



Virginia Key Master Plan

July 2010





View of Virginia Key from the East

Acknowledgements

City of Miami Planning Department
Miami-Dade County
Village of Key Biscayne

Partenered With

VIRGINIA KEY PUBLIC PLANNING COALITION:

- Urban Environment League
- University of Miami School of Architecture
- Dade Heritage Trust
- Friends of Miami Marine Stadium
- Villagers
- National Trust for Historic Preservation
- World Monument Fund
- DOCOMOMO
- Virginia Key Beach Park Trust
- Miami Neighborhoods United
- Dade County History Museum
- Tropical Audubon Society
- Sierra Club
- Urban Paradise Guild
- Miami Rowing Club
- Miami International Triathlon
- Speedboat Racing Association of America
- Dragon Boat Racing Association
- Swim Gym
- Rusty Pelican
- Friends of Virginia Key
- Youth Serving Organizations

Consultants

- EDSA
- ATM (Applied Technology & Management)
- BRV (Biederman Redevelopment Ventures)
- REG Architects
- ERA (Economic Research Associates)
- Consul-Tech
- Carter & Burgess
- CDM (Camp Dresser Mckee)

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Urban Design Regulations

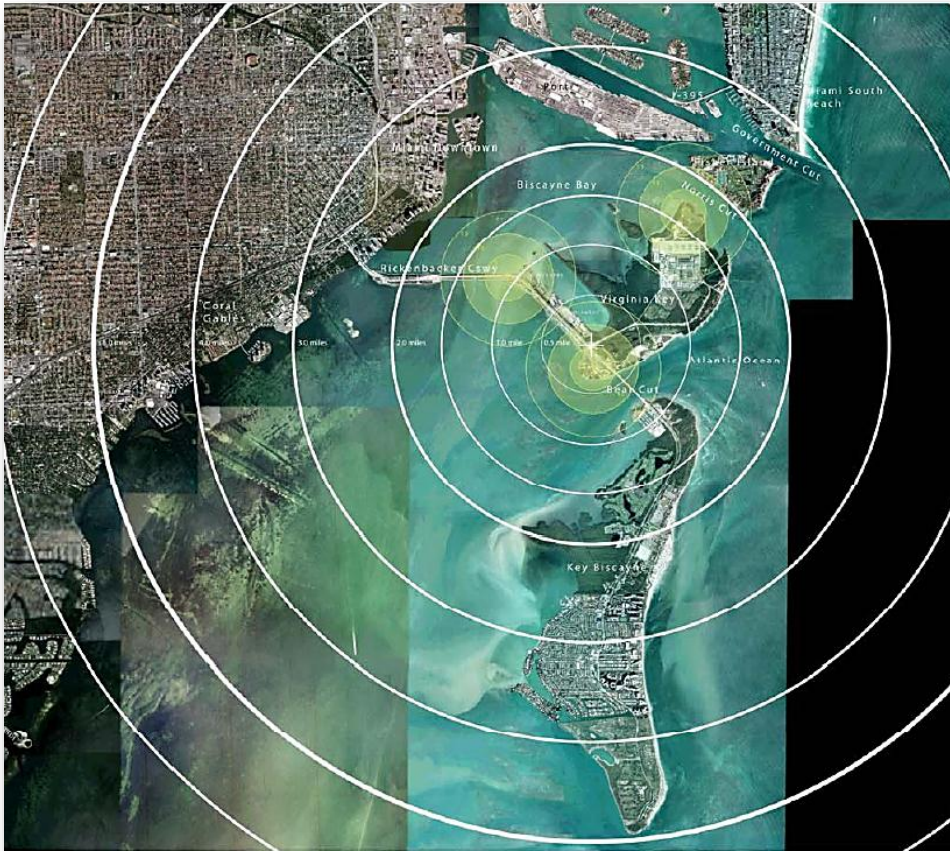
1. Introduction

Virginia Key is located midway from mainland City of Miami and the Village of Key Biscayne and is accessible via the Rickenbacker Causeway.

The City of Miami is seeking to implement a master planning process that studies Virginia Key in its entirety.

It is the Master Plan's intent to develop meaningful waterfront and public open space areas; offer policies for the use, development, and management of land; the protection and enhancement of natural resources while providing the necessary infrastructure and traffic flow to serve future improvements to the island.

The City's population growth, coupled with current urban development trends and demands for waterfront access and recreation has created the need for a comprehensive master plan study. The proposed Virginia Key Master Plan emphasizes the opportunities for mixed-use waterfront development, integrate and preserve the historic Virginia Key Beach Park, as well as make recommendations for future island wide improvements and protection of remaining public beaches, parks, and conservation areas.



Regional Context



Vicinity Map



View of City skyline from Virginia Key

The Concept

Virginia Key is a 1000-acre barrier island that is situated off the eastern shore of the City of Miami just south of Miami Beach and midway between mainland Miami and the Village of Key Biscayne in Biscayne Bay. Unlike its surroundings, Virginia Key has seen relatively little development but remains segmented in its uses. Over the years, the island has also seen degradation in many of its facilities and its once pristine natural areas. Although there are a number of “users” and ownerships on the Key, the island presents a tremendous opportunity for public parks and recreation.

The Virginia Key Master Plan reconnects Virginia Key to Miami by enhancing its natural areas and providing for recreational opportunities that range from active sports fields to passive environmental education trails. An island located within the busy urban waters of Biscayne Bay, the Key also offers diverse ways for the user to enjoy and interact with the water. The goal of the Master Plan is to provide for multiple and diverse forms of activity and recreation for the residents of Miami while also instilling a deep appreciation and respect for nature by enhancing the natural areas and providing opportunities for environmental education. The plan, therefore, includes park amenities that range from protected mangrove and wildlife areas, contiguous waterfront promenades and beach trails, an improved public waterfront marina and boat storage system, expanded public aquatic center and pools, opportunities for active recreation and sports, mountain biking trails and eco-camping.

A key guiding principal, as stated in the adopted Parks and Public Spaces Master Plan for the City of Miami, references a need for “a national renaissance for America’s urban parks, based on the critical role played by urban parks in promoting health, enhancing community and economic development, protecting the environment and educating, protecting and enriching youth.” This vision statement in turn helped guide the vision for the revitalization of Virginia Key as the regional park destination for the City of Miami. Virginia Key has the opportunity to truly be the Central Park of Miami, or the “lungs” of a city that would provide refuge and vitally needed open space in a burgeoning and crowded metropolis.

Three major themes evolved through the process of analysis and feedback from the community and stakeholders. These themes helped to create a framework for the vision plan for Virginia Key and guide the steps for implementation of an undertaking of this magnitude.

The Guiding Themes

1. Diversity in Recreation:

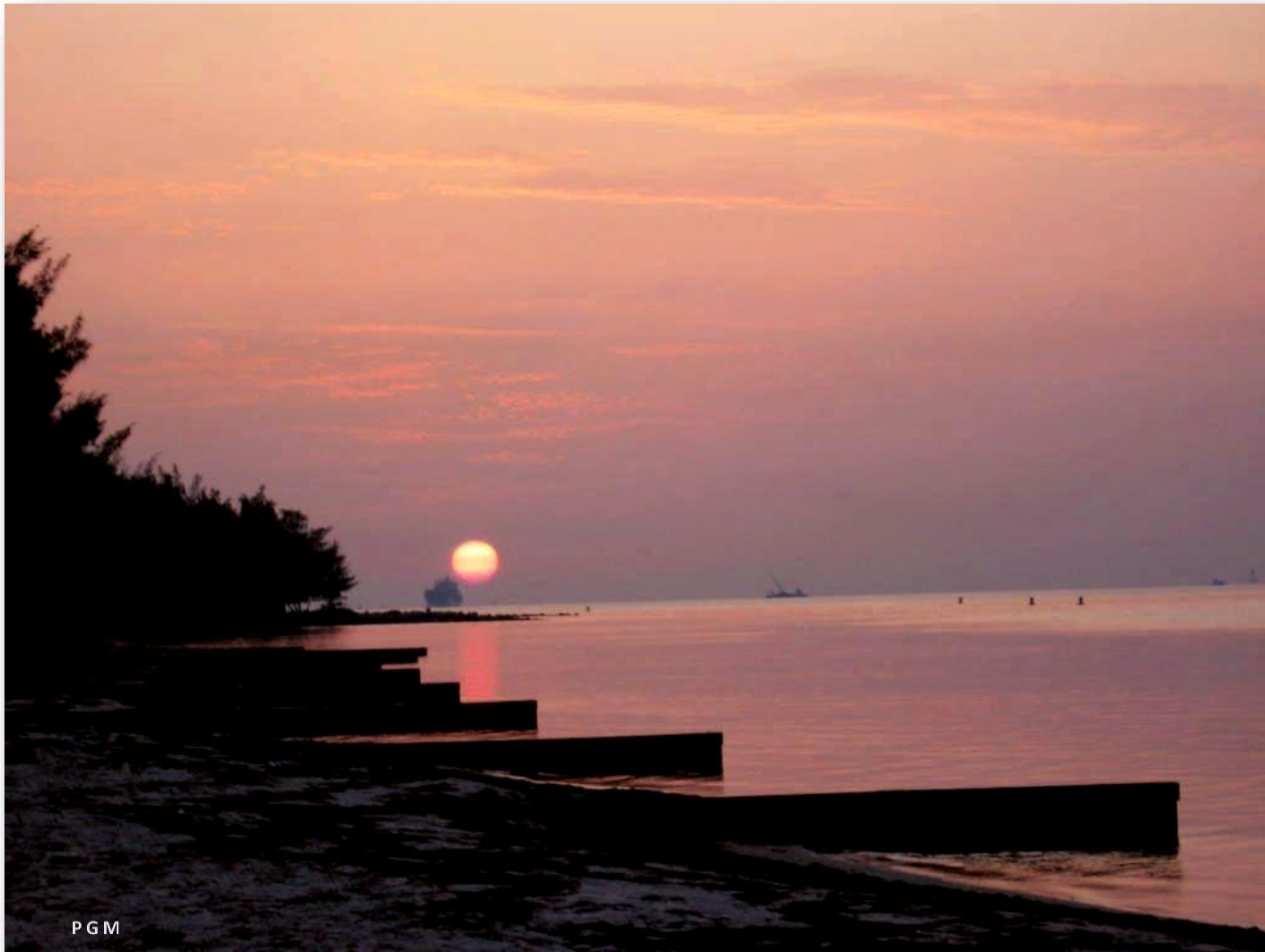
Stretched over hundreds of acres, the Master Plan for Virginia Key offers a wide variety of recreational activities that range from the more dynamic sports fields to the boating amenities, and to the more passive waterfront parks, beaches, and natural areas. The variety of waterfront and recreational areas offer a platform for community building, health and wellness awareness, youth group activities, as well as adult recreation and entertainment. The parks of Virginia Key create a nexus of opportunities that encourage a return to the fundamental benefits of recreation within an open parks environment.

2. Waterfront Access and Use:

With the rapid urbanization of the mainland and communities in the vicinity, many of the waterfront parks and recreation areas have become less accessible to the residents of the region. Virginia Key is unique in that it offers unrestricted access to waterfront areas that are underutilized currently. The Master Plan also proposes a renovation and expansion to the existing boat storage facilities and marina to allow for a more user-friendly system that accommodates the growing demand for boat storage within the greater Miami area. Finally, the plan also makes recommendations for the clean-up and revitalization of the existing beach areas which have been severely diminished due to poor maintenance and storm damage and provides for better access to these coastal areas.

3. Celebration of Natural and Cultural History:

The Master Plan celebrates the distinguished physical and cultural history of Virginia Key by enhancing and protecting historic areas, such as the Virginia Key Beach Park, and through the augmentation of existing circulation networks (including vehicular, bike, and pedestrian trails) to the historic areas. As a result of providing additional interpretive signage and informational kiosks at gateways and in key areas along the miles of trails proposed in the plan, a literal record of historic events and places is put into place. In addition, many of the sensitive environmental areas that are integral pieces to the key's geological history as a barrier island are protected and enhanced in some areas with opportunities for environmental education. In many areas, boardwalks and green trails create occasions for not only expanding environmental education opportunities across the Key, but also to advertise the efforts by the different institutions and education facilities on the key (i.e. UM's Rosenstiel School of Marine and Atmospheric Sciences, NOAA's Atlantic and Oceanic Meteorological Laboratory, etc) to restore and research the unique biodiversity of Virginia Key.



View of sunrise from Virginia Key Beach Park

2. Framework Goals and Objectives

- To design and propose policies for the use of a viable waterfront with complete public access
- To efficiently develop and manage the land
- To create an accessible place of recreation, heritage, education and research related to the natural world and Historical interpretation
- To provide for the protection and enhancement of the natural resources (i.e. public beaches, parks and conservation areas) with the necessary Infrastructure and traffic flow to serve their future use.
- To apply Sustainable principles such as healthy activity, low carbon footprint, LEED certified building, alternative transportation and energy.
- To integrate and preserve the historic Virginia Key Beach Park and the Marine Stadium.
- To provide opportunities for water and land sports and active recreation.

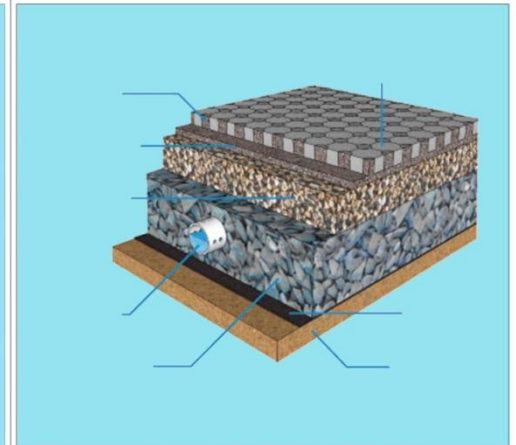
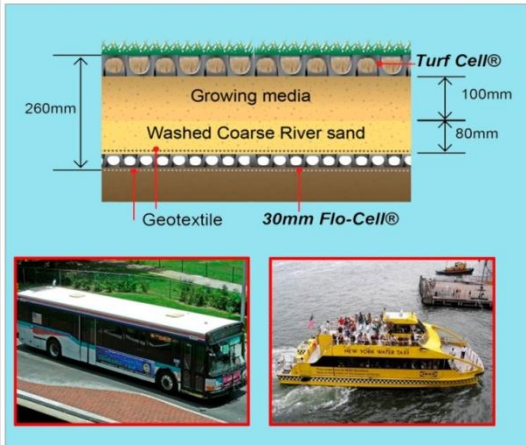
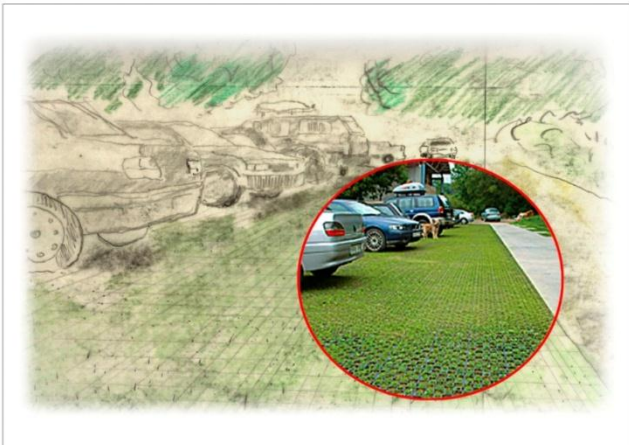
Sustainability Criteria

The natural values of the key, its particular location as well as the fact that it has not been intensely developed yet generates the necessity of establishing clear and strong criteria regarding the protection and enhancement of these resources in order to be enjoyed by the current population as well as preserved for the future generations to come, as states the United Nations definition of Sustainability.

A strong relationship between the natural elements and the proposed land use is supported by the following sustainability criteria proposed by the Master Plan:

- Use of Best Practices for storm water management
- Permeable surfaces for trails, parking areas, and roadways, bio swales, rain gardens, green roofs and rain cisterns for runoff collection
- Structures to follow USGBC's LEED criteria for environmental sustainability standards
- Encouraging use of biking and pedestrian circulation through extensive island-wide trails
- Reuse of brownfields and landfill area for recreational opportunities
- Use of onsite renewable energy resources (i.e. wind, sun, rain, etc)
- Use of reclaimed water from Sewage Treatment Plant for irrigation and other non-potable water needs
- Conserving ecologically-sensitive areas with opportunities for environmental education
- Use of environmentally-friendly products and practices for maintenance of parks and recreation areas

Sustainability Criteria



GREEN PARKING

Turf Cell® grass reinforcement structure allows horizontal and vertical roof growth.

A large aerial photograph of a parking lot with a green roof structure. The text "GREEN PARKING" is centered above the image. To the left is a small diagram of the Turf Cell structure with the text "Turf Cell® grass reinforcement structure allows horizontal and vertical roof growth." To the right is the "Turf Cell Reinforcement Structure" logo and a small diagram of the structure.



Marsh restoration and improved connections

3. Public Process

During the Master Planning Process, the consultant team engaged community input through multiple forums that included public meetings and workshops, stakeholder meetings, presentation meetings, and a dedicated website with feedback forms.

While there are no residents on the Key, due to the complex ownership and diverse users that operate there, the team conducted a series of meetings that began with the collection of information and input and progressed into update and feedback meetings during the different stages of the design process. Key meetings were also held with public officials and City and County staff to regularly gather input and feedback.

Chronology of Master Plan Process through October 8, 2009

- **Stakeholder Interview Process**
January 18-22, 2007
- **Public Meeting #1: Site Inventory and Analysis (RSMAS)**
March 29, 2007
- **Public Meeting #2: Community Workshop (La Salle High School)**
June 20, 2007
- **Public Meeting #3: Master Plan (City Hall)**
August 26, 2008
- **Public Meeting #4: Virginia Key Master Plan (Museum of Science)**
May 20, 2009
- **Waterfront Advisory Board**
June 9, 2009 (Denial)
- **Planning Advisory Board**
June 17, 2009 (Denial)
- **UEL Design Workshop**
September 27, 2009
- **Waterfront Advisory Board**
October 5, 2009
(Motion to Approve with conditions)
- **City Commission**
October 8, 2009 (Deferral)



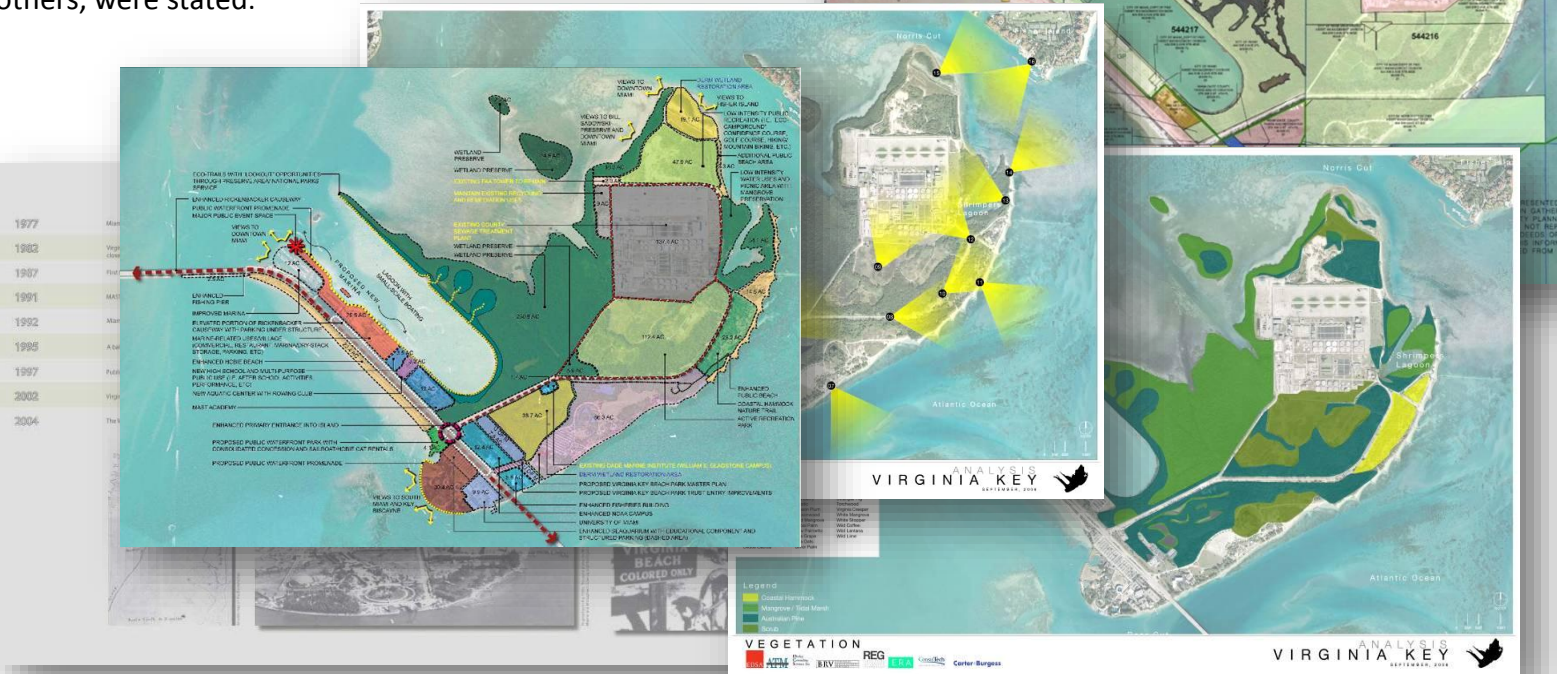
Public Meeting #1

Site Inventory and Analysis

UM Rosenstiel School (RSMAS)
 March 29, 2007

The Research, Site inventory and Analysis phase was presented to numerous members of the Community and area stakeholders. 268 comments were received at the meeting and through the City Web site.

Concerns regarding the location of a Public High School (160), the Athletic Fields and Landfill (27); Preservation, use of the Land for Public Purpose and Green Space (25), the Master Planning Process (19), The Basin elements such as the Rowing Club and Marinas(13) and the Marine Stadium (13), between others, were stated.



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Public Meeting #2

Community Workshop & Consensus Building

La Salle High School
June 20, 2007

Dots Exercise

Character Image Boards were placed on either sides of the room.

Attendants were asked to browse and place one sticker on every image, idea, or concept they liked or felt would be a positive addition to the Virginia Key Master Plan.



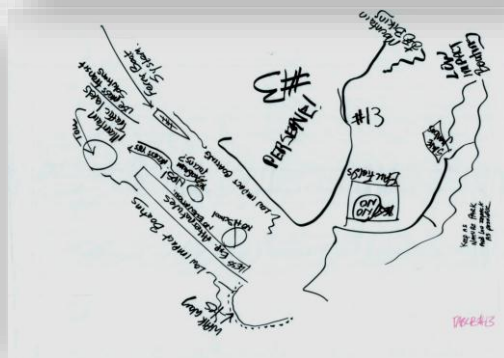
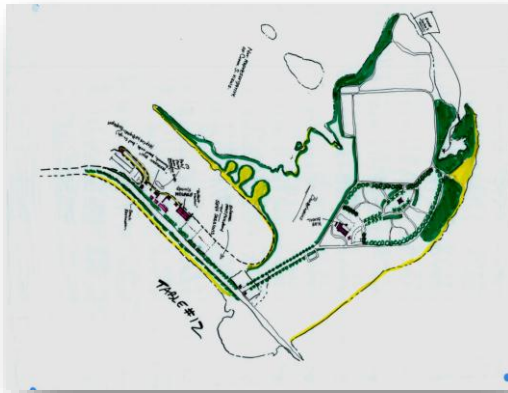
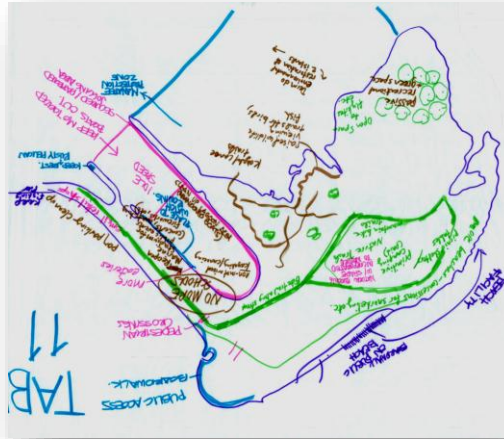
DOTS	Category
400	Educational Center
326	Bill Sadowski Aquatic Preserve
315	Environmental Educational Trails and the National Parks Service Center
270	Multi-purpose Marine Village and Marina
243	Public Beach
198	Virginia Key Beach Park Trust
191	Shrimpers' Lagoon
174	DERM Restoration Areas
164	North Point <ul style="list-style-type: none"> o Biking (Mountain biking and road biking) o Nature trails o Eco-camping
155	Public Recreational Park <ul style="list-style-type: none"> o Regional Athletic Park o Soccer
134	Marine Stadium
126	Coastal Hardwood Hammock <ul style="list-style-type: none"> o Educational Trails o Butterfly Gardens
106	Improved Circulation Patterns <ul style="list-style-type: none"> o Dedicated Biking Lanes/Pathways
101	Improved Hobie Beach <ul style="list-style-type: none"> o Protected Sand dunes o Boardwalks
90	Public Icon Park <ul style="list-style-type: none"> o Sculpture Gardens o Art in Public Spaces
34	Improved Fishing Pier
27	Structured Seaquarium Parking and Public Waterfront Promenade <ul style="list-style-type: none"> o Public Waterfront Promenade o Green Roofs/ Rooftop Gardens

Public Meeting #2

La Salle High School,
June 20, 2007

Group Table Sessions

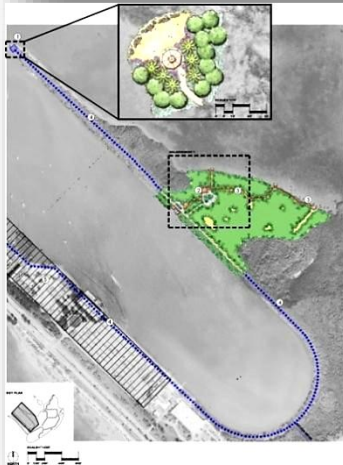
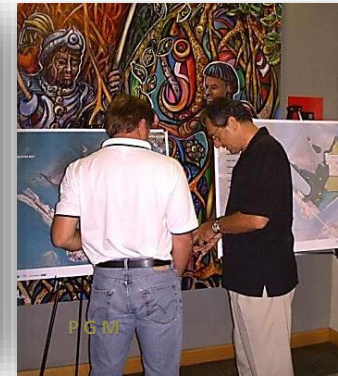
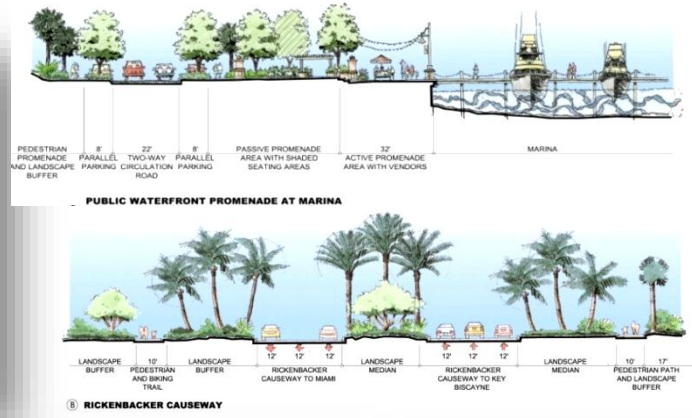
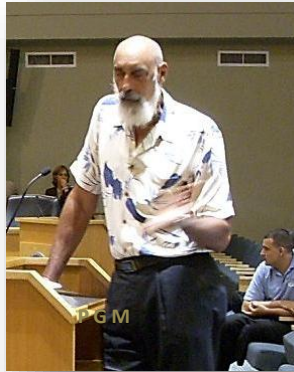
- Brainstorm on ideas for Island-wide Improvements.
- Identify Opportunities and Constraints of each area identified on the Base Map
- List Land Uses/Activities envisioned by the group for each area identified on the Base Map



Public Meeting #3 Preliminary Master Plan

City Hall
August 26, 2008

On August 26th, 2008, the third public meeting was held at Miami City Hall for the Virginia Key Master Plan. Preliminary design alternatives were presented, and public comments were received at the end of the presentation.

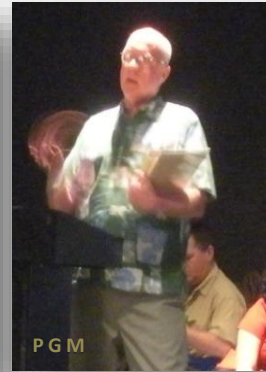


Public Meeting #4 Draft Final Master Plan

Museum of Science
May 20, 2009

A public presentation of the draft Final Master Plan for Virginia Key was held on May 20th, 2009 at the Miami Science Museum.

The presentation provided a preview of the draft Final Master Plan that was presented at the Waterfront Advisory Board and City Commission as well as to gather additional public comments to continue to build additional consensus.





Waterfront Advisory Board

October 5, 2009

A motion was made to accept the Virginia Key Master Plan as presented with the following additions and inclusions:

- Welcome Center on the Marine Stadium site and restoration of Marine Stadium.
- A transportation plan to and from the Marine Stadium, Park and Passive use areas.
- No Hotel or Hotels on site.
- Inclusion of one or two of the identified Boat Ramps studied in the Master Plan.
- Re- inclusion of the BMX and Mountain Bike trails.
- Creation of an Implementation Committee.
- Cleaning up the landfill and examine possible leaking from the site into the bay Proper remediation.
- Increase the buffer areas between nature areas (i.e. mangrove) and the proposed playing fields.
- Historic Virginia Key Beach continued restoration.



City Commission

October 8, 2009

A motion was made to defer Item PZ.1 to the first scheduled City Commission meeting in May 2010.

- Immediately allow a mountain bike facility on North Point,
- Immediately move forward with the remediation of the landfill and utilize the \$45 million in Miami-Dade County funds for same, and
- To ensure the Virginia Key Beach Park Trust has the flexibility in its efforts to construct, operate, or maintain the proposed Civil Rights Museum complex and any other facilities as the Trust may deem necessary in order for the Museum to survive



Process to Consensus Building and Adoption of the Master Plan

Following the City Commission deferral of the Master Plan on October 8, 2009, the City of Miami Planning Department collaborated with the Virginia Key Public Planning Coalition and the UM School of Architecture design studio during additional public meetings, workshops and design sessions that led to the creation of a consensus plan and to the adoption of the Virginia Key Master Plan by the City of Miami Commission on July 22, 2010.



Chronology of the Public Consensus Building Process and Adoption of the Master Plan following the October 8, 2009 City Commission Deferral

- **First Workshop with UEL**
December 10, 2009
Lummus Park
- **Second Workshop with UEL**
January 14, 2010
Lummus Park
- **Mountain Bike Course Layout**
February 3, 2010
North Point
- **Discussion Item at City Commission**
February 11, 2010
(Deferral to July 22, 2010)
- **Dade Heritage Trust & Virginia Key Public Planning Coalition Presentation & Workshop**
March 27, 2010
Rusty Pelican & Virginia Key Beach Park Trust offices
- **Waterfront Advisory Board**
July 13, 2010 (Approval)
- **Parks Advisory Board**
July 15, 2010 (Presentation without quorum)
- **Planning, Zoning & Appeals Board**
July 21, 2010 (Approval)
- **City Commission**
July 22, 2010 (Adopted)
- **Shoreline Development Review Committee**
May 31, 2012 (Approved with conditions)





Wildlife at Virginia Key Beach

4. Existing Conditions

4.1 Context

4.2 Historical Timeline

4.3 Landmarks

4.4 Soil

4.5 Vegetation

4.6 View sheds

4.7 Existing Land Use

4.8 Zoning

4.9 Ownership

4.10 Landfill Redevelopment Study

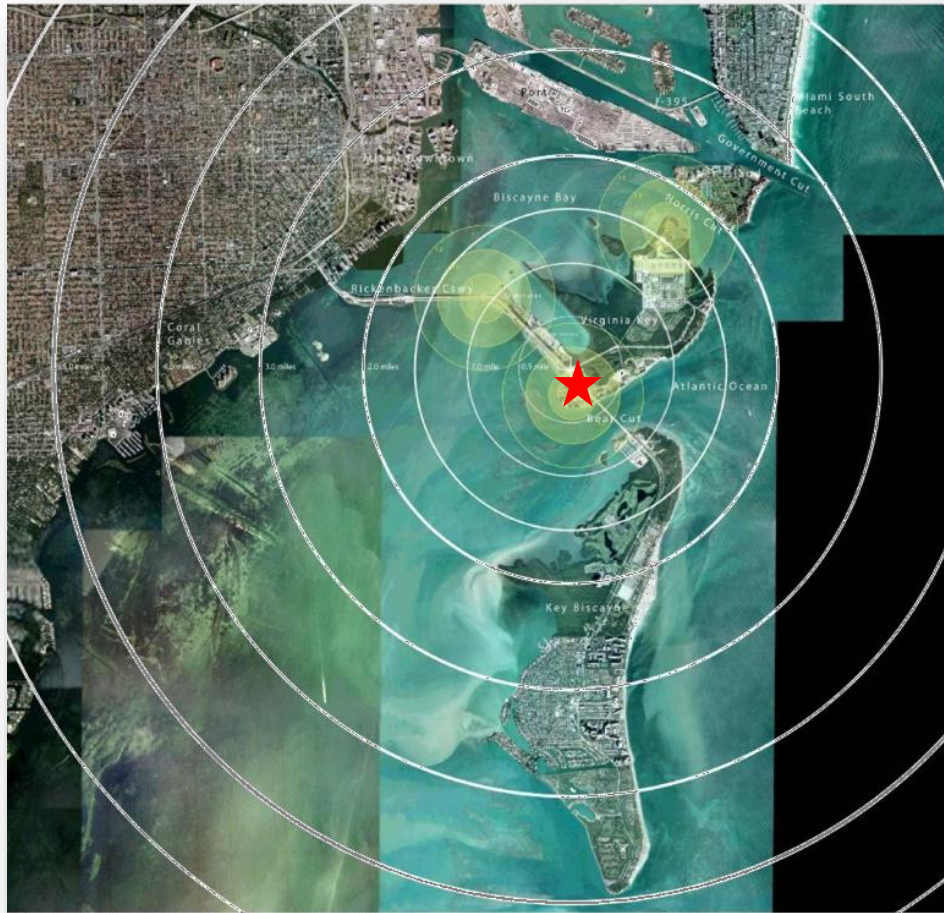
4.11 Traffic Analysis

4.12 Marina and Market Study

4.13 Opportunities and Constraints

4.14 Composite Analysis

4.1 Context



Regional Map

NOTE:

Virginia Key lies within the Shoreline Development Review Boundary as per Chapter 33D (Biscayne Bay Management) of the Code of Miami- Dade County, Florida.

What is now Virginia Key was the southern end of a barrier island that extended from the New River inlet in Fort Lauderdale to just north of Key Biscayne. Early accounts by Spanish explorers indicated the existence of one or more inlets somewhere on the long spit of land enclosing the northern end of Biscayne Bay, but such inlets open and close over time. At the beginning of the 19th century, there was no inlet through the barrier island between the New River Inlet and Bear Cut, at the northern end of Key Biscayne. Hurricanes in 1835 and 1838 opened a new inlet, Narrows Cut (now known as Norris Cut), separating Virginia Key from what is now Fisher Island at the south end of Miami Beach. The island was named by Frederick H. Gerdes of the United States Coast Survey in 1849. He noted that the island north of Key Biscayne had no name, and had not existed as an island until 'Narrows Cut' had broken through "ten or twelve" years before. He described Virginia Key as three miles (5 km) long and one mile (1.6 km) wide (later, as five miles (8 km) long and one-and-a-half miles wide), with a fine Atlantic beach, but mostly covered with mangroves.

Even though there are no inhabitants in the island, its particular location makes it interesting to different neighborhoods within a 3 to 4 mile radius as well as people from longer distances. The most immediate populations are Key Biscayne, Coconut Grove, Coral Gables, Brickell and Downtown Miami (3-4 miles).

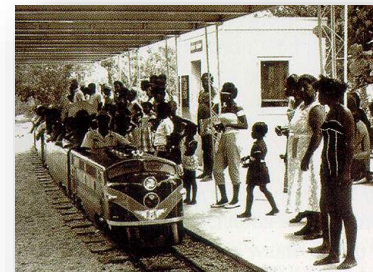
4.2. Historical Timeline

The island of Virginia Key has great historical significance. William Roberts , in his *First Discovery and Natural History of Florida* (1763) wrote: "To the north hereof (Cayo de Biscayno) lies the small island of Cayo Ratones, about four miles in length, on which there is an Indian town, called Pueblo Ratones, that, in 1838, was the site of one of the battles in the Seminole Wars.

Later on another piece of history also happened in the Key. In the summer of 1945, a group of black men led by Judge Lawson E. Thomas staged a protest at a North Miami whites-only beach against the segregation laws that prohibited Blacks & Hispanics from using the public beaches of Miami and Dade County. In response to the protest, county officials created Virginia Key Beach Park, a public beach for the black & Latino community , which opened on August 1, 1945.

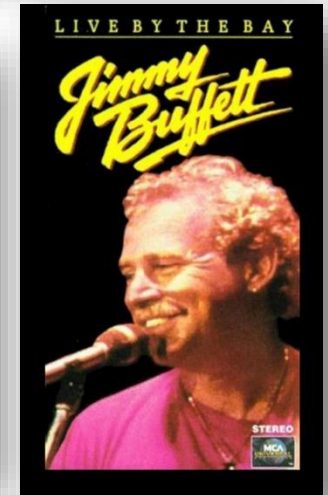
The beach at Virginia Key had been used by African Americans for at least the two previous decades. During World War II, the U.S. Navy used Virginia Key Beach for training African American & Hispanic servicemen who were not permitted to train in the waters along the "whites-only" beaches. It was not until 1945, however, that the county began building recreational facilities there and making the beach more accessible by providing ferry boat service until the completion of the Rickenbacker Causeway in 1949 allowed access by automobile.

Virginia Key Beach Park had bathhouses, picnic pavilions, a concession stand, and a carousel and other amenities. The beach remained segregated through the 1950's, until civil right laws opened all the public beaches in the area. Still, through the next two decades, Virginia Key Beach remained a popular destination for many in the black community. In 1982, the area was transferred from the county to the City of Miami with the stipulation that the area be kept open and maintained as a public park and recreation area. However, the city closed Virginia Key Beach Park shortly after the transfer, citing the high cost of maintenance and operations. After nearly 20 years of non-use, the bathhouse, concessions building and other facilities have fallen into disrepair. In August 2002, the site was placed on the National Register of Historic Places and given a Florida Historical Marker.



Summary of Historical Events

- 1963-** Ralph Munroe Marine Stadium opened, named for one of the earliest settlers on Biscayne Bay
- 1972-** President Richard Nixon walked onto the Marine Stadium stage and singer Sammy Davis Jr. hugged him before a crowd of more than 6,000
- 1977-** Miami-Dade Water and Sewer Authority Central District Water Sewage Treatment Plant started operation
- 1982-** Virginia Key was transferred from County to City of Miami with the stipulation that it be kept open and maintained as a public park and recreational area. However it was closed due to high operating costs only a few months later
- 1987-** First Virginia Key Master Plan managed by the City of Miami
- 1985-** Jimmy Buffet performs live at Miami Marine Stadium
- 1991-** MAST Academy opened
- 1992-** On September 18, County building authorities ordered the Miami Marine Stadium to be evacuated because it was considered unsafe after being damaged by Hurricane Andrew
- 1995-** A bailout measure calling for a \$12 million “eco-campground” development of 153 acres along the Bear Cut is unanimously rejected
- 1997-** Public beach popular for windsurfing is closed
- 2002-** Virginia Key Beach park is placed on the National Register of Historic Places and given a Florida Historical Marker
- 2003-** Final Virginia Key Beach Park Master Plan presented by Wallace Roberts and Todd to the City Commission on July 8th
- 2004-** The Virginia Key Beach Park Trust is formed to revitalize the park and return it to the community.
- 2007-** The City of Miami commissioned EDSA to work on a new Virginia Key Master Plan
- 2008-** Virginia Key Beach Park reopened to the public
- 2008-** The Miami Marine Stadium was designated Historic by the City of Miami Historic and Environmental Preservation Board
- 2009-** The Miami Marine Stadium was included in the USA “11 most endangered monuments”
- 2010-** The City of Miami Commission adopted the Consensus Virginia Key Master Plan on July 22nd



4.3 Landmarks

Along the south side of the Rickenbacker Causeway onto Virginia Key, is a long strip of bay front popular with windsurfers and sailors, called Hobie Beach after the Hobie Cats that set sail from the shore. It's also the only Miami-area beach that allows dogs. The Miami Seaquarium and the UM Rosenstiel School of Marine and Atmospheric Science are also located on this side, out of City properties.

North of the Causeway is the traditional restaurant “Rusty Pelican”, known as a place for parties and social events and because of the spectacular views of the city skyscraper. Despite of its current state, the historic Miami Marine Stadium is another important landmark. The Rowing Club and the Marinas complete the most significant elements related to the Basin.

Along the Causeway to the north of the mentioned landmarks is the Maritime and Science Technology (MAST) Academy public magnet school followed by the Atlantic Oceanographic and Meteorological Laboratory (AOML), one of the Oceanic and Atmospheric Research (OAR) Facilities of the National Oceanic and Atmospheric Administration (NOAA) and National Marine Fisheries Science center. These two installations along with the UM Rosenstiel School and the Seaquarium and the Dade Marine Institute William E. Gladstone campus generate a potential educational related zone.

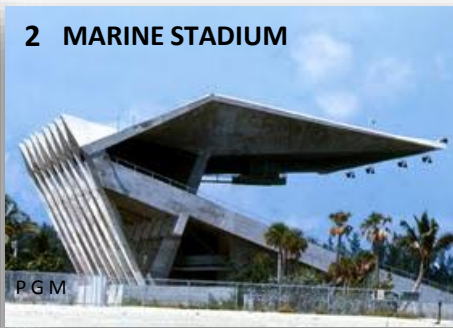


At Virginia Key's mainland other Landmarks can be mentioned, such as the Virginia Key Beach Park, the recently restored Coastal Hammock, and the public beach. Jimbo's Place is a small fish restaurant, bar, and recreation venue at the end of Duck Lake Road on Virginia Key. Filming industry uses the location due to its particular character and views. The Dade County Water and Sewer Treatment Plant and a Federal Aviation Doppler Vortex tower emerge at the northern most part of the island.

1 RUSTY PELICAN



2 MARINE STADIUM



3 HOBIE BEACH



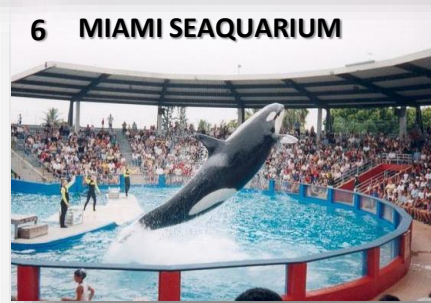
4 ROWING CLUB



5 MAST



6 MIAMI SEAQUARIUM



7 UM ROSENSTIEL



Landmarks

8 FISHERIES



9 NOAA



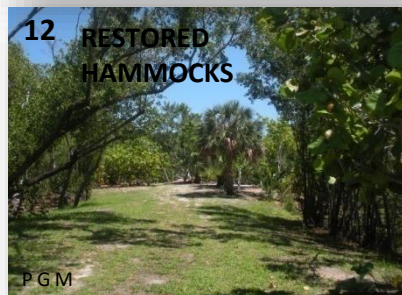
10 VK BEACH PARK



11 DADE MARINE INSTITUTE



12 RESTORED HAMMOCKS



13 PUBLIC BEACH



14 TREATMENT PLANT



15 VORTEX



4.4. Soils














4.5. Natural Features & Vegetation



Coastal Hammock Interpretive Trail Plant List

Australian Pine	Gumbo Limbo	Simpson Stopper
Bahama Nightshade	Indigoberry	Snowberry
Bay Cedar	Lather Leaf	Spanish Stopper
Baccharis	Matilberry	Strangler Fig
Biscayne Pickly Ash	Mastic	Tortoisewood
Black Reed	Pigeon Plum	Virginia Creeper
Black Mangrove	Picketweed	White Mangrove
Skully	Red Mangrove	White Strangler
Brazilian Pepper	Sabal Palm	Wild Coffee
Rumex Reed	Saw Palmetto	Wild Lantana
Burtonwood	Sea Grape	Wild Lime
Darling Plum	Sea Date	
Diddle Cactus	Silver Palm	

Leg

	Coastal Hammock		FAA Mitigation area
	Mangrove w some Australian Pine		RSMAS Mitigation area
	Exotic Dominated Upland		Beach Dune (Turtle nesting)
	Mixed Species		Manatee no entry zone
	Restoration		DERM Restoration project (Miller Legg boundaries)
	Freshwater Wetlands		

NOTE:
DIPAK



4.6. View Sheds

One of the most valuable features of Virginia Key is the diversity of views towards all directions. City skyline panoramas as well as ocean and natural preserve views increase the active and passive recreation possibilities.



4.7. Existing Land Use

Currently the Island has two different patterns of land use, one along Rickenbacker Causeway and the other one in the mainland of the Key. Along the causeway the Commercial and Institutional uses are predominant, with the exception of the long strip south, Hobie Beach, categorized as Park. Within the Key, the majority of the land is considered Parks and includes the Natural Preserves as well as other recreational areas. Another Land Use component includes Communications, Utilities, Terminals, Plants; and includes the Sewage Plant, Antennae and North Point. Finally is the vacant, government owned land use corresponding to the Landfill and some other areas.



Land Use Summary



4.8 Zoning

The City of Miami new Code (Miami 21) includes the following zone designations to the City owned areas on Virginia Key:

T1 - Natural Transect Zones (T1)

A Natural Transect (T1) Zone is a zone for environmental conservation.

- a. A T1 Zone is to be left in an essentially natural state. Modification of the natural conditions shall be according to Local, State and Federal guidelines. Public access to T1 areas may be limited if it presents a threat to wildlife and plant life within the areas.
- b. In a T1 Zone, improvements shall serve solely to protect natural elements. Any paved, graveled, mulched, boardwalk or otherwise improved surface or any habitable, enclosed or air conditioned space shall be kept to the minimum scale necessary to fulfill its purpose. Such improvements including but not limited to: screened or glassed enclosures, pathways, fencing, gatehouses, lighting, toilet facilities, parking areas, etc. may be allowed by process of Exception. Only activities and improvements which reinforce the natural character shall be allowed and upon a finding that there is no negative effect to the environment based on a study of potential environmental impacts to be provided by the applicant.

CS - 5.7.1 Civic Space Zones (CS)

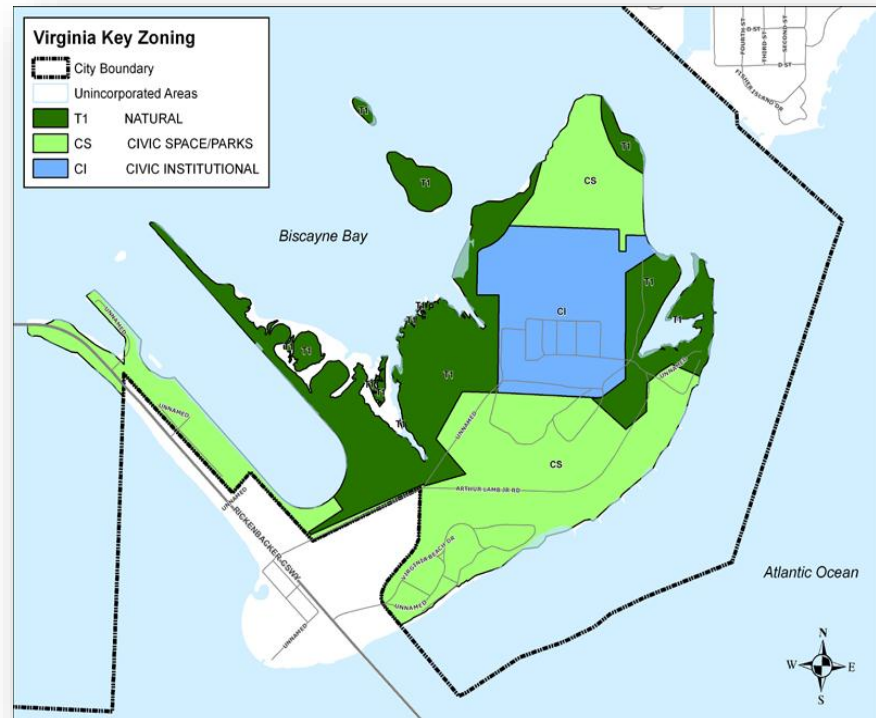
5.7.1.1 Development in a Civic Space Zone should have a minimum of fifty percent (50%) of its perimeter enfronting a Thoroughfare. Civic Space sites shall be entered directly from a Thoroughfare.

5.7.1.2 Development in Civic Space Zones shall be consistent with the standards in Article 4, Tables 3, 4, and 7.

5.7.1.3 One or more Buildings may be built in each Civic Space. Building floor area shall not exceed twenty-five percent (25%) of the lot area of the Civic Space, and shall support the principal use of the Civic Space.

5.7.1.4 In Civic Spaces, Buildings shall conform to regulations of the most restrictive Abutting Transect Zone, except as shown by City of Miami's Parks and Public Spaces Master Plan. Other adjustments to the regulations shall be approved by process of Exception.

5.7.1.5 All Community facility and Recreational Facility Uses shall be government owned or operated only.



CI - 5.7.2 Civic Institution Zones(CI)

5.7.2.1 Development in a Civic Institution Zone shall have a minimum of one (1) Frontage enfronting a Thoroughfare and should have its primary entrance from a Thoroughfare.

5.7.2.2 Development in Civic Institution Zones shall be consistent with the standards in

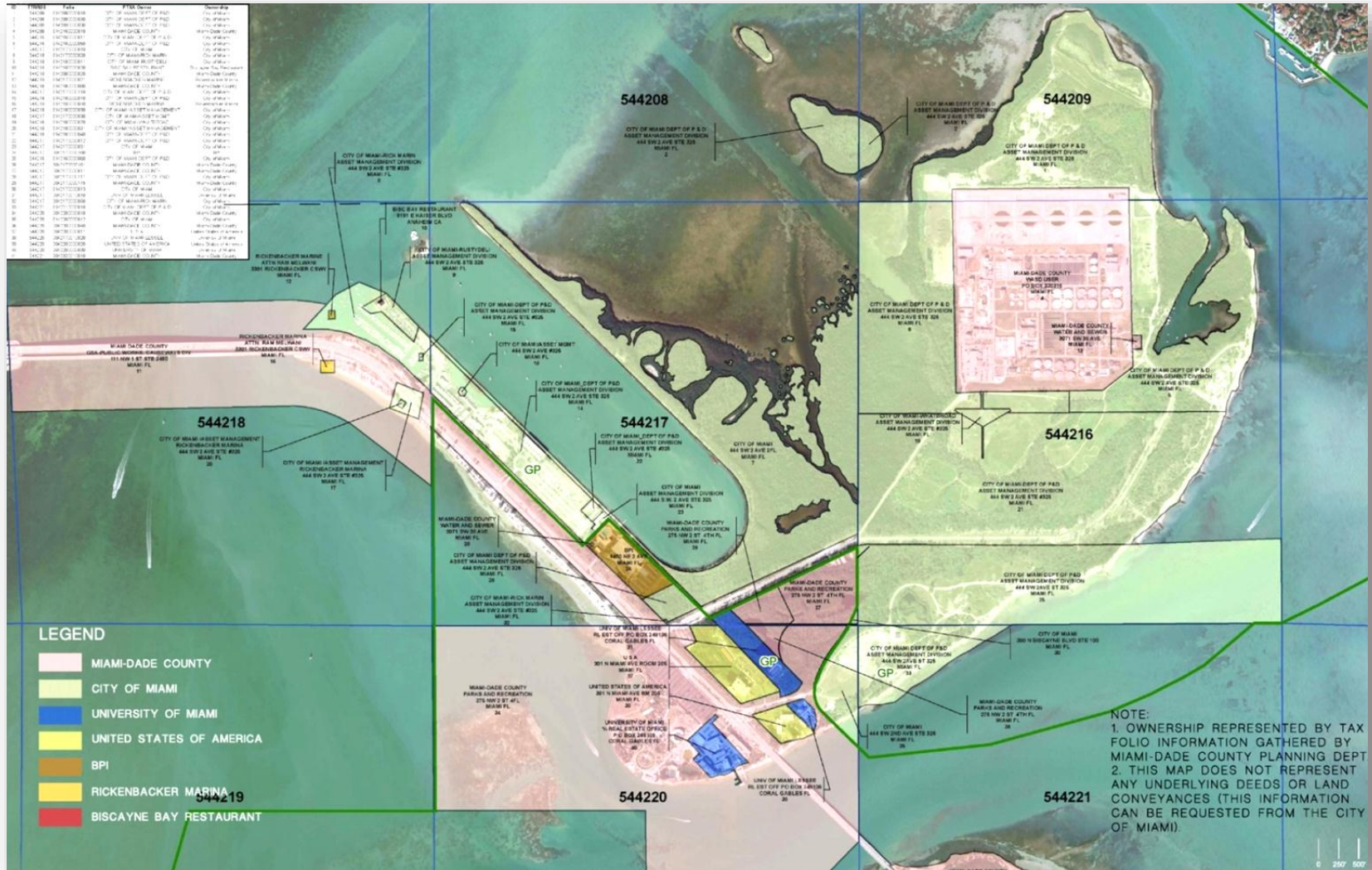
Article 4, Tables 3 and 4.

5.7.2.3 A Civic Institution Lot may have one (1) or more Buildings.

5.7.2.4 Civic Institution Development shall be permitted by process of Exception.

4.9. Ownership

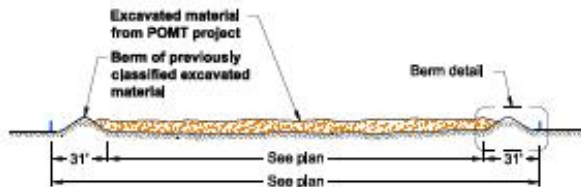
Ownership is one of the most challenging issues found in this territory. Numerous owners and lessees share land and rights here. Fortunately the land is owned only by governmental institutions. Some lease and deed restrictions are also in place.



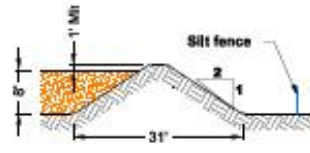
4.10. Landfill



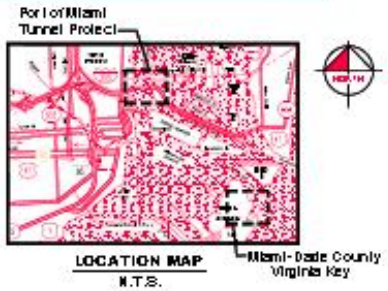
PLAN VIEW
Scale: 1" = 400'




SECTION 1
Scale: 1" = 60'



BERM DETAIL
Scale: 1" = 20'



ESTIMATED COMBINED VOLUME FOR STOCKPILES = 280,000 Cu. Yd.

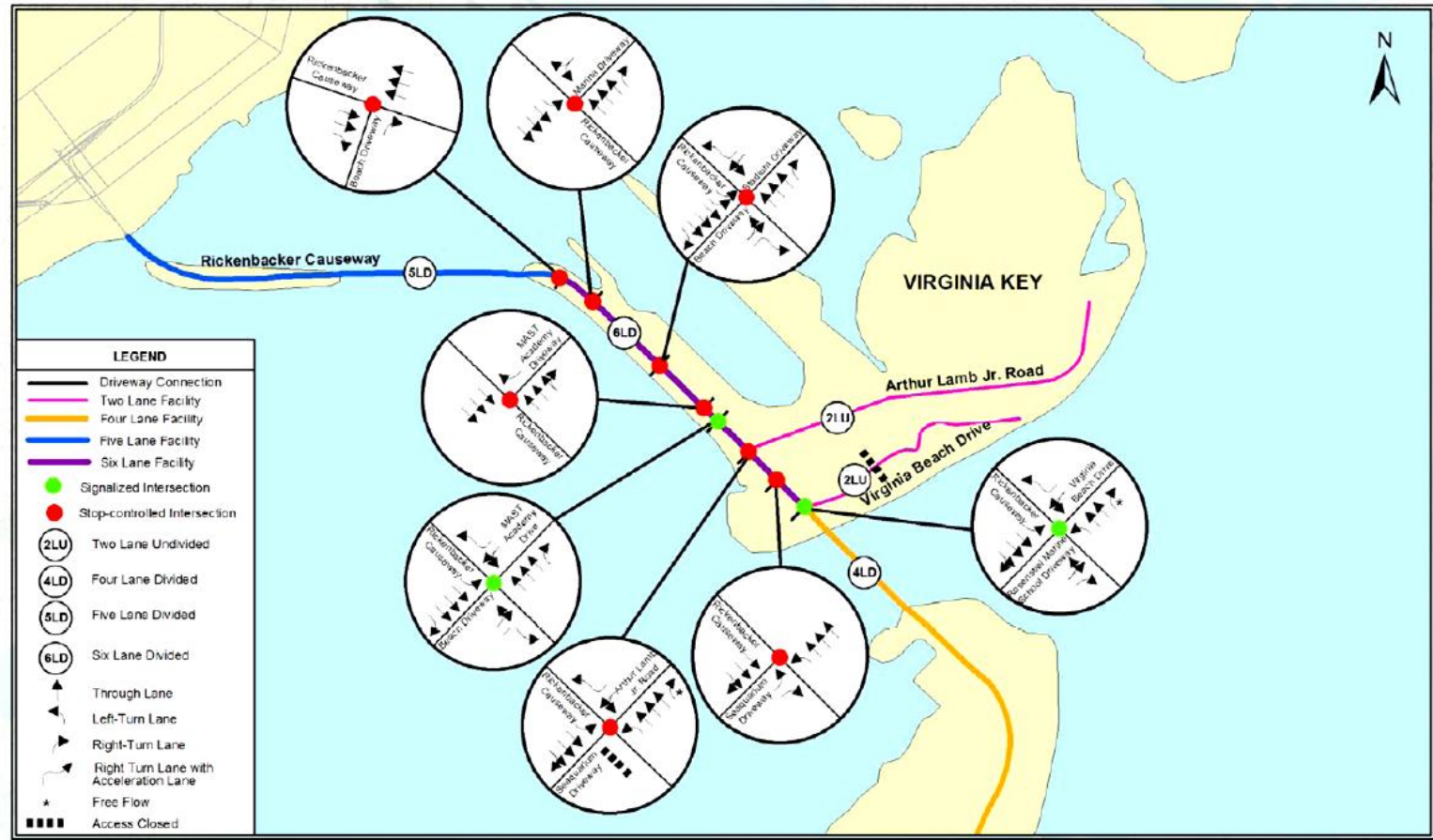
REVISIONS DATE: 11/03/11 BY: UPD-TO: HELL: WARD:		 	PROJECT NO.: 251156-3-52-01 TITLE: STOCKPILE MANAGEMENT PLAN APPROVED BY: L/E	STATUS: FOR INFORMATION	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO.: ATA COUNTY: MIAMI-DADE PROJECT NO.: 251156-3-52-01	PORT OF MIAMI TUNNEL PROJECT STOCKPILE MANAGEMENT PLAN VIRGINIA KEY	SHEET NO.: 1 of 2
			DATE: NOV 4, 2011				

4.11 Traffic Analysis

The existing conditions analysis focused on documenting the existing roadway, pedestrian and bicycle networks, internal site circulation, as well as the existing traffic volumes and level of service of the transportation network during a typical weekday and a typical Saturday.

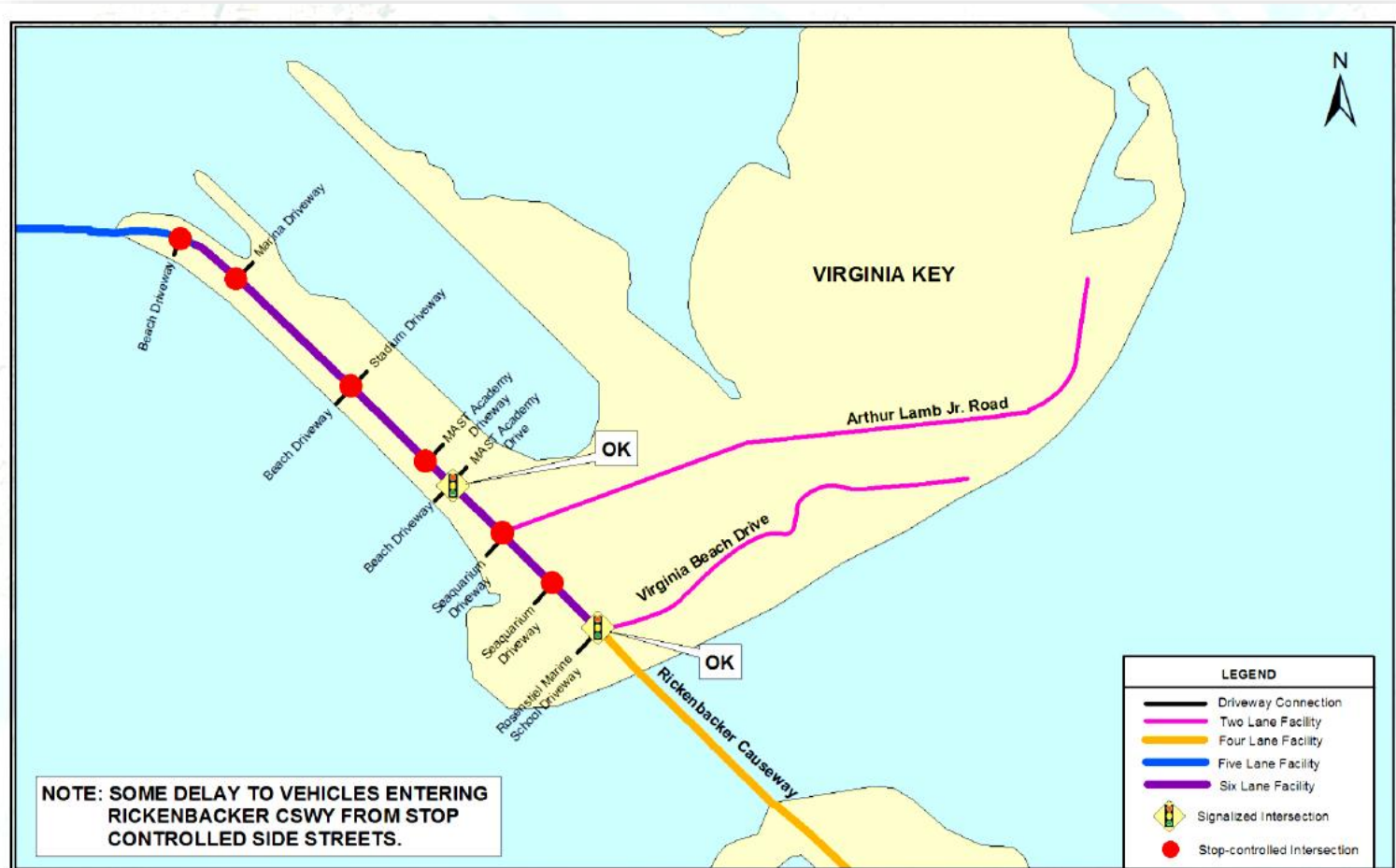
Existing Roadway Lane Geometry

Virginia Key does not have an extensive roadway network. The only roadway access to the island is via the Rickenbacker Causeway. This roadway runs in a northwest-southeast direction along the southern portion of the island. Apart from the Rickenbacker Causeway, the other roadways on the island are Arthur Lamb Jr. Road and Virginia Beach Drive, both of which lead to Virginia Key beaches.



Existing Operational Characteristics

There are two (2) signalized intersections located within the study area. These are found at the intersections of Rickenbacker Causeway at MAST Academy Drive and Rickenbacker Causeway at Virginia Beach Drive. There are also six (6) stop-controlled intersections along Rickenbacker Causeway. The stop-controlled intersections are located at Arthur Lamb Jr. Road and five (5) separate driveways. The driveways provide access to beach parking areas, the Marinas, Miami Marine Stadium, MAST Academy, and Miami Seaquarium.



Existing Pedestrian and Bicycle Network

A shared pedestrian/bicycle path is provided on the west side of Rickenbacker Causeway. The pedestrian/bicycle path runs the entire length of the island alongside the causeway and extends into Miami and Crandon Park Boulevard on either end of the island. Pedestrian shelters and benches are provided along the path for refuge. At the signalized intersections on Rickenbacker Causeway, other pedestrian features are provided including marked crosswalks, push buttons, and pedestrian signal indicators.

There are currently only two pedestrian crossings across Rickenbacker Causeway. The existing pedestrian crossings are located across the north leg of the Mast Academy Drive and Rickenbacker Causeway intersection and across the south leg of the Virginia Beach Drive and Rickenbacker Causeway intersection. Where the shared bike/pedestrian facility crosses the driveways, regulatory signs are provided either for the non-vehicular traffic or for the vehicles conflicting with the facility.

Existing Public Parking Areas

Parking is provided at all private establishments for motorists who work or visit those locations.

Additionally, parking for the general public is provided at the following locations:

- Beach parking lots located along the west side of Rickenbacker Causeway
- Beachfront parking areas along the west side of Rickenbacker Causeway across from MAST Academy
- Parking lots near the beach along Arthur Lamb Jr. Road.

Virginia Key is located just a few miles north of Crandon Park, home of the NASDAQ 100 Tennis Championship. During event days occurring in mid March to early April, attendees who cannot park at the lots near the event venues drive and park on Virginia Key at a designated area near the eastern end of Arthur Lamb Jr. Road, east of the wastewater treatment plant. The attendees are then shuttled to the venues by event buses.

This creates a significant increase in traffic activity on Arthur Lamb Jr. Road. During this time, the unsignalized intersection of Arthur Lamb Jr. Road and Rickenbacker Causeway is controlled by uniformed police officers to help facilitate travel through the intersection.



Biking on Ralph Munroe Bridge

Existing Transportation Facilities

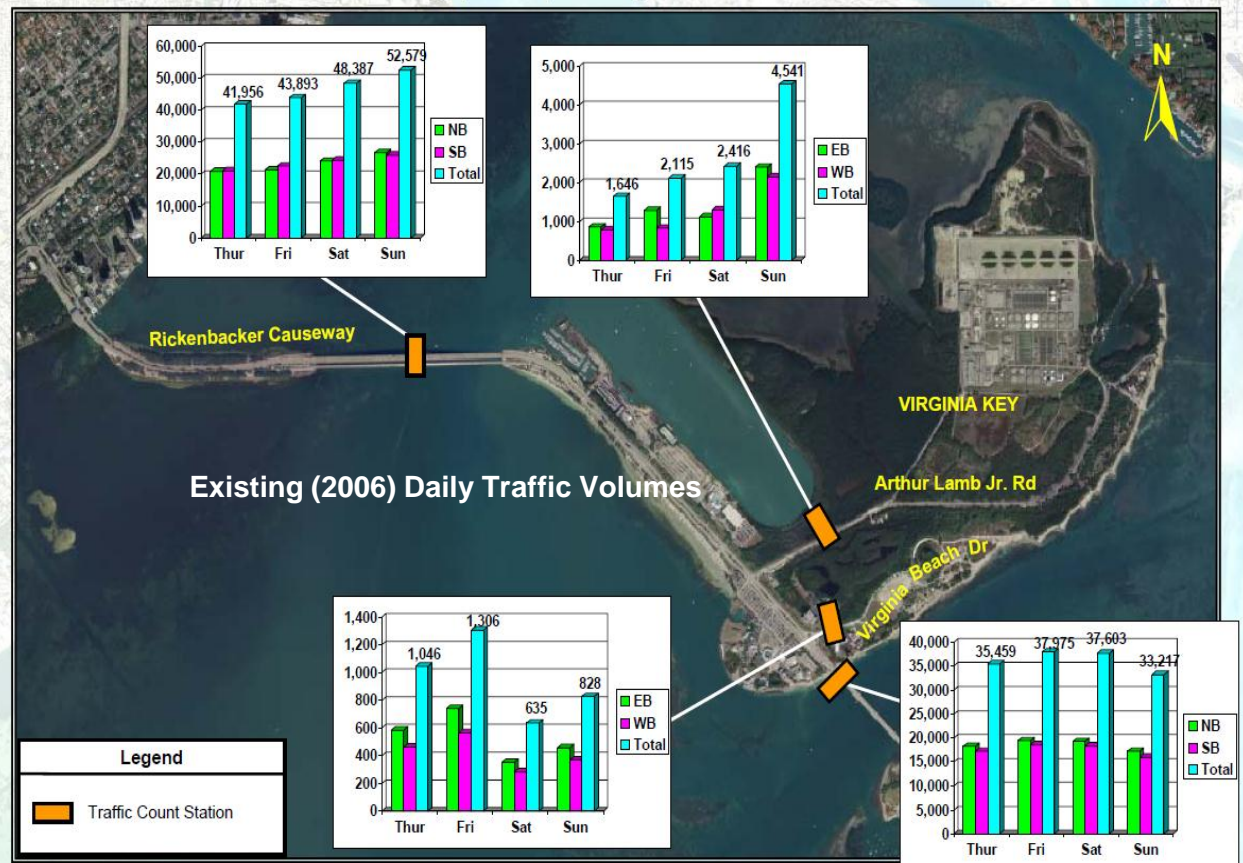


Existing Traffic Volumes (2006)

For the purpose of evaluating the traffic conditions on Virginia Key, four-day machine automatic traffic recorder (ATR) counts and intersection turning movement counts (TMC) were conducted. The ATR counts were collected from Thursday to Sunday, April 6 through April 23, 2006.

The ATR counts were conducted at the following locations:

- Rickenbacker Causeway north of Virginia Key
- Arthur Lamb Jr. Road east of Rickenbacker Causeway
- Virginia Beach Drive east of Rickenbacker Causeway
- Rickenbacker Causeway south of Virginia Key



The Rickenbacker Causeway carries an average of 46,700 vehicles per day between Virginia Key and Downtown Miami and the average daily traffic on the Rickenbacker Causeway south of Virginia Key is about 36,000 vehicles per day. Arthur Lamb Jr. Road carries an average daily traffic volume of approximately 2,700 vehicles per day; while Virginia Beach Drive currently experiences approximately 950 vehicles per day, on average. The traffic volume on Virginia Beach Drive is expected to increase significantly once the beach restoration work is completed and the road opens to the public.



PGM

View of Virginia Key from Ralph Munroe Bridge

4.12. Market Analysis

A market analysis was prepared to understand opportunities for a range of land uses in the Virginia Key Master Plan study area. The analysis consisted of an examination of opportunities for mixed-use waterfront improvements integrated with recreation, public parks and beaches, conservation areas, and existing institutional uses. Although the initial scope included analysis of a broad range of potential uses, current and anticipated zoning prohibits residential and lodging uses on Virginia Key. Also, long-term lease agreements, public, institutional, and private infrastructure restricts the full range of mixed-uses that may be accommodated on Virginia Key.

Although there are no current residents on Virginia Key, the market analysis examined household spending and growth potential relating to the Brickell and Key Biscayne markets which are adjacent to understand opportunities for similar developments on Virginia Key. Traffic counts for the Rickenbacker Causeway were compared to counts for Key Biscayne to understand the number of Virginia Key only trips. The populations of Key Biscayne and Brickell are projected to grow 1.3% and 2.0% respectively over the next five years. The population of Key Biscayne is approximately 11,300 and the population in Brickell is about 6,550. Both areas have significant under 20 aged populations, with an equal distribution of adults aged 30 to sixty-nine. In Key Biscayne median household income is approximately \$110,000 with an average income greater than \$165,000; Spending potentials represented by local area residents and Virginia Key's existing attractions and uses (marina, beach, Seaquarium, government facilities, University of Miami, and Mast Academy, etc.) are not sufficient to carry (support) significant retail and restaurant space alone, but would require regional and visitor market support. Greatest market support is for destination retail and restaurants, and entertainment. Destination retail and restaurant operators will need to drive sufficient traffic and spending potential for substantially expanded facilities.

Virginia Key faces significant regional competition from many locations ranging from South Beach to South Miami, as well as Coconut Grove. In combination, these issues—and the results of the market analysis—suggest careful consideration of a merchandising and tenant recruitment strategy. The market analysis suggests that any new development scenario should include wet and dry marina facilities, as there is considerable market demand for both. Related water-oriented concessions such as sailboard or sea kayak rentals could also be supported. Any such concessions would need to be aware of sensitive environmental issues relating to the surrounding area.

The analysis also provided details on space and layout requirements for a variety of sports and recreation facilities, including baseball/softball diamonds, soccer, football and lacrosse fields, basketball and volleyball facilities and a golf range. The athletic facilities study included detailed information about swimming and aquatic sports facilities requirements, and case studies for multiple field facilities and comparable facilities costs.

Economic Development

Context:

The study area is Influenced by Key Biscayne, Coconut Grove and other regional markets. Based on 2006 data, Key Biscayne reported 4,456 Households, 73% of them owner-occupied. There was one existing Hotel, the Ritz Carlton; and a projected condo/hotel, Sonesta, with 191 hotel rooms and 63 residential units. Coconut Grove reported 7.913 Households, owner-occupied by a 56%. There are nine hotels with 1.270 rooms as well as multiple shopping stores and restaurants.

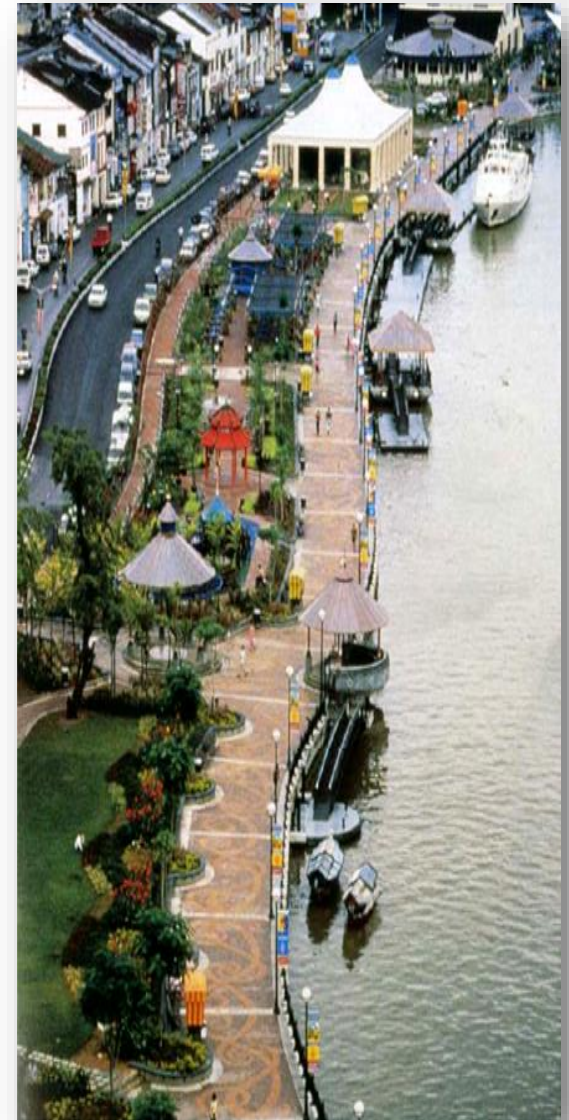
Development Options:

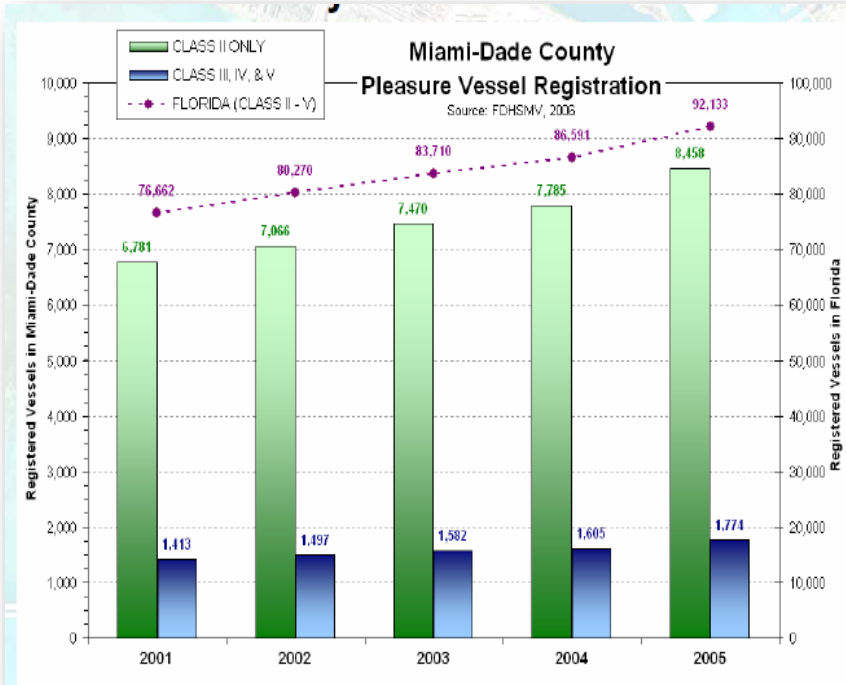
The proposed program should focus on outdoor recreation and access to the waterfront : beaches, windsurfing, boating, marina, , swimming, sailing, diving, contemplation and other activities.

The amenities of the Virginia Key Beach Park complex, active outdoor recreation facilities such as soccer, baseball, tennis, eco camping, triathlon, environmental trails, etc. could increase the options for the community attending Virginia Key. New and improved existing restaurants, public marina, future expansion of institutional uses, concerts and public activities as well as the Seaquarium modernization and development are also recommendable.

Development Issues:

- Multiple ownership and long-term lease agreements complicate coordinated planning and decisions
- Significant wetland conservation areas
- Institutional uses along Causeway
- Ongoing presence of a sewage treatment plant limit development options
- Restriction on Virginia Key residential development requires off-site market support
- Seaquarium needs substantial upgrades and parking solutions





Summary (Biscayne Bay area)

Existing Facilities (with public access)

- 13 wetslip facilities with approx. 2,400 slips
- 8 drystack facilities with approx 2,100 racks
- 100% occupancy + wait list at all facilities

Opportunities

- Mooring, additional wetslips, canoes, kayaks and other “passive” boating.
- “Clean Marina Partnership”: Best management practices for Stormwater runoff, solid & fish waste disposal, Fuel/oil spill prevention and contingency plan, public and marina staff education.

Constraints

- Permitting: Biscayne Bay Aquatic Preserve
- Navigation depths for bigger boats



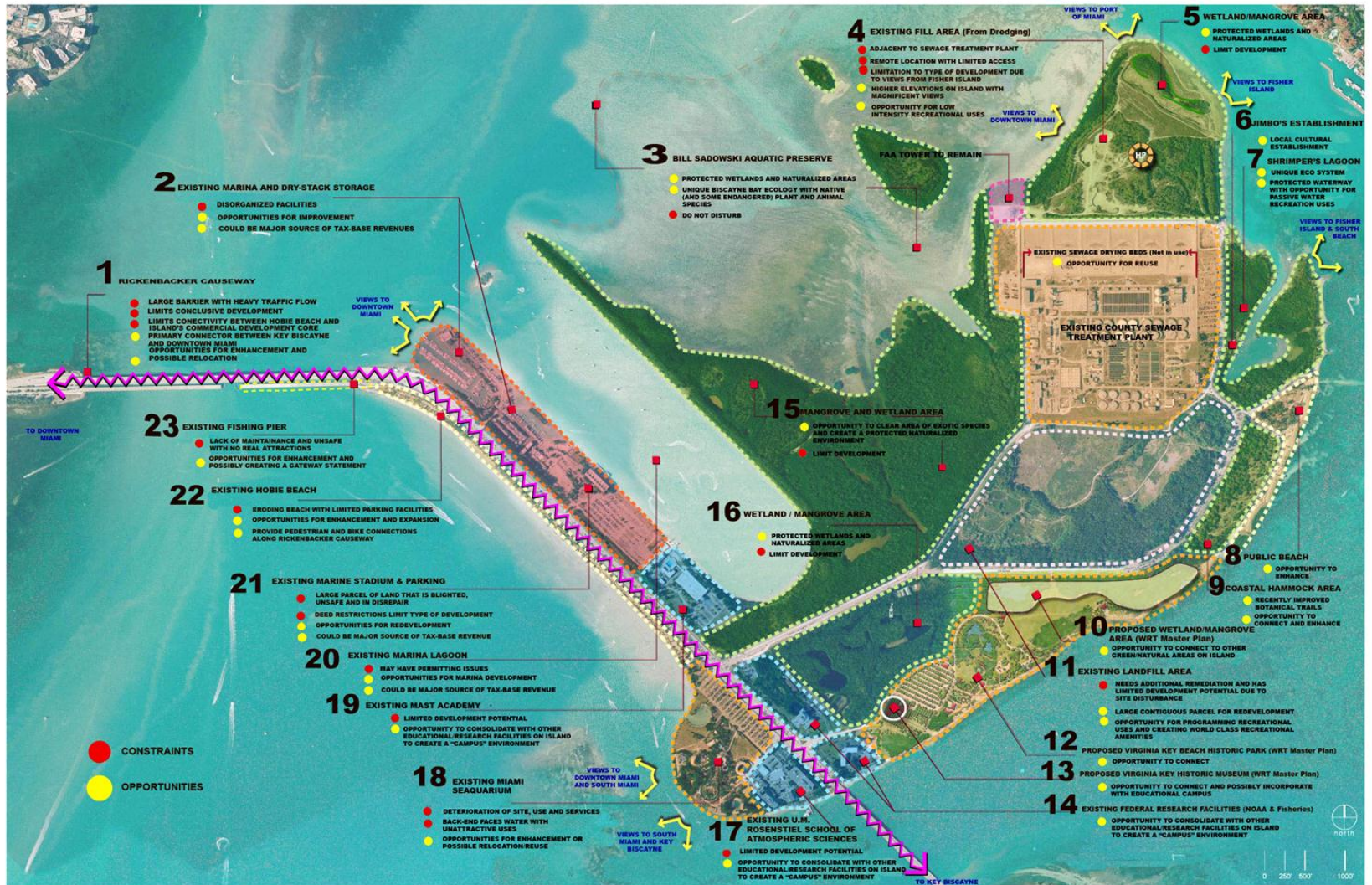
4.13. Opportunities and Constraints





Beach View to Atlantic Ocean

4.14 Composite Analysis



COMPOSITE ANALYSIS





Wind Surfing . Atlantic Ocean

Master Planning Areas



5. Conceptual Master Plan

- 5.1. Conceptual Master Plan
- 5.2. Bill Sadowski Critical Wildlife Area
- 5.3. Virginia Key Beach Park
- 5.4. North Point Park
- 5.5. Shrimper's Lagoon, Public Beach & Coastal Hammock Restoration
- 5.6. Landfill Park
- 5.7. Miami Marine Park
- 5.8. Future Traffic Analysis

5.1. Conceptual Master Plan



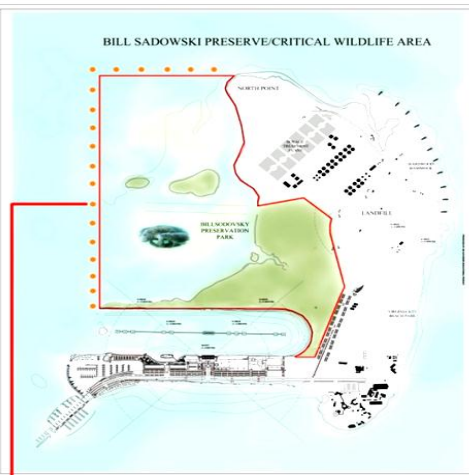
5.2. Bill Sadowski Critical Wildlife Area

One of the greatest natural treasures on Virginia Key is the Bill Sadowski Critical Wildlife Area, a protected sanctuary that consists of hundreds of acres of mangroves and pristine wetland areas that are home to many threatened species such as shorebirds, herons, egrets, and many others. The area is also part of the manatee protection zone and is restricted to access due to its vulnerable location within close proximity to a very urban environment.



View of Bill Sadowski Wildlife Preserve from the Bay

Criteria for the preservation and use of the Natural Reserve



EXISTING ENVIRONMENTAL CONDITIONS

RECLAMATION PROJECT



MANGROVE



RESTORATION EFFORTS



HAMMOCKS



TYPICAL LANDSCAPE

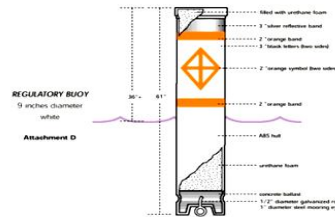


ACTIVE UNDERWATER LIFE



PROPOSAL

- IMPROVE SIGNAGE
- PROVIDE RESTING POINT FOR BIRDS.
- EDUCATIONAL PURPOSE



BUOYS, BOATS-OUT TYPE
MUST BE PLACED AT INTERVALS NOT MORE THAN 75' APART TO IMPROVE SIGNAGE.



FAUNA

- SEA TURTLE
- MANATEE
- BLACK HAWK



Environmental Trail and Wildlife Watch Tower

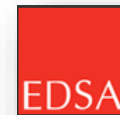
The Master Plan respects the sanctity of this pristine area by preserving the natural boundaries and limiting access into the protected lands. The plan shows improvements to an existing roadway around the lagoon that allows for pedestrian and bicycle access to the point where views of the Miami Skyline can be enjoyed from a natural setting. Along the lagoon trails, a wildlife viewing tower and pavilion on an existing spoils pile also provides opportunities for environmental education without hindering onto the protected mangrove areas.



VIRGINIA KEY CONSENSUS MASTER PLAN

Bill Sadowski
Critical Wildlife Area:

Environmental
Educational
Trails



JULY 2010

Proposed Wildlife Watch Tower and Elevated Boardwalks



West Lake Park, Florida



Park, Broward County, Florida



Wildlife Watch Tower

As a guideline, here are some examples that show the type of construction allowed in the Natural Preserve . The only objective of these interventions should be to give the visitors an opportunity to learn from the natural values of this interesting ecosystem and also to teach the new generations how to enjoy these features now and how to preserve them for their kids and grandchildren



Pond and Coastal Hammock

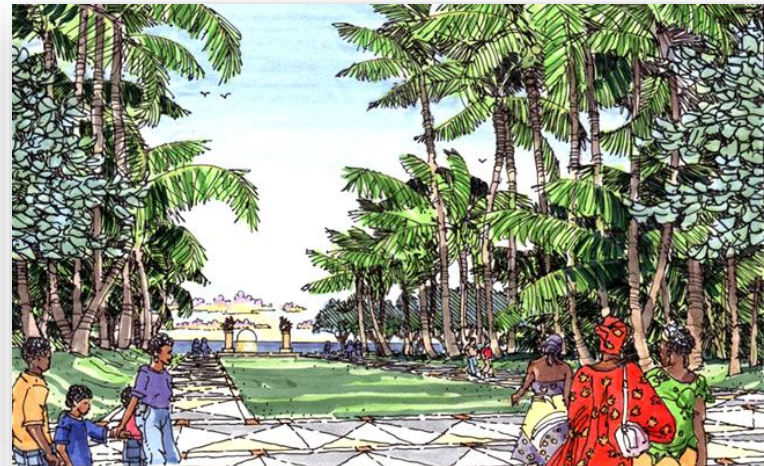
5.3. Virginia Key Beach Park

A National Register of Historic Places site, this urban beach park is located on a barrier island that encompasses the last undeveloped oceanfront property within Miami city limits. During the era of segregation, this park was Dade County's only beach open to African Americans, and its establishment was an early victory in the Civil Rights movement.

Following a comprehensive public participation and planning process, WALLACE, ROBERTS & TODD, Landscape Architects (WRT) presented the final Master Plan on June 10, 2003.

WRT's plan calls for preservation and restoration of the landscape and historic structures, as well as the development of a cultural center and memorial Garden to commemorate and interpret the site's rich history. The plan includes a shoreline promenade, nature and recreation trails, a camping area and beach pavilion, and new playground features to compliment the park's historic carousel and mini-train ride.

The Virginia Key Master Plan keeps within its proposals the WRT Master Plan and designs pedestrian connections between the Virginia Key Beach Park properties and the rest of the island in order to integrate this piece of the territory with the rest as a whole.





◆ HISTORIC FEATURE



VIRGINIA KEY BEACH PARK MASTER SITE PLAN



WALLACE ROBERTS & TODD, LLC
 WRT

JUNE 10, 2003

5.4. North Point Existing Conditions



The North Point is an existing 60.3 acre parcel of land that has served as a repository of dredge fill from historic dredging operations in Government Cut and waterways near the Port of Miami. The site is located north of the Miami-Dade County Sewage Treatment Plant and has topography elevation changes as much as fifty feet above mean sea level. The dredge fill areas are dominated by pioneer exotic tree species such as Australian Pine. The site perimeter consists of native vegetation buffer areas to the limits of dredge fill such as the Bill Sadowski Critical Wildlife Preserve to the west, restored mangroves by DERM to the north, and the Atlantic Ocean and underutilized beach areas to the east.

North Point Park Proposal

The proposed North Point Park Plan recommends opportunities for mountain biking within a central 27 acre area for the biking course with ample landscape buffers which will be created by restoring the upland habitat.

The landscape buffers are necessary to properly separate the mountain biking course from the adjacent park uses and perimeter multi-use nature trails. The mountain biking course is supported and served by an Information/Concession Center complete with restrooms, a Biker's Wash Down Area and a nearby 100 space pervious parking lot. Eco-camping will also be accommodated within a 3 acre site which will provide up to 25 designated camping sites.

The existing beach areas will be enhanced by the removal of exotic vegetation and the construction of dunes with native plantings. Beach restoration will provide public access to formerly restricted beach areas up to the island's north point and create opportunities for views into the Critical Wildlife Preserve. Furthermore, there are several proposed elevated viewing areas along the west side of the perimeter trail system that will enhance the educational and recreational experiences on the North Point



VIRGINIA KEY CONSENSUS MASTER PLAN

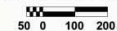
North Point Park

LEGEND

1. Mountain Bike Trails
2. Eco Campground
3. Biker's wash down area
4. Information Center with Restrooms
5. Pervious parking (100 spaces)
6. Enhanced public beach
7. Existing upland habitat restoration
8. Restored mangroves
9. Bill Sadowski Nature Preserve
10. Miami-Dade WASA Treatment Plant
11. Observation opportunities
12. Perimeter Multiuse Nature Trails
13. Proposed Coastal Hammock with nature trails
14. Foot Bridge
15. Lightly Planted Area



GRAPHIC SCALE



JULY 2010

LAND USE SUMMARY

Mountain biking: 27.0 acres
Eco Campground: 3.0 acres
Information Center / restrooms: 0.02 acres
Biker's wash down area: 0.72 acres
Pervious parking: 1.08 acres
Hammock / trails / beach: 28.48 acres

TOTAL NORTH POINT: 60.3 acres





Plan for enhanced public beaches

5.5. Shrimper's Lagoon, Public Beach & Coastal Hammock Restoration

As the Master Plan progresses north towards the more remote parts of the Key, enhancement of natural areas and protection of areas such as the Shrimper's Lagoon and Coastal Hardwood Hammock become dominant efforts.

However, opportunities to integrate environmental educational trails and provide beach area improvements along with the clean-up of old and underutilized facilities increase access potential for the community.

“Virginia Key encompasses three South Florida ecosystems—coastal, dune, and mangrove” and this is most evident within the areas of the Shrimper's Lagoon and the Coastal Hardwood Hammock where efforts by the City of Miami and Miami-Dade County's Department of Environmental Resources Management (DERM) have already been put into place to protect and enhance these valuable ecosystems.

The Shrimper's Lagoon also offers a unique experience into the history of Virginia Key and its distinctive mangrove ecosystem, flora, and fauna around the lagoon through the use of elevated boardwalks that extend to the water's edge and opportunities to have passive boating activity within a protected and natural Waterway.

Film industry and improved low impact food concessions are part of the program for this privileged area.



Shrimper's Lagoon, Public Beach & Coastal Hammock Restoration



1. Renovated Boat Launch with Canoe/Kayak Rentals and Food Concessions. (Existing to be improved)
2. Elevated Boardwalks with Environmental Educational Signage. (Existing to be improved)
3. Existing Parking to be improved with bio-swales and pervious pavement
3. Beach Pavilion and Facilities Building, Playground/Tot-lot, Beach Volleyball Courts, and Public Picnic Area (Existing to be improved)
5. Enhanced Existing Public Beach Area and Trails
6. Coastal Hardwood Hammock Restoration Area with Enhanced Interpretive Trail System with Environmental Education Opportunities (minor improvements and additions to existing trails)
7. Public Restrooms and Shelter Building (Existing to be improved)



Opportunities for environmental education

5.6. Landfill Existing Conditions

The Landfill is an existing 116.5 acre parcel of land which formerly served as a municipal and regional dump site. The site is located south of the Miami-Dade County Sewage Treatment Plant and has a commitment from Miami-Dade County to provide closure and remediation of the landfill. The closure plan has provided impetus for creating a premier regional park for the City of Miami that caters to the needs for active recreation, environmental education, and supporting facilities that will add varied opportunities to provide fitness and education for users of all ages.



Landfill Park Proposal

Parks and Recreation related activities will provide opportunities for public gatherings, mentoring, encourage outdoor living and enhance the appreciation of the natural environment.

The proposed Landfill Park will incorporate best management practices and brownfield redevelopment incentives, and the proximity to the Sewage Treatment Plant's future reclaimed water main makes the reuse of gray water a possibility for the development and maintenance of sports fields and other green spaces. These efforts along with the use of other environmentally sustainable practices will help protect the different ecosystems, flora and fauna of Virginia Key.

The proposed park improvements include a Recreation Center Building with restrooms, multi-use recreation space, classrooms, offices, locker rooms, and covered outdoor terraces. There are 19.9 acres of sports fields for competition in softball / little league, football / soccer, and a 9 acre open recreation meadow for informal and unorganized play. An ADA accessible playground, batting cages, and four tennis courts provide additional active recreation opportunities. The balance of the park is 85 acres of restored mangroves and new coastal hardwood hammock with multi-use nature trails that connect to all park facilities. The park is also served with amenities such as picnic areas and a nearby 160 space pervious parking lot, in addition to existing parking lots along Arthur Lamb Road.



VIRGINIA KEY CONSENSUS MASTER PLAN

Landfill Park

LEGEND

1. Softball / Little League (4 fields)
2. Soccer / Football (4 fields)
3. Tennis (4 courts)
4. Existing / restored mangroves
5. Batting Cage
6. Open Meadow
7. Recreation Center
8. Playground
9. Pervious parking (160 spaces)
10. Restrooms
11. Coastal Hammock / Nature Trails
12. Existing parking along Arthur Lamb Road



GRAPHIC SCALE
50 0 100 200

JULY 2010

LAND USE SUMMARY

Sport Fields: 19.9 acres (17%)
Pervious Parking: 2.2 acres (1.8%)
Recreation Center & Restrooms: 0.5 acres (0.5%)
Open Meadow: 9.0 acres (7.7%)
Mangroves & Hammock: 85.0 acres (73%)

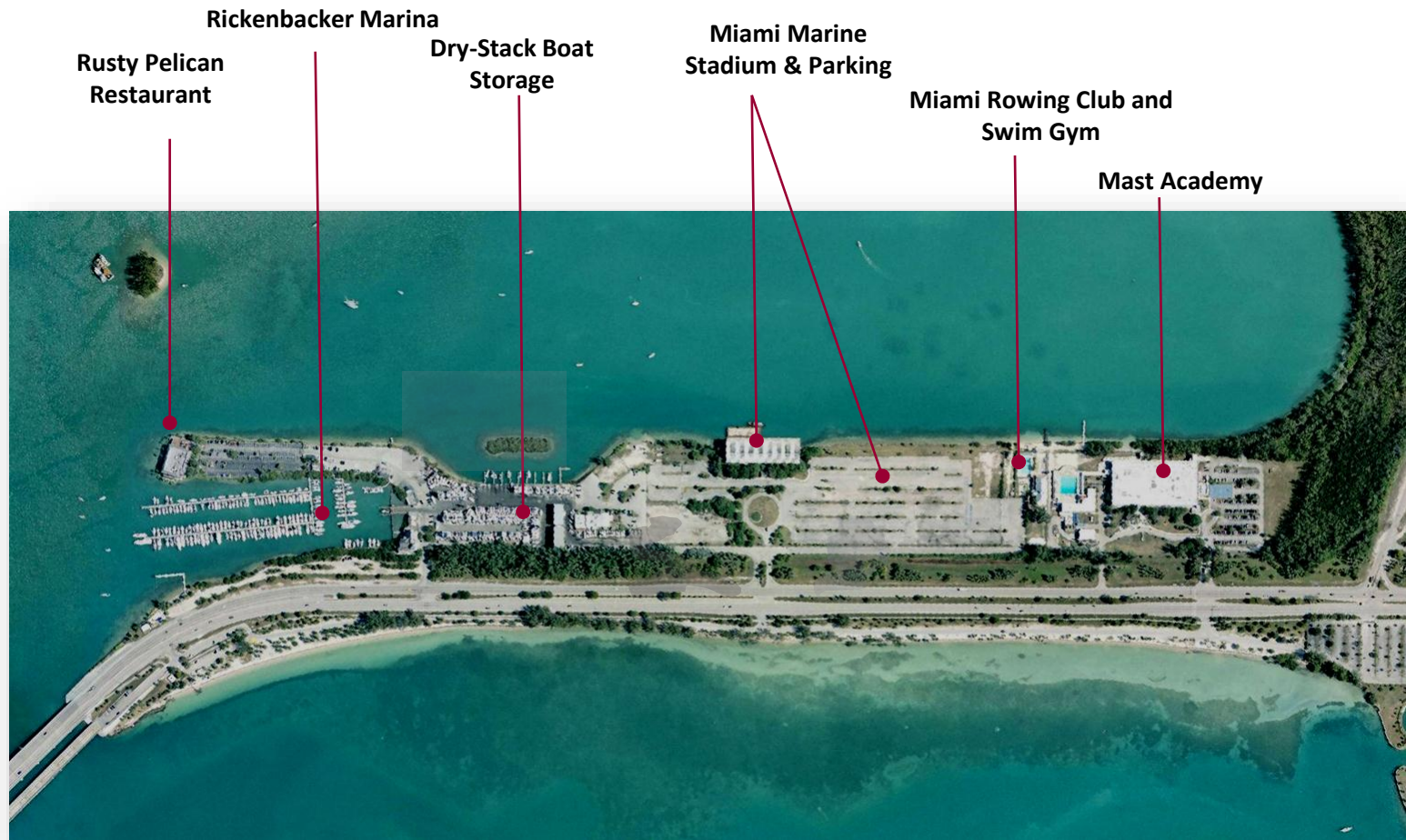
TOTAL LANDFILL: 116.5 acres (100%)





Opportunities for Active Recreation Sports Fields

5.7 Marine Stadium and Basin Area Properties . Existing Conditions



Site of the Miami Marine Park Proposal by the University of Miami School of Architecture



Basin Water Oriented Recreational Activities

Miami Marine Park Proposal

The criteria for the Miami Marine Park is to harness the truly unique sense of place of the basin area and create a beautiful and functional public waterfront park that will become synonymous with the image of the City of Miami. This setting will serve as the “front door” to the rest of Virginia Key, a region of natural and cultural heritage that is to be celebrated, protected, and enjoyed.

The design process has been guided by the following basic concepts:

- Maximize public access to the waterfront
- Provide flexible open space on the eastern side for public recreational use-
- Build new revenue generating boating facilities
- Propose a site for a marine exhibition center
- Restore and vigorously use the Historic Miami Marine Stadium
- Limit structures height not to exceed the height of the Marine Stadium
- Provide green alternatives for parking
- Promote varied public use of site from passive to active and island Integration

A restored Miami Marine Stadium will serve as the principal entry and focal point of the multi-nodal sites of the Marine Park and the island at large. A pedestrian walk will facilitate access to the entire water’s edge of the basin from the Rusty Pelican to the western tip of the Bill Sadowski Preserve, a favorite viewing point of the cityscape.

The sites west (NW) of the Stadium will focus on boating and maritime culture. A one of the kind Marine Exhibition Center where marine culture and industry are celebrated, will display freedom rafts, historic boats, maritime crafts, sustainable marine industry technologies, complemented with spaces for social gatherings. By the virtue of its location, this installation frames the grand approach to the historic Miami Marine Stadium, making itself or the site opposite of it an ideal site for a welcome center.

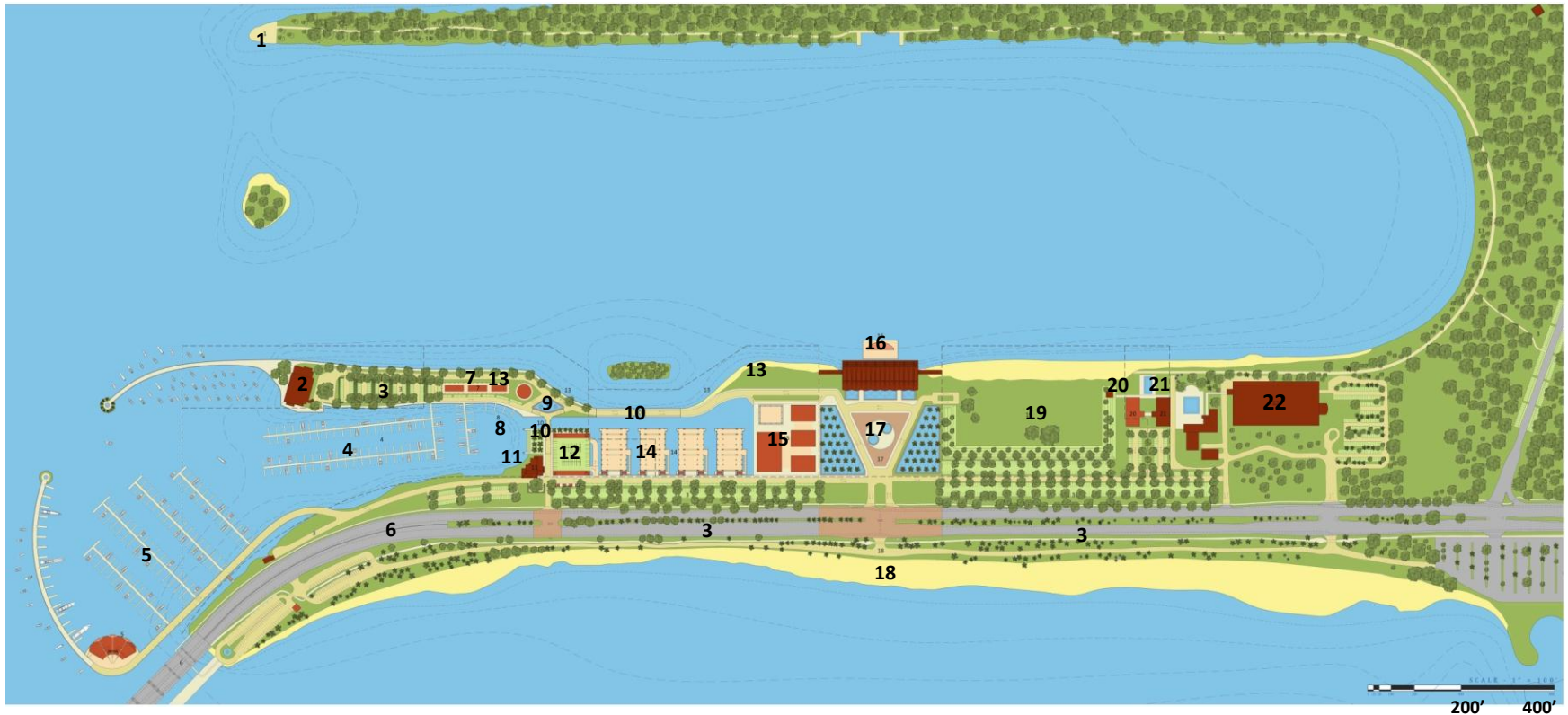
A new Marina , containing 210 wet slips for boats ranging from 40 to 100 feet, is projected to the west where existing depths and the DERM endangered species map indicate the possibility of expansion. The marina is configured for construction to follow a phasing strategy that accommodates existing leases. Two access road bridges across to a verdant isthmus that becomes the “Rusty Pelican Island” which includes casual restaurants , charter fishing boat docks , decks, fish markets , and public walks.

Water is channeled towards the Stadium grandstand in the fashioning of a “water room” for a state of the art dry dock facility for up to 700 boats. These are composed of open structures that emphasize the artful views, breezes, and skies over Virginia Key while celebrating, rather than obscuring, the natural relationship of boats to the maritime site.



Marine Stadium and Basin built in 1963, and Designated Historic in July 2008

Miami Marine Park Proposal



Legend

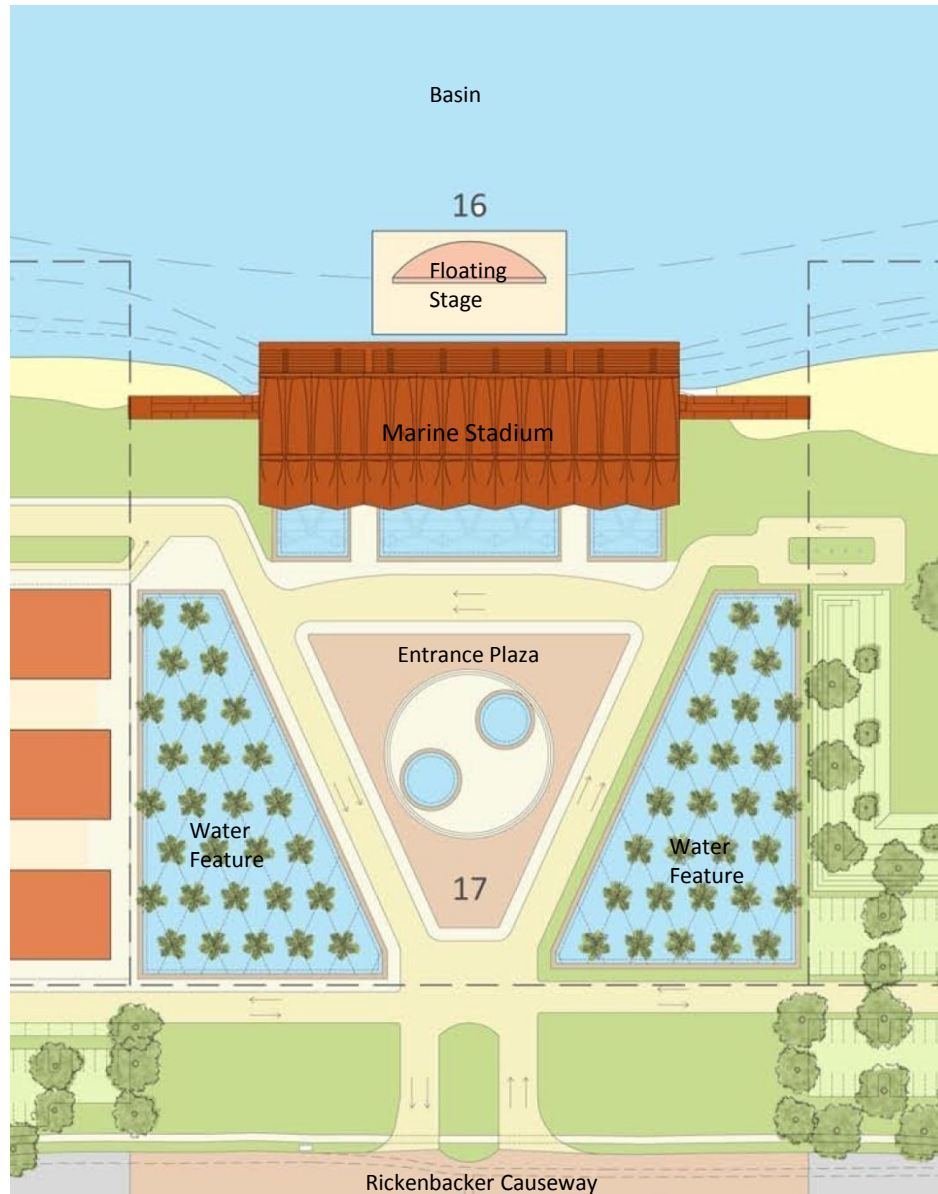
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|----------------------------------|---|-----------------------------------|
| 1. Lookout point | 9. Fountain | 17. Marine Stadium entrance plaza |
| 2. Rusty Pelican | 10. Rusty Pelican bridge | 18. Hobie beach |
| 3. Parking Garden | 11. Horacio's restaurant | 19. Open green field |
| 4. Existing Rickenbacker Marina | 12. Parking structure with retail liner | 20. Swim Gym |
| 5. Proposed new Marina expansion | 13. Pedestrian walkway | 21. Rowing Club |
| 6. Rickenbacker Causeway | 14. Dry stack storage | 22. Mast Academy |
| 7. Fresh Market | 15. Marine Exhibition Center | |
| 8. Fishing Charter Dock | 16. Miami Marine Stadium | |

Note: This master plan is conceptual in nature and any improvements shown within the public right-of-way have been rejected by the Miami-Dade County Public Works Department. Please refer to the **Rickenbacker Causeway Right-of-Way Conceptual Proposal** prepared by the Miami-Dade County Public Works Department for alternative parking solutions included in this report.

Miami Marine Stadium and Basin



Miami Marine Stadium Proposal

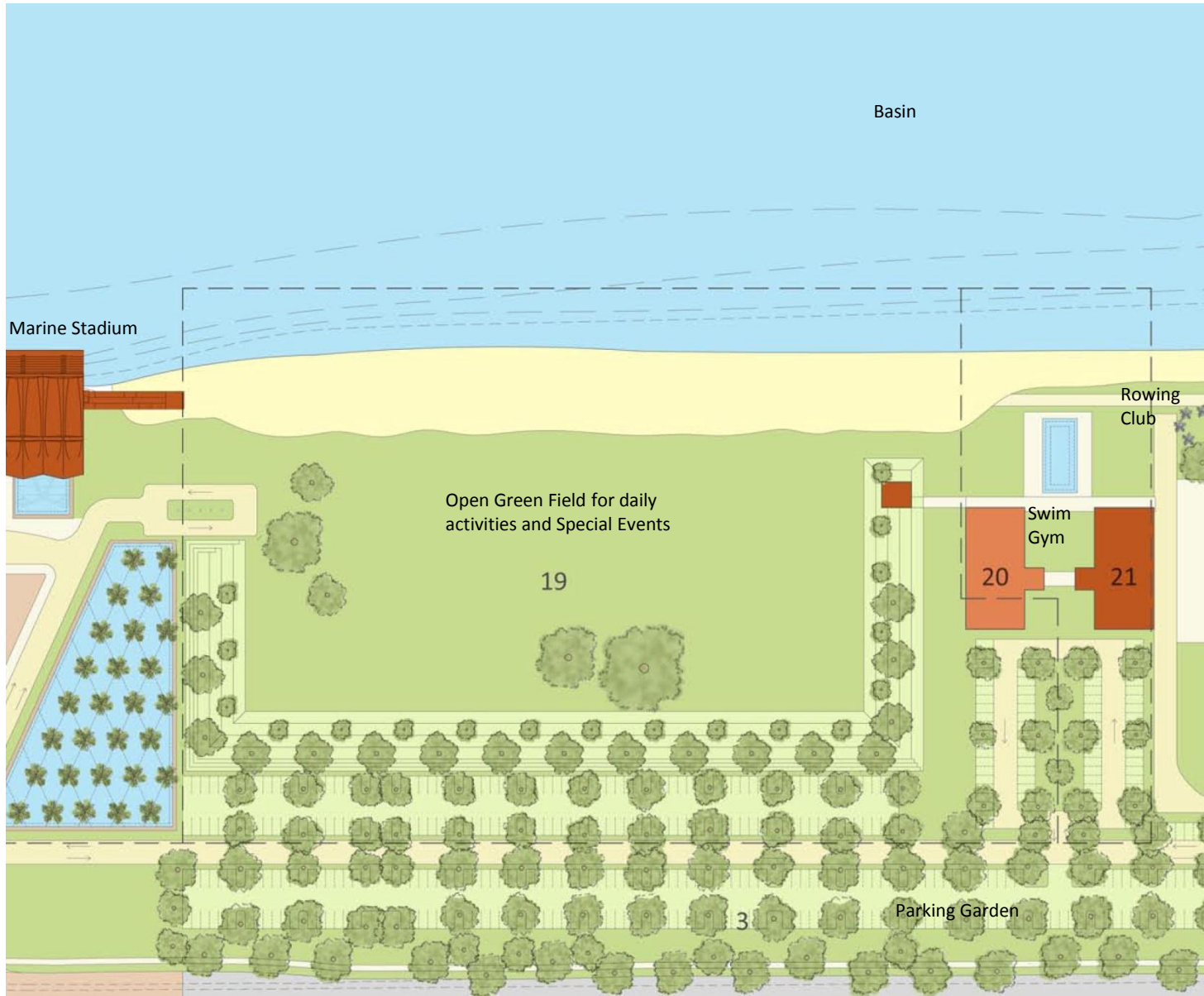




Public open space uses



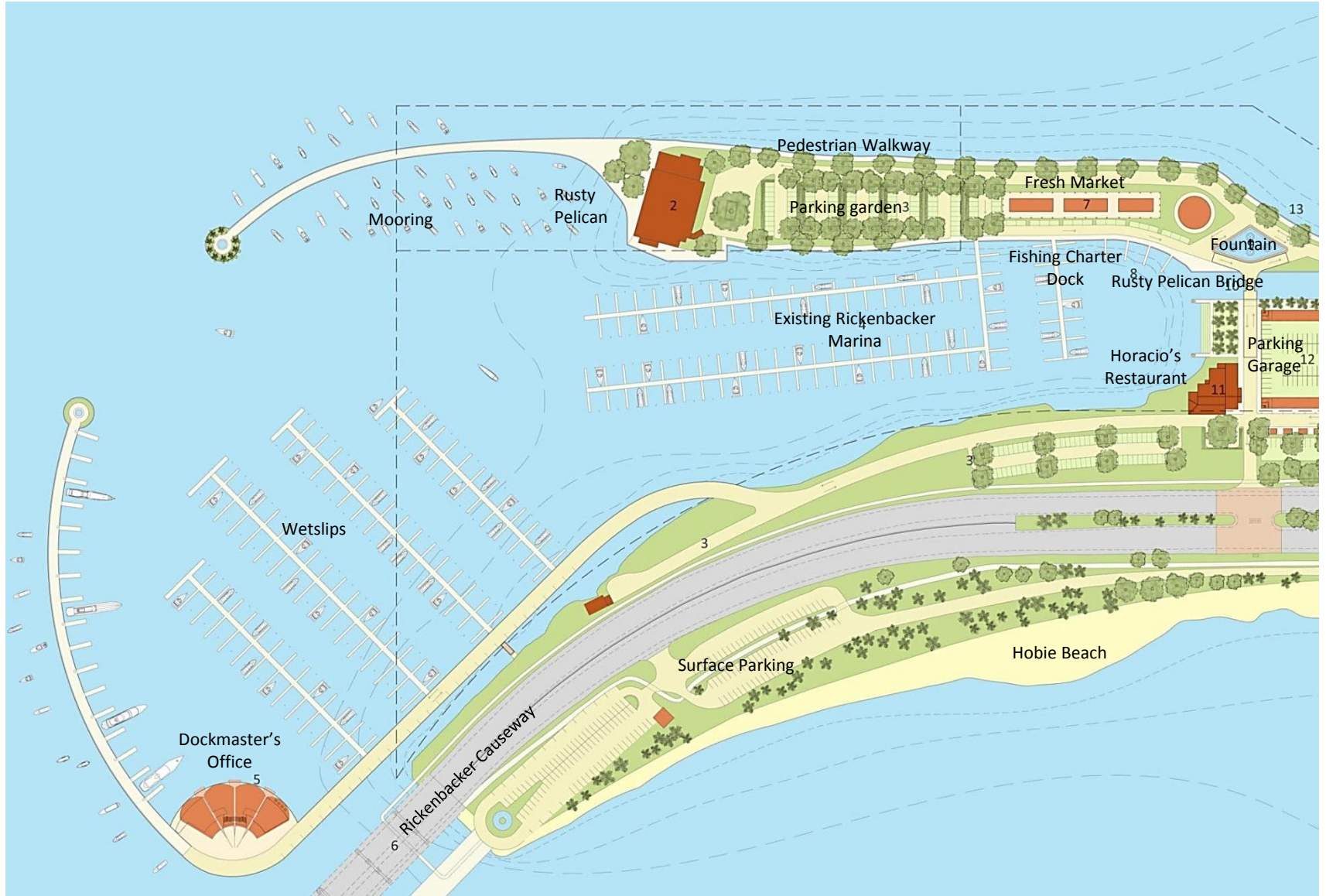
Public Open Space



Existing Marine Related Activities



Marina Proposal



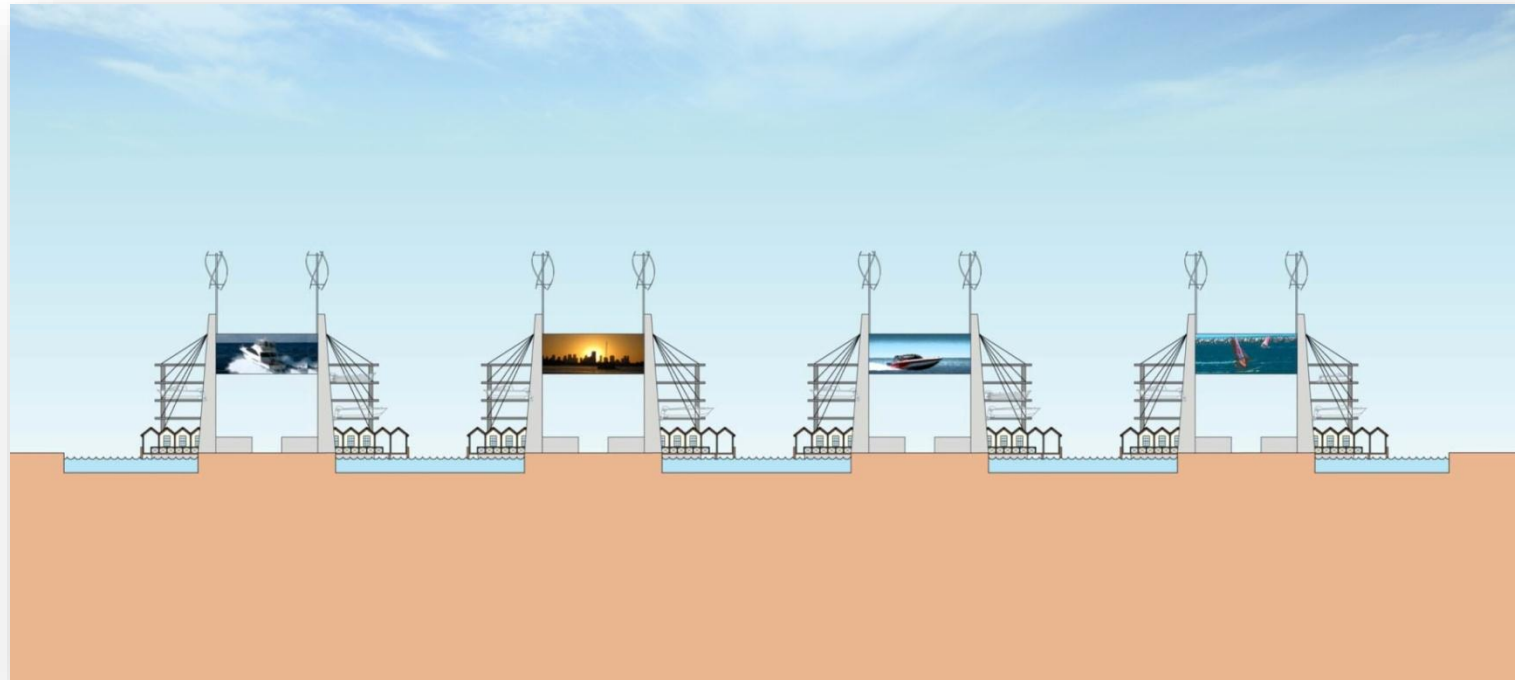
Existing Dry Dock Storage



Dry Dock Storage and Parking Garage



Proposed design for new Dry Stack Marina



Rusty Pelican Restaurant



Rusty Pelican Island



Marine Exhibition and Island Orientation Center



Miami Maritime Center Criteria

- Public Emporium: Eating, cultural center, small music venue, Atlantic arts and crafts, boat building; cultural diversity; trade; mobility. 100% of the building dedicated to public purpose.
- Water mobility: Historic Boat Museum- freedom rafts display, interpretation center of Maritime History and Culture
- Showcase of advancements in the Marine Industry featuring sustainable technologies
- Environmental educational opportunities for Biscayne Bay and educational programs for Marine Safety.
- Welcome and Orientation Center recommended location
- Revenue stream to enhance operations of the Marine Stadium

Physical Dimensions of the Marine Exhibition and Island Orientation Center

- No taller than the crown of the Marine Stadium (65 feet).
- Size: 35,000 - 135,000 sq. ft.
- Needs to be on an elevated base five feet tall for flood criteria.
- Elevate the base from 5 feet to 10 feet from existing grade for vehicle parking on grade.
- Should not be one monolithic structure, but a building whose mass is broken down by courtyards, porches, loges, breezeways and make it tropical in nature.



View of Miami skyline from Basin

Parking



Notes:

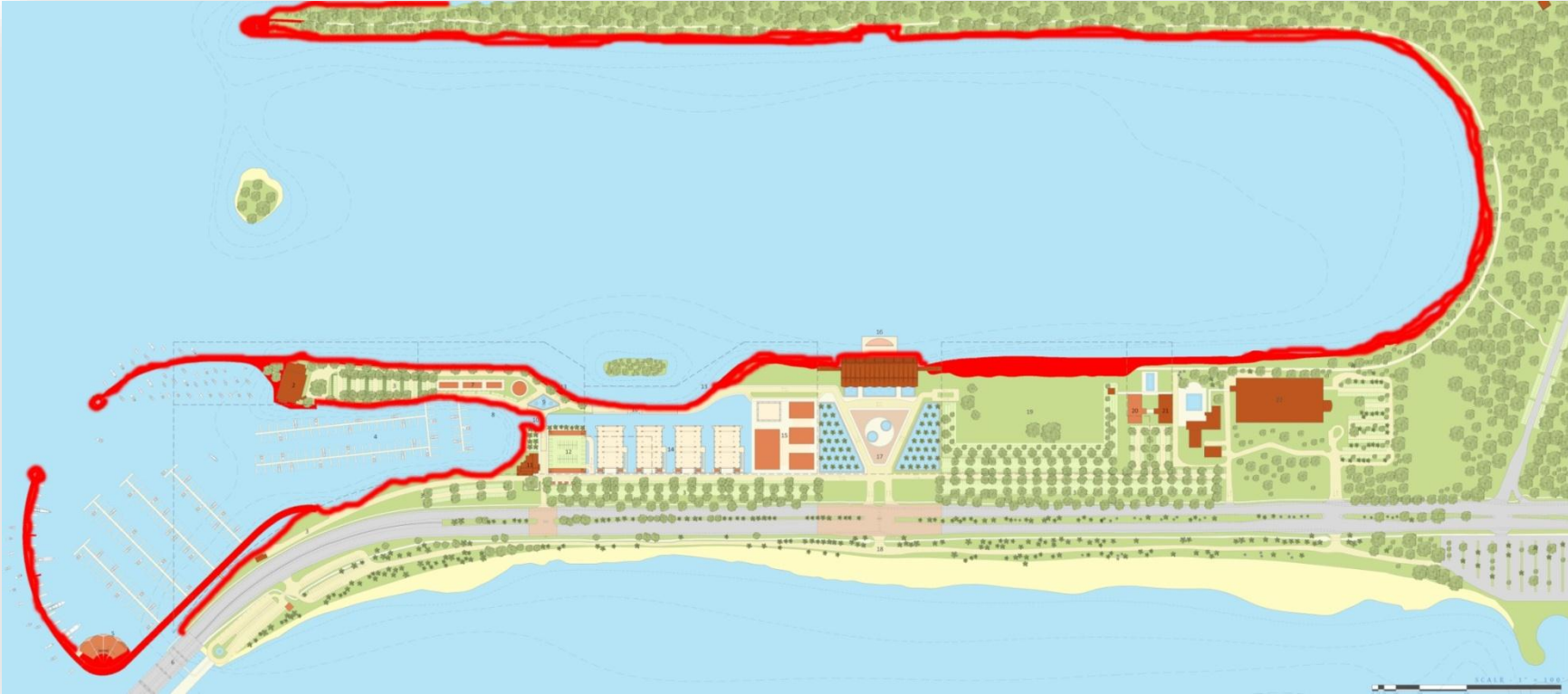
This master plan is conceptual in nature and any improvements shown within the public right-of-way have been rejected by the Miami-Dade County Public Works Department.

Please refer to the **Rickenbacker Causeway Right-of-Way Conceptual Proposal** prepared by the Miami-Dade County Public Works Department for alternative parking solutions included in this report.

Potential on site Parking

Green Surface parking	944
Under building plinth	200
Structured parking	300
	<hr/>
	1444
Special event overflow in field	300
Special event overflow In Arthur Lamb Road	800
	<hr/>
	2544
Total potential on site parking spaces	3988

Maximize Public Access to the Waterfront



All new construction to feature state of the art sustainability measures



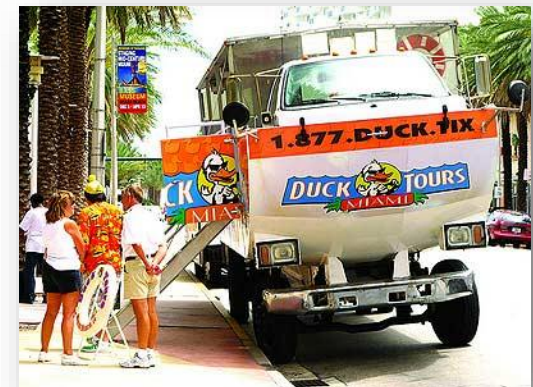
Solar Panels, Wind Turbines, Low Carbon Footprint, LEED Certified **5D Certified**

Transportation to the island Connectivity and Sustainability

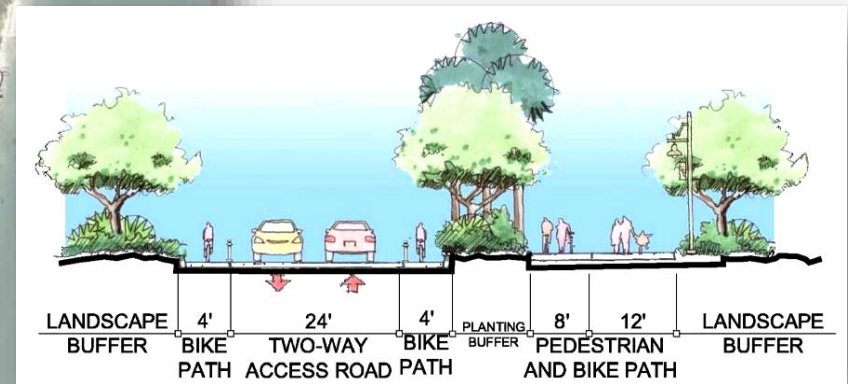
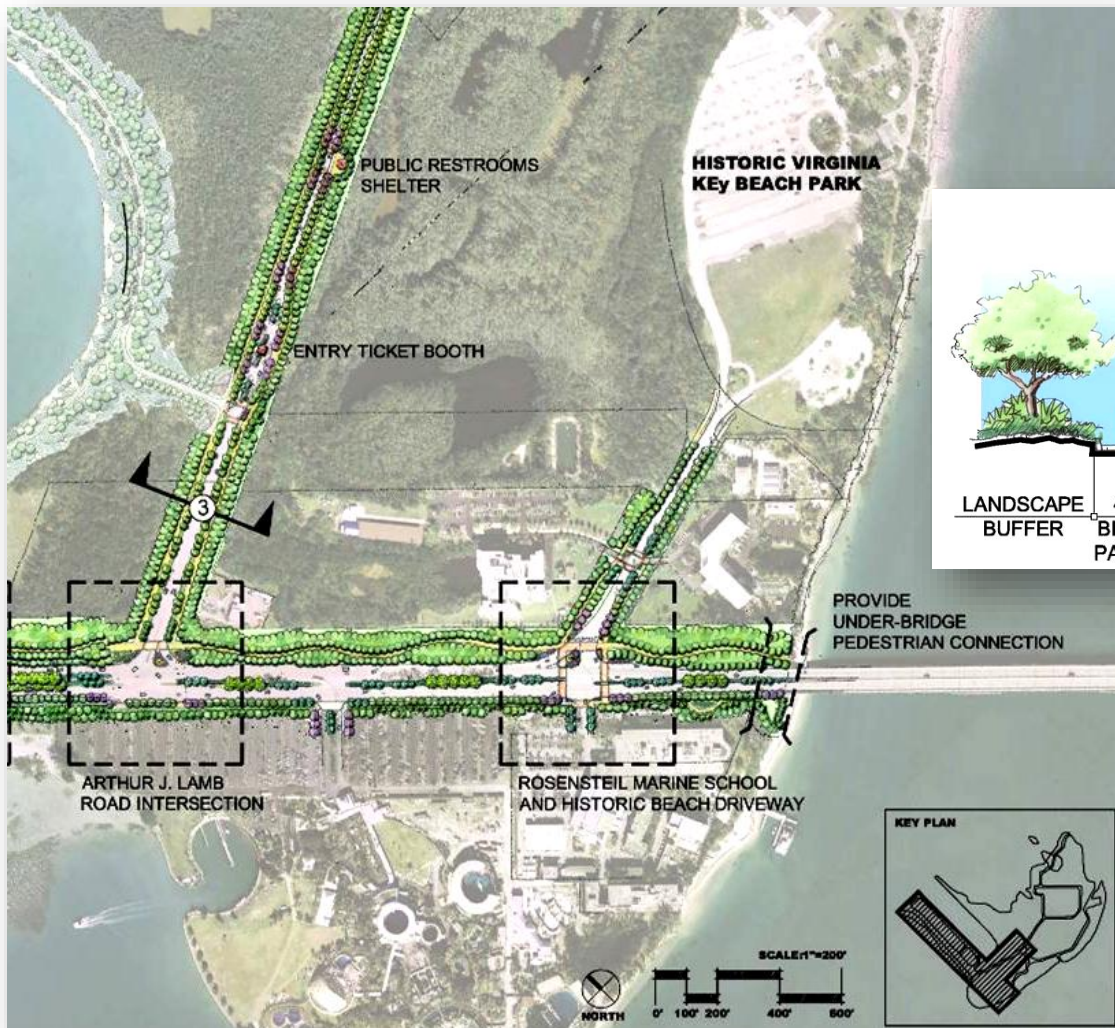
Based on environmental conditions analysis



- Compliment use of cars on the island with more public transportation to mainland
- Need for some sort of island tram
- Address the problem of sea level rise
- Causeway as scenic byway
- Enhance view corridors
- Environmentally sensitive water taxi system (needs manatee protection)



Proposed Improvements on Arthur J. Lamb Road



SECTION A-A
N.T.S

Rickenbacker Causeway Right-of-Way Conceptual Proposal

Miami-Dade County Public Works Department

Following the adoption of the Virginia Key Master Plan on July 22, 2010 by the City of Miami Commission, a meeting was held on September 21, 2010 with City of Miami and Miami-Dade County staff to review the adopted master plan. As a result of this meeting, the Miami-Dade County Public Works Department has gathered preliminary/schematic right-of-way information and included it on the Conceptual Virginia Key Master Plan for roadway improvements to the Rickenbacker Causeway and County right-of-way as follows:

- Separated Roadways: a central mainline four-lane divided highway for through traffic to bypass Virginia Key destinations and access Key Biscayne directly.
- A pair of one lane, one way frontage roads bracketing the highway for users to access the different points of attraction on the island or who wish to travel at a slower speed that will accommodate bicycle lanes
- On-street parallel parking will be provided on the frontage roads
- A new shared use pedestrian/recreational bicycle path (greenway) between the westbound frontage road and highway near the north side of the Causeway will have connections to the island attractions and network of paths
- As this is just a preliminary layout, specific details and items such as additional traffic signals, maintenance of traffic for special event, among other elements, will be analyzed at a later date. A regional traffic study will be required beyond the future traffic analysis assumptions provided in earlier master plan studies

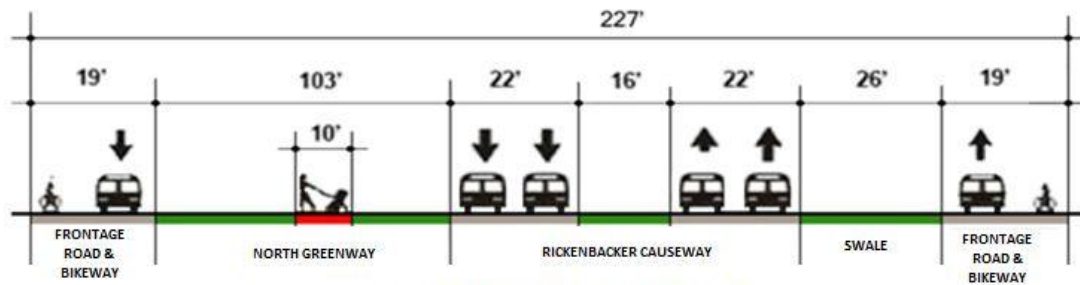
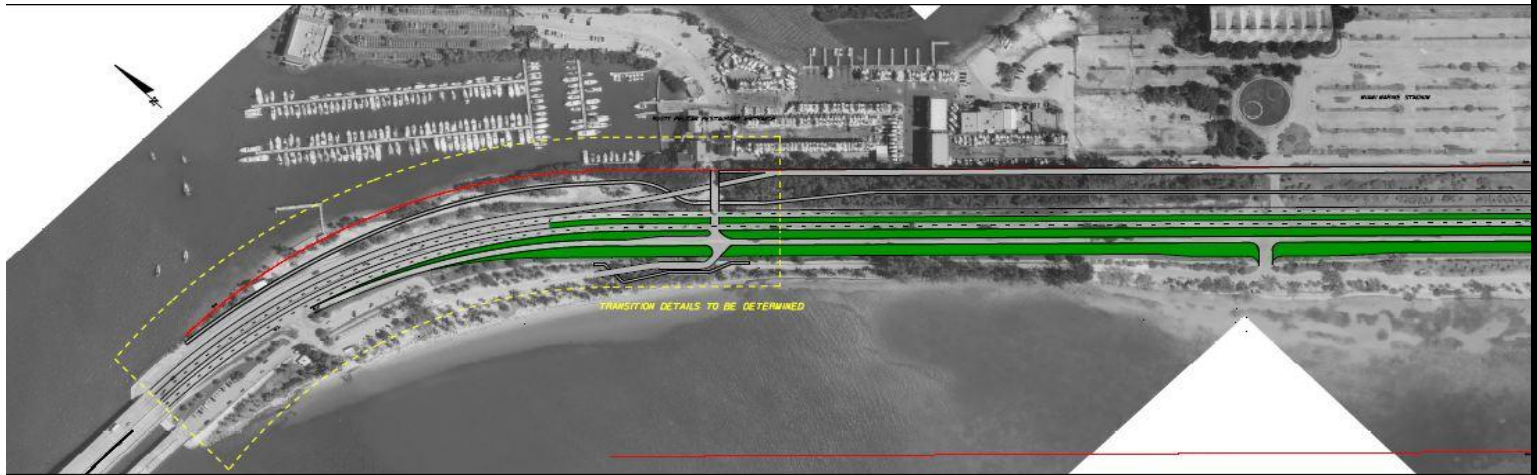
Recommendations for providing parking solutions for Marine Stadium events and overflow in addition to the proposed on-street parallel parking within the right-of-way frontage roads are as follows:

- Construct a new parking garage within City property adjacent to the Miami Rowing Club and frontage road similar to the proposed parking garage to serve the Rusty Pelican restaurant and marinas (300 spaces)**
- Allow parking within the Mast Academy property after school hours or on weekends**
- Arthur Lamb Road highway improvements on-street parallel parking**

The aforementioned recommendations are in lieu of the University of Miami School of Architecture “Miami Marine Park” Plan that proposes extensive parking within Miami-Dade County right-of-way, which was rejected by the Miami-Dade County Public Works Department.

Rickenbacker Causeway Right-of-Way Conceptual Proposal

Miami-Dade County Public Works Department



CAUSEWAY SECTION (NTS)

6. Implementation

The Implementation of the Virginia Key Master Plan development program could occur within several development structures:

- Private development via ground leases
- Public/Private development joint venture
- Public development with private concessions agreements, or
- All public development

The implementation strategies assume that all publicly-owned lands on Virginia Key will not be sold to private development and that the goal is to leverage private investment to reduce public costs and provide public amenities.

The public costs and revenues vary depending upon which development option is taken. Generally, the lower the public investment, the lower the net public revenues and the lower the required public cost over time. Development requiring greater private investment will require longer ground lease terms.

The implementation strategy provides a method for preparing developer criteria and deal-structuring and for soliciting and awarding developer involvement. The implementation strategy also provides an ongoing organizational recommendation for an entity to coordinate, manage and advocate for the development of Virginia Key.

7. Community Recommendations

At the conclusion of the planning process and in an effort to assure compliance with the approved consensus Master Plan, the following recommendations were made :

- Set up Multijurisdictional Virginia Key Oversight Board
- Continue regular meetings with public input or progress (website presence; quarterly reports to City Commission)
- Protect environmental and cultural heritage of the island
- Promote uses that serve a public purpose (and abide by existing deed restrictions)
- Promote public access and expand educational opportunities
- Promote a follow up comprehensive transportation plan
- Sustainability should guide all planning for the island's future

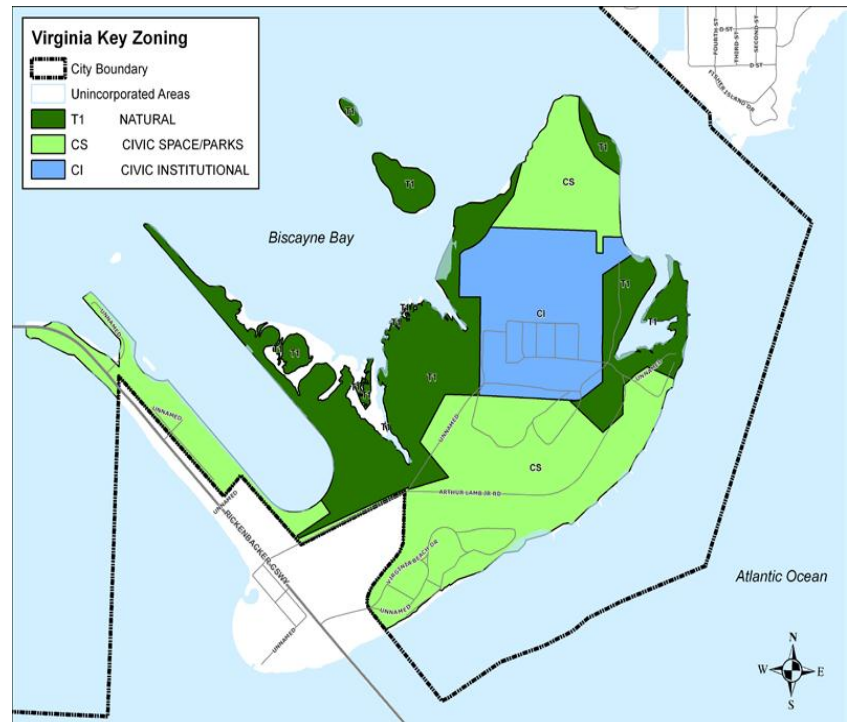
ATTACHMENT A

VIRGINIA KEY URBAN DESIGN REGULATIONS

INTENT:

The following sets out Urban Design Regulations for future development on Virginia Key. Virginia Key is a 1000-acre barrier island located in Biscayne Bay situated off the eastern shore of the City of Miami between Miami Beach and Key Biscayne. The Virginia Key Master Plan reconnects Virginia Key to Miami by enhancing its natural areas and providing for recreational opportunities for residents that range from active sports fields to passive environmental education trails. The goal of the Master Plan is to provide for multiple and diverse forms of activity and recreation for the residents of Miami while also instilling a deep appreciation and respect for nature by enhancing the natural areas and providing opportunities for environmental education. A key guiding principal, as stated in the 2009 Parks and Public Spaces Master Plan, references a need for “a national renaissance for America’s urban parks, based on the critical role played by urban parks in promoting health, enhancing community and economic development, protecting the environment and educating, protecting and enriching youth.”

Several major themes evolved through the Master Plan process of analysis and feedback from the community and stakeholders. These themes helped to create a framework for the vision plan for Virginia Key and guide the steps for implementation.



The Virginia Key Master Plan developed the following goals and objectives: develop a viable waterfront with public open space areas; develop policies for the use of the waterfront; provide for the protection and enhancement of the natural resources, increasing access to the natural environment, energy through green buildings, encourage walkability, bicycling, and transit connections with the necessary infrastructure to serve future improvements to the island. Building floor area shall not exceed 25% of the lot area of the Civic Space zoning and shall support the principal use of the Civic Space. The design regulations have been broken into four major areas of improvements to implement the desires of the community for waterfront access, active and passive recreation, environmental sensitivity, small scale commercial with marina, and parking.

AREAS OF IMPROVEMENTS:

Marina Basin Area

The Marina Basin area is located on the northwestern side of the island defined on the west by Rickenbacker Causeway and includes a restaurant, marina, Marine Stadium and basin, recreational activities, MAST- public school, Miami Rowing Club, and NOAA offices. This area of the island comprises the most diverse uses and is the only portion of the island that was significantly developed due to its proximity to Rickenbacker Causeway. Several of these users operate on city owned land through long-term leases. The master plan goals and objectives and these design guidelines will be implemented following the renewal of the lease agreements. The center of this area is Marine Stadium allowing views from Rickenbacker Causeway to the iconic architecture of this active event space. The Bill Sadowski Wildlife Refuge is protected and has been included in the Central Recreational Area for purposes of these design guidelines.

The Marina Basin area of the island is comprised of disturbed, flat, manmade topography of uplands and a dredged water basin adjacent to remnant mangrove marshes and coastal hammock along the north edge of the basin. All existing mangroves and hammocks will be protected from further encroachment and will serve as a buffer to the Bill Sadowski Preserve. Vegetation outside of the natural areas is sparse except for a large planted public right of way along Rickenbacker Causeway. Native landscaping shall be enhanced across this area of the island to more appropriately depict the low-scale environmentally conscious nature of Virginia Key. Additional public open space is desired surrounding the Marine Stadium as a focal point of the Marina Basin area. Expanded landscaped waterfront walkways (Baywalks) will be added to provide additional public access to the water as properties are renovated and leases are renewed. The master plan also identifies this area for recreation events such as the triathlon and environmental education including the construction of elevated overlooks, pervious trails and limited raised boardwalks.

This area of the island is currently zoned CS-Civic Space allowing both passive and active recreational uses, as well as, marinas, food service establishments, open air retail, community facility, recreational facility, religious facility, infrastructure and utilities, general commercial and learning center. Some uses require additional processes to obtain approval. Any future structures constructed in the Marina Basin area should respond to the physical context and not exceed the height of the Marine Stadium.

Buildings shall front thoroughfares or pedestrian passages and be constructed in an environmentally sensitive manner, such as site layout, energy efficiency, local building materials, low water usage, provide public accessibility to the water, and bicycle parking facilities. Small public plazas or other public spaces shall be incorporated where possible to bring users from the streets to the water and between buildings. Articulate the building's façade at street level to recognize the pedestrian scale.

All parking structures or other large structures shall be lined with active space or masked from view with green screening methods and landscape buffers to extend nature into the built environment.



PARKING GARAGE LINERS (PROPOSED VISION)

Parking liners are typically active habitable space that hides the parking behind an active façade. In some instances such as park settings, liners could be achieved by landscaped screening and heavily landscaped buffers to integrate the structure into the natural environment visually. Liners should respond to their surroundings and include shading devices on top of the garage.

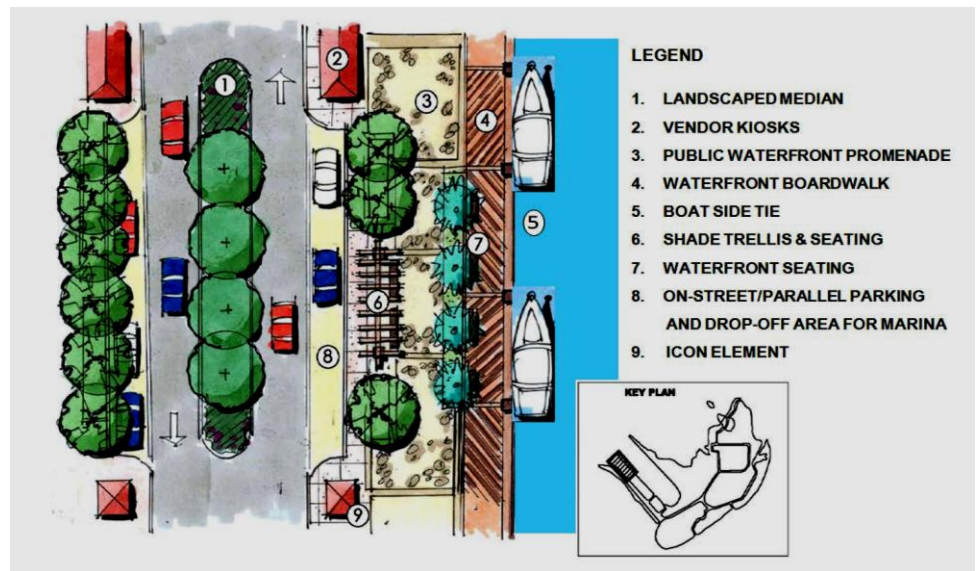
Access to this area is from Rickenbacker Causeway along designated intersections on the northeastern side of the causeway. An expanded bicycle and pedestrian multi-use path is envisioned within the landscaped right of way to link the Marina Basin to other portions of the island without the need to cross the causeway. Waterfront walkways (baywalks) will be provided along all waterfront edges providing public access to recreational opportunities and the natural beauty of the surroundings. Sidewalks are to be included along all internal streets and drives to facilitate handicap access and pedestrian mobility between the individual uses and to the waterfront. Any development shall minimize the impact of vehicular parking and minimize conflict points between vehicles with pedestrians and bicycles. All surface parking lots will be extensively landscaped and designed to retain and percolate stormwater back to the environment (See Low Impact Development). Where possible, parking should be located internal to the site with active space facing roadways, or if not practical, parking needs to have vegetative buffers along roadways, screening them from the road. All outdoor lighting shall be contained onsite and provide appropriate shielding from spillover effects.

The master plan reorganized portions of the island into smaller identifiable areas including the Rusty Pelican peninsula, on shore and off shore marina facilities, Marine Stadium, and other accessory user's spaces. Additional passive public space is to be accommodated between Marine Stadium and Rickenbacker Causeway through the reorganization of parking facilities in this area of the island into parking structures and pervious surface parking lots. The redeveloped facilities will include the improved marine facilities increasing access to the waterfront for the general public; improve access to the waterways and waterfront amenities for boaters; upgrades to the facilities to modern design standards enhancing convenience and safety for all boaters. The plan connects to existing structures such as the Rusty Pelican Restaurant and Marine Stadium while enhancing the lands around them to allow for public access to the waterfront and increased public gathering nodes and spaces. The proposed waterfront promenade (baywalk) allows for public access to vantage points for viewing the Miami skyline while also providing a connecting thread tying together the different segments of the Basin Area properties. Views to the historic and iconic Marine Stadium are left open while increased green spaces along the entire waterfront reclaim the existing blighted upland areas. Environmentally sustainable design measures are outlined as integral elements to the plan and a future reclaimed water main makes the reuse of gray water a possibility.

These design guidelines create a framework for the continued refinement of the final site design with the vision of the master plan. The MAST Academy public school, Miami Rowing Club and National Oceanic and Atmospheric Administration Offices are not included in these design guidelines however, the intent to coexist with the natural hammock environments should be respected as documented by citizen input in this process. Generally, any building expansion or other renovations should try to achieve the environmental goals established and not exceed the height of Marine Stadium.



PROPOSED MARINE STADIUM RESTORATION



MARINA PROMENADE (PROPOSED VISION)

Central Recreational Area

The Central Recreational Area occupies the center of the island and includes a polluted former landfill impacted with exotic plants, areas of natural and mangrove marshes. The central location and manmade topography makes this area ideal for recreational activities. A large portion was historically utilized as a general construction and sewage plant material landfill. The topography is generally flat characterized west to east by the natural vegetation in the Bill Sadowski Wildlife Refuge, fill materials used to cover the landfill, upland hammocks, and other cut and fill operations used for construction of roads and other areas. A landfill closure plan that includes soil remediation and water treatment will be implemented. The permitted closure of the landfill area will create opportunities for new trails, passive recreation areas, and the planting of coastal hammock native plant species. In addition, there are proposed active recreation sports fields and multi-use recreational open space fields, (meadows) and a Recreation Center Building with offices, classrooms, multi-use indoor recreation / community gathering room, and covered building terraces with views to the recreation areas.



**ATHLETIC/COMMUNITY CENTER/RESTROOMS
(PROPOSED ARCHITECTURE VISION)**

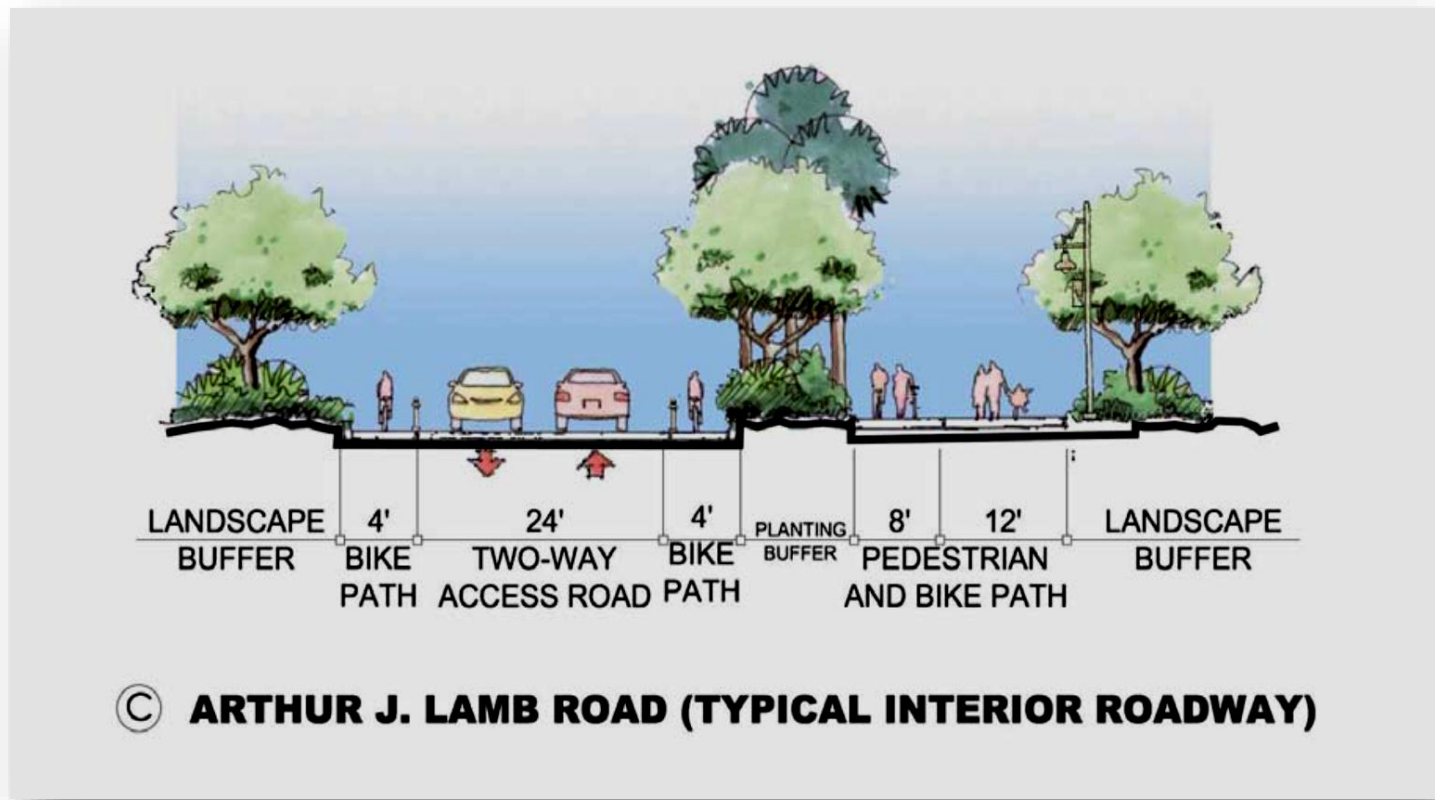
The Miami-Dade County Wastewater Treatment Plant is included in this Central Area by location only. Future renovations and expansions of the plant include a water reclamation system to reuse grey water for irrigation and secondary uses for the island, Crandon Park, and the Village of Key Biscayne. This proximity to the active recreational fields and passive meadows provides an opportunity for environmentally conscious water usage and continues the environmental stewardship envisioned for Virginia Key. Additional buffering and planting throughout the site where possible shall reduce the visual impacts to improvements while the region benefits from future recreational improvements and efficiencies.

Environmental interpretive signage and walking trails will guide visitors through a variety of island habitats. All wetlands and marshes will be protected. Portions of the central area of the island are zoned T1- Conservation including the Bill Sadowski Refuge and CS- Civic Space to allow both passive and active recreational opportunities. Any structures located in the CS zoning will be limited to two stories buffered by native hammocks and shall respect all waterfront setbacks. Structures shall include architectural elements that respond to the unique tropical island location while incorporating the regional building materials of South Florida.

Access to the Central Recreational Area is from Arthur Lamb Road with supplemental access to the active sports recreation area from the western treatment plant access road. This access road is proposed to be extended as a loop road along the southern border of the Miami Dade County Wastewater Treatment Plant property and meeting the northern extension of Arthur Lamb Road. The addition of roundabouts and other traffic calming features should be explored at the intersections of these streets and intersections to the buffered off-street parking areas creating engineered solutions to reduce vehicle speeds and provide additional areas to plant specimen accent trees. Pedestrian pathways and trails will traverse the central area providing pedestrian access to active and passive areas and provide safe places for off road biking and running. Many of these trails will be natural compacted mulch surfaces to limit the development footprint boardwalks will be provided to cross any environmentally sensitive areas and connect the central area to Virginia Key Beach Park to the south. Raised crosswalks and signage should be provided where trails meet paved vehicular streets. Additional trail signage will display the types of activities located ahead and designate any restrictions.

Arthur Lamb Road will be upgraded to provide one lane in each direction, bicycle lanes, an off-street multi-use pathway and areas of on-street or limited off-street parking. Small sections of on street parking can provide traffic calming and allow places for individuals to explore the nearby beauty.

The final site design will integrate native plantings across the entire area and create a green canvas of native marshes, restored hammocks, meadows, and grass playing surfaces.



© **ARTHUR J. LAMB ROAD (TYPICAL INTERIOR ROADWAY)**

Eastern Coastal Area

The Eastern Coastal Area is located along the Atlantic Ocean east of Arthur Lamb Road and includes coastal beaches, hardwood hammocks, and a shallow water inlet. This area of the island includes existing beaches and picnic recreation areas. The Shrimper's Lagoon is a unique area comprising three coastal ecosystems. This area contains native beach dune system that is home to nesting turtles, upland coastal hardwood hammocks that include native plants and animals, and shallow water mangrove inlet providing habitat for spawning fish and shellfish.

These ecosystems provide an opportunity for passive education through interpretive signage and viewing locations. Public beach access-improvements and Coastal Hardwood Hammock restoration-enhancement become dominant efforts along with the clean-up of old and underutilized facilities to enhance film industry opportunities and increase the potential native flora-fauna experience by the community. This area may also provide facilities for water accessible canoe, kayak, paddleboat and low impact water oriented recreational uses to explore the island by sea. Boardwalks and interpretive signage will engage the public to learn more about the unique habitats surrounding the coastline.



Access to the Eastern Coastal Area is from Arthur Lamb Road and includes the existing beach and pavilion areas located on the Atlantic Ocean. The northern portion of Arthur Lamb Road leading to the North Point will be improved as outlined in these guidelines. Various walking and bicycling pathways will encircle the area through restored upland hammocks and boardwalks will be utilized to cross restored wetland areas



PUBLIC BEACHES & WATER ORIENTED RECREATION

North Point Area

The North Point area is located along the northeast section of the island and offers a rare opportunity for recreation and views due to the greatest topography on the island. The remote location makes this area a quiet setting surrounded by the Atlantic Ocean beaches and environmentally sensitive mangrove inlets. This area is owned by the City and most of the area is currently off limits to the public. The master plan identifies opportunities for mountain biking, canoeing, kayaking, primitive eco campgrounds, beaches, walking trails, picnic facilities at key viewpoints, and restrooms to open this area to the public.

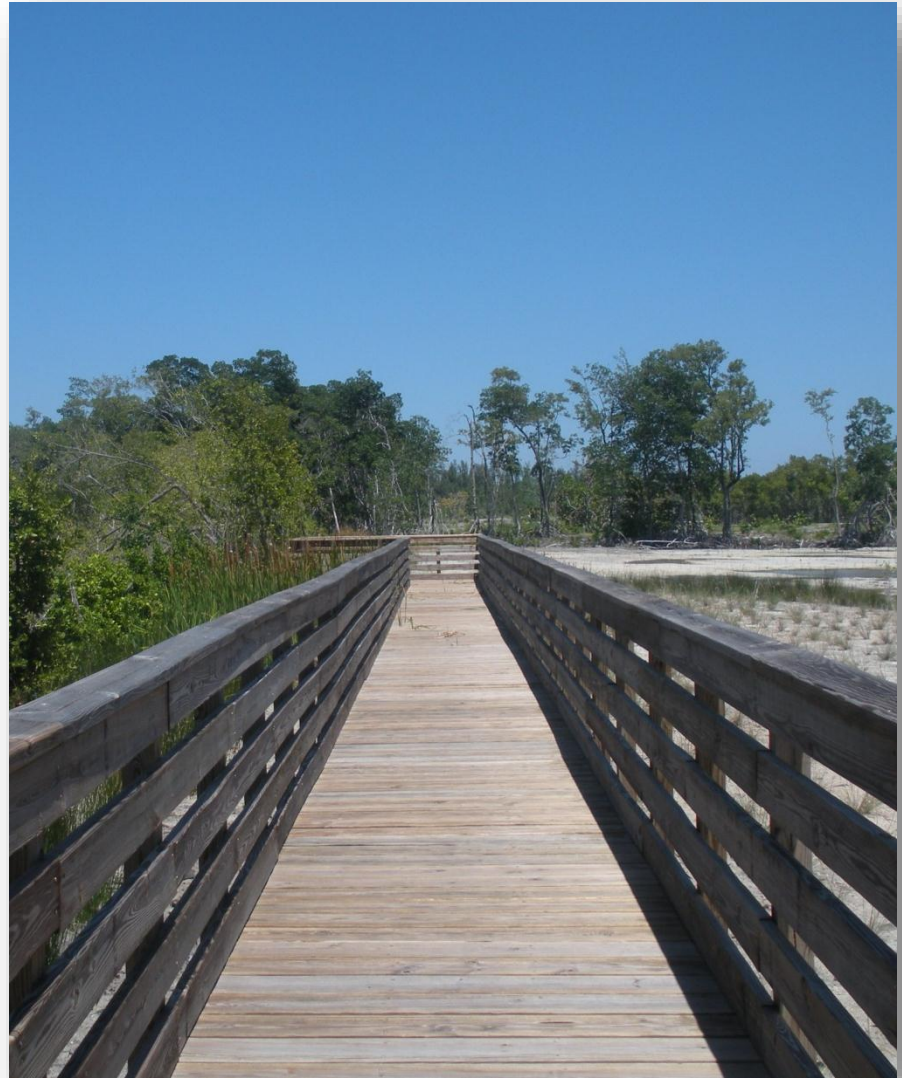
This area is to remain mostly unimproved by development with only accessory recreational structures and some small low impact development pervious parking areas. The remaining landscape will be restored with native plantings and selective clearing for bicycle and pedestrian trails. All wetlands and marshes will be protected. Roadways and parking will be located as far from the water bodies as possible. The North Point is entirely zoned CS- Civic Space to be enjoyed by the public. Any structures should minimize their footprint, be built to blend in with the natural environment, not exceed one story in height, and built to withstand coastal weather conditions.

The master plan proposes a landscaped berm to be constructed along the eastern edge of the Miami-Dade County Wastewater Treatment Facility to visually obscure and buffer the facility from the public. Miami-Dade County owns and operates a Central Wastewater Treatment Facility located between the North Point and Central Recreation Areas that is not included in these guidelines.

Access to this area is from the northern extension of Arthur Lamb Road. Portions of this road are currently unpaved and should be improved in the future to provide one lane in each direction, bicycle lanes, an offstreet multi-use pathway and on-street or limited off-street parking areas. The multi-use pathway should terminate at a scenic public overlook before entering the off-road pathways and trails. Additional pedestrian pathways and trails will be constructed of natural materials to allow access to the topographical elevations in this area.

Limited boardwalks may be used to cross wetland features, canals, to access the north beaches, and cross man made features. Bicycle parking should be included with any public facilities built. A hierarchy of bicycle trails will serpentine the area to allow mountain biking access for all skill levels. Most mountain bike trails will be narrow single track one directional through existing dredge fill topography and strategically planted native vegetation. Vehicular parking will be limited to the landscape buffer areas adjacent to the Sewage Treatment Plant towards the northern end of Arthur Lamb Road.

The final site design of the North Point shall take advantage of scenic viewing locations, topography, and access to the water. Eco-camping or picnic locations shall take advantage of the prevailing wind directions and be made of minimal materials. These proposed improvements will allow public access to most of the area and enhance the recreational and environmental educational experiences.



BOARDWALK ON VIRGINIA KEY

ISLAND AREAS DEVELOPED UNDER OTHER MASTER PLANS AND GUIDELINES

Miami's Historic Virginia Key Beach Park

Virginia Key Beach Park is located at the southern end of the island is a historic location facing Bear Cut. The site is owned by the City of Miami and operated through a lease by the Virginia Key Beach Park Trust. The Trust completed a master plan in 2003 including site plans for beaches, park pavilions, playground, and a museum. This site has undergone extensive renovations and is open to the public as a recreational opportunity.

Hobie Beach-Fishing Pier

Hobie Beach is a Miami-Dade County Park located west of the Rickenbacker Causeway. This area has recently undergone repairs to remove exotic species such as Australian Pine, restore eroding beaches and make other public access improvements. This area is a recreational beach open to all county residents and includes a small restroom facility at the northern tip near the fishing pier. All facilities and lands located in this area are owned, operated and maintained by Miami-Dade County. Pedestrian access under the bridges is proposed to improve public safety.

Miami Seaquarium- University of Miami

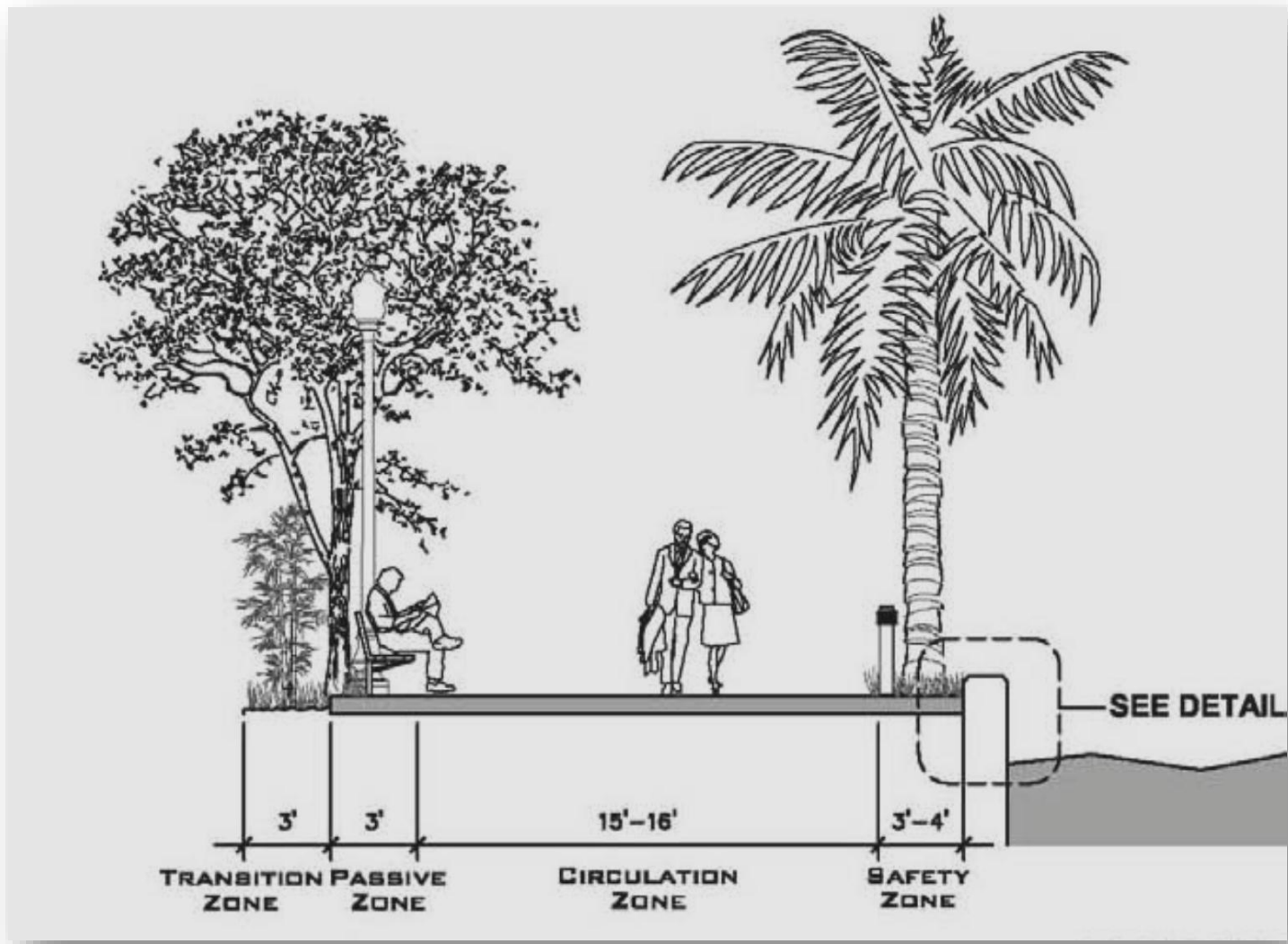
The Seaquarium and University of Miami are located along the western side of Rickenbacker Causeway at the southwestern end of the island. These sites are located outside the City of Miami and are on leased land from Miami-Dade County. The consultant team looked at proposals to locate a National Parks Service Visitor's Center along Rickenbacker Causeway adjacent to the Seaquarium. This could be accomplished within a structured parking expansion in the future. All parking should be contained on the southwestern side of Rickenbacker Causeway and could be shared with the University of Miami. These general concepts are not included in the proposed master plan or design guidelines.

ISLANDWIDE GUIDELINES

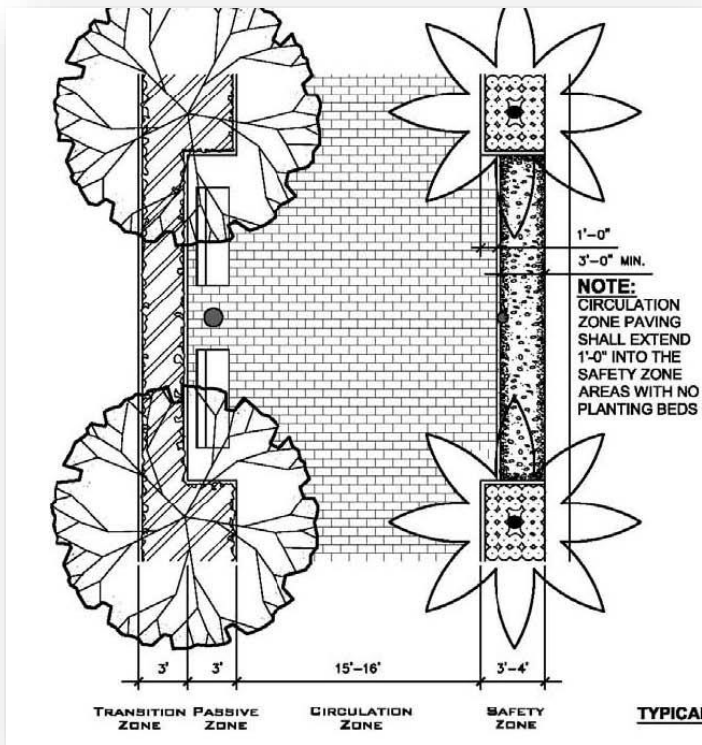
Waterfront Promenade

Waterfront Promenades are publicly accessible waterfront walkways that allow the public an opportunity to meet the water's edge connecting portions of the island and activities within subareas on the island. Promenades are located at the water's edge providing visual and physical access to the water. All landscaping, furniture, lighting, planters, etc should be subordinated to enhance maximum visibility of the water. All promenades shall feel public and be separated from private dining or other adjacent private uses. Connections to public and private thoroughfares should provide visibility to the water, include lighting, landscaping and signage to clearly indicate publicly accessible areas. Adjoining plaza spaces and entry courtyards are encouraged.

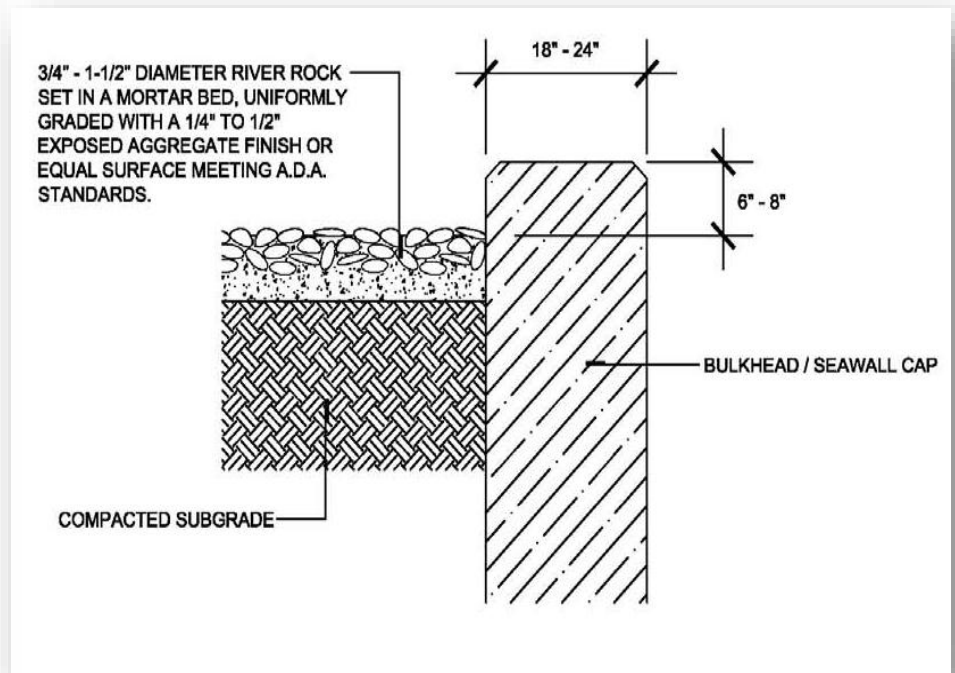
Waterfront Promenades shall have four distinct areas including the seawall or bulkhead, safety buffer, circulation area, and transition area. The seawall or bulkhead shall comply with all Department of Public Works regulations and permits. The top of the wall should maintain a constant elevation for the entire length along the promenade. Seawalls and bulkheads should be raised slightly above the walkway surface and a safety buffer shall include a 3 foot width ADA compliant textured surface at the edge beginning at the inner edge of the bulkhead or seawall. Railings, walls, barriers or other obstructions at the water's edge are discouraged. Landscaping should be salt tolerant and occur along the edge of the seawall or bulkhead within the safety buffer. Promenades must be a continuous flush ADA accessible surface that meets adjacent properties and existing sections of waterfront promenade. Circulation areas may meander along the shoreline and landscaping while providing direct public access to as much shoreline as possible. No obstructions should be located in the circulation area. The transition area is a passive space to locate site benches, lighting, landscaping and provide grade transitions to adjoining businesses. Lighting should be designed for security at a pedestrian scale to be turtle and night sky friendly.



TYPICAL BAYWALK SECTION



TYPICAL BAYWALK PLAN



DETAIL – SAFETY BUFFER ZONE

Boardwalks-Paths

Boardwalks and paths are used in areas of environmentally sensitive terrain or where pervious surfaces are preferred. No motorized vehicles are allowed on boardwalks or paths. Boardwalks are raised walking surfaces that include hand rails and limit pedestrians or bicyclists to the width contained between the vertical handrails. Boardwalks allow limited access over wetlands, large specimen tree roots, loose sand or other environmentally sensitive areas. Paths are usually located within upland hammocks and provide a natural surface to connect playing fields, beaches, picnic pavilions, scenic overlooks and other sights that may include environmental education signage and usage signage. Boardwalks and paths may lead to scenic view towers overlooking the natural environment.



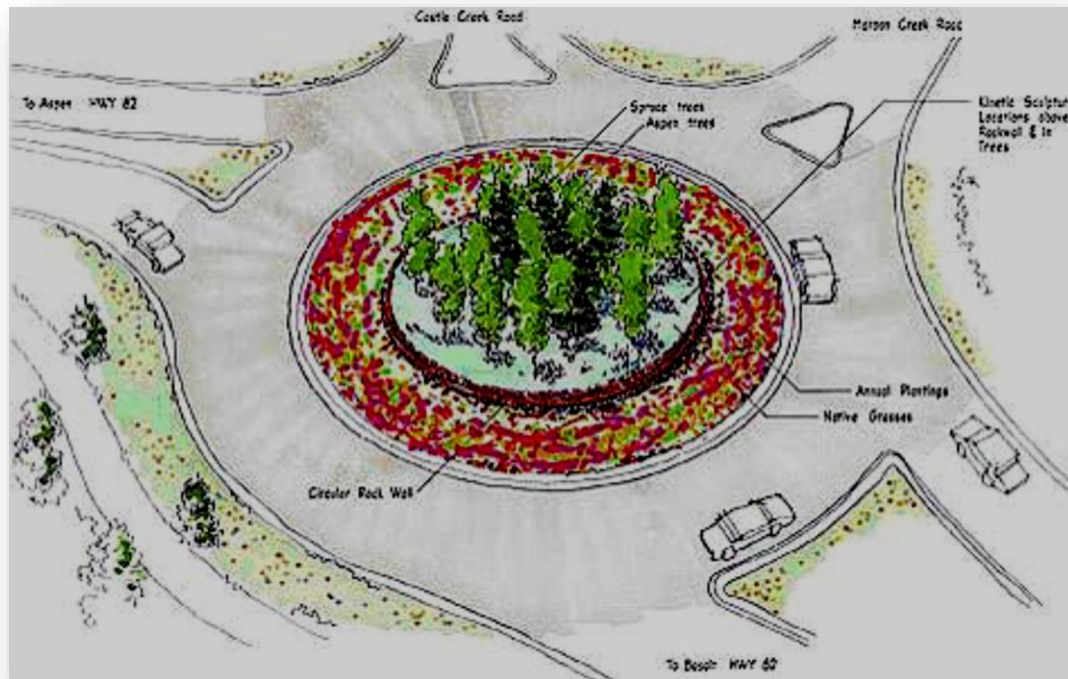
BOARDWALK AND SCENIC OVERLOOK

TRAFFIC CALMING MEASURES

Traffic calming measures provide for the safe movement of vehicles, bicycles and pedestrians designing engineered safety improvements to maintain low vehicular speeds, reduce conflict points, and provide aesthetic amenities. Traffic calming measures may include roundabouts, on street parking, raised pedestrian crossings, traffic median separators or other appropriate engineering methods. At all times all modes of transportation should be considered on an equal basis given the park setting and emphasis on providing mobility choices.

Roundabout-

Roundabouts are used to create a continuous flow at very low speeds around intersections of two or more thoroughfares or driveways. Roundabouts reduce the speed on both intersecting streets by providing an engineered controlled movement at the point of conflict.



On Street Parking-

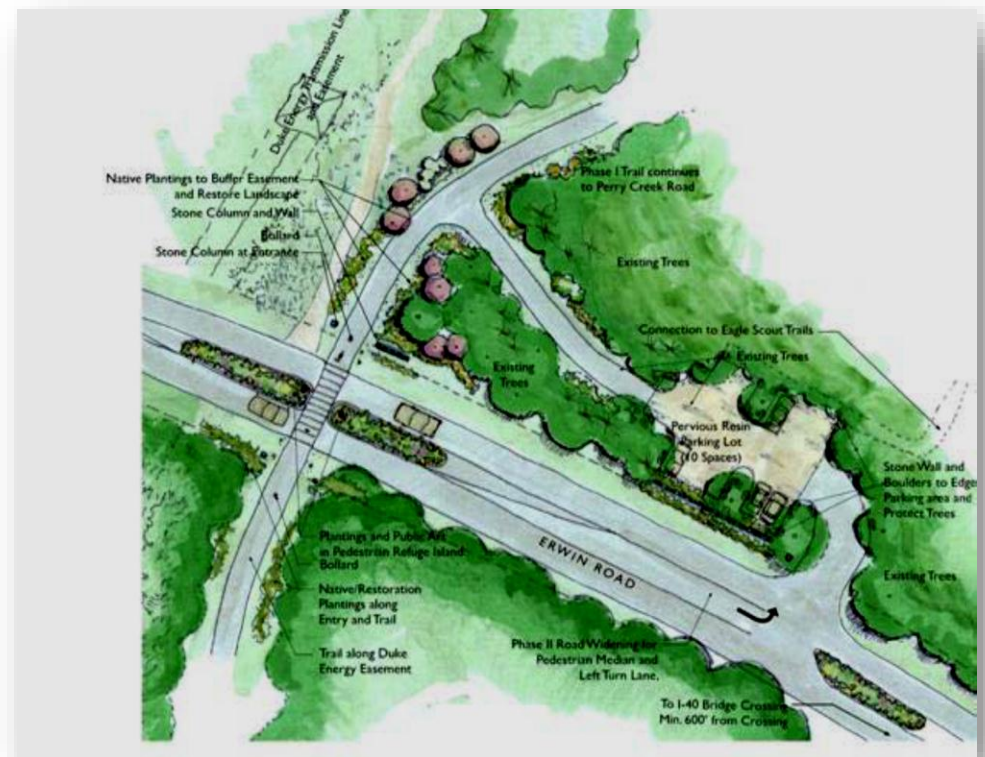
On street parking can be used along parkways as traffic calming devices by changing the physical geometry of the roadway and requiring the driver to be more alert around areas where pedestrians may be located. On street parking should not be adjacent to roundabouts and should be used for areas of high commercial activity or as additional spill over or pull off parking to allow residents to explore natural areas. In areas with on-street parking, parking stalls should be broken up with landscape islands. Landscape Islands to be sized sufficiently to accommodate trees and or palms.

Raised Pedestrian Crossings-

Raised pedestrian crossings create a level surface for the pedestrians to continue across areas of vehicular conflict while requiring the automobile to slow down for the approaching change in roadway elevation. This reduction of speed and enhanced visibility of the crosswalk allows pedestrians to safely cross thoroughfares. Raised crosswalks are encouraged at all pedestrian intersections.

Traffic Median Separators-

Traffic median separators reduce the speed of vehicles by requiring the driver to adjust and maneuver around a median device placed in the middle of the thoroughfare. These may be used in combination with raised pedestrian crossings or long stretches of uninterrupted roadway where speeding tends to be common.



Low-Impact Development-

Low Impact Development (LID) is a land planning and engineering design approach to managing stormwater runoff. LID emphasizes conservation and use of on-site natural features to protect water quality by utilizing small-scale engineered hydrologic controls to replicate the pre-development hydrologic regime of watersheds through infiltrating, filtering, storing, evaporating, and detaining runoff close to its source. LID features may include bio filtration trenches, rain gardens, bio swales, pervious concrete, cisterns, and other biofiltration methods that treat stormwater, improve habitat, reduce impervious surfaces, provide groundwater recharge through infiltration and cleans pollutants through a natural soil media. Low impact development should be utilized to treat stormwater runoff from surface parking lots, playing fields, building structures and other compacted or impervious surfaces. Biofiltration areas can provide buffers to more environmentally sensitive areas.

LID BIOSWALES, RAIN GARDENS



LID INTEGRATION

