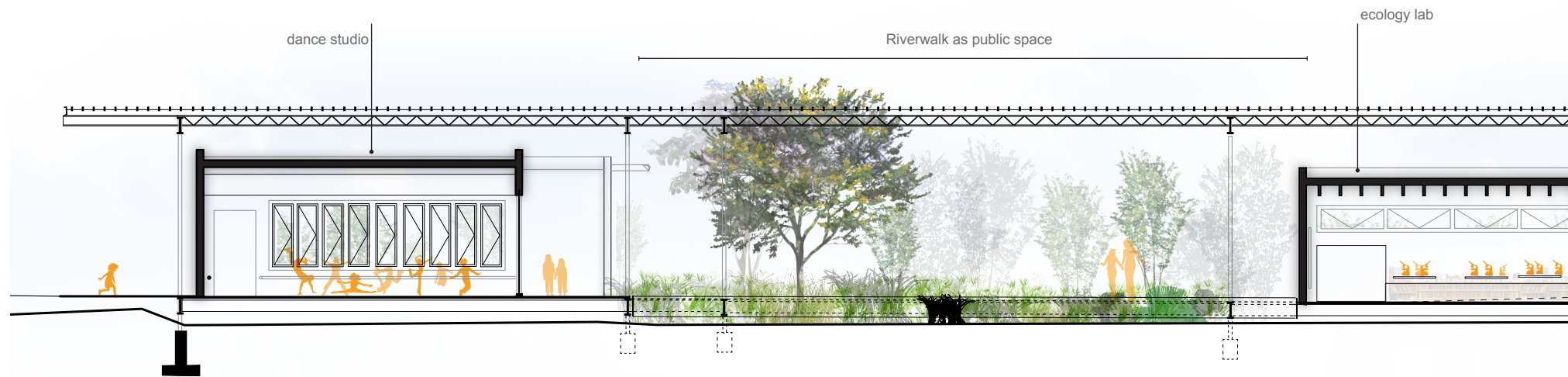
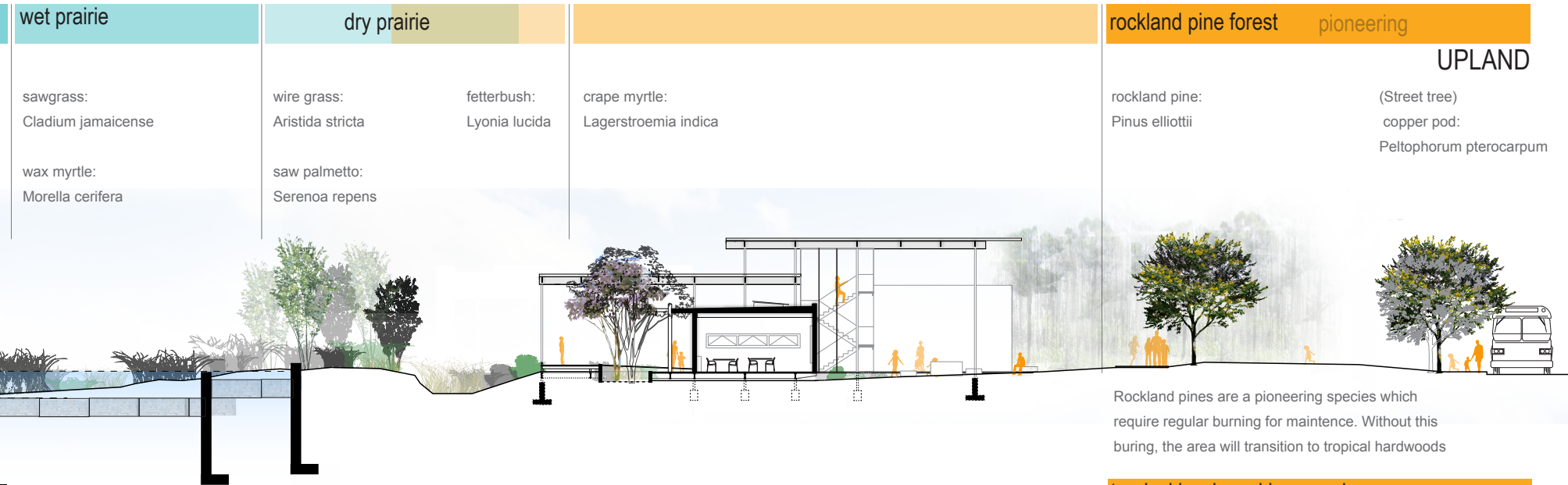


FIGURE 57: Section B- Semi Private Wing





wet prairie

sawgrass:
Cladium jamaicense

wax myrtle:
Morella cerifera

dry prairie

wire grass:
Aristida stricta

saw palmetto:
Serenoa repens

fetterbush:
Lyonia lucida

crape myrtle:
Lagerstroemia indica

rockland pine forest **pioneering**

rockland pine:
Pinus elliottii

UPLAND

(Street tree)
copper pod:
Peltophorum pterocarpum

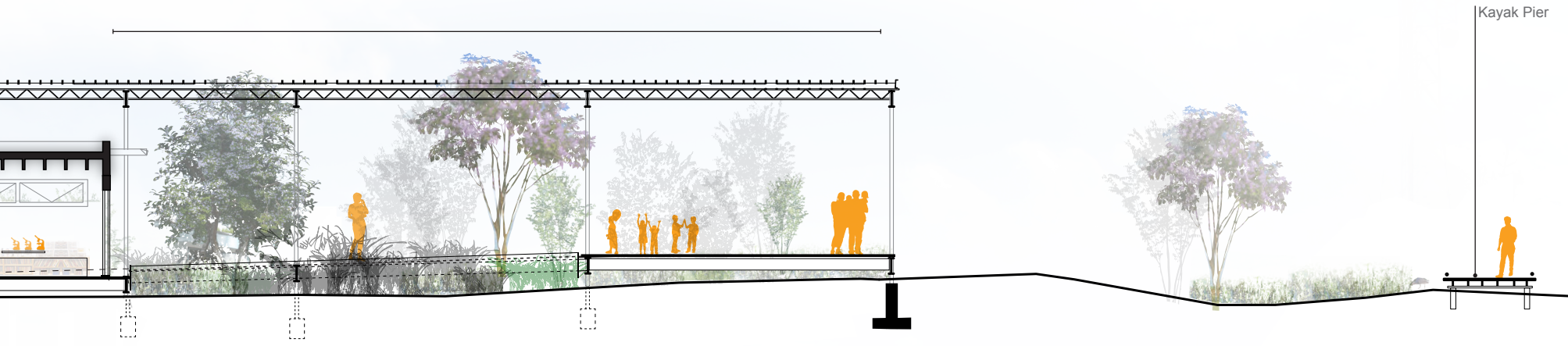
Rockland pines are a pioneering species which require regular burning for maintenance. Without this burning, the area will transition to tropical hardwoods

tropical hardwood hammock succession (60-80 yrs)

live oak: mahogany :
Quercus virginiana Swietenia mahagoni

strangler fig: gumbo limbo:
Ficus aurea Bursera simaruba

Riverwalk as public space



Kayak Pier



FIGURE 58: Rendering of Semi-Private Wing with Riverwalk as it pulls away from program volumes

CHAPTER 6: CONCLUSION

A RIVER RE-ENVISIONED

In this design proposal, Riverwalk is understood as circulation architecturally expressed through a series of organizing boardwalks. These boardwalks form a kind of micro-network, or web connecting landscape, site design features, users, formal program spaces, and river. This strategy transforms the simple idea of path to a carefully choreographed itinerary through the site, revealing a place that is distinctly South Florida. The goal of 're-wilding' the Miami River and expanding the definition of the existing Riverwalk at this site was not to create a one off attraction, but provide an alternative vision of what public landscapes in Miami can look like, and to illustrate that the Miami River is not a mythic man made canal, but a living, breathing, natural infrastructure capable of supporting the complex needs of a complex city like Miami. This site proposal brings a community space and after school education spaces together in a direct programmatic response to needs within the neighborhood of Little Havana and the larger Miami River Corridor.

This thesis views the Riverwalk as an act of place-making to reintroduce the Miami River into the cultural and social space of the city of Miami. Riverwalk as program driven community asset has the ability to engage multiple scales. At the larger river corridor scale via a blueway network, active and passive recreation and leisure options are explored to ameliorate the challenge of discontinuous passage. At the neighborhood scale riverfront sites offer unique opportunity to remedy a deficit in public space and program with a new ecological conscious. By appropriating drosscapes for public rather than private waterfront development expands the Miami River from a singular marine industrial infrastructure into an equitable urban infrastructure linking social, cultural and ecological assets.



FIGURE 59: Rendering of Semi-Private Wing with Riverwalk, during a rainstorm

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FIGURE 10: Google Earth, 2013

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APPENDIX

