JEFFERSON PARISH LAKEFRONT RESTORATION

Rebuilding For A More Flood Resistant Future

School of Landscape Architecture 2006 Louisiana State University

Louisiana Sea Grant College Program

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LA 5001 Fall 2006

Support from the Louisiana Sea Grant College Program

Acknowledgements

LSU School of Landscape Architecture

302 College of Design Building • Louisiana State University • Baton Rouge, LA 70803

LA 5001 Studio • Fall 2006
Community Rebuilding and Hazard Mitigation

Bucktown and Rebuilding for more Resilient Storm Surge Protection along Lake Pontchartrain in Jefferson Parish, Louisiana

November 2006

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Forward:

Hurricane Katrina made landfall in late August 2005 followed four weeks later by Hurricane Rita. Flood and wind damage occurred along much of the Gulf of Mexico coast including southern Louisiana. Primary damage from Hurricane Katrina in the New Orleans metropolitan area occurred in low-lying neighborhoods adjacent and in the vicinity of specific levee/canal breaches. The US Army Corps of Engineers has focused on the repair of these breaches together with installing new pumps and floodgates at the mouth of various canals draining into Lake Pontchartrain. Much of New Orleans was highly vulnerable to hurricane related damages. The areas most vulnerable were the areas of elevation below sea level. Much of the low-lying areas that flooded during Hurricane Katrina were wetland and marshland prior to urban expansion. These wetlands were destroyed in preparation for building residential and commercial development. The same wetlands once served as a valuable buffer to the city from flooding and storm induced surges (from Lake Pontchartrain). The vulnerability of New Orleans and coastal Louisiana is exacerbated by two phenomena: rising ocean waters and ground subsidence.

The ambition of this senior landscape architecture studio course is structured around several goals.
1. To explore strategies for providing non-structural, sustainable storm surge and flood protection for neighborhoods bordering Lake Pontchartrain in New Orleans. The historic neighborhood of Bucktown in East Jefferson Parish was selected as our laboratory to research and develop approaches for providing added storm surge protection along the lake from the 17th Street Canal outlet, west to the Causeway.
2. To explore the role of landscape architects in assisting communities rebuild in the aftermath of natural disasters such as tropical storms and develop alternative strategies for creating storm resilient communities and mitigation measures 3. To demonstrate to communities the unique contributions of the landscape architecture profession in assisting in both the rebuilding process and creating strategies for natural disaster mitigation.

The vision and recommendations contained in this report reflect the broad understanding of the complex nature of rebuilding storm damaged New Orleans. Perhaps the greatest contribution of the student generated plans will be to translate the vision of the parish leardership and its citizens into concrete measures to mitigate future storm-derived impacts and communicate those visionary measures to state and federal officials to fund a comprehensive rebuilding plan. The students, working with the East Jefferson Parish Levee Board, developed alternative proposals for providing protection of the earthen levee system along Lake Pontchatrain by rebuilding wetlands and coastal marsh where both existed prior to urban development in Bucktown and surrounding neighborhoods. The students presented their initial proposals at a public meeting held in mid October 2006. There followed several weeks refining and developing the various proposals with critical reviews by various stakeholders. Final plans together with this document were prepared for a public hearing November 14, 2006, sponsored jointly by the East Jefferson Parish and Levee boards.

With the recommendations contained in this report, the students hope to make a contribution to the East Jefferson Parish, Bucktown, and surrounding neighborhoods and the state of Louisiana. The students have learned a great deal about coastal related storm and natural processes and the complex dynamics of tropical storms and issues related to rebuilding in the context of the political and scientific communities. Working with the East Jefferson Parish Levee Board, Louisiana Sea Grant College Program, and local citizens has been a rewarding learning experience for the students.
Baton Rouge, Louisiana November 2006

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History

Bucktown lies nestled along the southern coast of Lake Pontchartrain, a rustic oasis, a remnant of time in the rich fabric that is the history of the city of New Orleans. It was an oasis of sorts for the wealthy of the city to branch out into nature and enjoy the splendors of the land, and the middle class to profit from the bounties of the waters to make a better life for their own. This area is known as Bucktown. In the present day, Bucktown sits on the western side of the Seventeenth Street Canal in Jefferson Parish. It still holds its historic roots as a fishing community as is prevalent in the architecture and waterfronts.

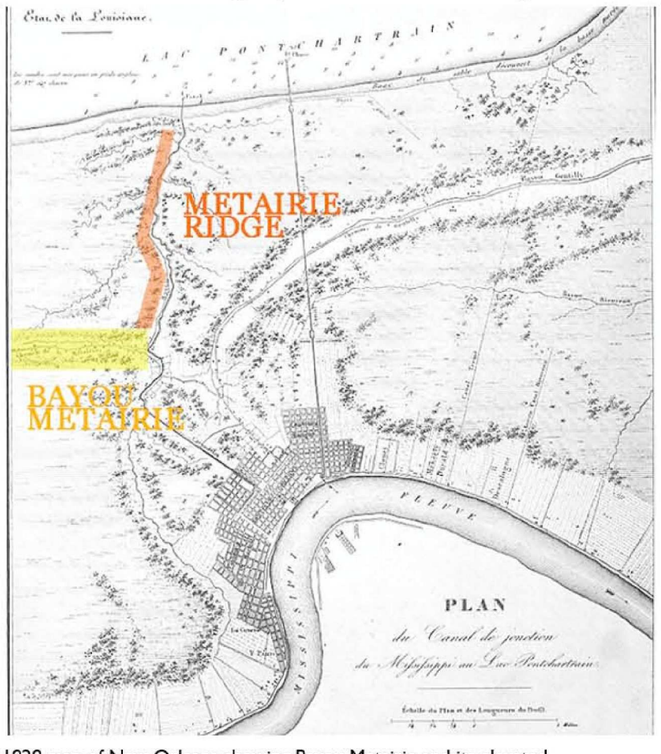
Early Geography

The early landscape of Bucktown was much like the rest of Sunset along Lake Pontchartrain South Shore the coastlines of Lake Pontchartrain. Large expanses of wetland marshes provided lush habitats for birds and fish immediately adjacent to the open water. Due south of present day Bucktown lay Metairie Road, a thoroughfare that runs the course of what was once a natural waterway, Bayou Metairie. Over time, this meandering channel formed the Metairie Ridge, a narrow strip of high ground which would later prove to be a starting point for plantation development in the area. Just to the west of the existing Seventeenth Street Canal, an extension of this ridge extended northward toward Lake Pontchartrain. This stretch of dry land would later serve as the corridor for the Jefferson and Lake Pontchartrain Railroad, the primary transportation and economic connection between New Orleans and its western shores along the lake. At the time, only land immediately surrounding this ridge, including what is now Bucktown, was considered developable

Early Development

The earliest development of Bucktown began in the late 1700's with the division of lands along the Metairie Bayou into plantations. Over time, plantation owners divided their lands and distributed them to sharecroppers who managed farming along the farmable strips of dry land. Lands not deemed suitable for farming proved their worth, however, in that there was an abundance of wildlife throughout the area. Over time, descendants of these sharecroppers became the first Bucktown natives as they raised homes along the northernmost ridge of Bayou Metairie. Wooden huts raised on stilts soon lined the drainage canal and the coast of Lake Pontchartrain, connected by a single shell road just to the west of the present parish border. The initial buildings were laid out in two rows, lining the street bordering the Seventeenth Street Canal. In 1835 the New Orleans and Nashville Railroad was incorporated to better accommodate the need to transport goods between the city and surrounding areas, a project which briefly spurred land sales in the area before the corporation faltered under economic strain. Though brief, the new railroad construction seemed like a prelude to bigger things, and it was.

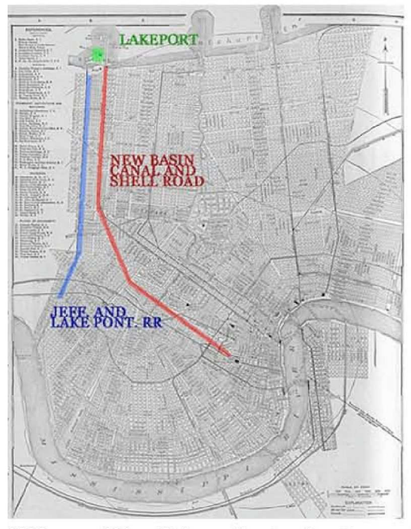
Following the closure of the rail line, the Jefferson- Orleans Parish Line was shifted westward, to its present location on the east side of the Seventeenth Street Canal, following the annexation of the Carrolton area into Orleans in 1836. Out of this transition, a need for access routes from the city to its northwest boundaries grew, and connections were sought.



1828 map of New Orleans showing Bayou Metairie and its elevated ridge

The City Looks North

As access to the lakeshore became a necessity for the city of New Orleans, new routes were sought. By 1835, the New Basin Canal had been dug, a monstrous endeavor which claimed the lives of many Irish laborers. This canal reached from West End New Orleans to terminus on the northern extent of Canal Street. From here, city dwellers could ride barges out to the lakeshore, or ride in buses along a shell road that ran along the span of the east bank of the canal. By 1851, the Jefferson and Lake Pontchartrain Railroad was established along the former New Orleans and Nashville Rail corridor along the east side of the Seventeenth Street Canal. The southern terminus of this rail line now connected with the west side of Carrolton, providing direct access for the residents of uptown New Orleans to the lakefront. The railroad contracted builders to construct Lakeport, a large hotel on the lake that became the first resort in the area, drawing visitors out of the city and to the magnificence of the lake. The structure that once sat between the entrances between the New Basin and Seventeenth Street Canals no longer exists, but its impact can still be felt today.



1908 map of New Orleans showing the city growth and connections to the lake.

The Image of Bucktown

By the early 20th century residential development began to take off; schools were organized, and a new jail opened to serve the Bucktown community. During the years of Prohibition, the Bucktown area served as a safe-haven for young people to have unbridled fun. Since Bucktown was not in the nearby vicinity of the big city, prohibition laws were lax. Speakeasies, dance halls, gambling houses, and brothels opened; attracting those people from New Orleans that desired such revelry. This activity led some to conclude that such activity probably inspired the town's name. The idea being that the area was a haven for "young bucks" to come and have a good time. At the same time, Bucktown become well known throughout the area for its abundance of recreational activities. Being as it is a direct access point into Lake Pontchartrain, visitors could swim or boat in its waters, hunt for game along its wooded edges, or partake in the bounty of marine life in the area. The latter proved to be so prolific that many local residents began to profit from these living riches as they developed an economy for the area based on their catch. Over time, the shores of Lake Pontchartrain began to be encompassed with fishing camps as residents set out to profit from fishing, crabbing, hunting, and trapping as well as from their renting of room, boats, and houses to visitors looking for recreation.

Present Day

Today Bucktown has settled down from its earlier days of carousing. Its old neighborhoods are quiet, filled with generations of family members that have resided there since its foundation. However, Bucktown still maintains its charm. The area

History

is still known as the marquee area for seafood dining in the greater New Orleans area. R & O's, Sid Mar's, Brunning's on the Lake, and Jaeger's are just a few of the more notable places. Some of the old fishing camps still line the shoreline and residents still put them to good use. Bucktown has survived major hurricanes in both 1915 and 1947. It has staved off encroachment of suburban sprawl and maintained its character throughout the years. However in more recent years, Bucktown has been hit hard by severe hurricane damage. In 1998, Hurricane Georges damaged many of the antique fishing camps along the shoreline and took down Brunning's on the Lake, which was one of the best seafood restaurants in the area. Hurricane Katrina dealt a sever blow to the Bucktown coastline. The powerful storm surge ate up chunks of the unprotected coastline and began to threaten the levees protecting the area.

Cultural History

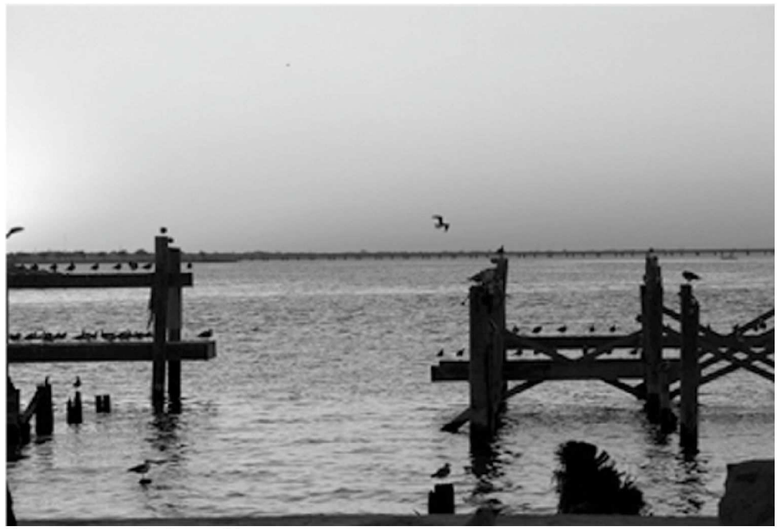
Bucktown has a rich cultural history. The area was one of the earliest places to embrace jazz music. The famous musician Jelly Roll Morton recorded his hit song "Bucktown Blues", an ode to the area which he loved so much. Johnny Wiggins recorded "Bucktown Bounce" to show his appreciation as well. The area has also inspired more current musical acts such as a local New Orleans favorite, "The Bucktown Allstars." Members of the band were all residents of the town and had been raised in the area since they were born. Bucktown was also home to some of what are arguably the best seafood restaurants in the south. Brunings on the Lake was one of the area favorites until Hurricane Georges left only the pilings in its wake.

Conclusions

With such a rich history and a prominent natural history, Bucktown boasts a culture unlike anywhere else. Design considerations should strongly consider the past, current, and future image of the area, blending contemporary practice with respect to the area's history. Revival of old original architectural styles and the ancient shoreline will assist in preserving this cultural gem.

Photo of docked boat, the 17th Street Canal flood walls in background

Photo of Katrina aftermath



Existing piers in Bucktown Marina

Photo of mooring vessels along Bucktown Marina

The South Pontchartrain Levee System

The Site of New Orleans

The levee system of New Orleans, Louisiana is integral to the survival of the City. Pierce Lewis, perhaps the city's most knowledgeable scholar described, New Orleans as the "inevitable city on an impossible site." His reasoning for saying this is New Orleans' geographical location. New Orleans is nestled snugly between the second largest salt lake in the United States, and a river that with the aid of it's tributaries drains nearly the entire nation. This, combined with the fact that a large percentage of the city and its neighboring areas are actually below sea-level presents quite an obstacle to development of a site that many believe should never have been inhabited by such a large population in the first place. As indicated in Figure 1-A, natural areas of higher ground exist near the banks of the Mississippi River, and Lake Pontchartrain, but the remainder of the city is at or below sea-level.

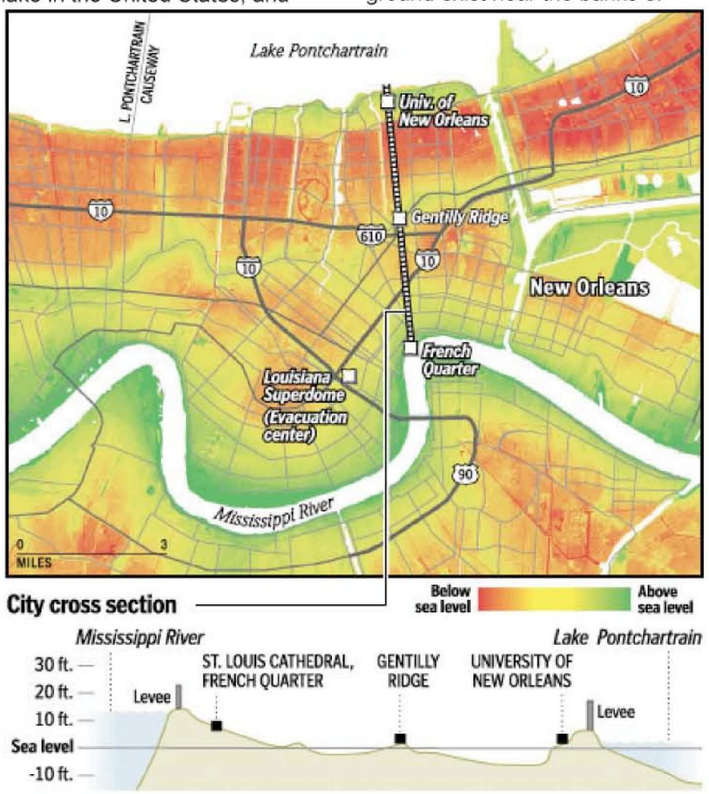


Figure 1-A: The predicament of New Orleans

Lake Pontchartrain History

Lake Pontchartrain, which borders the city of New Orleans to the north, and Lake , which is just west of Lake Pontchartrain, were created about 5000 years ago, coinciding with the end of the last ice age. As the polar ice caps melted, the influx of water raised the sea level on Earth, causing the gulf to flow into the land that is now Lake Pontchartrain. The area surrounding these lakes became swampy, low land, inhabited by creatures such reptiles and masses of mosquitoes. Much like the river, a natural levee exists around the lake. These natural levees were formed by deposits left from the lake after seasonal floods. In the event of severe storms, the lake would overflow its banks and flow into the site that is now the city of New Orleans. This event was a hindrance to developing a city with such a large population so the U.S. Army Corps of Engineers designed a levee system to shield the city from the lake. This construction, in addition to a sophisticated system of water pumps, was crucial to being able to build in areas of lower elevations without the dangers of regular flooding.

Construction of the Levees

In 1947, a massive hurricane hit the city of New Orleans, causing extreme flooding throughout the city. This prompted the Army Corps of Engineers to construct levees along the southern shore of Lake Pontchartrain. New Orleans was devastated by a hurricane once again in 1965. The 1965 hurricane, Betsy, brought a 10 foot storm surge, a raise in water level due to low air pressure, This storm surge over-topped the levees built after the 1947 hurricane, and caused city-wide flooding. Following Hurricane Betsy, the Army Corps of Engineers, raised levee heights to 14 to 23 feet throughout the New Orleans area and surrounding Parishes. However, due to budget restrictions, the levees could only be built to protect against a category 3 hurricane or less, which has a maximum wind-speed of 130 mph, and a maximum storm surge of 12 feet. Figure 2-A, below, shows the systems of levees the Army Corps of Engineers built to protect the city of New Orleans and surrounding areas. These levees kept the water at bay through several storms in the years to come, and where constructed at a sufficient height to protect the city. Levee height, however, wasn't enough to protect the city in more recent storms, as it has been shown that faulty construction may have been the cause of flooding in New Orleans.

Problems with the levees

The levees in New Orleans were constructed with a few major flaws that went unnoticed until it was far too late to do anything about them. Due to the history of the site of New Orleans, a swamp-like habitat, much of the land has layers of soft peat 15 to 30 below the surface soil. These layers range in depths of 5 to 20 feat deep. Construction upon these soils made for an unsteady foundation for a structure meant to hold back such large masses of water that are produced by hurricanes. The 17th Street Canal, for instance, had a flood wall that was only anchored 17.5 feet deep. A deeper foundation could have put the base of the wall well below the layer of soft peat, anchoring it in much sturdier soil. Heavy flooding loosened the structure of this flood wall during Hurricane Katrina in 2005, causing the levee to breach on the east side of the canal, flooding much of the Lakeview area. This breach resulted in the deaths of many residents in this area. The water never actually overflowed the 17th Street Canal, proving that while its height was sufficient, its construction was flawed. Pump stations in the area which were supposed to remove water to prevent flooding had stopped functioning due to, ironically, flood damage, thus the water rushed in at rates that were not planned for.


Figure 2-A: Above, an aerial of the 17th Street Canal levee breach

The South Pontchartrain Levee System

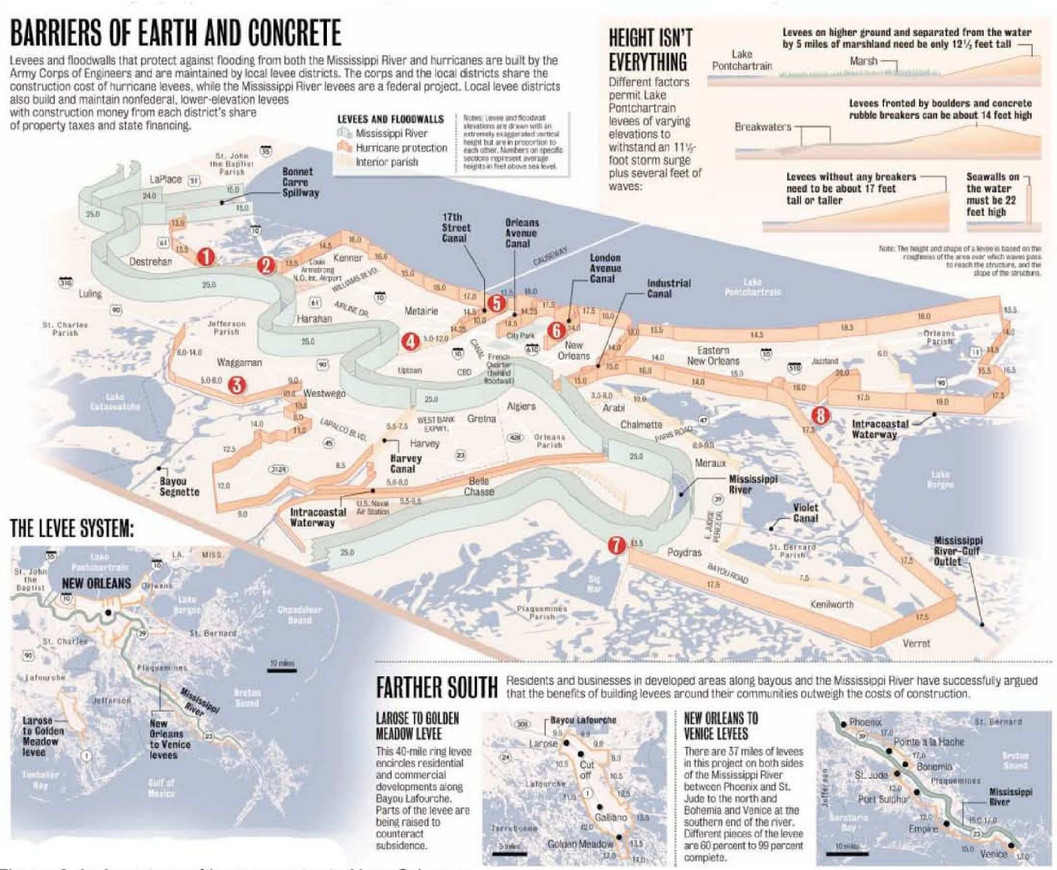


Figure 3-A: A system of levees protects New Orleans

Near the breach in the 17th Street Canal, there was evidence showing that there were portions of the flood wall that only extended 10 feet deep. This was proven to be insufficient to maintain during extreme conditions. Breaches in New Orleans were also shown to occur more often at areas where different types of flood walls or levee styles meet together, proving that a more uniformly built levee system is more reliable, and less likely to fail under high levels of stress. Images on this page show the breach at the 17th Street Canal.

What is being done

Existing structures are being replaced and rebuilt the correct way, with more stringent guidelines. In Figure 4-A, you can see a bridge that crosses the 17th Street Canal. This bridge has been replaces with a bridge that meets more specifications, and

Figure 4-A: Above, a low oblique showing the Coast Guard Station in Bucktown, and the 17th Street Canal levee breach

large sandbags are being stored at the nearby Coast Guard station (the building with the red roof) to plug any holes that could form, such as the break in figure 4-B. This is all very important, but the most important step being taken is the fact that this time, the levees are all being built under a watchful eye to insure that no corners are cut, and that everything is built in a uniform fashion.

Figure 4-B: Above, a photo showing the 17th Street Canal breech.

Natural Systems

Lake Pontchartrain Basin

To understand the natural systems of Lake Pontchartrain, you must first realize that it is accually a large estuary. Lake Pontchartrain is vital to both the ecosystem and the economy of southeastern Louisiana. Over the course of about 300 years, development + urbanization has taken its toll on the estuary. The purpose of this research is to gain knowledge of Lake Pontchartrain's natural coastal systems in order to implement restoration techniques in future design considerations.

Coastal Wetlands

The wetlands of the Lake Pontchartrain Basin are very diverse in character. Its location between the Mississippi River to the south and west, and the Gulf of Mexico to the east, causes variation in salinity through out the estuary.The original southern coastline consisted of forested wetlands and marshes that varied is salt content depending on location. These are categorized according to salinity and vegetative character.

Forested wetlands include swamps and lowland hardwood forests. Species include bald cypress, tupelo gum, water oak, sweet gum, sugar hackberry, and swamp red maple.

Freshwater Marsh measures from 0 – 2 ppt in salinity. Grasses and herbs only. Species include sagittaria lancifolia, hymenocallis caroliniana, zizaniopsis aquaticia, panicum hemitomon, Iris gigantacaerula. As well as species of submergent grasses.

Intermediate Marsh measures from 2 – 10 ppt in salinity. Grasses and herbs only. It can hold many of the same species as freshwater marsh, as well as spartina patens, scirpus californicus, phragmites australis.

Salt Marsh measures from 20 – above ppt in salinity. Species include spartina alterniflora, distichlis spicata, juncus roemerianus, avicennia germinans.

Brackish Marsh measures from 10 – 20 ppt in salinity. Species include spartina patens, scirpus olneyi, spartina cynosuroides, baccharis halimifolia, iva frutescens.

Other species the are found along the higher naturally formed levees are: quercus virginiana, salix nigra, acer rubrum, sabal minor.

Aerial of Lake Pontchartrain Basin by USGS

Submersed aquatic vegetation or grass beds are also an important part of the coastal plant communities because they provide habitats for crabs and fish. Most of these species of submersed aquatic plants are wiped out along urbanized areas of the coast. Some species include vallisneria americana, ruppia maritima.

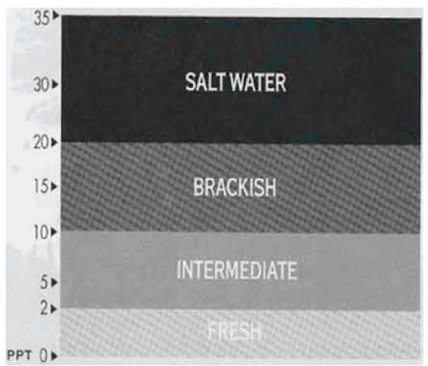
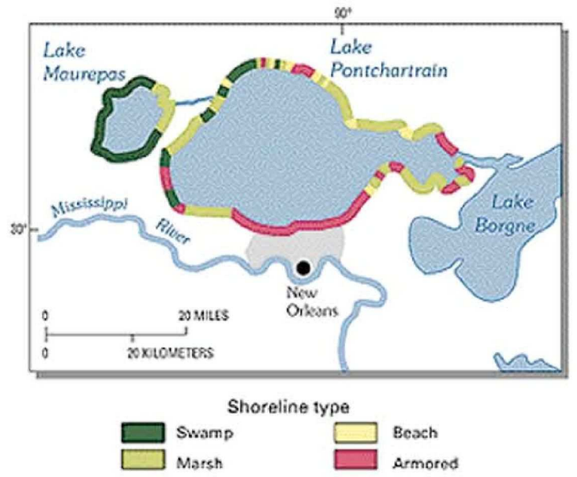


Figure is from Guide to Wetlands...
Pub. by PIES UNO branch.

Existing Coastal omposition

With salt water intrusion from the Gulf of Mexico, the wetlands that exists along the eastern side of the lake tend to be in the salt to brackish range. With the Mississippi River, drainage canals, and the Bonnet Carre' spillway, the wetlands along the western side tend to be in the freshwater to intermediate range. Today most of the wetlands on the south shore have been eliminated because of development and urbanization. Around the more developed areas much of the coast line consists of concrete rip-rap, or man made barrier. This is done to prevent erosion.



There are two main wetland areas that exist today on the south shore. To the west of the metropolitan area is the LeBranche wetlands, a 20,000 acre wetland comprised of Cypress swamp, fresh and intermediate marshlands. This wetland highly depends on the fresh water from the Mississippi River.

To the east there is the Bayou Sauvage National Wildlife Refuge. This is a 23,000 acre tract of land was planned to be developed in the 1950's but was then federally protected. Originally this area was mainly intermediate and brackish, but man-made levees contained the marsh and block interchange with salt water, making it more intermediate. .

Graphic is from Guide to Wetlands...
Pub. by PIES UNO branch.

Coastal Erosion

Around the 1930's the artificial levee system was put around the metropolitan area for flood protection, as no natural levees existed around the lake coast. Coastal erosion remains a big problem, figures show Coastal erosion on the south shore in average meters per year:

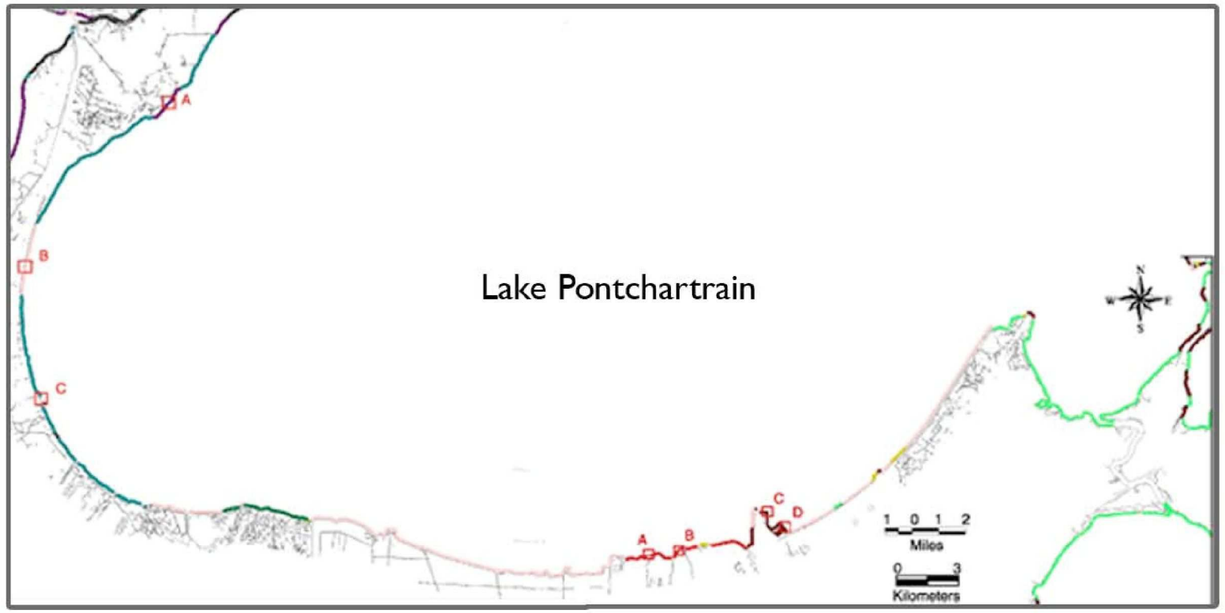
Table 6: Average Shoreline Movement in (m/yr) for Southern Lake Pontchartrain.

1850-1995	-0.74
1930-1995	-1.24
1960-1995	-1.16

Sea-Level Change

The U.S. Army Corp of Engineers has maintained tidal gages in Louisiana since 1933. Daily water level measurements were averaged and summarized in mean monthly and mean annual tables. Measurements taken from Lake Pontchartrain at West End indicate a 0.4 cm/yr sea-leavel rise. The table below shows annual water level measurements near West End including rate of sea-level change for the area.

Natural Systems



Lake Pontchartrain

Legend

Swamp
Any forested area normally subject to inundation through part of the growing season or with permanent or near-permanent standing water.

Swamp with Fresh Marsh
An area of swamp at the shoreline that contains a fresh marsh (salinity less than 0.5 ppt) behind the shoreline.

Bank
Natural riverine or lacustrine bank with grass and trees.

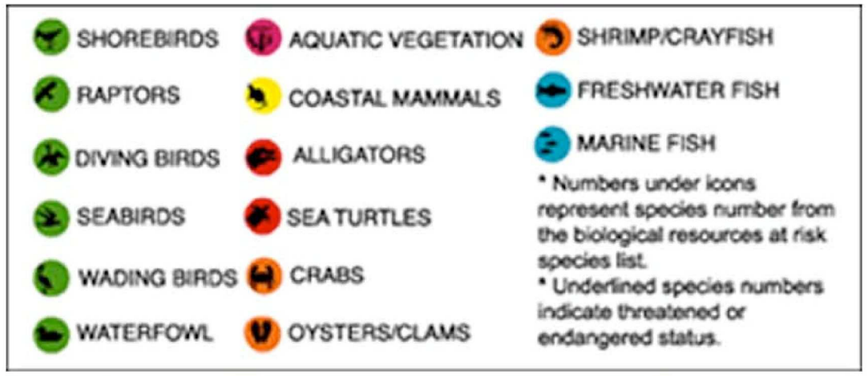
Fresh Marsh
Any unforested, vegetated area normally subject to inundation or tidal action at any time sufficient to support wetland-dependent, emergent vegetation with salinity less than 0.5 ppt.

Intermediate Marsh
Any unforested, vegetated area normally subject to inundation or tidal action at any time sufficient to support wetland-development, emergent vegetation with salinity between 0.5-8 ppt.

Stepped Seawall
A solid concrete revetment along a shoreline in the form of a series of steps.

Riprap Armor
Embankment or revetment along a shoreline reinforced by things thrown together without order in the form of broken concrete, concrete blocks, old pilings, rubble, etc. to resist erosion.

Sand Beach
A beach of high relief made up predominately of shell.



Wildlife

The wildlife living around the Bucktown area of the Lake Pontchartrain waterfront include marine fish, waterfowl, and seabirds.

Conclusion

Not only has levee system destroyed the natural wetlands that protect the area, but they have also choked the area of the flood waters of the Mississippi. Without these flood waters the land has no way to replenish itself causing it to sink a little more each year. Without the recreation of wetlands for protection the levee system is bound to be a self perpetuating problem with no real solution.

Demographics and Economics

I. Boundaries of Study Area

Bucktown occupies an area of roughly 0.96 to 1 sq. mile of land in the northeastern corner of Jefferson Parish in Louisiana (fig. 1,2). It lies within the city of Metairie and is bordered mostly by water. Its north side is the shores of Lake Pontchartrain; to the west is Causeway Blvd; and the south and east edges abut the Bonnabel Canal (or Veterans Blvd.) and the Seventeenth Street Canal, respectively (NY Associates, Inc., U.S. Census Bureau.).

Map of focus area by Google Earth

II. Introduction and Brief History

The community of Bucktown
is deeply rooted in its economic beginnings as a seafood and hunting

Site in relation to the city of New Orleans

village, therefore a brief background helps one understand the current Bucktown. It began around the nineteenth century when a small group of fishermen migrated out of New Orleans to the vast open shores of Lake Pontchartrain. The community was colored by the roughneck and wild character of the fishers, shrimpers, crabbers, trappers and hunters that squatted on the lakeshore and congregated nightly in restaurants and dance halls which stood on stilts over the lake. Gradually, wealthy citizens of New Orleans came out of the city for weekend recreation of fishing and boating and employed the Bucktown fishermen for their bait or boat rentals and it became a popular resort area, along with the neighboring West End Marina. As time progressed many factors have resulted in a decline in their fishing and seafood productions due to the change in and loss of habitat, competition from imports and inflation. The Bucktown area expanded south as the land was infilled and residences developed. With the fishermen's decline and New Orleans growing, this area has become more successfully utilized by suburban sprawl residences. However, there are still (or were) some remaining restaurants and boat rentals around the to-be-developed Bucktown Marina and West End. Recent hurricanes and the construction of the levee system have almost completely ousted the fishermen from their territory (NY Associates, Inc.).

III. Demographics

Jefferson Parish has maintained a steady population with around a 1% increase from 2000 to 2005 until September of 2005 when it dropped an estimated 20% following Hurricane Katrina. According to the 2000 U.S. Census, the land tracts containing Bucktown (fig. 3) had a population of 6,164 people and 3,019 housing units. This stands at 4.2% of Metairie, 1.3%of Jefferson Parish, and 0.14% of the Louisiana population. In comparison with its neighboring metropolis, it was only 1.3% of the New Orleans population. In more recent polls from 2005 taken by the American Community Survey of Metairie: 48.3% of the population was male and 51.7% female; 83.5% caucasian, 11.2% African American, and 5.3% other. The average household size was estimated at 2.32 persons compared to the U.S. average of 2.6 persons per household (U.S. Census Bureau).

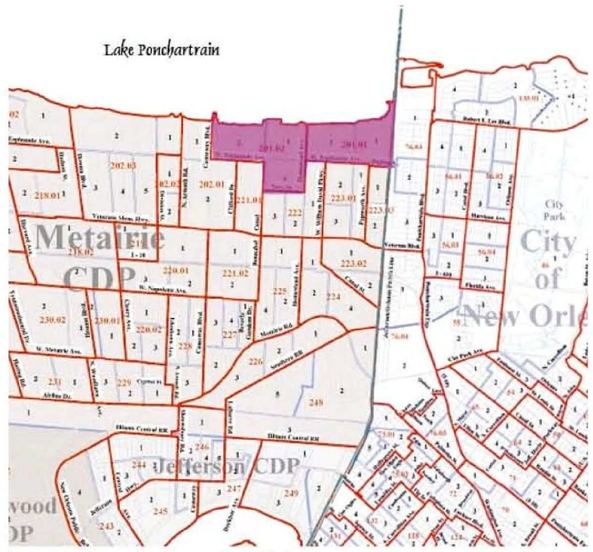


Image outlining Bucktown by NY Associates, Inc.

IV. Economics

The economic profile of the study area is drawn mostly from household incomes due to the largely residential land use of the area. In 1999 the median household income of the area, according to the U.S. Census, was $41,265, only a slight variation of 2% less than the U.S. average of $41,994. The American Community Survey found in 2005 an increase of $1,779 or 4.2% over a four-year period in household income bringing the Metairie survey to $43,044. This amount falls $3,198 or 7% below the U.S. average of $46,242 (U.S. Census Bureau).

V. Relation to Surroundings

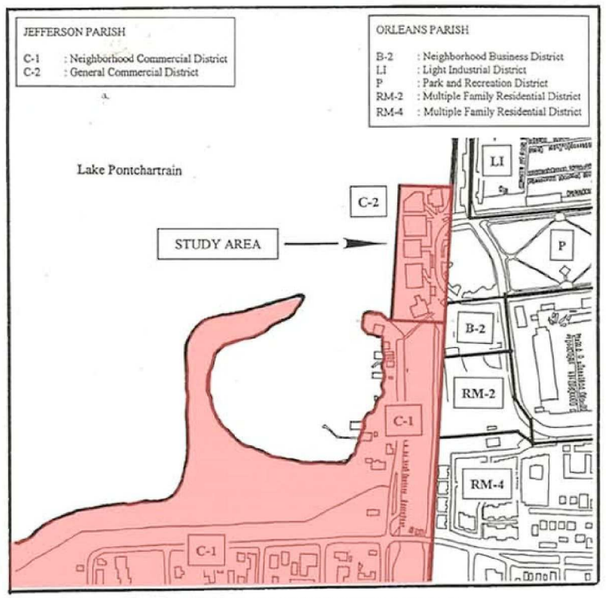
One of the primary attractions for residents of Bucktown is its adjacency to Lake Pontchartrain. However, the shores lack a clear and functional infrastructure for neighboring users to enjoy recreation and access the lakefront. A notable remaining element from the original Bucktown is the marina that is adjacent to the West End of New Orleans, a popular yacht club and marina with intermittent commercial zoning. The Bucktown marina and shoreline are seen in conjunction with the West End restaurant and recreational district, but are at a smaller scale economically and less developed. Another nearby commercial zone is located to the west along Causeway Boulevard and consists of restaurants, retail and other amenities for the proximate neighborhoods to the west and east of the north-south oriented Causeway (NY Associates, Inc., Google Earth).

After Hurricanes Katrina and Rita, much of the area was changed due to obvious flooding, location on the Pontchartrain lakeshore with its levees, and surrounding canals that cut through the whole city fabric, especially the Seventeenth Street Canal. Much of the restaurants, boat slips and vegetation were lost along the Bucktown Marina and West End, which has had a huge effect on this area's economy and placed their futures of redevelopment in jeopardy. In addition to the loss of infrastructure, the Coast Guard, which is located in the Bucktown Marina, has expanded along the marina and encompassed some of the private land that previously held restaurants and boat slips. Currently a new and large lock is being built at the mouth of the Seventeenth Street Canal to patch up the breach in the wall that put a hole in the levee system.

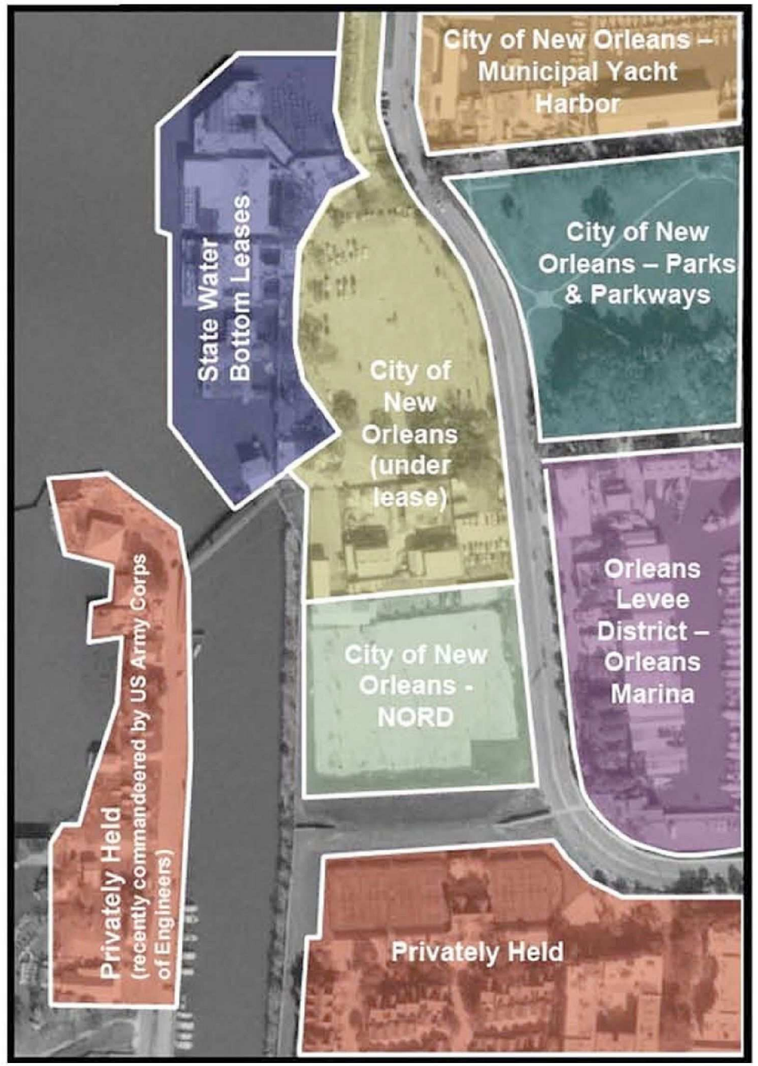
Demographics and Economics

VI. Zoning Post Katrina

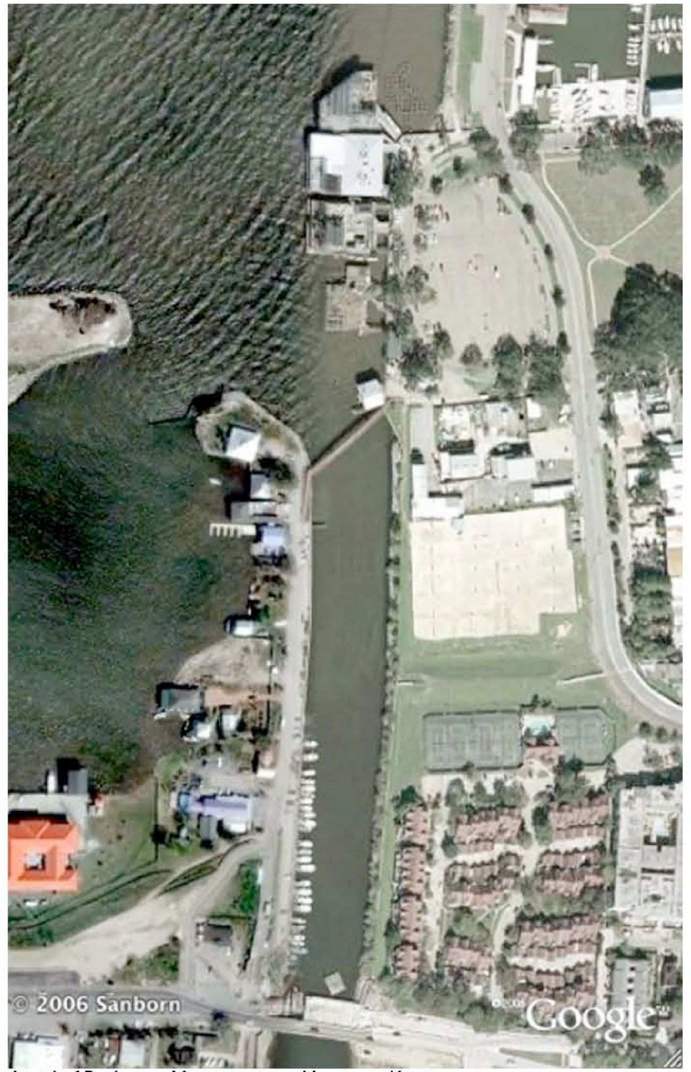
Following Hurricane Katrina there was much damage and disarray with boats slammed aground and restaurants swept away leading to ambiguity in territory ownership. For those trying to rebuild in an area that has been and is still being transformed, there are many difficulties in deeming zoning boundaries, especially in the lake area. This past May, however, the Regional Planning Commission drew up a West End Redevelopment Plan, which includes portions of the Bucktown Marina. A zoning plan (fig.4) defines the marina and nearby restaurants as C-1 and C-2, which are neighborhood commercial district and general commercial district, respectively. A further profile defines the C-1 as light retail which serves adjacent residential districts and permits businesses such as retail stores, banks, clinics and laundries in buildings up to forty-five feet in height. On the other hand, C-2 is described as dense commercial that provides retail outlets and major services such as bars, animal hospital, adult entertainment and offices with a building height of up to sixty-five feet. In the future, hopefully this development plan will help sort out uncertainties and spur positive, productive redevelopment.



Zoning plan of Bucktown Marina by NY Associates, Inc.



Zoning plan of Bucktown Marina by NY Associates, Inc.

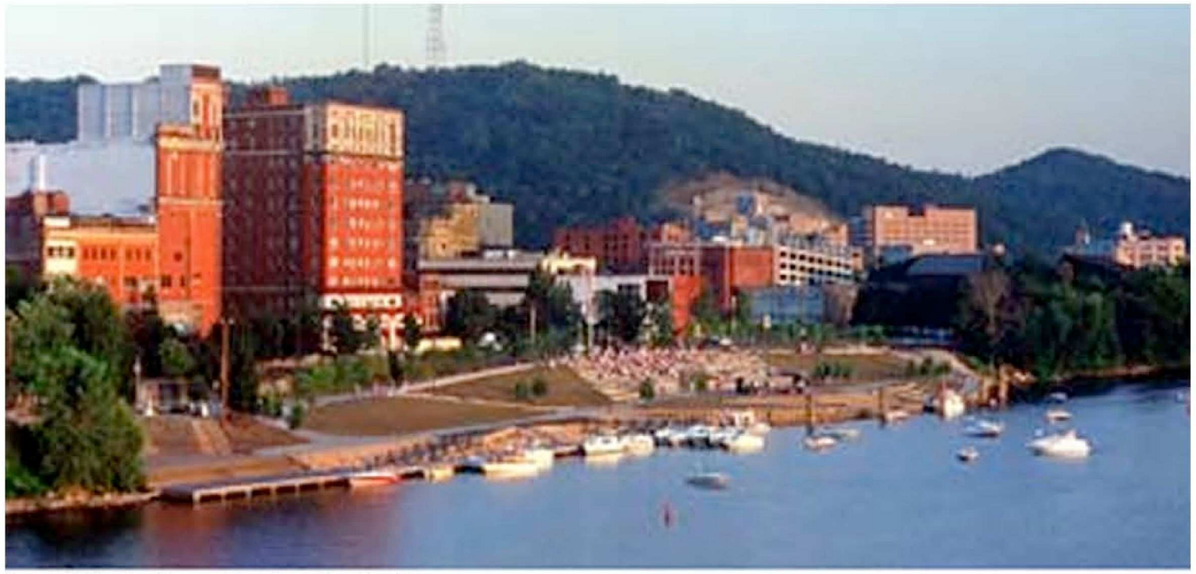


Aerial of Bucktown Marina prior to Hurricane Katrina

Watefront Park Design

Wheeling Heritage Port

The main objectives for the design and development of this site were to revitalize the local economy and utilize the natural setting and historic resources. The park is located on three acres along the Ohio River and in bordered by the historic downtown area. In the design process, the developers focused on engaging the public, which would enliven the city and contribute to the economic vitality. The park design features include a 250' pier, amphitheatre, entry plaza and waterfront walkway. The area holds weekly concerts, which contribute financially to the community.



View of Wheeling Heritage Port from the Ohio River

Visitors enjoying one of the many concerts held at the ampitheatre.

Photo of a afternoon fireworks show with bridge in background

Detroit Riverfront Civic Center Promenade

Designed in 1997 and built in 2001, the riverfront center is located at the edge of Detroit's historic area. The intent was to connect and enhance the value and marketability of major public and private facilities along the waterfront. The park spans 3,500' along the river and offers tour boat drop-off/pick-up, large gathering spaces, views of the river and mooring vessels. Using horizontal bands of concrete as paving patterns, gives the illusion that the park is shorter than it is; while native river birch groves soften the entire site to create a more relaxed atmosphere.

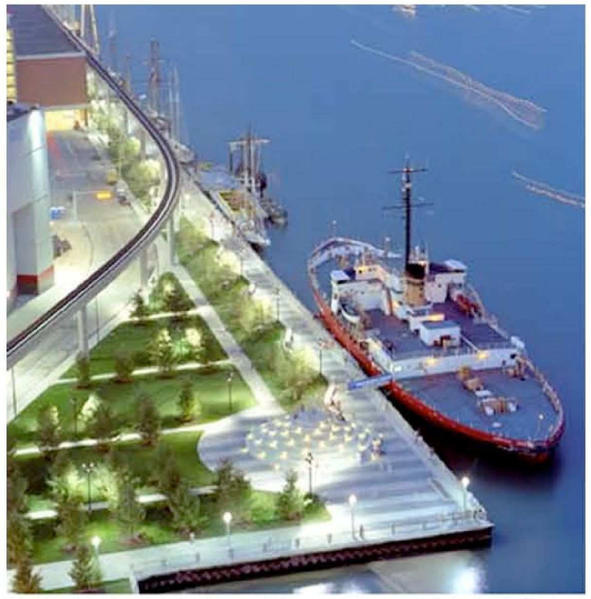


Photo showing the designers vision as a commercial vessel docks next to the park.

Aerial of park with serpentine pathway and terraced pyramid

Watefront Park Design

Columbus Riverfront Vision Plan

Sitting on a nine-mile corridor along the Scioto River, the design intent was to provide the framework for redevelopment of the area.
Part of the site was once a community garden in the early 1900's, then later became a city park that housed twenty ball fields, but then later became a landfill for trash and construction debris in the 1950's through the 1970's. Reclaiming the historical integrity of the space would involve much planning and it is estimated to take at least twenty years. The plan called for connections between the Ohio State University, residential areas, commercial downtown and several existing parks. The overall plan also consisted of linking districts, extending the areas value, and improvements to the existing floodwalls.

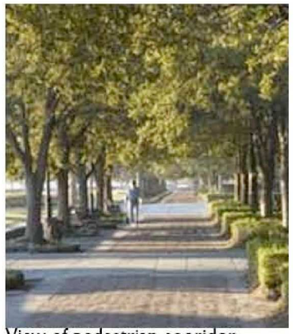
Aerial photo showing the waterfront amphitheatre in relation to the nearby highway.

Plan of site and connecting park spaces

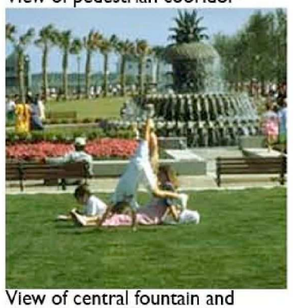
Charleston Waterfront Park

Located on the Cooper River, the site was nearly lost to sky rise developers in the 1970's. The city of Charleston was able to save this area and developed and park that would become the framework for redevelopment in the area. The park rests on twelve acres of salt-water marshes along the river and do to the soil conditions, engineers had to strengthen the soils in order to proceed with the plan. Designers were asked to consider the areas context in designing the park in order to create a transition between historic residential, business, government, and tourist's districts of the city. The marsh grasses were restored and supplemented with native species to protect the river's marine ecology. The parks design includes 1,200' promenade, 365' pier with shade structures, fountains, lawns and "garden rooms".

Charleston Waterfront Park with marshes and pier with shade structures.



View of pedestrian cooridor



View of central fountain and promenade

Watefront Park Design

Louisville Waterfront Park

In order to transform this once industrial area, designers had to deal with some of the site's features that disconnected the city from the river. The concept for the park was to create flexible and programmable spaces, while breaking down visual barriers on the site. Some of the other challenges that were involved in the design were dealing with the wake from passing barges and accompanying floodwaters. The park features a wharf, festival plaza, overlook, great lawn and 80 acres of environmentally sensitive parkland. The site also included native riparian plantings and wetland development. Louisville's park has won numerous awards for its design and is used daily by its residents and incoming tourists. The site hosts venues, cultural events, markets and concepts all year round.


One of the parks water features that runs 900 feet down to the water's edge.


View of splash park in relation to the river and nearby bridge.


Photo of pedestrian pathway along the river's edge.

New Jersey Urban Parks Master Plan Competition

As in many designs, there are multiple firms that develop a plan for new projects and this design was one of the entries. This particular design did not win but I think I was one that had many well-developed concepts. The site to be designed was a collection of waterways, historical sites and existing parks, such as Stacey Park, that once flourished but over time fell to the wayside. One of the city's requests was to reconnect the city to the waterways and shoreline. The designers developed a plan that used "floating" islands that were accessible via bridges but also by wading through the water. This idea allowed visitors to explore and experience the ecology of the river and move through a park that was like no other. Changing water levels would also contribute to the "islands" unique qualities and provide the chance for the public to learn about nature and ecology. The designers also wanted to rid the city of its "hard edge" shoreline in favor of a more naturalistic one. The layout of the park system was an extension of the city's grid that would run down to the shoreline.


Rendering of proposed docks and islands.


A plan of competition design and surrounding context.

Group 1

Wetland Designs

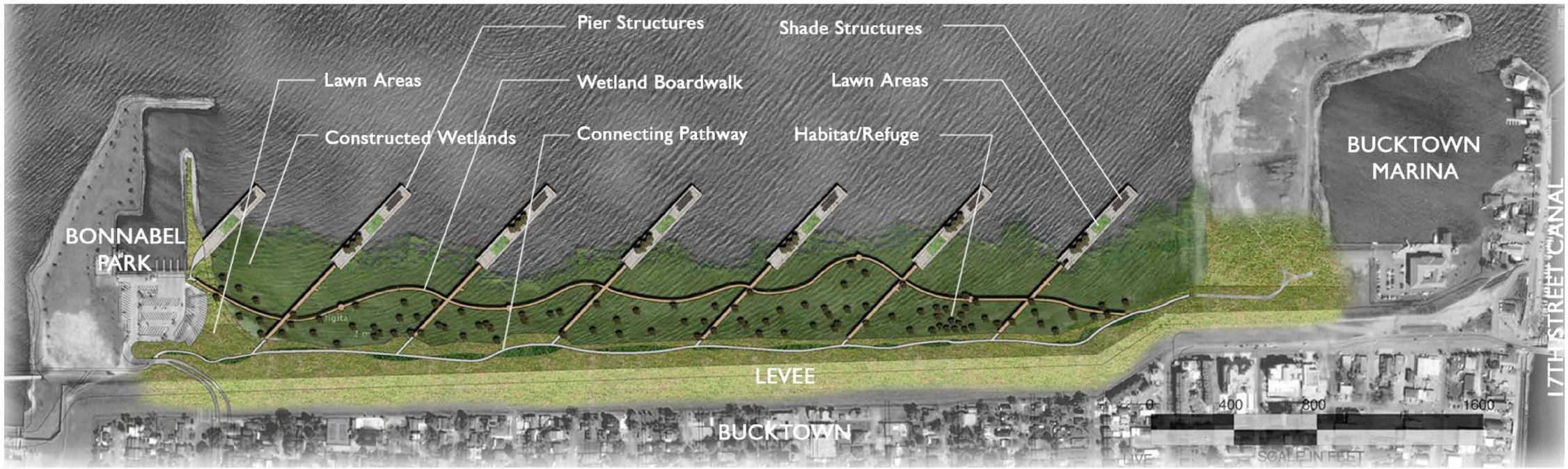
Project Objectives:

- Develop strategies to prevent future storm-surge erosion and protect the existing levees
- Re-establish the native wetlands to trap sediment and protect the shoreline
- Preserve the indigenous wildlife and provide refuge
- Create circulation throughout the site
- Develop a program that allows for education an recreation

Wetland Piers

Concept:

The main objective for this project was to develop a plan to protect the existing shoreline, while restoring the wetlands. In the process, the outlining spaces were developed into programmatic site entities; expanding the use of the site. The finished plan includes surge protection, erosion control methods, multi-use structures & spaces, boardwalks & pathways, animal refuge, and multiple activity opportunities.



Plan of Proposed Piers with Wetlands and Pathways

Elevation of Proposed Pier and Pathway

Levee

Pathways & Lawn Areas

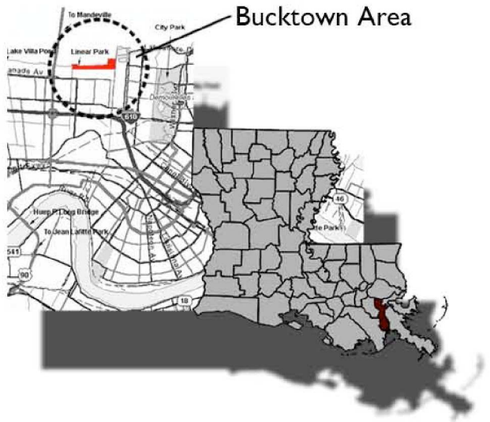
Constructed Wetlands w/ Various Native Species/ Wildlife Refuge

Access Walk w/ Intersecting Nature Boardwalk

Sheet Pile Pier w/ Shade Structures & Plantings

Proposed Plan 1

Wetland Piers



Site Issues/Program:

-Shoreline Erosion
-Wetland Restoration
-Ecology Restoration
-Public Spaces
-Education
-Economic Benefits
-Community Enhancement

-Protecting the existing shoreline from servre storms and preventing the city from future flooding was the main objective

-Re-establishing the wetlands that once lined the lakeshore and protected the city, while also providing habitats for wildlife

-Constucting wildlife refuges for native and migrating animals would provide safety for these species and create public activities, such as bird watching.

-Establishing the overall pedestrian circulation that would allow visitors to explore the site and its ecology.

-Designing more flexible public spaces and ares, allowing multiple programs to occur while still accommodating everyday activities

-Re-establish the area's seafood industry, by creating habitats for the wildlife and providing access to these areas

-Give the community a place that will boost property values, create revenue, and provide an aestetically pleasing shore

Shade Structure

-Give the structure an identity by designing a structure that would provide shade while out on the peir. Maybe one that could be easily lowered in high winds.

Layers of Aggregate

-First filling the bottom of the sheet pile skeleton with large rock, such as rip-rap, then applying smaller rock above, follwed by a fine sand. When compacted, these materials will archor the structure and provide a solid foundation for the surface.

Construction Method for Proposed Pier & Breakwater

Boardwalk/Access Walk

-A more common method could be used here, such as a wooden deck that would allow circulation of the water to carry nutrients to the developing wetlands. These structures would be protected from surges do to the "sheet pile structures".

Surface

-Using a durable material such as concrete would stand up to the elements and could be easily be maintained. The use of recycled materials could be an ecologically sensitive approach.

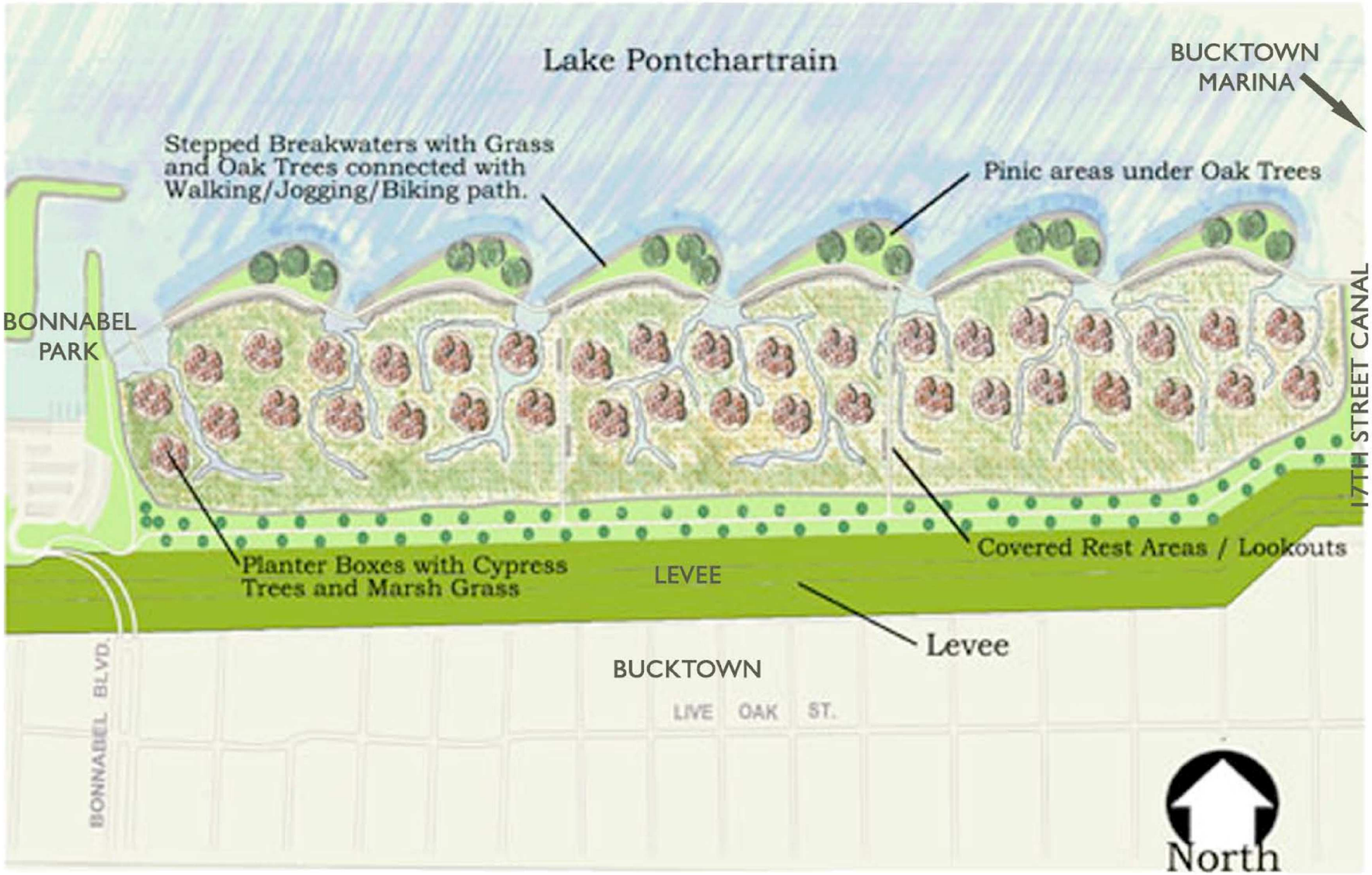
Sheet Pile

-By applying the same material used in levee construction, the pile will stand as the outermost protection of the incoming surges and protect the wetlands.

Terraced Breakwaters

Concept:

Lake Pontchartrain is a beautiful natural lake with much wildlife. This lake was a prime fishing groung before it was polluted from large scale shell dredging. The lake is starting to come back now and so is the wildlife. The wetlands project at Bucktown will not only protect the levees and the people behind the them but will provide new habitat for wildlife. The stepped breakwaters will allow the people to get out onto the water and will provide a place to fish and picnic under the oak trees. Exercise enthusiast will enjoy the views provided by the winding pathway that open up views of the lake and then back towards the cypress groves.



Terraced Breakwaters

Speckled trout, a great pan fish that are caught in Lake Ponchartrain in the summer time.

Sailboat moored in Lake Ponchartrain near Bucktown

The snowy egret, a year-round resident of Louisiana.

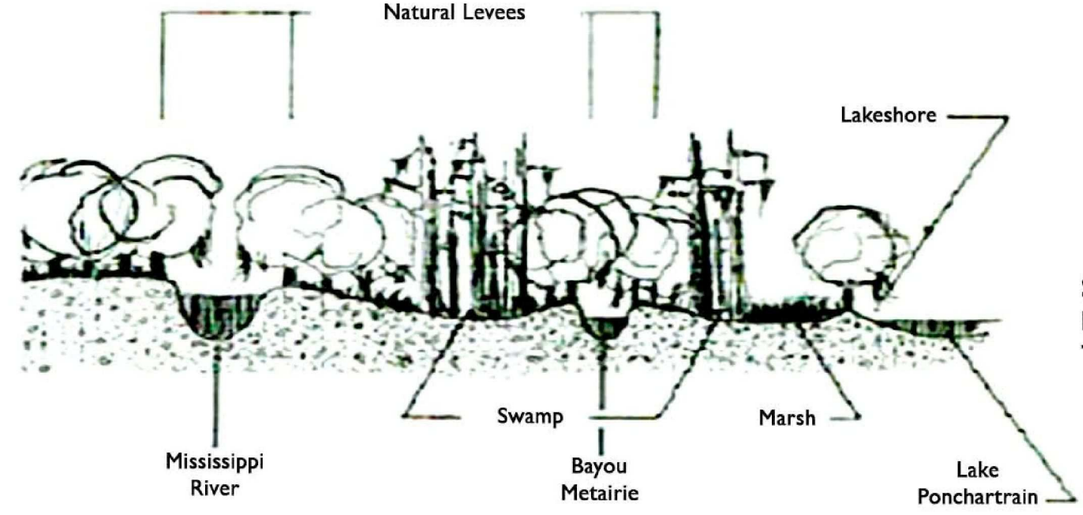
The brown pelican, Louisiana's state bird.

Great blue heron making a comeback in Louisiana.

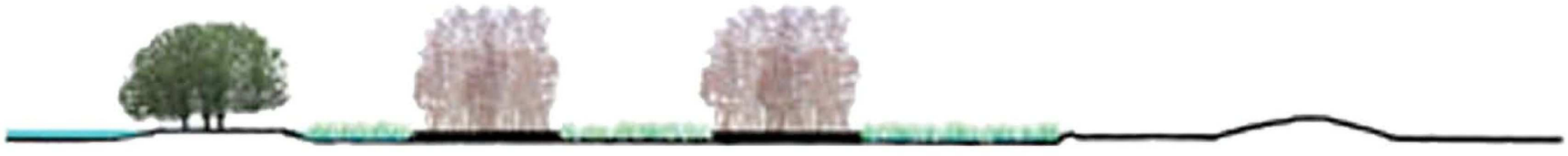
Bucktown's fishing fleet docked in the 17th Street Canal. (Pre Katrina)

Redfish, also a wonderful pan fish that is caught in Lake Ponchartrain.

Perspective 1: View looking towards Causway Blvd. through the cypress grove and over the breakwaters.



Section of the Mississippi to the lake before "new" Metarie was built. This is one of my desigh inspirations.



Section: From Levee to Lake looking south east

Perspective 2: View looking from Bucktown Marina towards Causway Bridge.

Perspective 3: View looking towards the levee from Bonnabel Boat Launch.

Barrier Islands

WETLAND MASTER PLAN

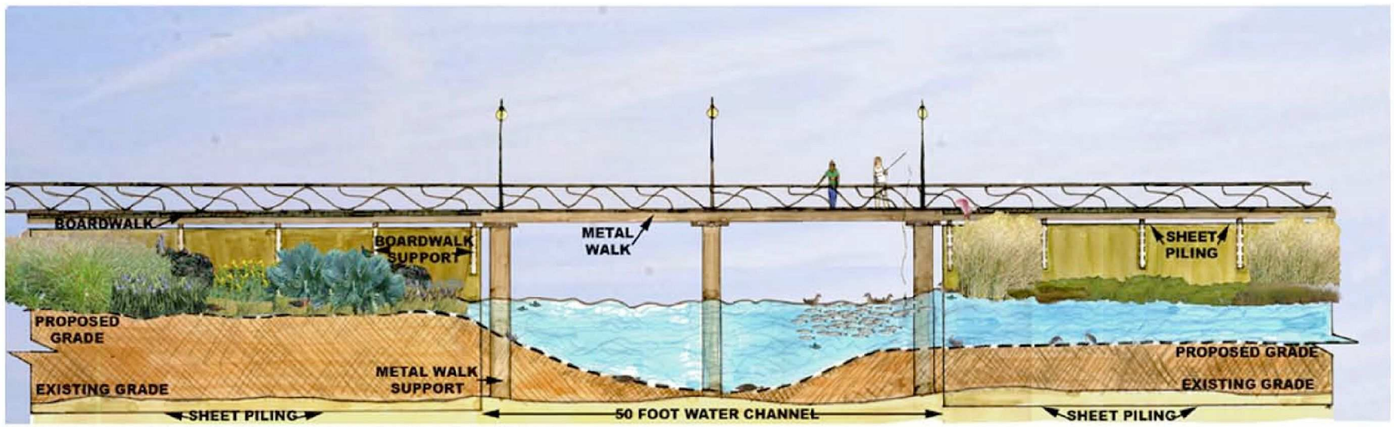
This design uses a combination of hard- and soft-scapes to protect the levee system and the inland areas it protects. The hardscape, consisting of reused materials, will be implemented first and in a perpendicular direction to the current of Lake Pontchartrain in order to protect the softscape from tidal surges. The softscape consists of different vegetative layers that mimic pre-existing wetlands and also serve to absorb storm forces. In addition to the protective function of the design, it provides habilitating infrastructure for programs of educational and recreational activities for neighboring communities.

The hardscape of the design is a system of barriers that work with human-made wetlands to protect Bucktown from tidal surges due to large, seasonal storms. These hard barriers are to ensure the success of the precursor wetlands by preventing erosion while the plants establish themselves. The hardscape construction consists of two parallel lines of sheet piling about ten to fifteen feet apart and the space between is filled in with riprap. These large strips curve in forms that counter the currents and mimic waves and repeat along the banks of Lake Ponchartrain from the Bonnabel boat-launch to the west and the Bucktown Marina on the east. Between and behind these pier-like structures wetland habitats can thrive and be maintained due to the cyclical inflow of current waters by open spaces about 300 feet long within the lines of the hard structures. The value of these structures is immeasurable for the integrity of the levee system, supportive wetlands and personal interaction with the local community to the wetland environment.

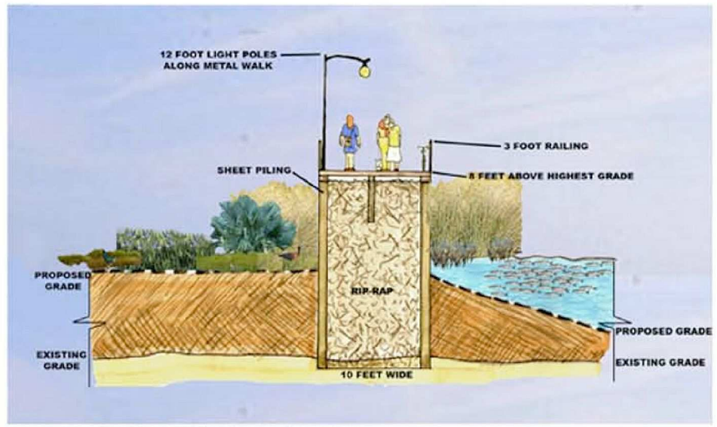
Wetlands play a vital role in earth's ecosystem by acting as a reservoir. Storm tides are significantly dissipated through wetlands. A wetland acts as a buffer by storing excessive amounts of water. They also slow shoreline erosion and are able to absorb excessive amounts of nutrients before they reach the estuaries and oceans. According to John W. Day, Jr., distinguished professor emeritus in the Department of Oceanography at Louisiana State University, "A general rule of thumb is for every square mile of wetlands, it reduces flooding by one foot." In designing the wetlands it is most important to use native species that existed prior to development. By using native plants, it allows the maintenance on the site to be minimal and also aids in restoring the habitat both on land and in water that was lost when the pre-existing wetland was drained. There are various zones that make up a wetland, tree zone, shrub zone and marsh zone. The zone of highest elevation and closest to shore consists of trees such as bald cypress, black willow, and swamp red maple. In the shrub zone you may find species such as baccharis hamifolia, buttonbush, and marshmallow. The last zone and furthest out in our wetland is the marsh zone. Tidal marshes are normally categorized into two distinct zones, the upper or high marsh and the lower or inter-tidal marsh. The lower marshes usually covered and is exposed to daily tides. A commonly found plant for this lower marsh zone is cordgrass (spartina alterniflora). The higher marsh is covered occasionally by water and it is characterized by short smooth cordgrass, spike grass, and black grass. Recreating the Bucktown wetlands creates a habitat for aquatic and land species, provides an environment for recreation, and offers an interactive educational center for the community.

The recreational opportunities in the design are located basically in three areas: the boardwalks atop the hard-structured piers, the pedestrian/bike path and the marina-side park. Activities on the 'boardwalks' could vary from walking, strolling, fishing to bike riding along the alternating surfaces of synthetic wood and perforated metal to allow observance and sensation of the lake below. The boardwalks also tie into or stem from the pedestrian/bike path which runs along the edge of the lake parallel to the levee in order to promote connectivity and use. The character of the pedestrian/bike path is undulating by intermittent mounds that range in size and plant materials which cap them and provide shade and interest. The general dimensions of the mounds would be thirty feet wide, fifty feet long and five to seven feet tall with soft edges that implant the mounds into the level surface and are spaced every 150 to 300 feet, depending on total distance length of path. Mounds which the path does not cross over are planted with two to three small flowering trees or large shrubs and surrounded with upto the foot of the levee with medium to tall native grasses in order to provide a visual transition between the contrasting forms of the levee to the lake. The material of the mounds traversed by the path can be reused or recycled riprap and the surface of the path is formed by recycled rubber or asphalt. Another access with the path is the Bucktown Marina and its adjacent park that provides a space for families to go on weekends to fish and picnic. The park has a series of sharply-edged mounds that create narrow corridors that bring the user towards the lake's edge and dramatically contrast with its vast openness. The mounds also are constructed of reused riprap from Hurricanes Katrina and Rita's destruction and vary in heights from ten, fifteen, twenty and twenty-five feet tall and covered with native, long blade grasses that will wave and flow to portray currents coming off the lake.

Barrier Islands



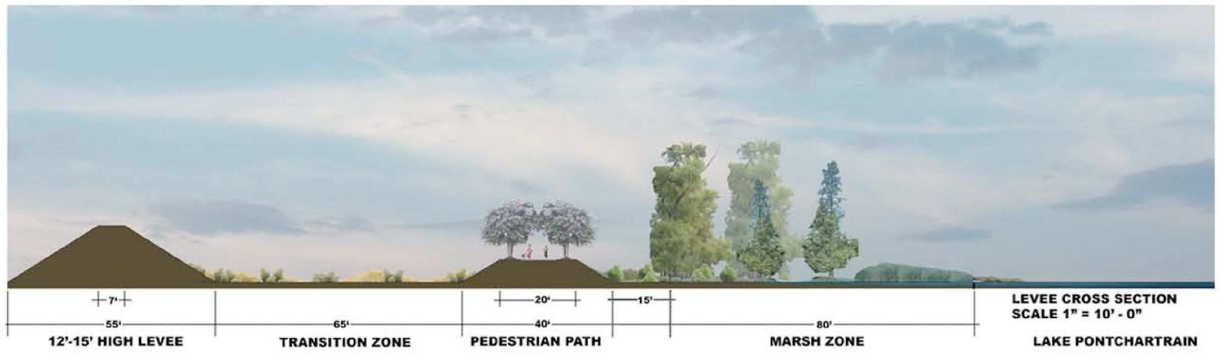
SECTION OF MARSH WETLAND INFLOW & BOARDWALK

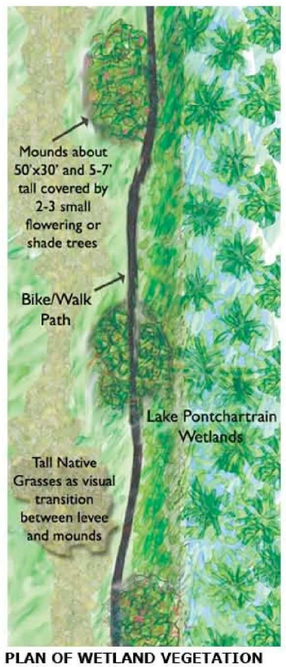


MARSH ZONE CROSS-SECTION

(images not to scale)

MOUNDS IN MARINA PARK (NOT TO SCALE)





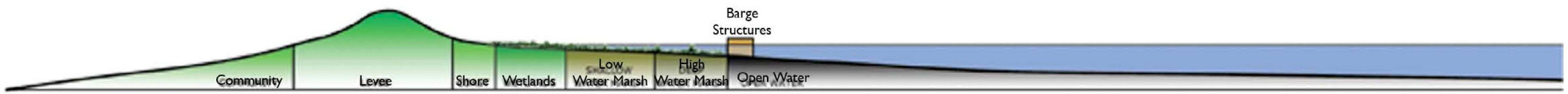
PLAN OF WETLAND VEGETATION

PATHWAY THROUGH WETLANDS

MARSH EDUCTATIONAL WALK

Barge Breakwater

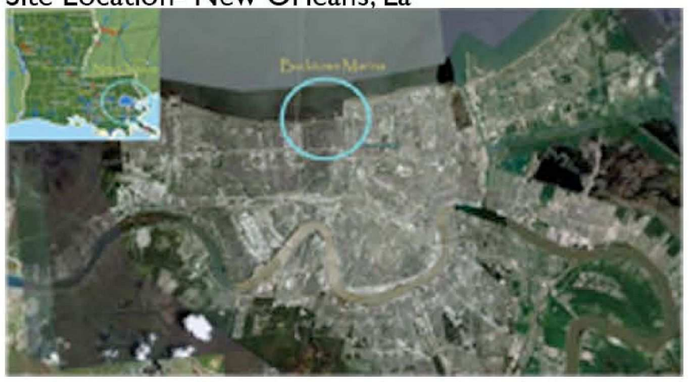
Plan of Barge Breakwaters and Wetlands



Section of Barges ans Wetland Vegetation

Barge Breakwater

Site Location- New Orleans, La



Site Problems

-Rip-rap is an unsuccessful method of controlling erosion.

-Invasive plant species present.

-Limited pedestrian connection with waterfront.

-Poor protection from storm surges.

Concept Diagram

Diagram of proposed dredging of lake and filling of coastal area.

-System of boardwalks providing access to breakwater barges for recreational fishing.

-Planting of native wetland plant materials to encourage wildlife species to be present and to promote fisheries

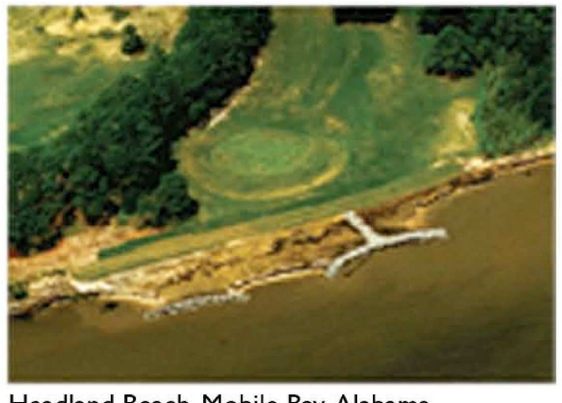
Breakwater System Diagram

Retired barge, filled with rubble, and used as wetland breakwater

Barge filled with crushed concrete riprap, gravel and sand to create walkable structure.

Precedents

Holly Beach, Louisiana
- System of 85 breakwaters constructed to slow storm surges and erosion.
-Successful method of trapping sediment to rebuild an eroding coastline.



Headland Beach, Mobile Bay, Alabama
-System of 2 constructed concrete breakwaters
-Wetland filled with dredged lake material and planted with native plant species
-Successfully reclaimed beach area near golf course

Group 11

Lakefront & Marina Designs

Project Objectives:

- To reconnect the lakefront to the path system and the West End
- Develop a park that promotes interaction with the lake and marina
- Design a marina for both commercial and private vessels
- Educate the public about the Lake Pontchartrain Basin
- Develop an area for local businesses and resturants

BUCKTOWN LAKEFRONT AND MARINA

EXISTING CONDITIONS

PROJECT TEAM:

TRAVIS MOORE

MATT MILANO

JAMES ANDERMANN

KYLE LAFERNEY

STEPHEN RUST

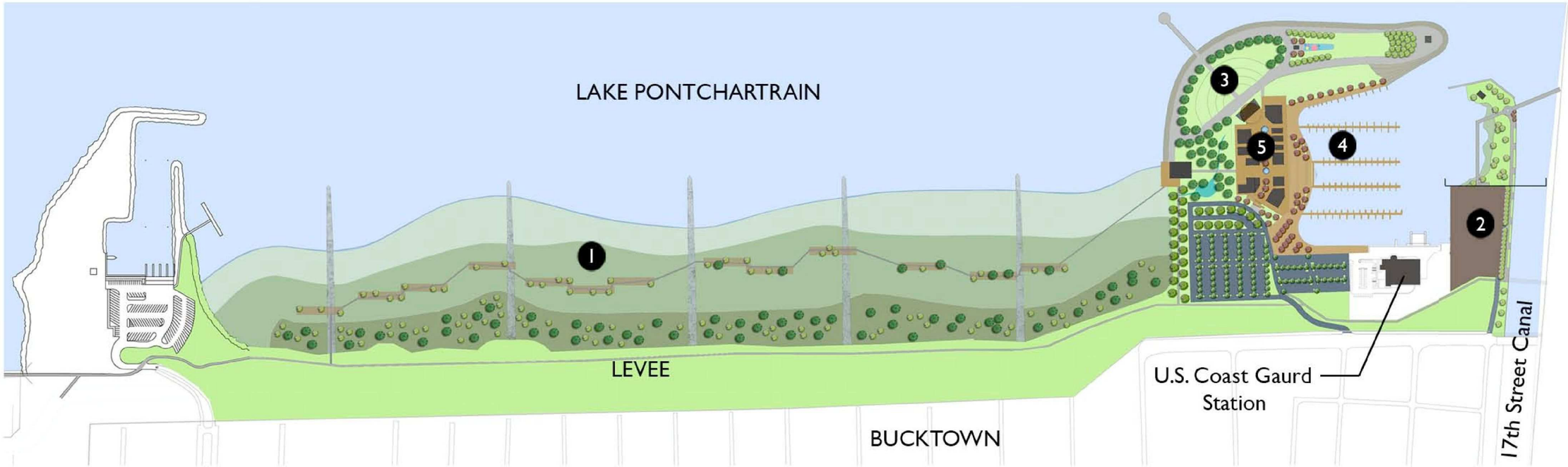
THOMAS TAYLOR

OBJECTIVES:

1. To reclaim some of the lost coastal wetlands, and protect the Bucktown Lakefront from errosion and storm surge.
2. To reconnect the Bucktown Lakefront with the extensive lakefront path system.
3. To create a Park that promotes interaction with both Lake Pontchartrain and the marina.
4. To design a marina for both commercial and private vessels that is functional and environmentally sensitive.
5. To develope an area where people can gather, dine near the water, buy fresh caught seafood, and fishing supplies.

Photo of Coastguard Station

BUCKTOWN LAKEFRONT AND MARINA



PHASES

Phase 1 - Wetland, Pier and Park

Phase 2 - West End, Retail, Ampitheater, Harbor, and Boardwalk

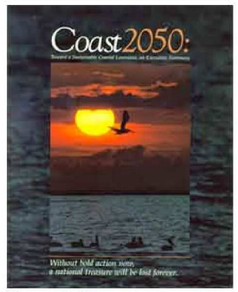
Phase 3 - Coastal Studies Pavilion, Splash Park, and Memorial Tower

Phases in Plan

RESEARCH AND PRECEDENTS

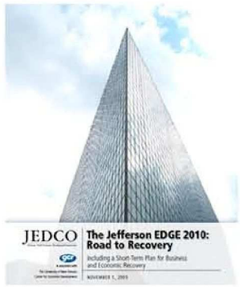
FEMA

Washington



Coast 2050

Comox Harbor



Edge 2010

San Diego, CA

INDEX

1. Bucktown Wetland Lakefront
2. West End Connection
3. Bucktown Pier and Park
4. Marina and Boardwalk
5. Marina Retail Center

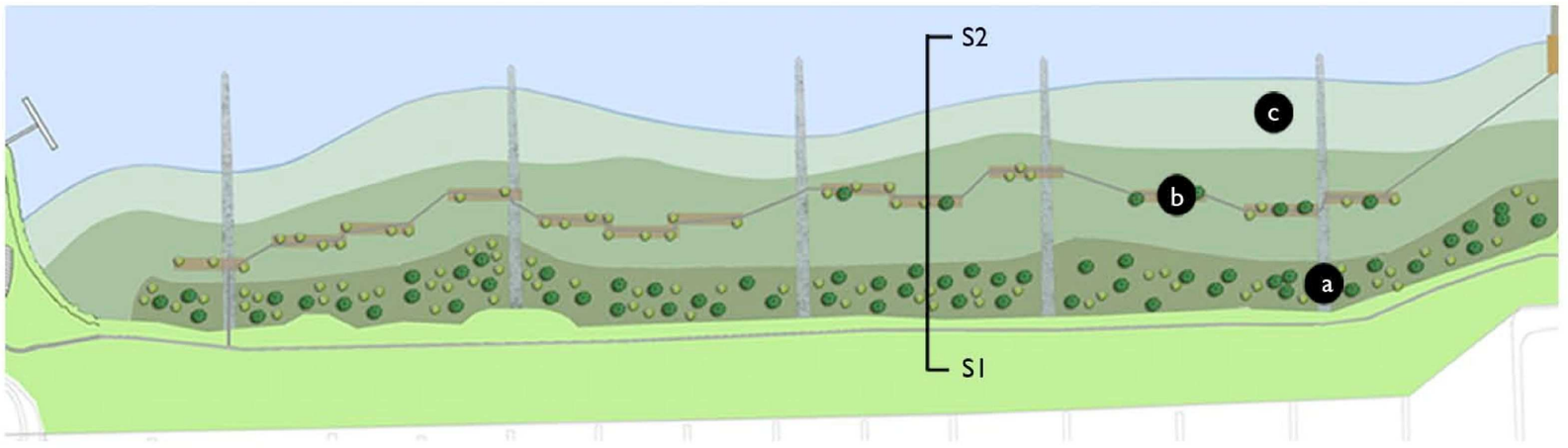

Photo of wetlands


Barges can be recycled

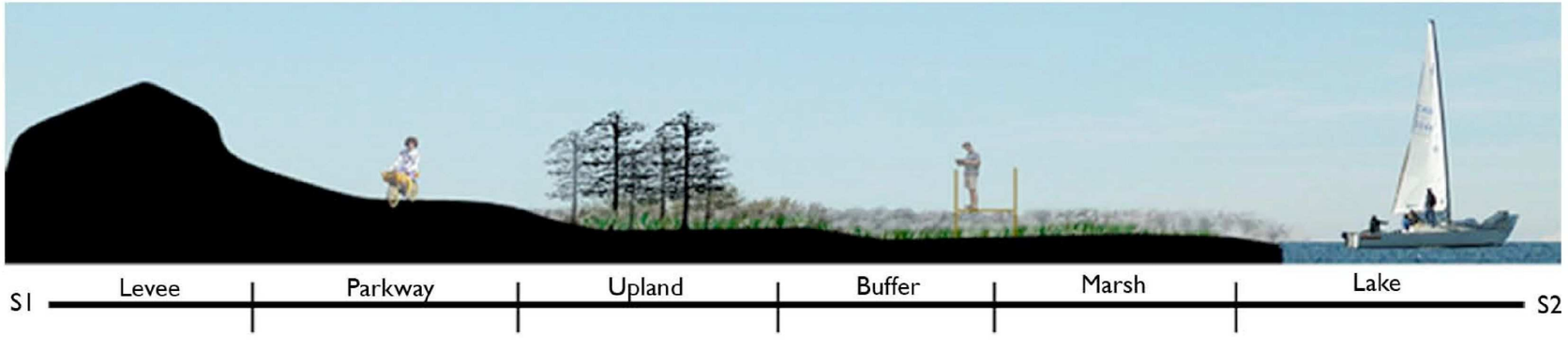
I BUCKTOWN WETLAND LAKEFRONT

Design:

The wetlands area was designed to be implemented in several stages and constructed using local recycled materials. Currently the levees themselves would be impacted by the majority of a significant storm surge as recently discovered. This design builds wetlands out into the lake so that this impact would be lessened also creating habitat and recreational opportunity.



Bucktown Wetland Lakefront Plan

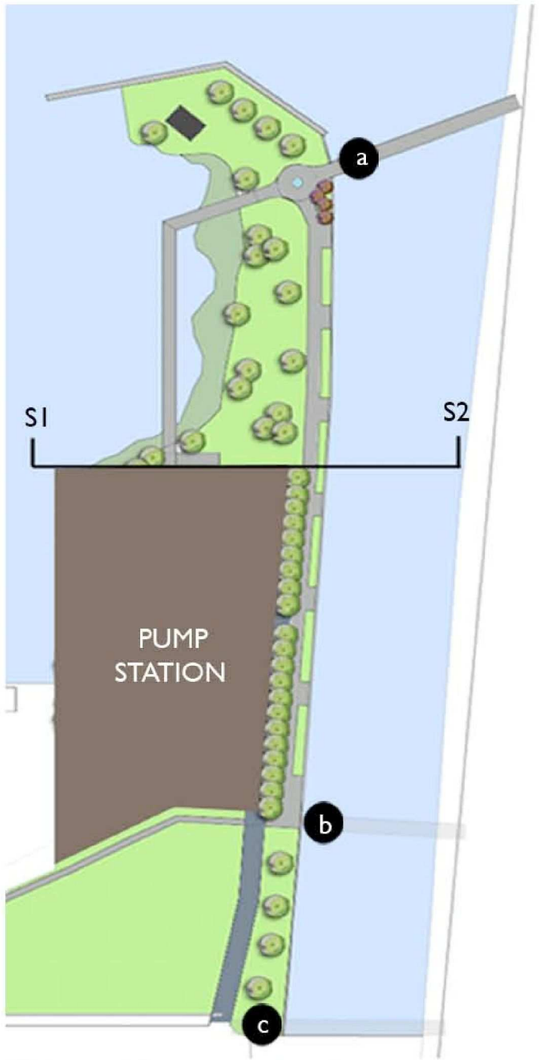


a Stage one - would consist the beginning of the jettie's reaching out into the lake. These jetties are consisting of rock or preferred recycled concrete. Broken concrete would promote sustainable practice of recycling concrete from local project. As discovered from Katrina, any jetties parallel with the outgoing water could be destroyed and scattered into the lake. Building jetties perpendicular to the levee would help to maintain its integrity when over run. These jetties's serve as wave breaks so that the wetlands could grow quicker with less stress. The wetlands are shown in three different areas. The closer would be built initially with buffer grasses eventually additional land would be able to support medium sized

b Stage two - would extend the jetty system and wetlands around 200 feet. At this point recycled barges could be used. The barges would be filled with dirt and sank as another wave buffer. The barges would also serve as stopping points on a wetlands boardwalk. This new boardwalk if destroyed from a large storm could be easily replaced because of the existing barges. The barges in many lifetimes from now would eventually rust apart but then would have established a small hill around it from build-up

c Stage three - would extend the jetty and wetlands further to establish natural piers and a larger buffer. The final stage of wetland would be close to water level so that small fish could inhabit the grasses. This habitat would help the lake fisheries and attract locals to the rock jetties.


Photo of concrete rip-rap



2 WEST END CONNECTION

Concept:

The concept behind this section of the marina is to revitalize the link between Bucktown and other lakefront communities.

Program:

Some important site elements that should remain are the West End bridge and the resturaunt Il Tony's. Some new site elements would include a pump station, pedestrian pier and dock, and community park space and connecting path system, and wetland planting around coastline.

Since exact details about the pump station is unknown, restoring the original bridge may not be possible. However, the concept of restoring the connection can still be achieved by creating the pedestrian connection in alternate locations.

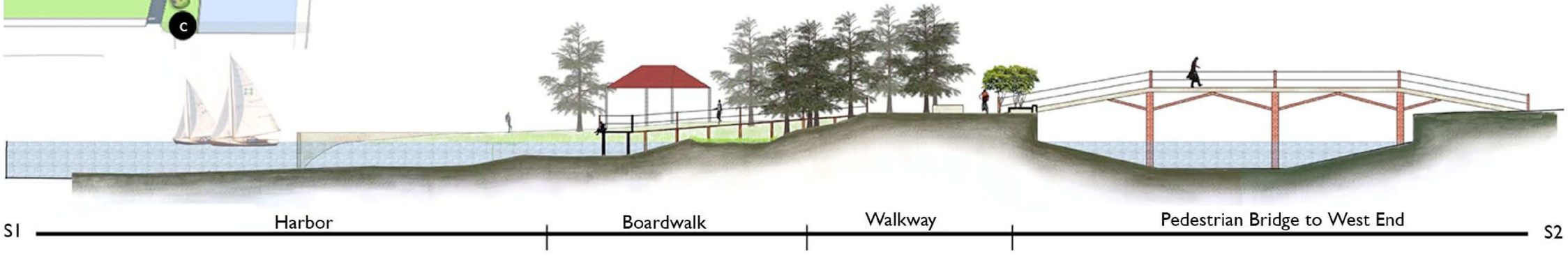
a Initial Location of West End Bridge

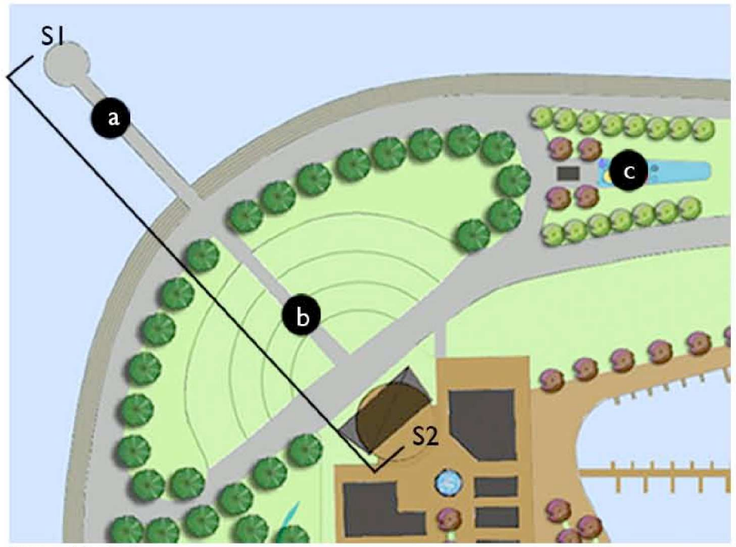
b Alternate location #1

c Alternate location #2 - Addition of pedestrian lane to existing Hammond Hwy bridge.

Methods:

Some methods used in this design include; separation of vehicular and pedestrian circulation, use of wetland plants to cleanse stormwater runoff before entry into the lake, closure of vehicular traffic to Orpheum Ave.





Pier and Park Plan


Ampitheater and Pier Perspective

3 BUCKTOWN PIER AND PARK

Design:

The Bucktown Pier and Park provide passive and active activities. You can access the park from three locations; first the main entrance from the parking lot and educational center on the south and two entrances from the mixed use area on the East. The design calls for light poles bordering the waterfront to serve as an icon. The lights double as a security and safety feature, they will provide enough light to help guide fisherman and provide for a safe pedestrian site. The waterfront will also be border with concrete steps that double as erosion guards and allows fisherman to sit along the water. The vegetation within the park is planted around the perimeter to encounter high-speed wind and storm surges.


Perspective of Concrete barrier wall

Program Elements:

a **Pier**- located on the curve of the peninsula. The pier spans out two hundred feet into deeper water. This allows the fisherman to fish in deeper populated waters.The pier also has the light poles to connect the pier to the site.

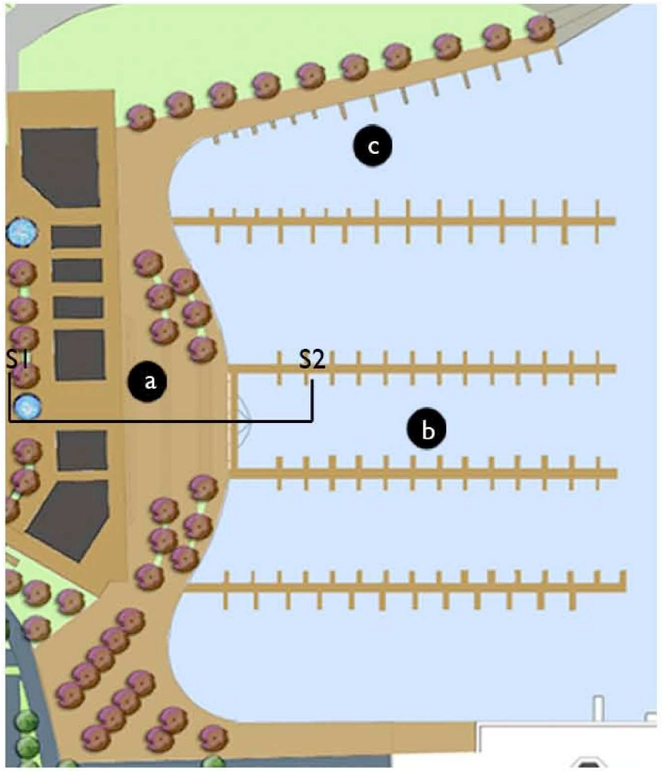
b **Amphitheater**- located on the curve of the peninsula. The two-foot grade change is absorbed with four six-inch steps. This grade change spreads over a three hundred foot field, which allows for a slope that children can play in.

c **Splash Park**- located east of the amphitheater. This part of the park attracts families to the site. The splash park is the designated location for the restrooms and concessions for the park.


Photo - Pole Lighting


Photo of a Park Theater


Photo of a Splash Park



Marina and Boardwalk Plan


Perspective of Marina and Boardwalk

4 MARINA AND BOARDWALK

Concept:

The concept behind the Bucktown Marina design was to integrate the cultural heritage with modern age design. The grand decent from the plaza down to the marina water level allows the viewer not only to enjoy the display of water works from the elegant fountains; but also the opportunity to read the history of the Bucktown Marina. As the admirer walks throughout the marina, large arbors created to resemble the old restaurants on stilts, are overhead which would be with flowering vines. These arbors are symbols of historic heritage which once stood in the Bucktown area that can never be forgotten. The vines which envelop these arbors symbolize the rebuilding and rebirth of the great city of New Orleans.


Photo of boat docks

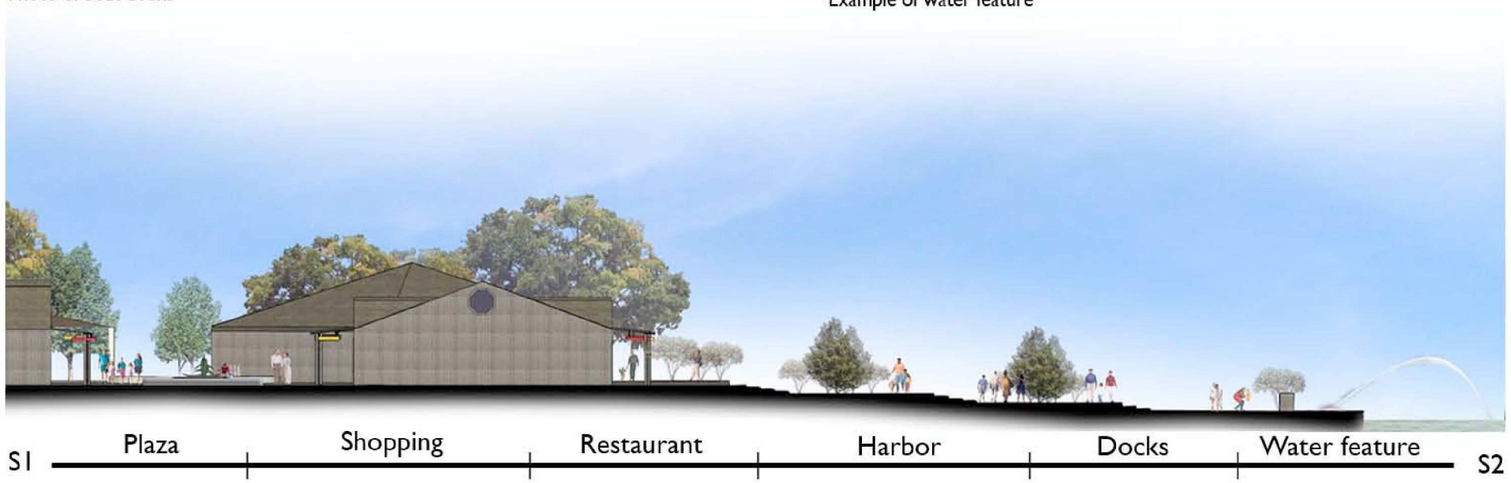
Program Elements:

a **Boardwalk-** Boardwalk will provide pedestrian access from boat docks to rest of marina activities.

b **General Use Docks** - These boat docks will be used by the general public, and can provide access into the site by boat.

c **Commercial Fishing Docks** - These docks are going to house the Bucktown commercial fishing fleet only.


Example of water feature



Plan View of Retail Center

5 MARINA RETAIL CENTER

Design:

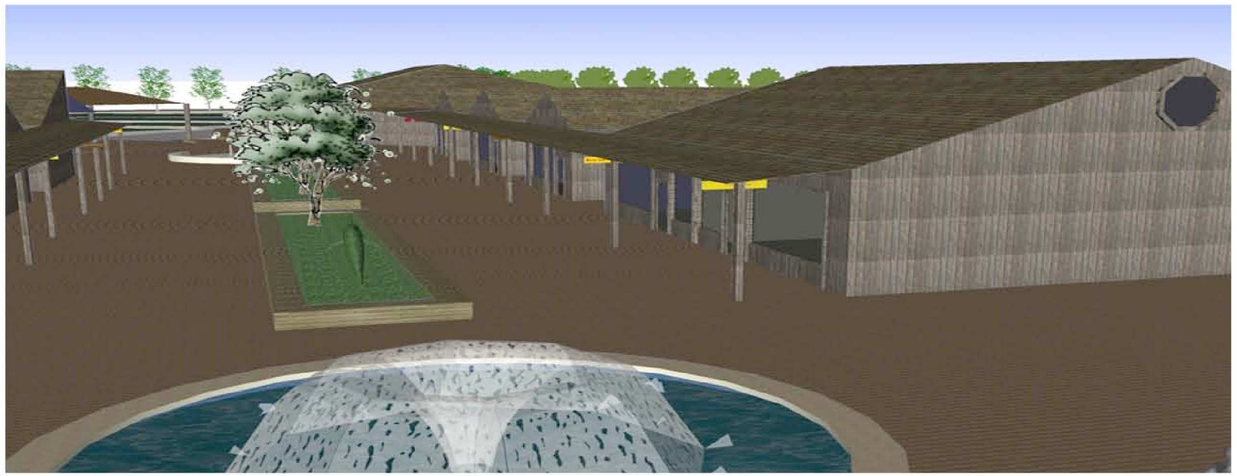
The Bucktown Marina Retail Center is located between the docks and the park area. As you approach the development from the entry drive, there is an arch welcoming you into the site. The entry axis of the site is intersected by a cross axis that leads from the park area to the dock area. The boardwalk is lined with stores, shops, and assorted restaurants. The centerline of the boardwalk is occupied by planters populated with trees to offer shade. The storefronts all have overhanging awnings that mimic the shaded galleries of fishing camps that once occupied this area.

As you continue down the promenade, there are fountains and street performers offering entertainment as you shop. At the end of the boardwalk, as you are approaching Lake Pontchartrain, a grand amphitheatre radiates out toward the lake. This space could be used as an outdoor concert venue, or just as a picnic area.

The strong axial form of the retail area focuses your attention in one direction toward the shops and restaurants, and in other direction towards the harbor and the wetland area. This allows this area to be a place to just pass through on your way to visit other amenities of the site, or a place you can stay and spend the afternoon in; the choice is left to the visitor.

a Parking Lot Drop-off - The retail center will be pedestrian circulation only. The drop off will provide quick access from vehicle to retail

b Shops - These will be primarily markets, restaurants, and bait + tackle shops.


Perspective View of north end looking down the corridor to the south


Perspective View looking east towards the docks


Birds Eye of the Retail Center

Group 111

Greenbelt Designs

Project Objectives:

- Develop educational and recreational spaces throughout the site
- Propose a plan for the existing Bonnabel Boat Launch/Indian Beach
- Preserve the indigenous wildlife and provide refuge
- Create circulation throughout the site
- Develop connecting green spaces throughout the site

Precedents Research

PRECEDENTS AND RESEARCH:

SIGNAGE ISSUES:

Signage will be used to point out extremities of the park. Also different events and activities as well as contact information can be used. EMS and 911 call phones can also be placed in these signs for security issues.

ENTRY GATEWAYS:

Gateways can be used to give the site identity from the rest of the area. We are proposing to stretch the identity of the levee's recreational area as far as the West Esplanade Canal.

WETLANDS:

Wetlands are important consideration in order to shield the levee system from storms as well as adding interest to the lake front and helping to purify the lake water.

SEATING:

Our goal is to use natural materials that will be aesthetically pleasing as well as functional as seating and guard rails

PROPOSED PROGRAM ACTIVITIES:

Jet Skiing
Volleyball/ Play Fields or Areas
Motorized Remote Control Area
Sliding
Jogging, Bike, and Walking Paths
Water Playground Area
Dog Park
Artist Stands
Theatrical Productions Area
Musical Entertainment Area
Organized Meeting Places for Functions
Eating Areas and Café Stands
Possible Infinite Pool/ Swimming area
Recycling/Disposal Project Area
Wetland Preservation & Restoration Area
Fishing Areas

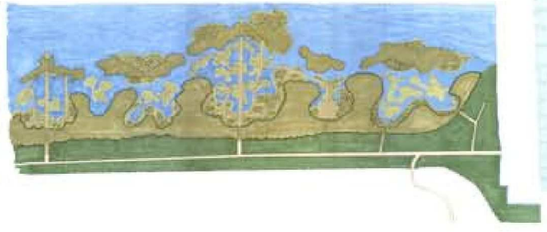
JEFFERSON PARISH LAKEFRONT RESTORATION

Recreational Greenbelt

RECREATIONAL/EDUCATIONAL NODE

The Bucktown Educational/Recreatinal node will provide passive and active activities. You can access the park from four locations; the main entrance would be the causway entrance located to the right of the toll plaza. The other main entrance is at the other end of the site by the Coast Gaurd station. Two other entrances will be the Bonnable boat lauch and a neighborhood entry to the site.

HABITAT FOR WILDLIFE NODE



This area is intended to create a habitat for wildlife as well as a recreational area for people to relax and enjoy themselves. It is also intended to expose people to the natural systems that existed in the area prior to human settlement. This will also help to mitigate some of the strm surge that comes with major storms and hurricanes.

BONNABEL BOAT LAUNCH

The site plan for the Bonnabel Marina is intended to enhance the recreational experience of adjacent residents. A theatre and monument area has been added in order for theatrical waterfront productions to now take place. Also, a plaza intended for maritime artists has been introduced in order to add to the lakefront atmosphere.

LAKEFRONT ACTIVITY CENTER

This section of the site is a recessional area that meets the needs of the local residents. This area is accessed by a pedestrian entrance that was already built. The pedestrian entrance meets up with the existing path along the edge of the levee. A plaza on the other side of the path has a restroom, interactive fountain, and fishing supply store. Continuing out over the wetlands there is a resting area for people walking on the boardwalk and several platforms for fishing and wildlife watching.

LAKEFRONT RECREATION FOR RESIDENTS

This site caters to recreatinal needs of the local residents rather than directing their lakefront recreation to the Bonnabal boat launch or the 17th Street Marina. Small neighborhood playgronds will provide lakeside activity at the residents back door. An ADA ramp with intersecting stairs lead residents from their own street, over the levee, and into neighborhood playground, containing play structures, a volleyball court, and a shelter. Adjacent to this area is a toy boat pond, seperate from the lake, but filled with the ebb and flow of the tides.

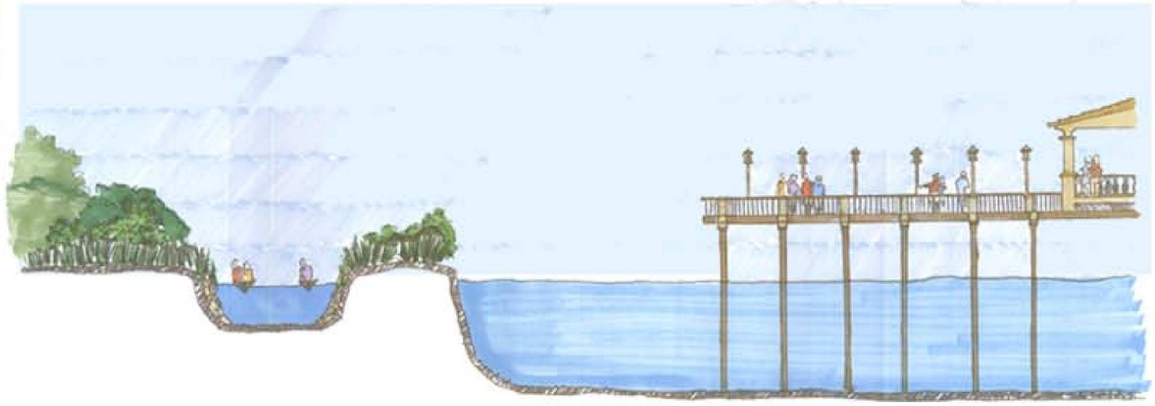
EDUCATIONAL/RECREATIONAL GREENBELT SYSTEM

MASTER PLAN

The Bucktown Educational/Recreatinal node will provide passive and active activities. You can access the park from four locations; the main entrance would be the causway entrance located to the right of the toll plaza. The other main entrance is at the other end of the site by the Coast Gaurd station. Two other entrances will be the Bonnable boat lauch and a neighborhood entry to the site.

PROGRAM ELEMENTS:

1. AMPHITHEATER-Provide an area to teach kids the importance of our wetlands and ways to save them.
2. RECREATIONAL WETLANDS-This area will allow people to see the site by canoe.
3. RESTAURANT- This will give users and chance to enjoy a bite to eat while viewing the bird sancuary and wetlands



SECTION A-A,

RESTAURANT/BOARDWALK CONNECTION TO WETLANDS

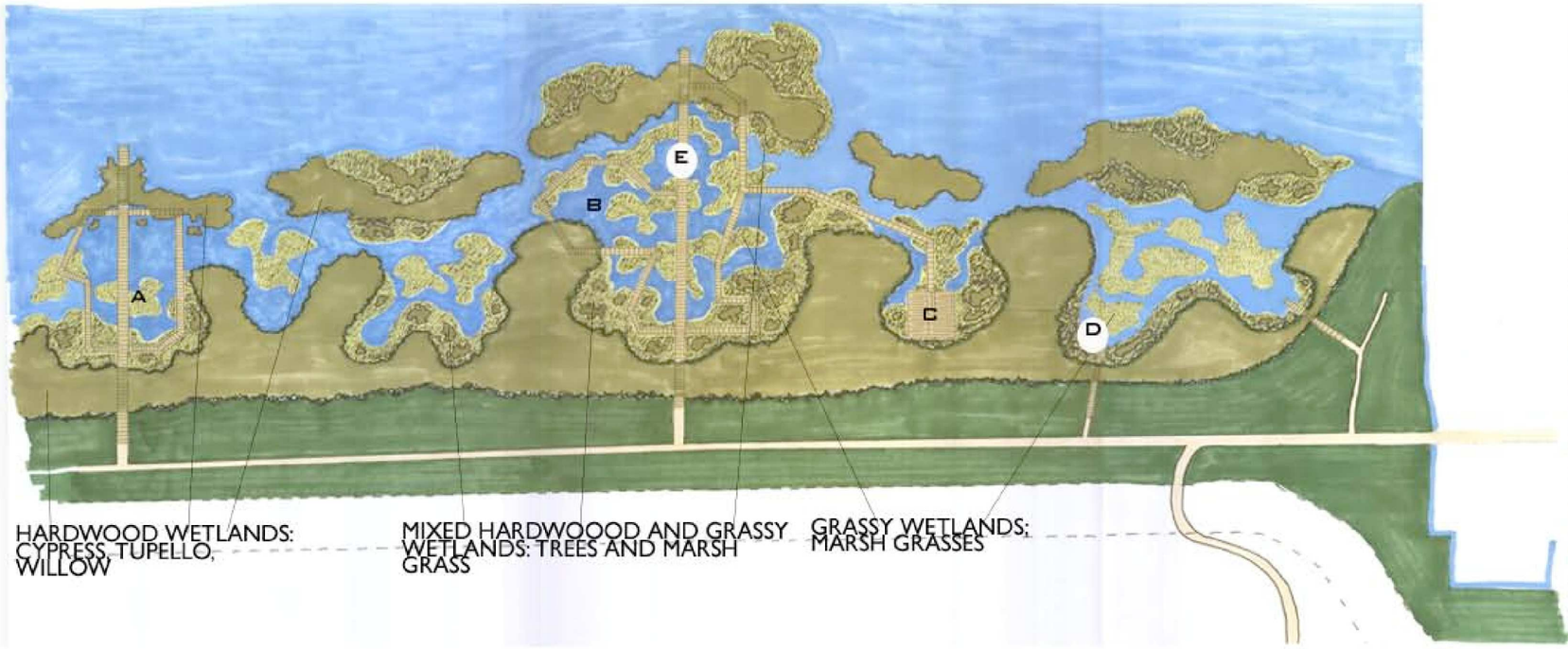
LEGEND:

1. AMPHITHEATER/WETLANDS LEARNING CENTER
2. CAUSWAY
3. BIRD SANCTUARY/ CANOEING
4. RESTAURANT
5. BOARDWALK
6. ENTRY PLAZA
7. RECREATIONAL WETLANDS
8. CANOEING TRAILS
9. RUNNING PATH

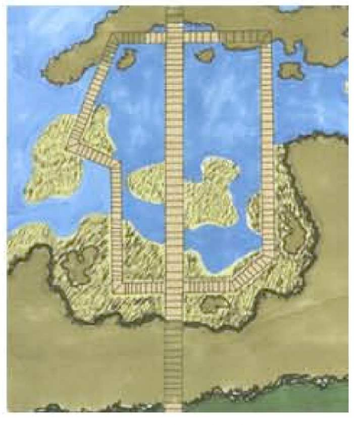
SECTION B-B,

RECREATIONAL WETLANDS SHOWING THE CANOEING TRAILS

Habitat for Wildlife

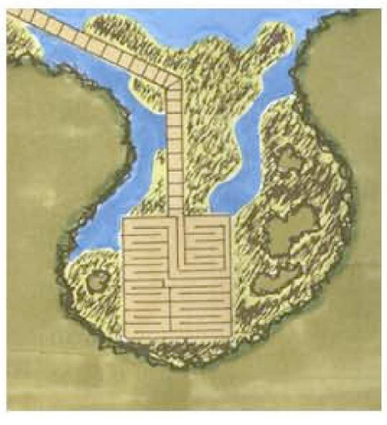


D. THIS IS A VIEW OFF OF ONE OF THE FISHING PEERS LOOKING TO THE NORTH EAST



A. THIS IS A SMALL WET LANDS SPACE DESIGNED FOR FISHNG, WALKING, AND WILDLIFE HABITAT PRESERVATION.

B. THIS IS A LARGER SPACE WITH MORE OPPORTUNITY FOR RECREATION AND FIRST HAND EXPERIENCE OF THE WETLANDS

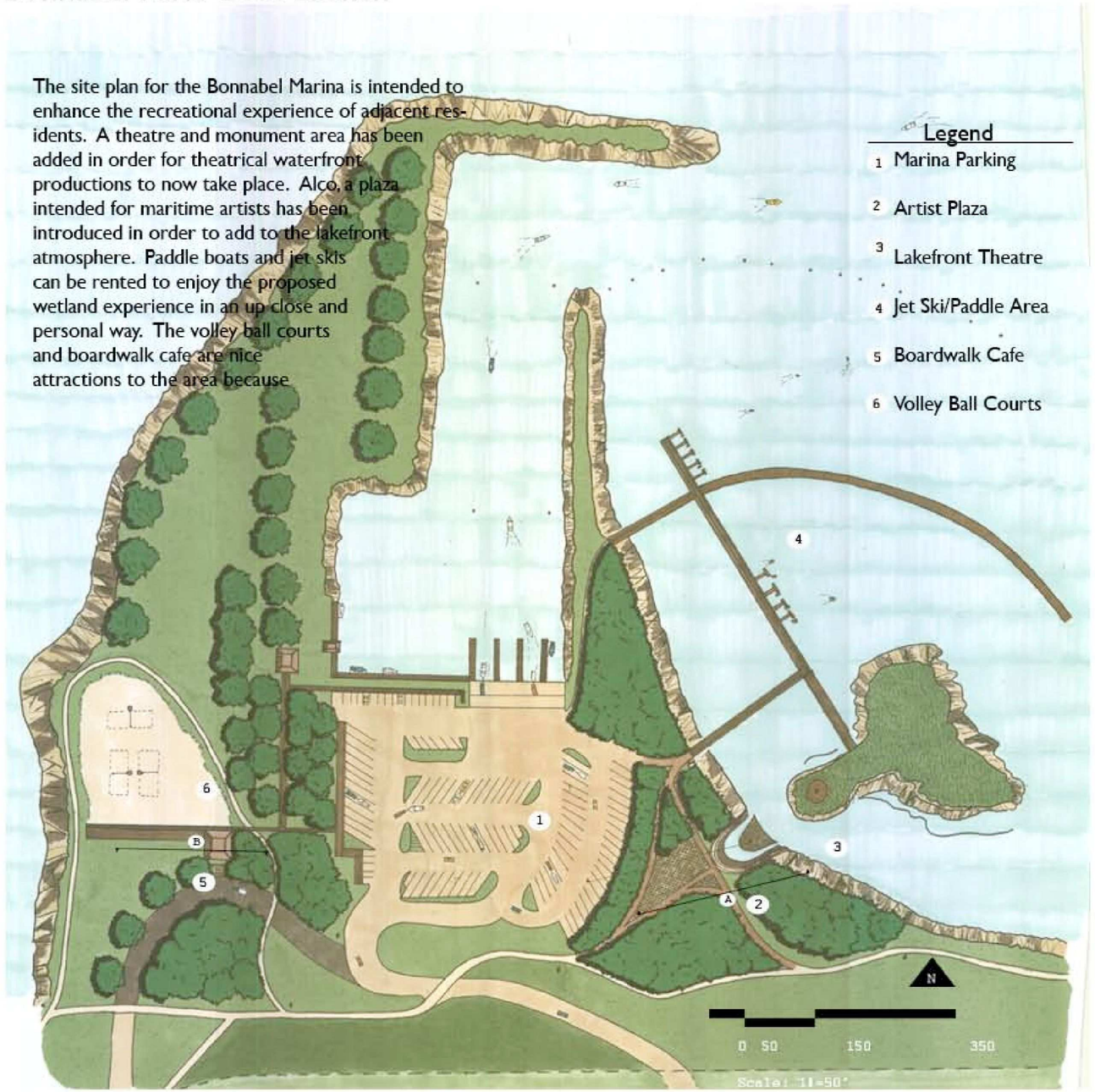


C. THIS A LABRINYTH TO PROVIDE PEOPLE WITH A CHANCE TO MEDITATE AND EXPERINCE THE LANDSCAPE IN A DIFFERENT WAY

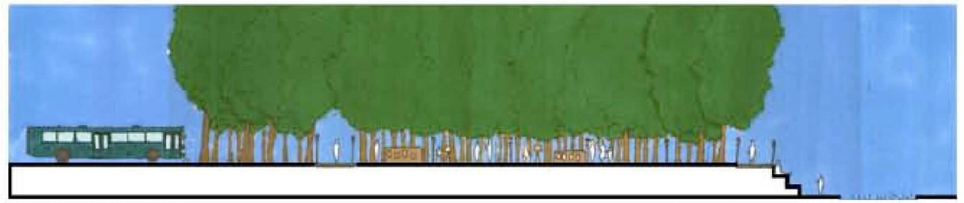
E.THIS IS THE MAIN BARODWALK AREA. THIS IS LOOKING TOWARDS THE NORTH

Bonnabel Park/ Boat Launch

The site plan for the Bonnabel Marina is intended to enhance the recreational experience of adjacent residents. A theatre and monument area has been added in order for theatrical waterfront productions to now take place. Alco, a plaza intended for maritime artists has been introduced in order to add to the lakefront atmosphere. Paddle boats and jet skis can be rented to enjoy the proposed wetland experience in an up close and personal way. The volley ball courts and boardwalk cafe are nice attractions to the area because



Plan of Bonnabel Park and Boat Launch



A Artist Plaza/Theatre

The concept for the art plaza was to have a place where maritime artists can set up their stands. The plaza is intended to lead into the theatre in order to add to the cultural atmosphere of the area.

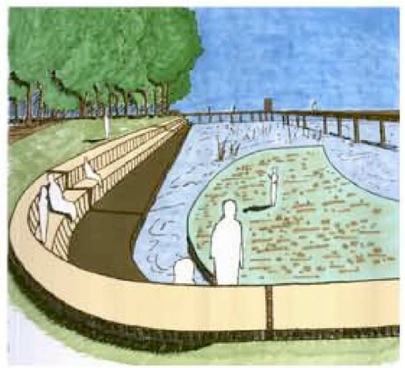
0 10 30 70
Scale: 1"=10'

B Boardwalk Cafe

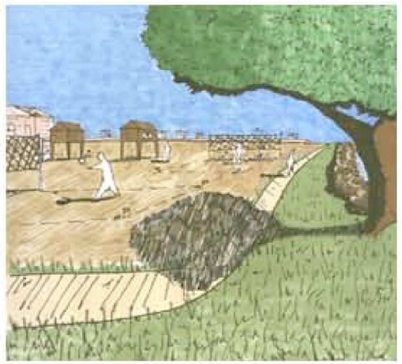
The intent of the cafe and boardwalk are to enable onlookers at volley ball tournaments to sit and enjoy the competition.

0 10 30 70
Scale: 1"=10'

BONNABEL PERSPECTIVES

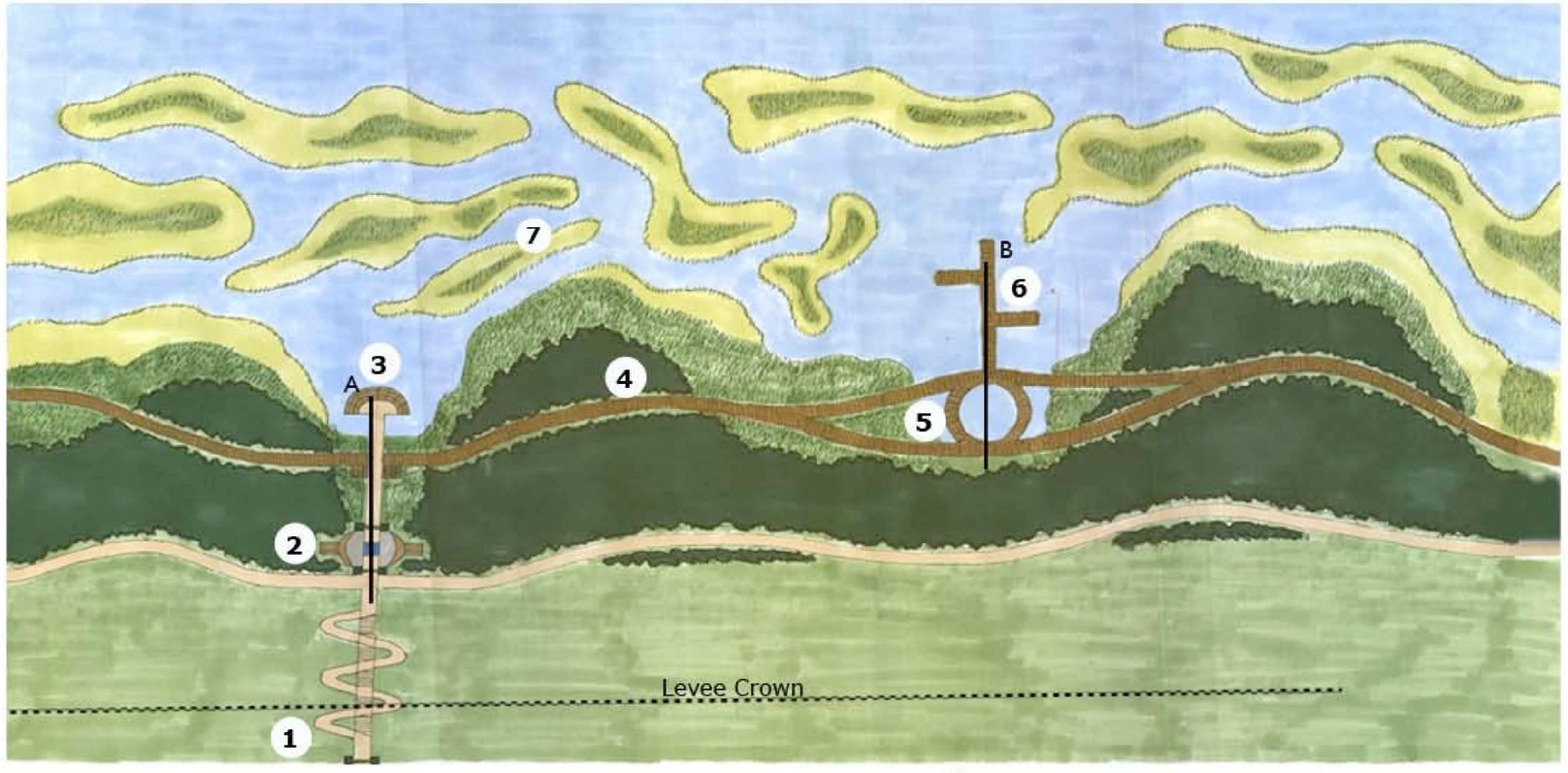


Theatre Perspective



Volley Ball Court Perspective

Lakefront Activity Center



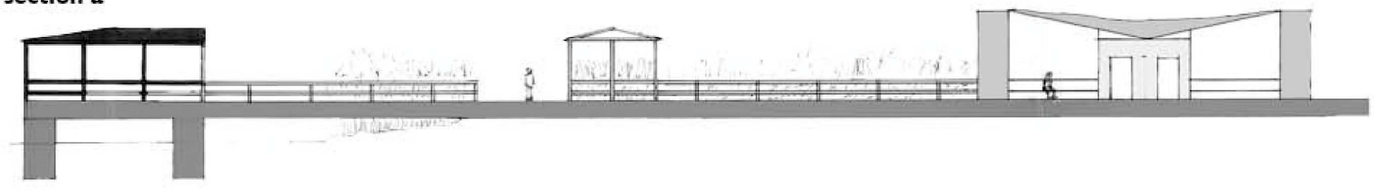
SITE ELEMENTS

1. Homestead Ave. pedestrian neighborhood entrance
2. Covered pavilion with fishing supply store, restrooms, and interactive fountain
3. Covered platform with scenic overlook of wetlands
4. Elevated boardwalk through wetlands
5. Scenic wetlands observation deck
6. Fishing pier
7. Constructed wetlands from heavily wooded areas to grasses and marshlands

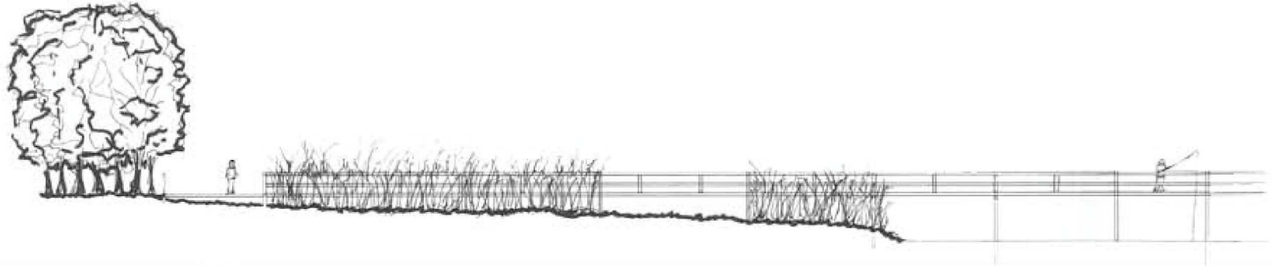
SITE DESCRIPTION

This section of the site is a recreational area that meets the needs of the local residents. This area is accessed by a pedestrian entrance that was already built. The pedestrian entrance meets up with the existing path along the edge of the levee. A plaza on the other side of the path has a restroom, interactive fountain, and fishing supply store. Continuing out over the wetlands there is a resting area for people walking on the boardwalk and several platforms for fishing and wildlife watching.

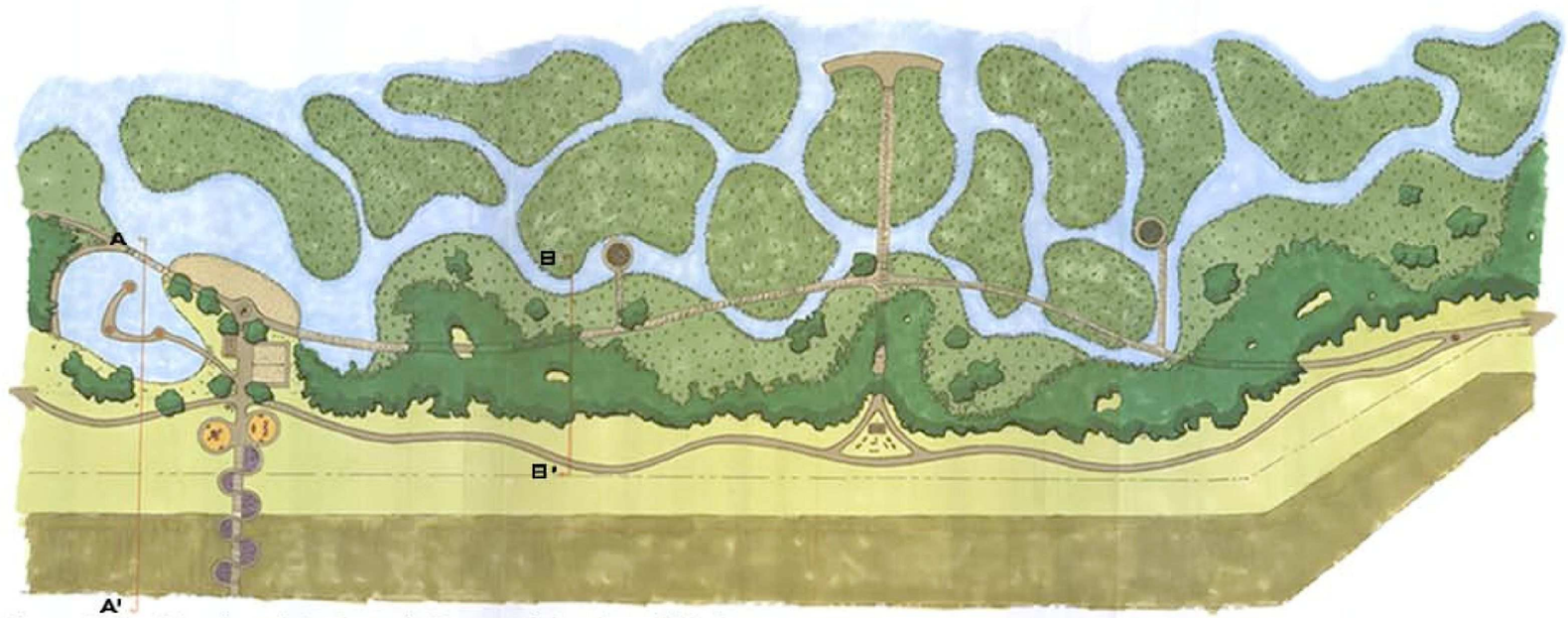
section a



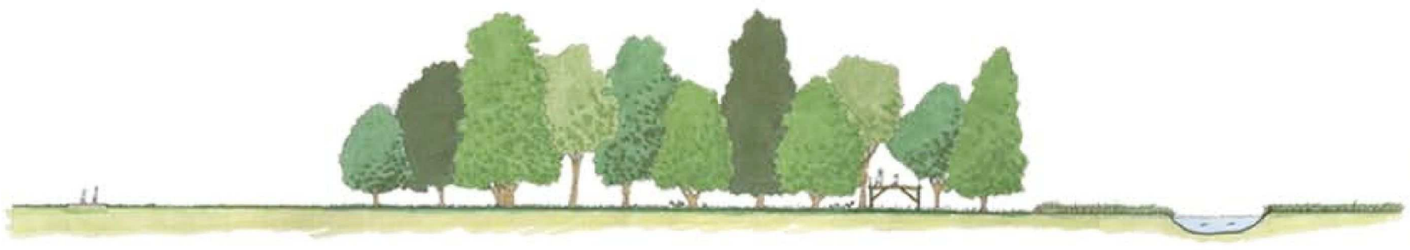
section b



Neighborhood Lakefront Recreation



Plan of Neighborhood Park with Barrier Islands and Pathways



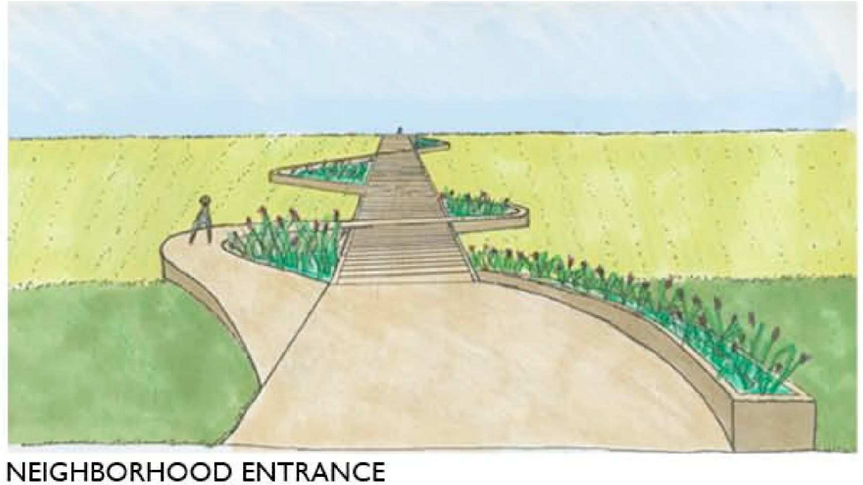
SECTION A

SECTION B

SITE DISCRIPTION:

This site caters to recreatinal needs of the local residents rather than directing their lakefront recreation to the Bonnabal Boat Launch or the 17th Street Marina. Small neighborhood playgronds will provide lakeside activity at the residents back door. An ADA ramp with intersecting stairs lead residents from their own street, over the levee, and into neighborhood playground, containing play structures, a volleyball court, and a shelter. Adjacent to this area is a toy boat pond, seperate from the lake, but filled with the ebb and flow of the tides. Extending into the wetlands, the playground intersects with a sand beach at this terminus. Addtional elements include raised platforms for scenic views within the wetlands a runners rest area.

TOY BOAT PARK



NEIGHBORHOOD ENTRANCE


LSU