

Brechtel Park

Master Plan Report & EcoPlan Report

A Regional Ecological Park



Prepared for:

Westbank Redevelopment Corporation
City of New Orleans Department of Parks & Parkways

Prepared by:



January 09, 2012



COMBINED REPORT INCLUDES

Master Plan Report

EcoPlan Report



Brechtel Park

Master Plan Report

A Regional Ecological Park



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Prepared by:



November 21, 2011



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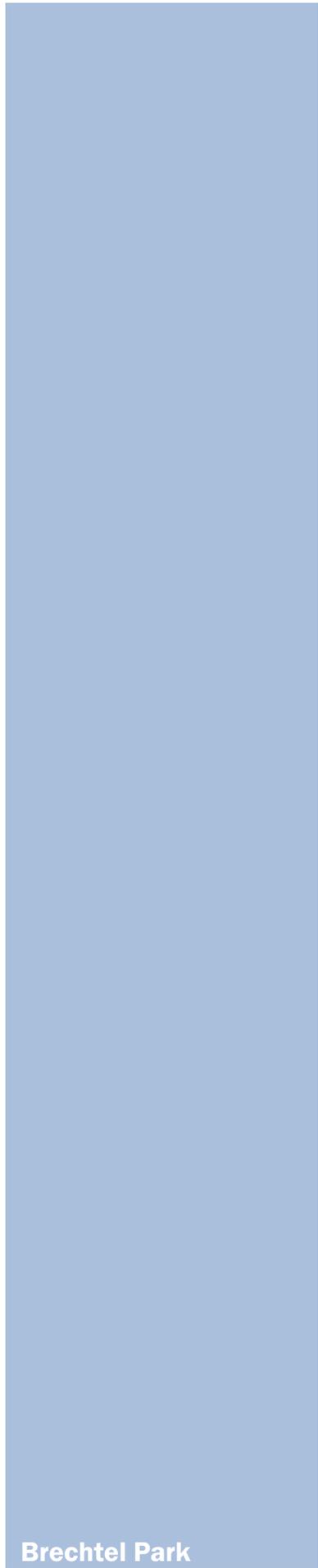


Existing Brechtel Lagoon

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INTRODUCTION

Background

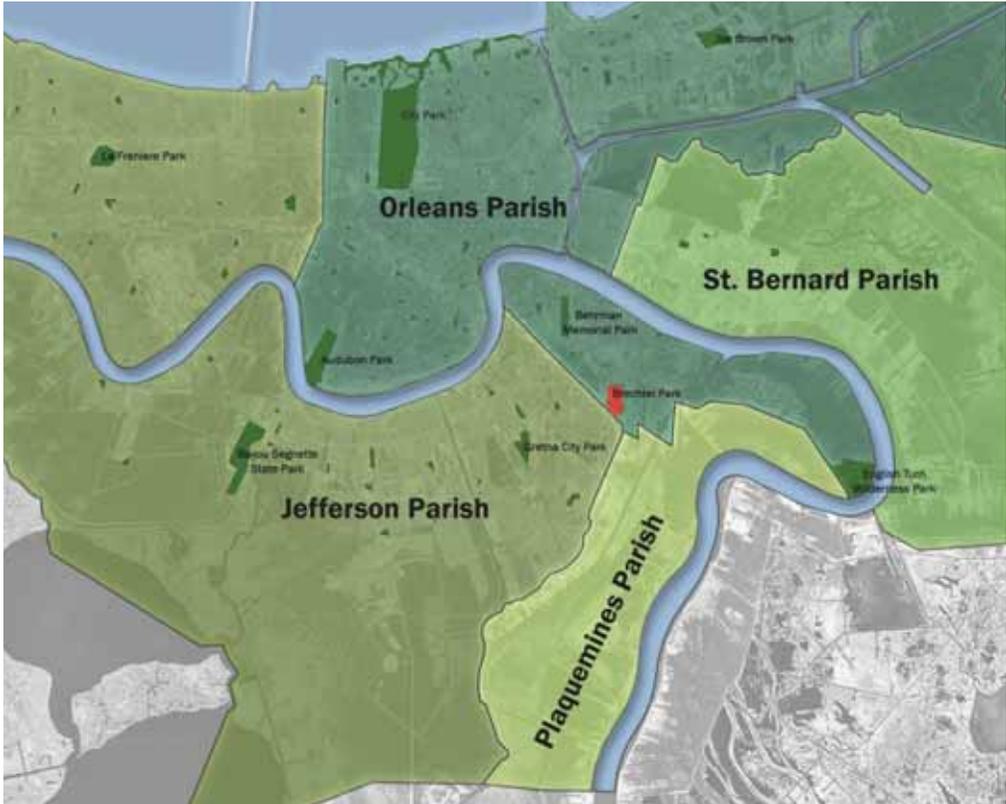
Brechtel Park, a 110 acre passive recreational park located in Algiers, Louisiana, serves an important function in the area's hydrology and as ecological habitat for many aquatic, avian, and wildlife species. The park's natural systems were severely damaged by Hurricane Katrina in 2005, causing ecological unbalance. Hurricane Gustav in 2008 accentuated the damage and, as a result, was overwhelmed by invasive land and aquatic plant species, degrading facilities and amenities, and hydrological uncertainties. Before the storms, the park served as the only major regional park for residents of the Westbank of New Orleans, Jefferson, and Plaquemines Parishes. The park is also significant to the greater New Orleans area, potentially a premier ecological park with passive recreational opportunities for visitors and residents. The purpose of an ecological park is to exhibit ecological and environmental systems through environmental education, ecologically-based passive recreation, sensitivity to the ecosystem, and maintenance regimes that support its restoration. Passive recreational facilities in the park include a children's playground, lagoon, trails, and play earth mounds. Other facilities include: restrooms, pavilions, and picnic tables.

Collaboration between the City of New Orleans Department of Parks and Parkways, The Westbank Redevelopment Corporation (WRC) and BROWN+DANOS land design, inc. (B+D) created the Brechtel EcoPlan and its complimenting Resource Management Plan. These two reports develop a long term plan for restoring and managing Brechtel Park as an ecological park with passive recreational opportunities and attractions that are ecologically based.

Efforts of city departments, city officials, volunteer groups, and non-profit agencies have further supported Brechtel Park's ecological enhancement. In the past two years, the Capital Projects Administration and Department of Parks and Parkways have administered \$695,000 in renovations to Brechtel Park restoring restrooms, bridges, pavilions, and site furnishings as well as clearing more than 25 tons of debris from the trails.

The Brechtel Park Master Plan was created to guide investment, ensure only appropriate facilities go into the park, enhance the park as an environmental attraction, and set forth priorities for implementation of these features.





Brechtel Park in Algiers



Brechtel Park Damage

Brechtel Master Plan

PURPOSE OF THE MASTER PLAN

To ensure the usability and continued environmental viability of Brechtel Park, the Master Plan will complement the EcoPlan to efficiently, economically, and environmentally utilize the available capital funding and set forth an ecologically sustainable plan for appropriate programs and uses and their locations. Along with citizen input, the site analysis, sensitivity sectors, and recommendations completed in the EcoPlan will aid in development of the Master Plan. The programmed passive recreational elements and their locations will be based upon ecological principles respectful of the area's environmental, cultural, and economical sensitivity and sustainability. The Master Plan will be a complementary component to the EcoPlan and Resource Management Plan, all focusing on the long-term protection of Brechtel Park's environmental integrity while providing for public use and enjoyment.

The Master Planning Process:

1. Site Analysis & Program Development
2. Public Workshops
3. Concept Master Plan
4. Final Master Plan and Schematic Designs
5. Phasing & Budgeting

1. Site Analysis & Program Development

Much of the site's analysis was completed when creating the Brechtel Park EcoPlan. This helped to understand what ecological planning was necessary to ensure the natural resources and character are preserved. A preliminary list of possible passive recreational elements was created with the help of the Client and Management Agency. The final program reflects the passive, natural features of the park while allowing visitors to fully experience its intrinsic features.

2. Public Workshops

Public Workshops were held to gain public input to aid in the development of the Brechtel Park Master Plan. An educational presentation began the Public Workshop and a subsequent group charrette allowed residents to illustrate opportunistic areas and to voice their ideas for park enhancement. A second Public Workshop was held for any input regarding the conceptual plan's various proposed elements and importance of implementation to generate excitement and visitors.



3. Concept Master Plan

A Concept Master Plan was created based on comments and ideas from both the Client and Managing Agency regarding program, human interaction, and upkeep. Receiving public input and connecting existing features was crucial to organizing the program and circulation. The Concept Plan includes facility improvements, trails, trail heads, jogging paths, pavilions, fishing piers, canoe docks, boardwalks, wetlands, foot bridges, camping areas, meadows, revegetation zones, parking, restrooms, an interpretive education center, wildlife habitats, lagoon restoration, and other improvements.

4. Final Master Plan and Schematic Designs

A Final Master Plan was developed based upon reviews and comments from the Client and Managing Agency of the Concept Master Plan. The programmatic list was finalized and Schematic Designs and supporting graphics were created to illustrate key areas and characteristics of the Master Plan.

5. Phasing & Budgeting

Phasing of the Master Plan was created to simultaneously restore its core systems and provide recreational opportunities for users. The long term phasing includes the complete restoration of the majority of the damaged areas. Budgeting costs have been broken up by proper phasing.

6. Funding

Brechtel Park has benefited from a diversity of funding resources, including the Louisiana Recreational Trails grant, Westbank Redevelopment Corporation, City of New Orleans, State of Louisiana, and FEMA.

Site Analysis & Program Development

Topography

The site's flat topography, subtle slopes, and organic soil are typical of most Southern Louisiana landscapes. Brechtel Park's elevation ranges from 8 feet to -13 feet. LIDAR (Light Detection and Ranging) data, the only topographic data available park-wide, was used to most accurately determine the site's topography.

Hydrology

Brechtel Park's site was part of the Bayou Barataria-Terrebonne Estuary prior to its draining in 1915. Currently, the Barataria-Terrebonne Estuary watershed covers 15,769 square kilometers, drains 40% of the contiguous United States, and serves as a drainage basin to 28 states and a small part of Canada.

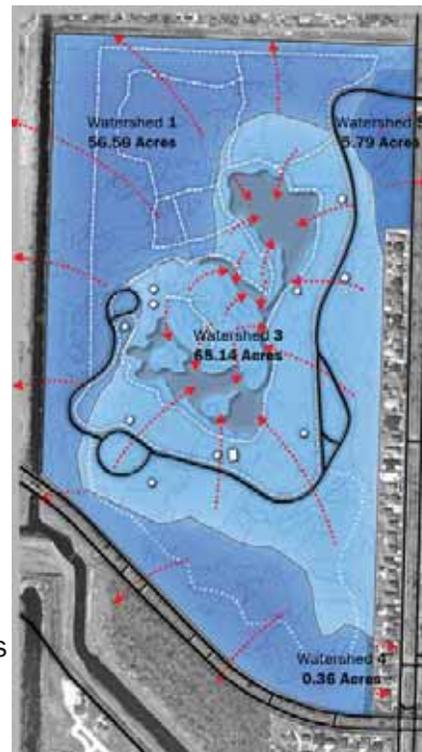
Lowering water levels in the lagoon prompted a thorough exploration of the park's hydrological system. The existing weir is located well above the water level, sometimes more than four feet and thus does not function to drain the excess water left over from heavy rains. Ground water tables seem to have been lowered, potentially caused by outside site disturbance. Brechtel Park's water table has been recorded as having a depth of one to three feet (Soil Survey of Orleans Parish).

Large portions of the forested area in Watershed 1 have been ecologically compromised by Hurricanes Katrina and Gustav and subsequent invasion of exotic plant species. Because of this, there is opportunity to regrade the watershed to maximize water contribution.

The southern portion of the site remains wet longer than other areas of the park. This is potentially due to water flow from Watersheds 3 and 4 being blocked by Tullis Drive. Soil placement also contributes to the wet conditions, particularly during major storm events.



Topology



Watersheds



Water Quality

Stormwater runoff is created when gravity and geographical features cause rain water to make its way to a nearby water body. Stormwater runoff collects metals and pollutants that can negatively affect the water quality of the water body it enters. Negative impacts include high levels of pollutants, erosion, and sediment.

Sedimentation of muck at the bottom of the lagoon was determined to be the primary negative impact of stormwater runoff, reducing dissolved oxygen levels and compromising its ability to support healthy fish habitats. Constricted areas of the lagoon restrict water flow and also degrades the water quality of the lagoon.

Vegetation

The forest of Brechtel Park, located in the Mississippi River Alluvial Plain Ecoregion is comprised primarily of bottomland hardwood forests, a predominant natural community in this Ecoregion. The hydrologic conditions of Bottomland Hardwood Forests typically alternate between wet and dry conditions. This natural forest community supports many wildlife species, including species targeted for conservation. Within the park, visitors can find a mix of Cypress, Sweet Gum, Maple, Hackberry, Live Oak, Tupelo, Water Oak, and Magnolia trees.

Wildlife

Wildlife depend on food, cover, and water for survival. Brechtel Park has numerous opportunities to support wildlife in its Bottomland Hardwood Forest and its lagoon, but the restoration, enhancement, and maintenance of its ecological systems is imperative to the survival of desired native wildlife species. Unfortunately, significant amounts of Brechtel Park's resources attracting wildlife were compromised by Hurricanes Katrina and Gustav.

Vegetation provides shelter and food for various types of animals, and varied forest stratification provides a variety of resources available to support this wildlife. Thus, the park's ability to attract wildlife is dependent upon forest and lagoon management and restoration.

Furthermore, Brechtel Park is located on the Louisiana's Wetlands Birding Trail System, and its lagoon is a major attraction to migratory birds. This makes the park a destination for birding enthusiasts, which can be an economic driver for the park and the surrounding region.



Vegetation

Cultural Resources

The people of South Louisiana have utilized wetland systems as sources of recreation and education for centuries. Bird watching and fishing are popular activities for many residents. Water sports such as sailing, boating, and swimming are also common throughout Louisiana's wetlands. As human development has threaten wetland systems, residents are beginning to appreciate and admire the wetlands and utilize them as an educational resource. From ecological research to passive bird watching, the nearby lagoon provides an excellent opportunity to learn from nature.

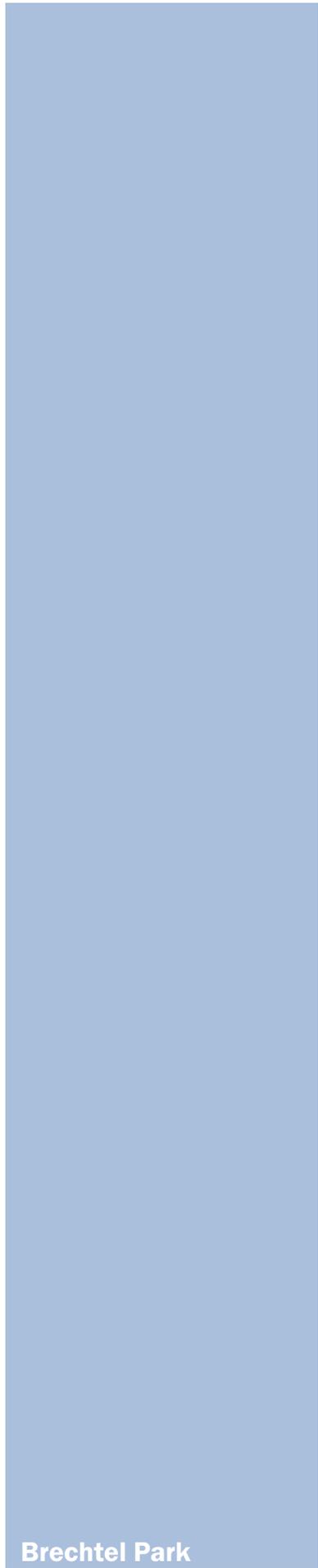


Whispering Giant

Brechtel Park provides opportunities for water-related recreational and educational activities and has the potential for its existing natural amenities to be enhanced. Visitors can closely view how a freshwater system is vital to the balance of a healthy ecological community, and how it affects the surrounding zones in the park and the region as a whole.

Brechtel Park also has many elements that display local cultural art. A few of these notable artistic contributions include: a painted sign along the park drive that depicts the park's history, the "Whispering Giant" close to Scout Island, and a metal sculpture of a Phoenix on one of the islands in the lagoon.

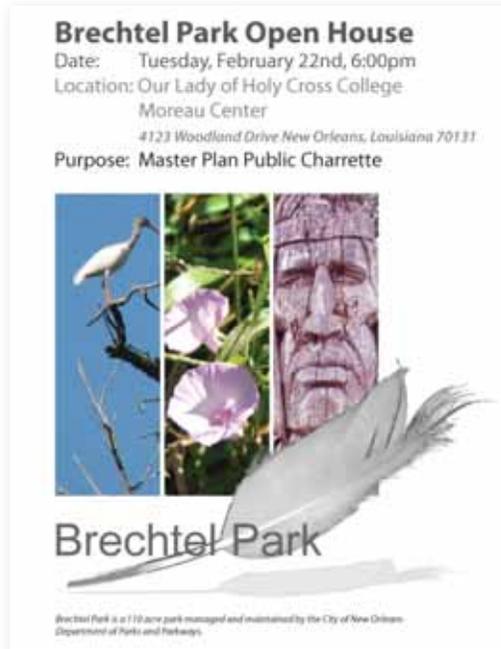




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Public Workshops

BROWN+DANOS landdesign, inc. and the Westbank Redevelopment Corporation held a number of Public Workshops to gain a strong insight into how the local citizens would like to see Brechtel Park improved and enhanced. A successful Open House allowed for the local residents to learn about the EcoPlan and Resource Management Plan that were previously created in order to properly maintain and manage the park. During the Open House, the Lagoon was emphasized as an important asset due to its central location and sheer size. Channels used to inform the public were handled by the Westbank Redevelopment Corporation while BROWN+DANOS landdesign, inc. provided the designs of the advertised media.



Brechtel Flyer

Two Public Open Houses were held to gain insight: the Visioning Workshop has held on February 22, 2011, and the Alternatives Workshop on June 11, 2011. During the public Charrette, residents and stakeholders were educated about the issues and possible solutions of Brechtel Park.

Visioning Charrette

As part of the first phase of the Visioning Charrette, attendees were asked to identify assets of the park and areas for potential improvement. The second part of the Charrette provided each group with a map of Brechtel Park as well as a list of programmatic elements. Members were encouraged to collaborate with one another to place these elements on the map as they saw fit. Suggestions, observations, and notes were encouraged to be written on the map for documentation and analysis purposes.

Visioning Charrette Analysis

Table 1 Analysis

Table 1 focused primarily on keeping the park natural and limiting the number of vehicles. No additional elements were to be placed within Brechtel Park except of creating a parking lot near the front of the park. This suggests the existing roadway should become pedestrian only. The proposed parking lot, as well as, the housing was noted to be screened

Small Pavilion
Picnic Table
Seating

Large Pavilion
Picnic Tables
Seatings
Receptacles
BBQ Pit

Labyrinth
Public Art
Seating

Boat Dock

Near Lagoon

Fishing Pier
Cleaning
Station
Seating
Near Lagoon

Tent Pad
Fire Pit
Picnic Table
Seating

Observation
Tower

Near Forest

Exercise
Equipment

Restroom
Building

Seating
Receptacles
Drinking-
Fountain
Bike Rack

Program Markers



along Lennox Boulevard by planting the proper trees. More camp grounds and a completed island were requested, but the overall impact to Brechtel Park remains to be minimal.

- 2/20/11 Brechtel Park
Group #3 Comments
- 1) Repair ballfield surface - make it flat.
 - 2) Exercise Stations on some paths
 - 3) Water Fountains
 - 4) Historical Markers
 - 5) Fishing pier
 - 6) Gathering pavilion
 - 7) Add picnic tables
 - 8) Butterfly Garden



- 3
- 1) Upgrade lagoons for fishing
 - 2) Restore Seagrass Island per
 - 3) Canoeing Center
 - 4) Learning throughout park re ecology of park



Table 2 Analysis

Table 2 was mainly focused around two aspects. The first focus was to keep the park natural. No additional structures were to be placed anywhere on the site and strong opposition to a stage was voiced. The only changes proposed were the removal of lagoon debris and invasive plants.

The park's access was also a concern to this group. Possible trails introducing people to the new areas of the park were well received, and additional comments were made in support of visible trails in the managed portion of the park, such as mulched or dirt trails around the lagoon. Entry improvements and security concerns were both proposed on the table map, emphasizing a pedestrian centered, low-impact park.

Table 3 Analysis

Table 3 focused on two park elements in particular. The first was the use of the existing roadway as an important pedestrian trail. Fitness stations were proposed along this roadway only. Also suggested was the inclusion of site furnishings placed either on or close to the roadway which complement the proposed fitness stations.

The second emphasis dealt with the lagoon activities. Several fishing piers and an additional pavilion overlooking the water were proposed. A butterfly garden was also proposed near the lagoon circuit. Lastly, participants recommended a true island, perhaps to increase circulation of the water for the aquatic wildlife in preparation for the fishing piers.

Table 4 Analysis

Table 4's ideas were also focused around two things. The first was the importance of a gathering and entertainment area. Here the ballfields would be accompanied by a large stage and large gathering pavilion. The baseball fields will then serve as a great lawn to tie these elements together and also provide a play area. An additional bathroom, as well as, a parking lot was proposed, which would be required to support a large gathering.

Lagoon restoration was also a focus for this group. Several boardwalks were suggested along the edge with fishing piers and a boat launch. It was

- Group 4
- Portable Pavilion
Track
- Allow family picnic groups to picnic without reservation
- Small rest area
outdoor picnic
- STAGE & GREAT LAWN
- PARKING IN PARK
- with playground on road

- 10) Small Camp - remove
Small Island - remove
Large - small bridge to side
 - 11) Bike Paths @ front of park
 - 12) Create better surface for
run - ADA use
- Cut land bridge to Small Island for consolidate camping
- Block vehicle entrance of vertical screen entrance along car path
- Place exercise equipment along paved path in bike/joggers

- 2/20/11 Brechtel Park
Group #3
Comments
- Repair Ballfield Site
- Add Fishing Pier

Sample Brechtel Comment and Map Results

also mentioned that dredging and stocking the lagoon was necessary.

Table 5 Analysis

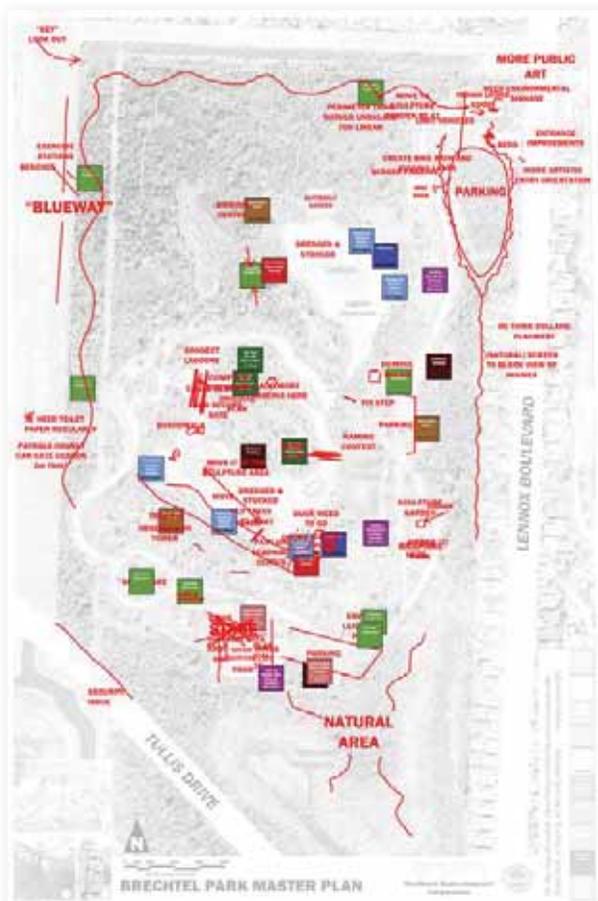
Table 5 placed emphasis on two major elements. The first was a pedestrian/cyclist track including fitness and educational opportunities. Separate lanes were proposed along the existing road along with an art and sculpture area, as well as, an environmental learning circuit. While the open, managed trail focuses on the mind and the arts, the forested path has proposed fitness stations to stimulate the body as well. A proposed bathroom along the perimeter trail also emphasizes the importance of the pedestrian traffic and circulation around the site.

The second important feature revolves around Scout Island. Emphasis was put on creating a true island and placing security gates on a bridge that would allow access. Additional camp grounds and a proposed bathroom on the island also suggested the area should be self contained and should function independently from the rest of the park. These recommended changes most likely were made for safety reasons for the campers who would stay overnight.

Visioning Map

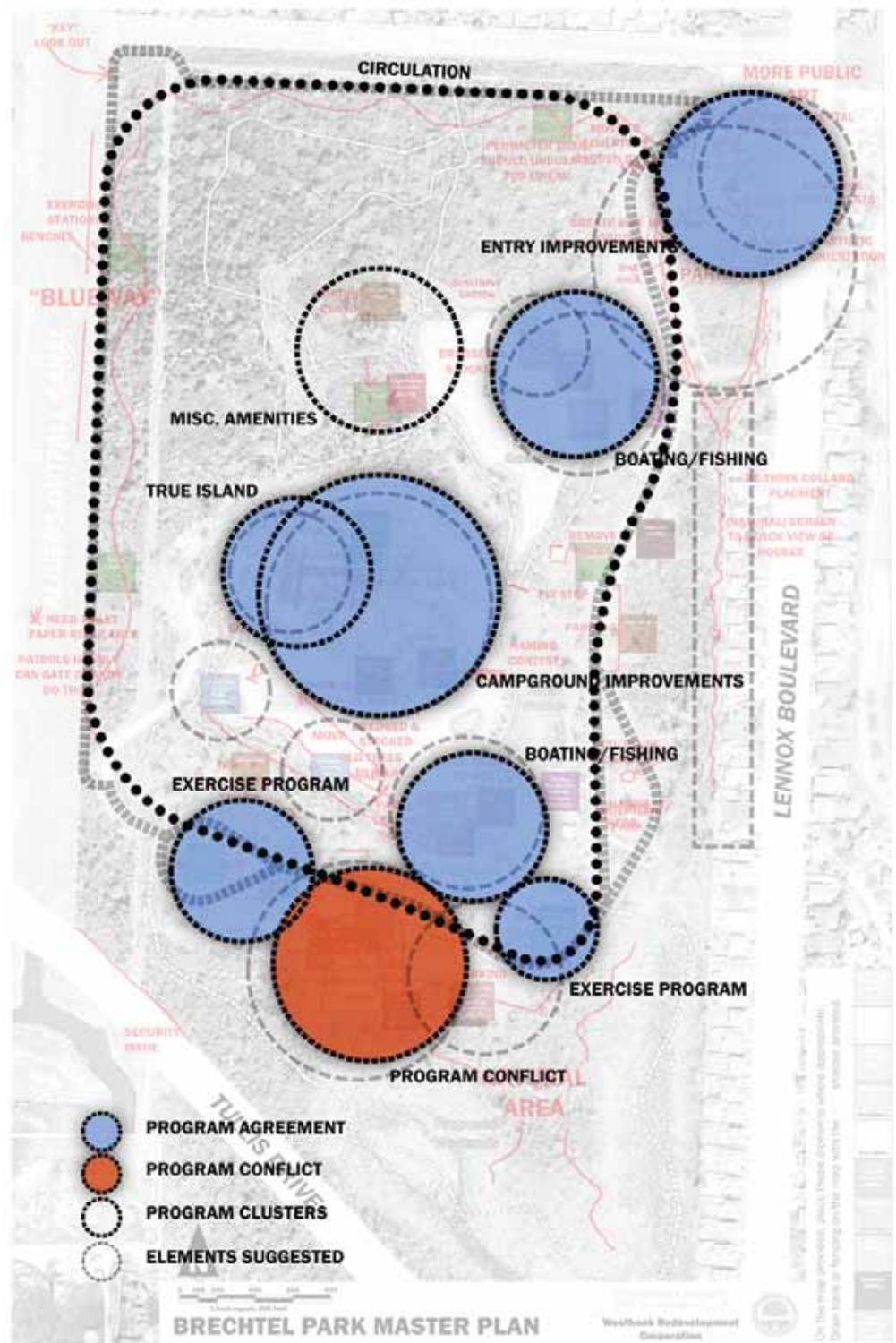
The table maps were compiled into one illustrative composite map to help explore the common ideas and concerns generated by the public and begin to develop curtical clusters of information. These clusters consisted of sensitive areas that paved the design and development of the Master Plan.

Many concepts shared by the public were consistent and complemented the idea of keeping the park natural. Some areas were voted to keep natural while some areas became hotspots for activity. The concept of a paved perimeter trail that created a continuous circuit for bikers and pedestrians was very well accepted. The entryway to Scout Island was also widely received among voters. The entrance and areas along the southern portion of the road all included activities which meshed well with the existing conditions. The only area which contained conflicting suggestions was the existing ball field.



Compiled Table Results





Visioning Map

Brechtel Park

Alternatives Charrette

Ultimately, the availability of funding will determine the order in which elements will appear in the park. The lagoon is the top priority since it affects so much of Brechtel Park. Participants were required to provide input describing the program elements of the lagoon they would like to see. A point scale from 5 to 1 was assigned to each priority corresponding to the box in which it was placed. For example, an element voted for twice in priority box one got 10 points while an element voted for twice in priority box two received 8 points. The total number of points illustrated a clear understanding of which areas of the conceptual plan were deemed most important to the public.



Charrette 2 Advertised Flyer

Alternatives Charrette Analysis

Priority Box 1

The first priority box consisted of 14 cards. The winning element, the north Bottomland Hardwood Trail, had four votes. Fishing piers and boat docks were close behind with three votes.

Priority Box 2

The second priority box consisted of 14 cards. The winning elements were tied with each having three votes. The two elements were the south Bottomland Hardwood Trail and the new bathroom. Fishing piers and boat docks were close with two votes.

Priority Box 3

The third priority box consisted of 14 cards. The winning elements were tied three ways, each having three votes. The three elements were the fishing piers and boat docks, the south Bottomland Hardwood Trail, and the seating berms.

Priority Box 4

The fourth priority box consisted of 14 cards. The winning elements were tied with each having three votes. The two winning elements were the south Bottomland Hardwood Trail and the new multi-use pavilion and learning center.



Priority Box 5

The fourth priority box consisted of only 13 cards. The winning element was the observation tower with four votes.

Overall Priorities

The top five priorities, in order of most points awarded, were: fishing piers and boating docks, south Bottomland Hardwood Trails, north Bottomland Hardwood Trails, multi-use pavilion and learning center, and a tie between the sculpture garden and new bathroom.

BRECHTEL PARK MASTER PLAN

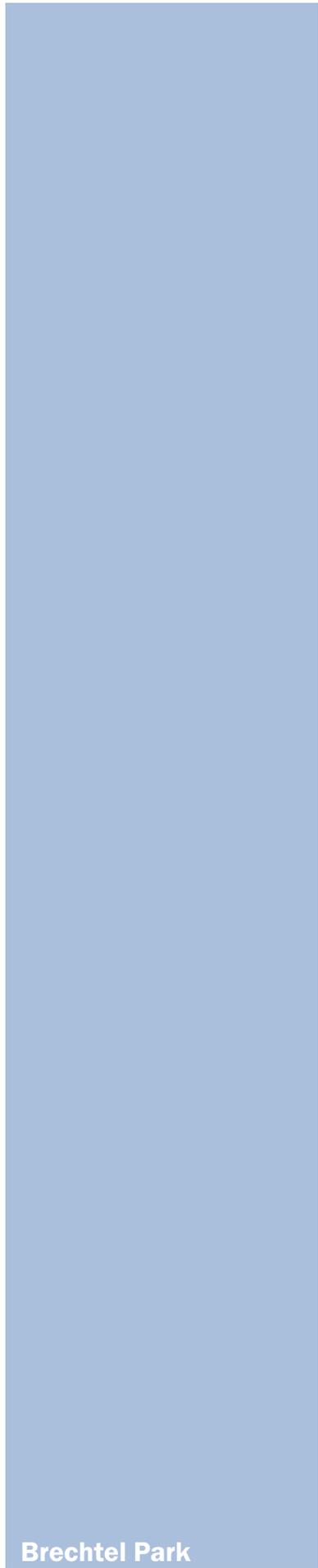
Public Meeting 6-28-11

Point Value	5	4	3	2	1	
Elements:	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Total
The Large Multi-use Pavilion	2	1		3	1	21
Two Regular Pavilions				1	1	3
New Bathroom	1	3				17
Labyrinth	1		1		1	9
Fishing Piers & Boat Docks	3	2	3	1	1	35
Gathering Lawn		1	1	2		11
Sculpture Garden	1	1	1	2	1	17
Seating Berms	1		3			14
Observation Tower					4	4
Boardwalks	1	1	1	1	2	16
Scout Island - Island & Gating at Entrance		1	1		1	8
Trails - North Bottomland Hardwoods	4	1		1		26
Trails - Southern Wetlands Hardwoods		3	3	3	1	28
	14	14	14	14	13	

Alternatives Charrette Priority Results

Alternatives Map

The results were compiled into a visioning map for further analysis. The map illustrates general locations of these elements as many are spread throughout the park. The areas are numbered and colored correlating to the public votes. The results correlate well with preliminary phasing and implementation feasibility ideas, as well as, the overall Master Plan Concept. High priorities include the lagoon, trails, and the multi-use pavilion. However, it is important to realize that implementing these elements is based upon financial feasibility. Additional information, cluster groupings, construction practices, and ecological viability will strongly influence the outcome of the priorities.



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Final Master Plan

Concept Master Plan Ideas and Concepts

The Concept Master Plan was developed focusing on three main design decisions: the clusters of activities and concerns of the visioning map as a result of the public charrette, reducing man's impact on the natural park and in turn reducing maintenance costs by emphasizing natural processes, and creating a unique and organized sense of place for existing site elements.

The public charrette allowed BROWN+DANOS to help understand what the public would need in order to make it successful, not only for its wildlife, but for the residents of the area. The visioning map was important to the conceptual design process as it helped identify pockets of existing and potential programmed spaces to design the park in such a way to maximize the natural ecological footprint and control circulation.

Reduced impact and site maintenance has always been a priority for Brechtel Park as it is an Ecological park. The design idea involved allows succession and reforestation to take place throughout much of the maintained areas. Additionally, new habitats would be created that would offer the benefit of the natural process yet still allow safety and visibility. This will drastically reduce areas in need of constant mowing and in turn reduce the need for a large maintenance crew on site.

Additional natural areas would also help make sense of some of the existing pavilions and amenities as they currently seem to have little reasoning behind their locations and generally lack a sense of destination or arrival. A variety of natural spaces clustered around certain amenities will begin to denote areas of the park that were previously underwhelming and lacking character. These spaces would also provide a changing landscape which offers a variety of views for vehicular traffic through a hide and reveal process.

Concept Master Plan Elements

The Concept Master Plan consolidated the active spaces into one location at the roads' most southeast location. This plan incorporates new, large multi-use pavilion clusters with ADA accessible fishing piers and an event gathering lawn grouped by the existing active locations, the baseball fields and playground. To support the active area, a new bathroom location and parking area is proposed in close proximity.

The Conceptual Plan also includes many new low impact recreational elements scattered throughout the site such as a sculpture garden, improved campgrounds, a labyrinth, additional trails, fishing piers, boardwalks, an observation tower, and workout stations. These elements offer passive enjoyment to those who explore the park and take advantage of its natural beauty.



Final Master Plan and Schematic Designs

The Final Master Plan included much of the original Conceptual Master Plan's components. Only a few minor adjustments occurred within the layouts in northwest bottomland hardwood trails and the baseball fields. Schematic designs were created during this phase to better illustrate the site character. Efforts were made during the design process to increase visibility at the entrance and minimize disturbance to existing features while creating winding trails and open areas. Finalized programmatic features added to the park include a large multi-use pavilion, two regular pavilions, a new bathroom, a labyrinth, fishing piers, boat docks, a gathering lawn, a sculpture garden, seating berms, an observation tower, boardwalks, and multiple trails.

Lagoon Restoration

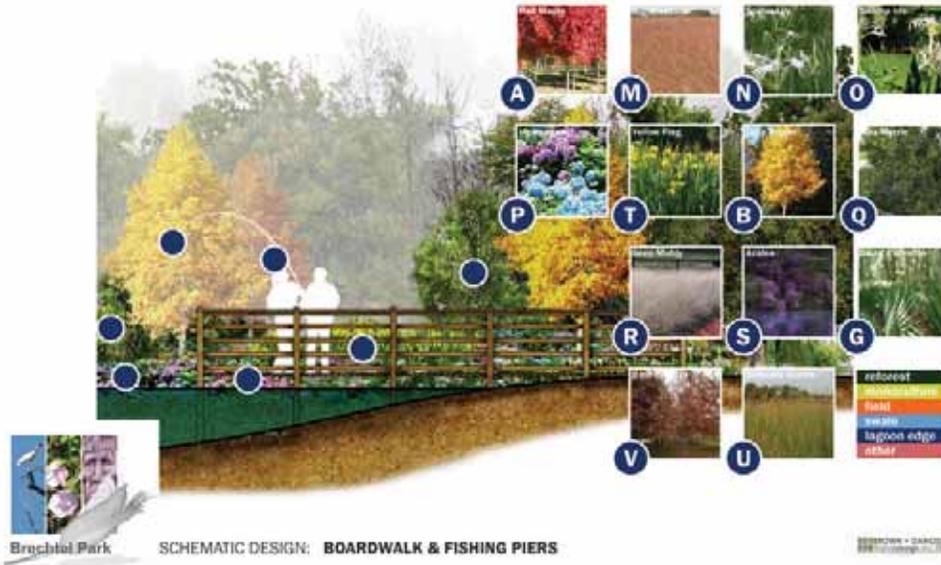
In addition to establishing a variety of natural spaces it was important to fix and enhance the existing systems. The main system, the centrally located lagoon, is the most critical element to the park's success, and also has the most severe problem. The Conceptual Plan incorporates the suggested changes of the EcoPlan by enlarging the watershed of the lagoon to help increase its capacity. These systems will also be enhanced with native wetland plantings in place of its current state as mowed ditches.

Many of the other park's elements rely on the success of the lagoon, as their systems either tie into, or take advantage of, the water. The regrading of the northwest lagoon will draw more water into the area and raise the water levels back to normal. Extending and regrading the smaller swales around the edge will also benefit. Native wetland plantings around the edge will help clean the water and stabilize the banks from erosion. Lastly, the inclusion of floating wetlands, as mentioned in the EcoPlan, is encouraged to help aerate the water.



Fishing Piers and Boat Docks

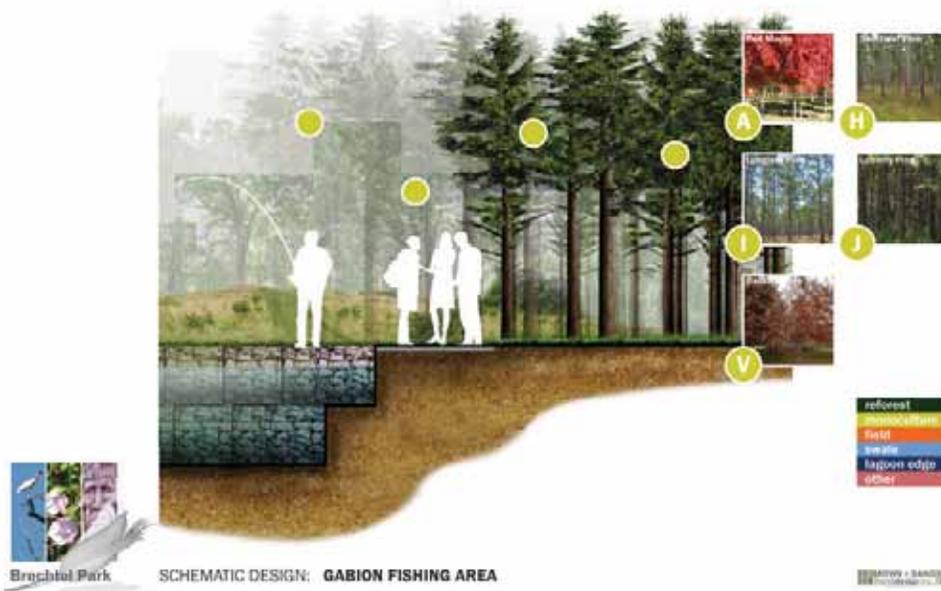
These elements are scattered throughout the lagoon edge to provide users access from all areas of the park. Those located at the park's entrance remind visitors that the lagoon is safe, active and available for fishing. There is also a group of these features located near the large multi-use pavilion as well as Scout Island. This cues visitors into exploring the park and seeing what else it has to offer.



Fishing Piers & Boat Docks

Multi-purpose Pavilion

The addition of a new large pavilion will provide a large gathering place for sizable events, bands, school field trips, wedding receptions, graduation photos, etc. Overlooking the newly restored lagoon, the area will feature multiple fishing piers, ADA accessibility, natural gabion seat walls with recycled materials, and footbridges. This pavilion will become the heart



Gabion Fishing Edge



of the active spaces due to its location near the playground, ballfields, proposed bathroom, and sculpture garden.

The pavilion should be an icon feature for Brechtel Park to reinforce the idea that this area is unique. Its design and construction should compliment the views and proximity to the lagoon. It should be expressive of the lateral circulation through both sides of the gathering lawn.



Conceptual Multi-use Pavilion

Seating Berms

Seating berms are comprised of the lagoon spoils. The purpose of these berms are to add character, define spaces, provide diversification on landscape, natural seating, and be a cost efficient alternative to hauling and dumping. The berms are strategically placed around the gathering lawn and multi-use pavilion area to help define the space and visually shield parking when events occur. Planted with native grasses, they can be mowed to provide seating for events, as well as, create a hide and reveal experience to vehicular traffic.



Seating Berms

New Bathroom

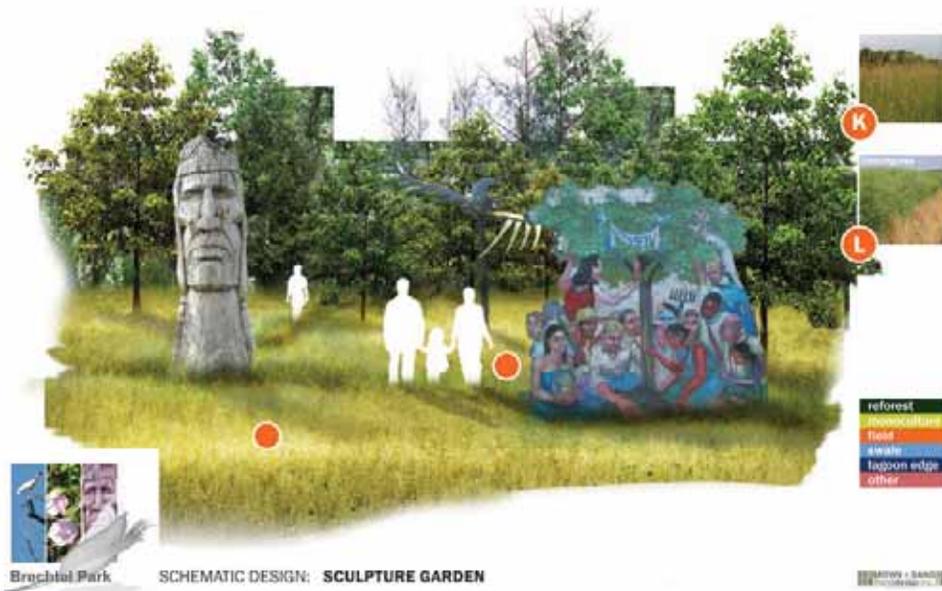
A proposed bathroom is centrally located in between the playground, ball fields, and multi-use pavilion. This will serve the newly created active area as existing bathroom locations are located much too far away to serve visitors. As with the proposed bathrooms, scented rosemary, trees, and marking paint would accompany the structures. The same improvements here will also occur at the existing bathroom facilities.



Bathroom Enhancements

Sculpture Garden

The Sculpture Garden, strategically placed in the median of the roads, will be visible to both vehicular and pedestrian traffic. Hosting existing and new pieces, the area will be planted with grasses, out of which the sculptures will dramatically rise. Furthermore, areas near each pavilion will have a designated location for additional sculptures to help characterize these spaces if deemed necessary.



Sculpture Garden



Gathering Lawn

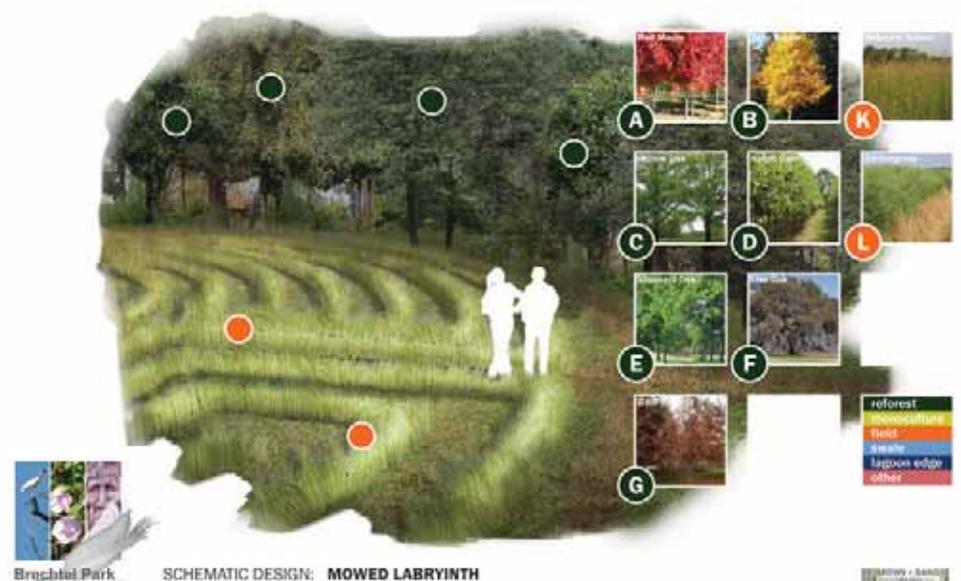
This space will be the only constantly mowed area other than the ball fields during the active seasons. Its purpose is to provide additional space versatile enough for outdoor venues at the large multi-use pavilion whether it be a space for tables and chairs, tents, a temporary stage, or throwing a ball.

Two Additional Pavilions

These additional regular sized pavilions are proposed to take advantage of newly proposed landscapes and to accompany existing elements while filling in empty areas. One pavilion is located across from an existing northern bathroom. This will provide a destination area between the two structures and will become the first arrival feature. The second pavilion is located near the ball fields to provide shelter and an extra space for an opposing team to gather.

Labyrinth

The Labyrinth area is secluded in the woods on a peninsula located just above Scout Island. A labyrinth is a set path with no dead ends made for relaxation and meditation. Its location will provide seclusion for those who walk it while still being visible from the road. The labyrinth will be a mowed trail through grasses keeping in theme of the park's natural beauty. The labyrinth is also tied to the trail system so that visitors will pleasantly stumble upon it and be invited to use it.



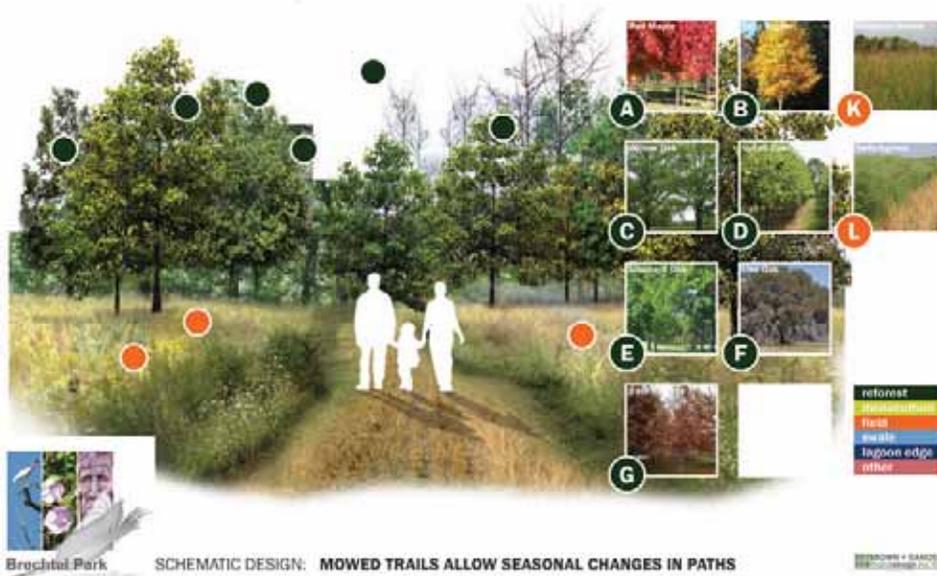
Meditation Labyrinth

Scout Island Improvements

The lagoon restoration will also allow for the peninsula called Scout Island to become a true island and emulate its name. Restoration will include gating along the entry for improved safety for overnight campers, as well as, general clearing and maintaining of campground sites.

Ornamental Fields

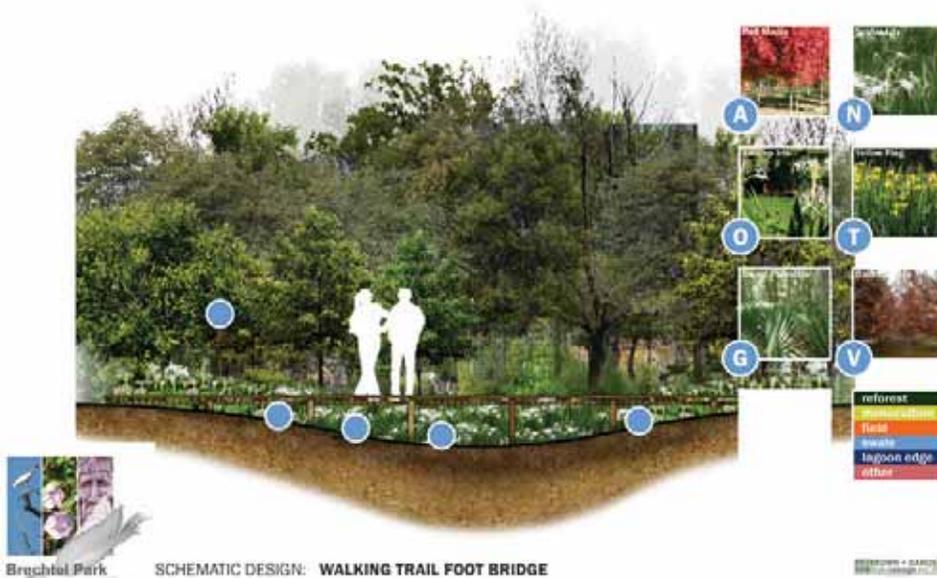
Much like both the sculpture garden and the labyrinth, a decent area of the park will provide native grass habitat. These select areas will only need to be mowed a few times a year and paths within them can be changed seasonally too.



Ornamental Fields

Boardwalks & Footbridges

The boardwalk is most prominent in the northern portion of the lagoon. It provides a direct connection from the observation tower to the newly regraded wetland areas. Several other areas include small footbridges around the lagoon trail that create opportunities to cross over vegetated swales.



Lagoon Edge



Observation Tower

The observation tower will be located in the northwest Bottomland Hardwood Forest. This will be a destination space in the northwest region of the park that can be seen from the entrance, notifying visitors that destinations are tucked away throughout the park. Wanting to explore these destinations will promote trail usage.



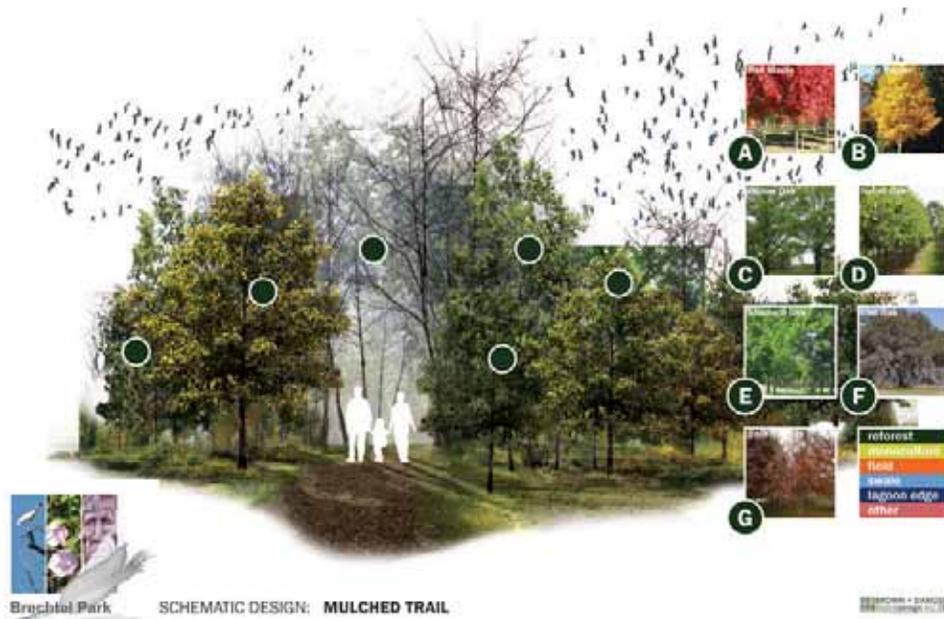
Observation Tower

North Bottomland Hardwood Trails

This trail system will connect a variety of spaces together such as the hard surface perimeter trail, proposed boardwalks, observation tower, and the labyrinth. The paths that stem off the north Bottomland Hardwood Trail system provide varying experiences for the user. This area will be cleared and reforested through a long term selective process and will offer many insights to forest succession by providing multiple ways to experience the same habitat through its life cycle.



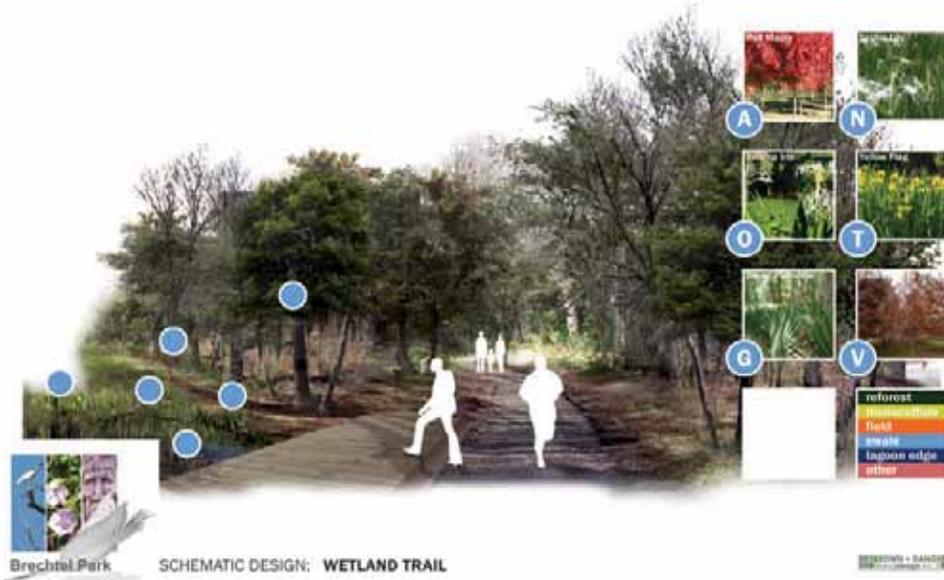
Perimeter Trail



Mulched Trails

Southern Wetland Hardwoods

The southern wetland hardwood trail is a long linear trail that meanders through the southern most portion of the site. Wetlands will be constructed along with boardwalks providing different experiences.



Wetland Trail

Signage, Wayfinding & Education

As Brechtel Park begins its regrowth and restoration, it's important to update its image to the public and to be able to attract visitors. The entrance is currently difficult to locate and the existing sign does not catch the eye. New signage along Lennox Boulevard should be easily recognizable along with a distinctive landscape featuring native grasses to help the recessed entrance pop out. Additionally, signage throughout



the park will be necessary to provide the trail users with direction and education. Trail names and distances will be located at intersections and native flora and fauna will be located through the trail network to help educate the users of the surrounding habitat. Painted areas on the existing road will be marked to identify trail heads and warn vehicles of possible pedestrian crossing.



Signage and Wayfinding Types



New Signage at Road's Edge



Painted Trail Heads

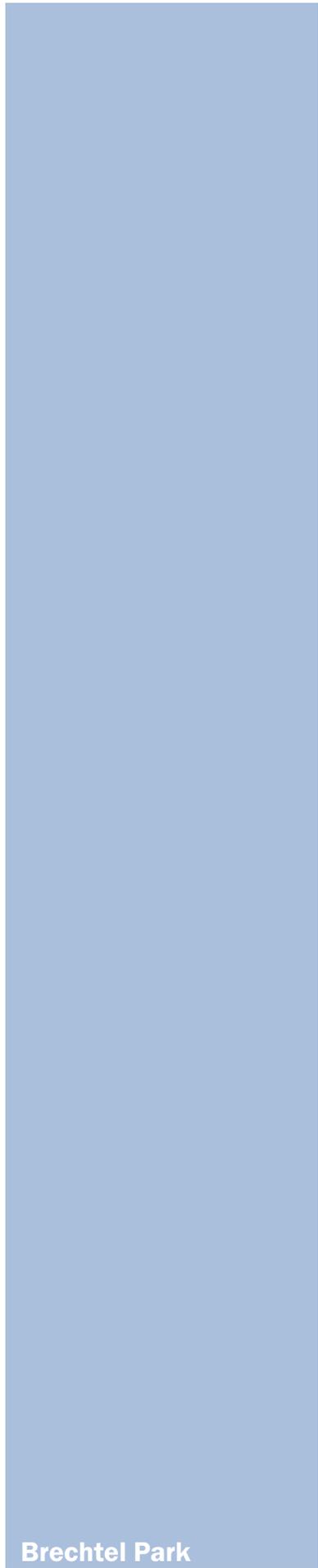


Wayfinding & Educational Signs



Gated Entry Sign





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Phasing & Implementation

Phasing

The Brechtel Park Master Plan is broken up into six phases. Phasing must balance both the long and short term goals for the park's future by providing natural places that attract park users, as well as, habitat protection, while simultaneously reforesting much of the damaged park. Reforestation is a long process which needs several years between plantings to establish sufficient habitat.



Brechtel Park Existing Conditions



Phase One

Phase One includes the hard-surfaced **perimeter trail**, shown in **red**, multiple **exercise stations**, shown in **orange**, and additional **habitat plantings**, shown in **yellow**.

Sub-phase 1 incorporates a **perimeter trail**. Grant money is allocated for 3,700 foot trail and construction will begin soon. Sub-phase 2 includes fourteen **Exercise stations**. These will be spaced at 1/10th mile intervals creating a workout circuit throughout the park. Sub-phase 3 includes the **reforestation** at the cul-de-sac as well as new **ornamental grasses** near the front of the park. This will begin to reduce maintenance costs, provide a precedent for new landscapes, and add character to the nearby pavilions.

Phase One						\$ 121,739
Perimeter Trail						\$ 70,031
Exercise Stations	13	#	\$ 1,360.00	\$	17,680	\$ 18,122
Clearing & Grubbing	1300	sqft	\$ 0.34	\$	442	
Forestry	71085	sqft				\$ 33,586
On center spacing	12					
Sqft. Per tree	144					
Amount of Trees	493.6458					
30 Gallon	49.36458	#	\$ 250.00	\$	12,341	
15 Gallon	74.04688	#	\$ 150.00	\$	11,107	
7 Gallon	98.72917	#	\$ 75.00	\$	7,405	
Seedlings	0.652752	acre	\$ 250.00	\$	163	
Field	40000	sqft	\$ 0.05	\$	2,000	
Marking Paint	350	sqft	\$ 285.00	\$	570	
Kits (250 sqft./Kit)	2					

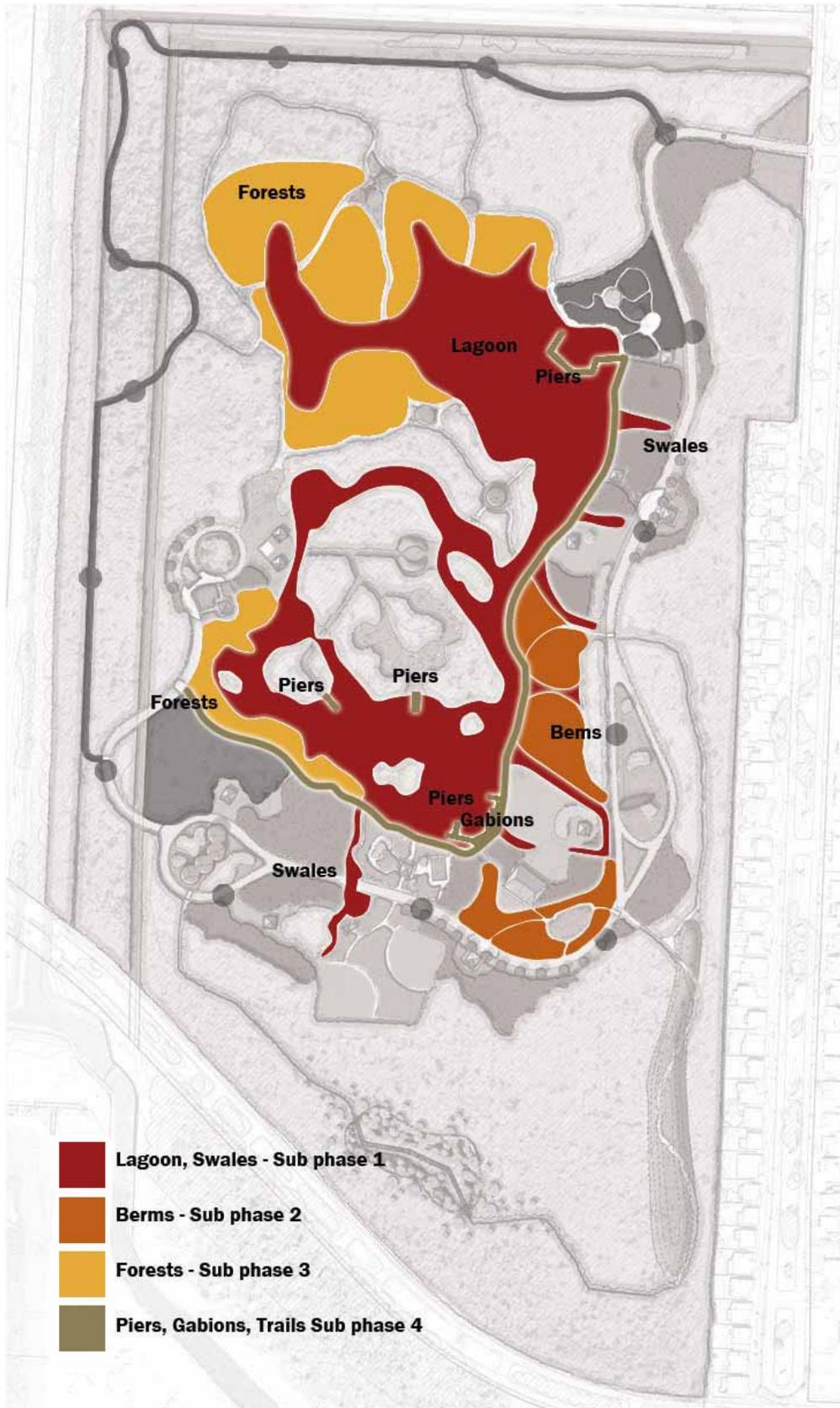


Phase Two

Phase Two includes the **lagoon repairs**, shown in **red**, the **berms**, shown in **orange**, the **grading** and **reforestation**, shown in **yellow**, and fishing **piers**, shown in **green**.

In Sub-phase 1, the lagoon is the most important area of the park and its **drainage** and **dredging** are top priority. This process also includes creation of **Scout Island as a true island**. This will limit access to the general public, providing future security for overnight campers. Sub-phase 1 includes the **grading and replanting of bioswales** to help clean and increase the watershed. Sub-phase 2 includes piling the muck material as earthen **berms**. An estimated 16,800 cubic yards will be dredged. Once the muck settles, a 70% loss should be expected, but sufficient enough material to create the proposed **berms** and reshape the existing **berms** if adequate material is available. Sub-phase 3 includes **plantings** around the edge of the lagoon. This stabilizes the banks to **avoid slumping and sedimentation loss**. Included in this sub-phase, a large area northwest of the lagoon is to be cleared and regraded to **increase the watershed** and restore the lagoon water to historic levels prior to the adjacent canal dredging, which lowered the water table. Sub-phase 4 is the construction of **fishing piers, boat docks**, and **gabions** allowing people access to the newly restored lagoon. Additionally, a **lagoon edge trail** will connect all these elements by encompassing the entire east and south lagoon sides.

Phase Two						\$ 921,555
Lagoon Restoration						\$ 584,000
Scout Island Excavation						\$ 24,000
Forestry						\$ 252,495
On center spacing	325245	sqft				
Sqft. Per tree	12					
Amount of Trees	144					
30 Gallon	2258.646					
15 Gallon	225.8646	#	\$ 250.00	\$	56,466	
7 Gallon	338.7969	#	\$ 150.00	\$	50,820	
Seedlings	451.7292	#	\$ 75.00	\$	33,880	
Clearing & Grubbing	2.986627	acre	\$ 250.00	\$	747	
	325245	sqft	\$ 0.34	\$	110,583	
Piers & Boardwalks	492	lf	\$ 25.00	\$	12,300	\$ 61,060
Footbridges	380	lf	\$ 20.00	\$	7,600	
Gabion	343	lf	\$ 120.00	\$	41,160	



- Lagoon, Swales - Sub phase 1
- Berms - Sub phase 2
- Forests - Sub phase 3
- Piers, Gabions, Trails Sub phase 4



Phase Three A

This phase includes **clearing** and **reforestation**, and **entrance enhancements**, shown in **red**, and a large portion of the **northwest trails**, shown in **orange**.

Sub-phase 1 begins the growth of new plantings at the front, middle, and rear of the park. As a starting point to fill in many unused areas, the majority of these plantings will be **new forested areas**, with the exception of the cleared patches along the utility corridors that are overgrown with invasives. It is critical to begin this process early so that the new landscapes feature a variety of plant ages and diversification. The **main entryway** should be immediately enhanced once Phase Two is complete. **Ornamental grasses** and **new signage** will welcome visitors to the new and improved Brechtel Park. Sub-phase 2 will expand upon the **trail system** through the northwest forest and help create a break between the newly planted woods and the invasives.

Phase Three A						\$ 96,228	
Field	55254	sqft	\$	0.05	\$	2,763	\$ 93,850
Forestry	154202	sqft					
On center spacing	12						
Sqft. Per tree	144						
Amount of Trees	1070.847						
30 Gallon	107.0847	#	\$	250.00	\$	26,771	
15 Gallon	160.6271	#	\$	150.00	\$	24,094	
7 Gallon	214.1694	#	\$	75.00	\$	16,063	
Seedlings	1.415991	acre	\$	250.00	\$	354	
Clearing & Grubbing	70015	sqft	\$	0.34	\$	23,805	
Mulch	2378	sqft	\$	0.75	\$	2,379	\$ 2,379

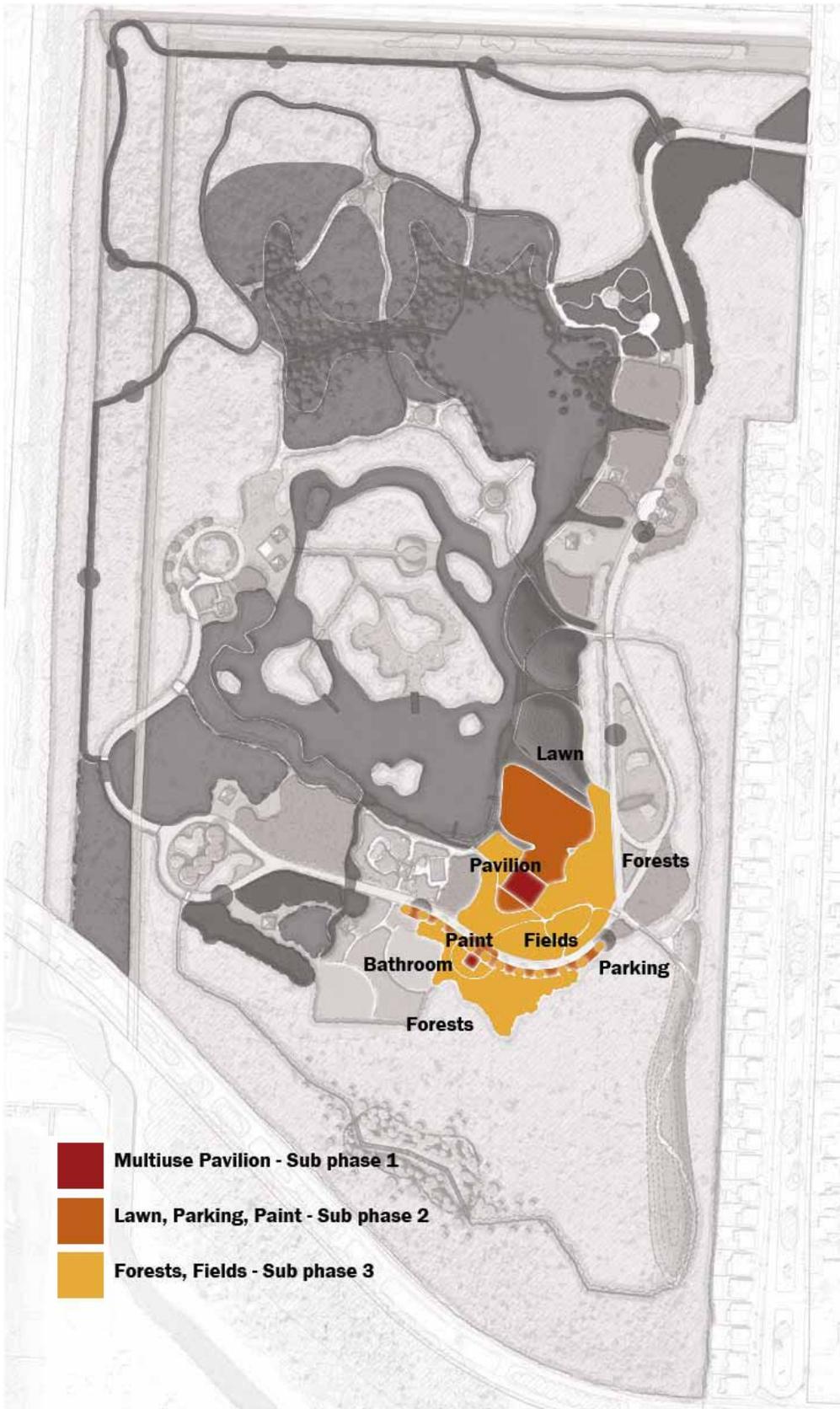


Phase Three B

This phase includes the **multi-use pavilion** and new **bathroom**, shown in red, new event **parking** and painted **nodal surfaces**, shown in **orange**, and **reforestation**, **grasses**, and **scented plantings**, shown in **yellow**.

Sub-phase 1 includes a large covered **multi-use pavilion** as the first element of the event area. The pavilion will accommodate larger gatherings near the newly restored lagoon. With staged events and large gatherings, a **bathroom** will be constructed serving the playground, existing ball fields, and multi-use pavilion. Sub-phase 2 builds upon this by including **reinforced turf or crushed aggregate** areas as event parking for events. Areas crossing the street will be coated with an **epoxy paint** creating crosswalks as a warning to motorists. Additionally, this phase will incorporate a **gathering lawn** providing additional event space. Sub-phase 3 builds on the existing space by adding various vegetated areas. **Ornamental grasses** will be planted on the berms to provide additional screening of the parking and help to create a buffer for events. **Forested areas** will be planted to help enclose the space and provide shade for events on the lawn, and **scented rosemary** will encompass the bathroom providing strong fragrances around the area.

Phase Three B						\$ 285,199
Bathroom	1	#	\$ 50,000.00	\$ 50,000		\$ 230,000
Pavilion	1	#	\$ 180,000.00	\$ 180,000		
Crushed Aggregate 4"	9324	sqft	\$ 0.85	\$ 7,925		\$ 9,555
Marking Paint	350	sqft	\$ 285.00	\$ 570		
Kits (250 sqft./Kit)	2					
Foot bridge	53	sqft	\$ 20.00	\$ 1,060		
Field	29846	sqft	\$ 0.05	\$ 1,492		\$ 45,643
Grading	4459	sqft	\$ 0.15	\$ 669		
Foresting	66575	sqft				
On center spacing	12					
Sqft. Per tree	144					
Amount of Trees	462.3264					
30 Gallon	46.23264	#	\$ 250.00	\$ 11,558		
15 Gallon	69.34896	#	\$ 150.00	\$ 10,402		
7 Gallon	92.46528	#	\$ 75.00	\$ 6,935		
Seedlings	0.611338	acre	\$ 250.00	\$ 153		
Rosemary	4124	sqft	\$ 3.50	\$ 14,434		

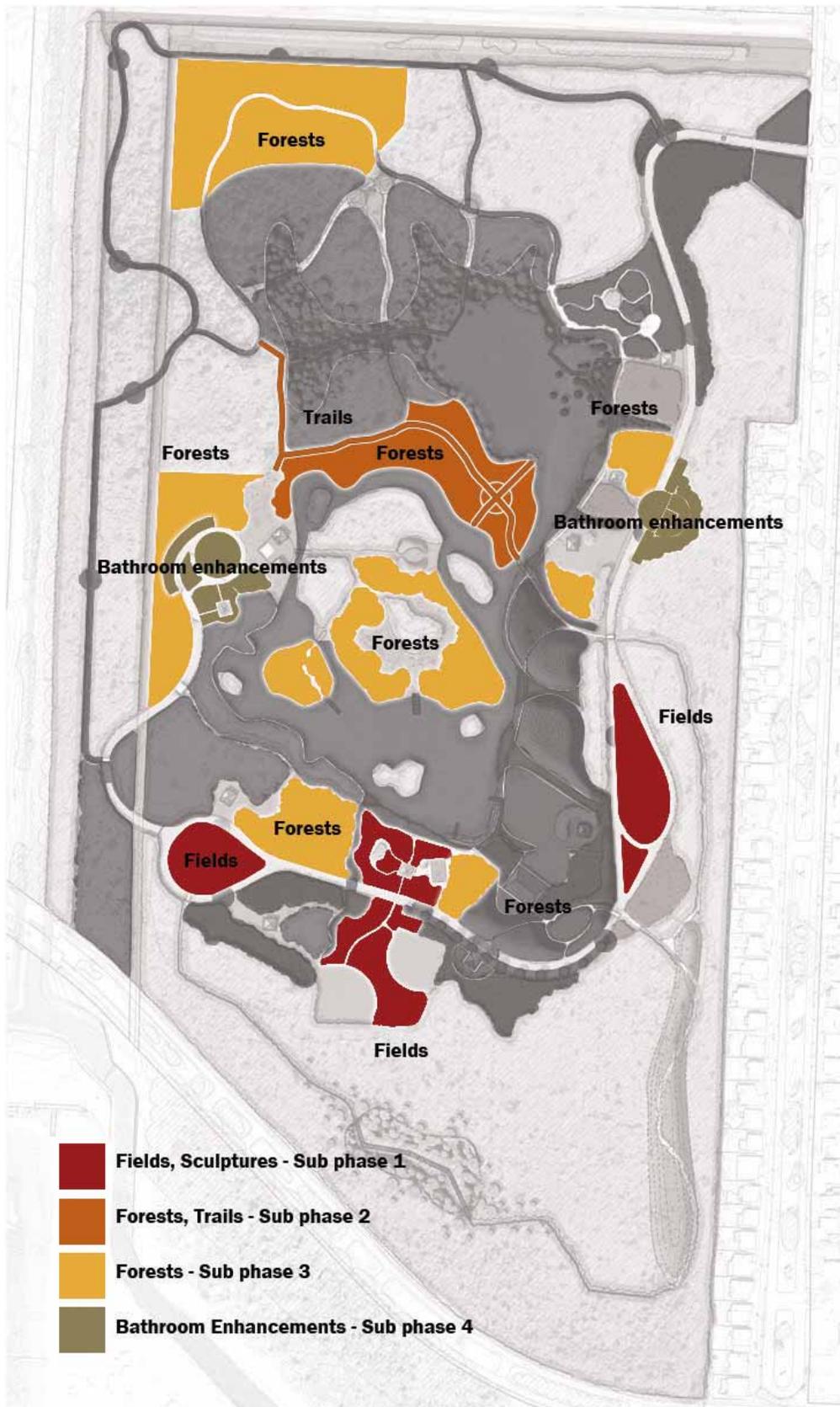


Phase Four

Phase Four includes large scale **field** plantings through many areas of the park along with a **sculpture garden**, shown in red, additional **trail** construction and **reforestation**, shown in **orange**, mass **reforestation** in scattered areas shown in **yellow**, and **bathroom enhancements** to existing facilities, shown in **green**.

Sub-phase 1 focuses back on creating a strong ecological impact. Now that the park is suitable for visitors, its growing popularity and usage will help fuel even more complex ecological endeavors. Mass plantings of **native grasses** take place in the road's medians. The ball fields and playground area are to be planted with **ornamental grasses** and **regraded** to further enhance the lagoon. Additionally, the **sculpture garden** will be implemented into this phase. Sub-phase 2 expands the **trail network** by horizontally connecting through the site. Again, this will provide the opportunity for **labyrinth** construction once the area has been cleared. Sub-phase 3 includes many additional **clearing and reforestation** areas. The northern most area will allow future construction along the utility corridor access way. The center of the park has reforestation opportunities clustered with road access provided. Half of the forested areas on Scout Island will be cleared to and allow for a healthy outer buffer to grow in. Areas along the road are planted in this phase to enhance the diversity of

Phase Four						\$ 375,954
Field	129984	sqft	\$ 0.05	\$ 6,499	\$ 25,997	
Grading	129984	sqft	\$ 0.15	\$ 19,498		
Reforest	98420	sqft			\$ 58,996	
On center spacing	12					
Sqft. Per tree	144					
Amount of Trees	683.4722					
30 Gallon	68.34722	#	\$ 250.00	\$ 17,087		
15 Gallon	102.5208	#	\$ 150.00	\$ 15,378		
7 Gallon	136.6944	#	\$ 75.00	\$ 10,252		
Seedlings	0.903761	acre	\$ 250.00	\$ 226		
Clearing & Grubbing	98420	sqft	\$ 0.15	\$ 14,763		
Mulch	1720	lf	\$ 0.75	\$ 1,290		
Reforest	424332	sqft			\$ 233,603	
On center spacing	12					
Sqft. Per tree	144					
Amount of Trees	2946.75					
30 Gallon	294.675	#	\$ 250.00	\$ 73,669		
15 Gallon	442.0125	#	\$ 150.00	\$ 66,302		
7 Gallon	589.35	#	\$ 75.00	\$ 44,201		
Seedlings	3.896514	acre	\$ 250.00	\$ 974		
Clearing & Grubbing	323045	sqft	\$ 0.15	\$ 48,457		
Rosemary	11626	sqft	\$ 3.50	\$ 40,691	\$ 57,358	
Crushed Aggrgate 4"	5711	sqft	\$ 0.85	\$ 4,854		
Marking Paint	700	sqft	\$ 285.00	\$ 6,555		
Kits (250 sqft./Kit)	23					
Reforest	12051	sqft				
On center spacing	12					
Sqft. Per tree	144					
Amount of Trees	83.6875					
30 Gallon	8.36875	#	\$ 250.00	\$ 2,092		
15 Gallon	12.55313	#	\$ 150.00	\$ 1,883		
7 Gallon	16.7375	#	\$ 75.00	\$ 1,255		
Seedlings	0.110661	acre	\$ 250.00	\$ 28		



native trees in the park. Sub-phase 4 includes **enhancements to existing bathrooms** such as surrounding **forestation**, **scented rosemary**, and **epoxy paint markings** that create a consistent look with existing facilities.

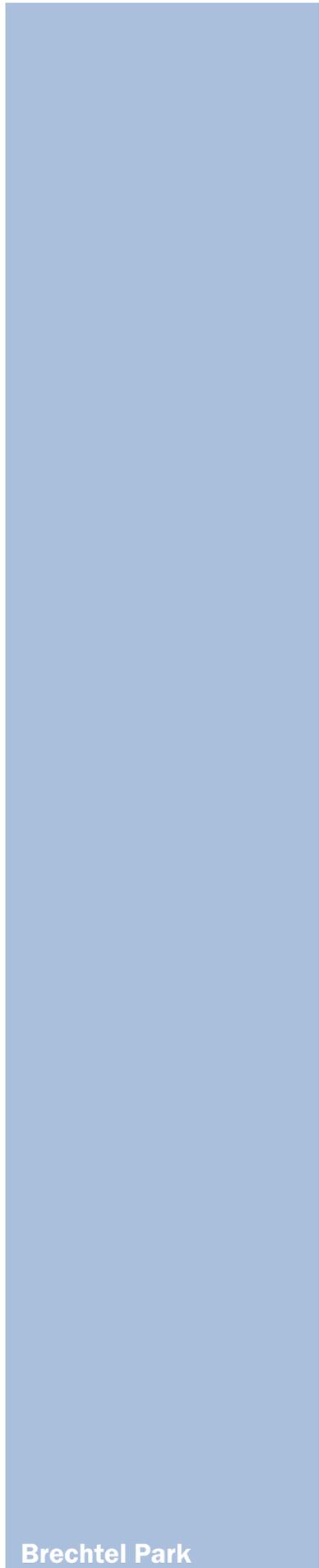


Phase Five

This phase includes **clearing, reforestation,** and **trails** in the northwest corner and **wetland** and **berm** creation in the southeast, shown in **red**, **plantings** and **trails**, shown in **orange**, additional **reforestation**, shown in **yellow** and **green**.

Sub-phase 1 continues clearing and reforestation of the northwest area. The network of trails is also completed with the construction of the boardwalk and foot bridges. Excavating additional wetland space and sculpting a low berm on the eastern border will help prepare the wetland trail. Sub-phase 2 includes additional tree plantings along the road and creating the wetland trail and boardwalk. Scout Island is also to be cleared and reforested. Sub-phase 3 includes clearing and reforestation near the bend of the road and the Park's western border. Sub-phase 4 finishes replanting along the perimeter trail near the western border of the park.

Phase Five							\$ 519,463
Reforest	174979	sqft					\$ 102,594
On center spacing	12						
Sqft. Per tree	144						
Amount of Trees	1215.132						
30 Gallon	121.5132	#	\$ 250.00	\$		30,378	
15 Gallon	182.2698	#	\$ 150.00	\$		27,340	
7 Gallon	243.0264	#	\$ 75.00	\$		18,227	
Seedlings	1.60678	acre	\$ 250.00	\$		402	
Clearing & Grubbing	174979	sqft	\$ 0.15	\$		26,247	
Reforest	128290	sqft					\$ 98,088
On center spacing	12						
Sqft. Per tree	144						
Amount of Trees	890.9028						
30 Gallon	89.09028	#	\$ 250.00	\$		22,273	
15 Gallon	133.6354	#	\$ 150.00	\$		20,045	
7 Gallon	178.1806	#	\$ 75.00	\$		13,364	
Seedlings	1.178049	acre	\$ 250.00	\$		295	
Clearing & Grubbing	64843	sqft	\$ 0.15	\$		9,726	
Mulch	6248	lf	\$ 0.75	\$		4,686	
Boardwalk	1108	lf	\$ 25.00	\$		27,700	
Reforest	198509	sqft					\$ 116,390
On center spacing	12						
Sqft. Per tree	144						
Amount of Trees	1378.535						
30 Gallon	137.8535	#	\$ 250.00	\$		34,463	
15 Gallon	206.7802	#	\$ 150.00	\$		31,017	
7 Gallon	275.7069	#	\$ 75.00	\$		20,678	
Seedlings	1.822849	acre	\$ 250.00	\$		456	
Clearing & Grubbing	198509	sqft	\$ 0.15	\$		29,776	
Reforest	285491	sqft					\$ 202,390
On center spacing	12						
Sqft. Per tree	144						
Amount of Trees	1982.576						
30 Gallon	198.2576	#	\$ 250.00	\$		49,564	
15 Gallon	297.3865	#	\$ 150.00	\$		44,608	
7 Gallon	396.5153	#	\$ 75.00	\$		29,739	
Seedlings	2.621578	acre	\$ 250.00	\$		655	
Clearing & Grubbing	285491	sqft	\$ 0.15	\$		42,824	
Observation Tower	1	#	\$ 35,000.00	\$		35,000	



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Funding

Brechtel Park has benefited from a diversity of funding resources, including the Louisiana Recreational Trails grant, Westbank Redevelopment Corporation, City of New Orleans, State of Louisiana, and FEMA.

Implementation of the improvements set forth in this master plan will take time. The previous section on phasing outlines incremental improvements that can be funded with small investments, or bundled into larger phases.

Sources of implementation funding will likely have to focus on sources outside of the city government for the foreseeable future. A variety of grants are applicable to Brechtel Park and should be sought out.

Land & Water Conservation Grants

- . Federal funds through state parks
- . 50% match
- . \$150,000 maximum funding
- . For any improvements that follow a master plan

Recreational Trails Grants

- . Funds to develop and maintain recreational trails and trail-related facilities.

Louisiana Fish & Wildlife

- . They will restock the lagoons at no cost.

Barataria-Terrebonne Estuary Grants

- . Federal Funds
- . Brechtel Park is a natural habitat within the estuary's ecosystem.

Louisiana Department of Environmental Quality 319 Grants

- . Federal Funding to improve water quality.

The Nature Conservancy

- . Non-profit foundation grants.

Audubon Nature Institute

EPA Environmental Justice Grants

Fertel Foundation

- . Arts & Education

Fluor Foundation

- . Education & Culture

Freeport McMoRan Foundation

- . Education



Frost Foundation

- . Environmental Education

Greater New Orleans Foundation**Harrah's Foundation**

- . Environmental Education

Keller Family Foundation

- . Education

Wachovia Foundation

- . Education

Adobe Systems Grants

- . Environmental & Conservation

Alcoa Foundation

- . Environmental & Conservation

Andrew W. Mellon Foundation

- . Environmental & Conservation

BP Foundation

- . Environmental

Bridgestone Firestone Trust Fund

- . Environmental

Cargill Corporation Charitable Giving

- . Environmental Stewardship

Caterpillar Foundation

- . Environmental

Coca Cola Foundation

- . Improve water quality
- . Education

Conoco Phillips Community Investment

- . Environmental

Doris Duke Charitable Foundation

- . Environmental

Dupont Contributors Program

- . Environmental

Entergy Charitable Foundation

- . Education & Environmental science

ExxonMobil Foundation

- . Education

Halliburton Corporate Contributions

- . Environmental Education & Culture

Home Depot Foundation**Rockefeller Family Fund**

- . Unique Environments

Shell Oil Company

- . Education

Tides Foundation**Turner Foundation**

- . Environmental

UPS Foundation

- . Education & Environmental

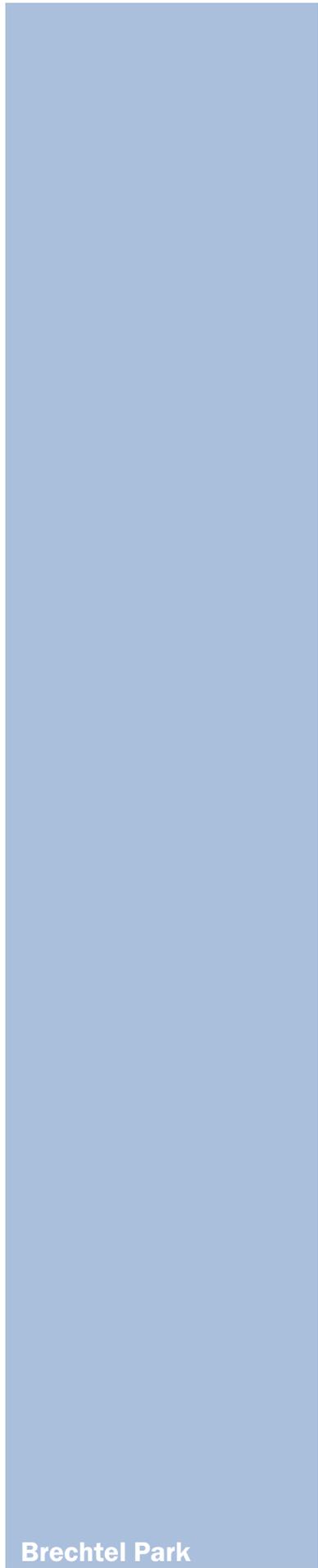
Walmart Foundation

- . Education & Environmental Sustainability

Weyerhaeuser Company Foundation

- . Sustainable Forestry





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Conclusion

The Brechtel Park Master Plan, documented in this report, establishes the vision for the park's future. It is a framework within which improvements can be implemented incrementally, in phases, to ensure only appropriate facilities go into the park, enhance the park as an environmental attraction, and set forth priorities for implementation of these features.



Brechtel Park

EcoPlan

A Regional EcoPark



Prepared for:

Westbank Redevelopment Corporation
City of New Orleans Department of Parks & Parkways

Prepared by:



April 8, 2010

CREDITS



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and maintained by the Department of Parks and Parkways,
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Friends of Brechtel Park

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Mission Statement:

The primary goal of this document is to develop an EcoPlan with specific ecological recommendations intended to restore and enhance Brechtel Park as an EcoPark, a park with passive recreation activities and environmental educational opportunities.

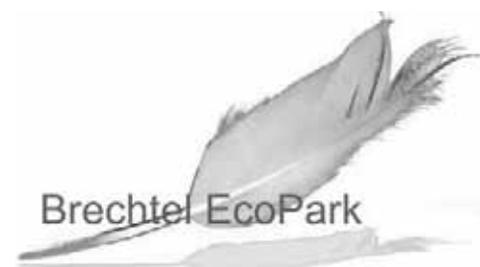


INTRODUCTION

Background

Brechtel Park, a 110 acre passive recreational park located in Algiers, Louisiana is an important function in the area's hydrology and an ecological habitat for many aquatic, avian, and wildlife species. The park's ecological system was severely damaged by Hurricane Katrina in 2005, causing an ecological unbalance. Hurricane Gustav in 2008 accentuated the damage and the park is now overwhelmed by invasive land and aquatic plant species, degrading facilities and amenities, and hydrological uncertainties. Before the storms, the park served as the only major regional park for residents of the Westbank of New Orleans, Jefferson, and Plaquemines Parishes. The park is also significant to the greater New Orleans area, potentially a premier EcoPark with passive recreational opportunities for visitors and residents. The mission of an EcoPark is to exhibit ecological and environmental integrity through environmental education, ecologically-based passive recreation, sensitivity to the ecosystem, and maintenance regimes that support its restoration. Passive recreational activities currently programmed in the park include a children's eco-playground, trails, and play earth mounds. Current facilities include: restrooms, pavilions, and picnic tables.

Brechtel Park is managed and operated by the City of New Orleans Department of Parks and Parkways. Limited accessibility to damaged areas of the park, due to invasive plant growth and fallen trees, has affected the ability to efficiently restore sensitive areas. In collaboration with the City of New Orleans Department of Parks and Parkways, The Westbank Redevelopment Corporation (WRC) engaged the landscape architecture firm BROWN+DANOS land design, inc. (B+D) to develop a plan for restoring and managing Brechtel Park as an ecological park with passive recreation opportunities and attractions that are ecologically based. Throughout the development of the plan, many city departments, city officials, volunteer groups, and non-profit agencies have supported Brechtel Park's ecological enhancement. The Times Picayune article "Hurricane-battered park returning to full flower" highlights the efforts of these groups in the restoration of Brechtel Park. In the article, City Councilwoman Jackie Brechtel Clarkson states, "It's everything from senior citizens, to family reunions, to little children feeding the ducks in the lagoon, to playing on the play equipment, to family picnics under the shelters." Paul Richard of Westbank Redevelopment Authority comments on its ecological integrity stating in this article, "The beauty of this is that this is an entirely self-contained park. It's an urban laboratory for rebuilding ecosystems. This is a real community resource for Algiers and for the region."





2008 (Post Katrina) Northwest Forest & Scouts Island

Source: <http://www.bing.com/maps/>



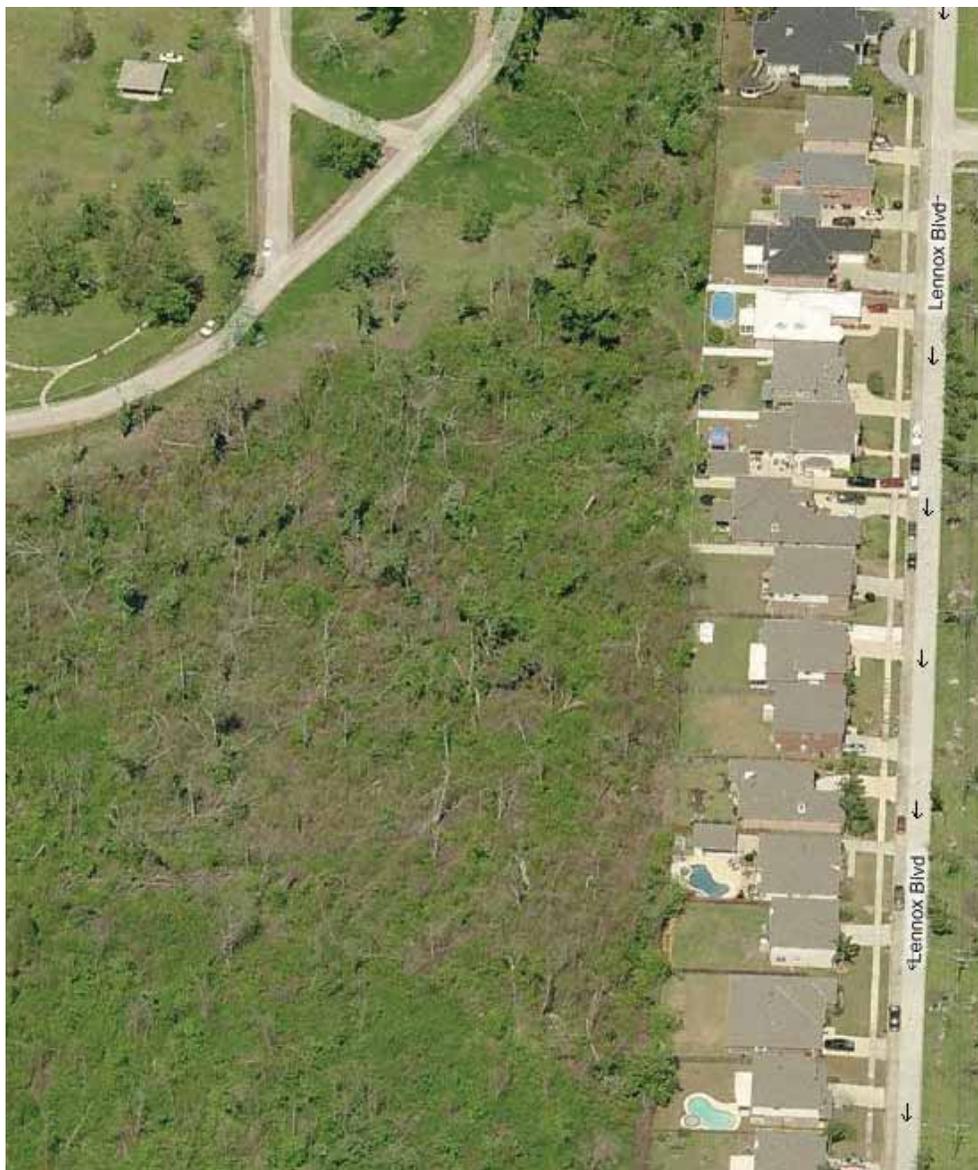
2008 Aquatic Invasive Species Found in Lagoon

Source: BROWN+DANOS



2008 Terrestrial Invasive Species Found in Northwest

Source: BROWN+DANOS



2008 (Post Katrina) Southeast Forest & Lennox Homes

Source: <http://www.bing.com/maps/>



2008 Southeast Forest Vegetation

Source: BROWN+DANOS



2008 Managed Area Large Canopy Tree

Source: BROWN+DANOS



Limited resources and high interest in Brechtel Park have led many volunteer groups to dedicate their time to restoring the park including Georgia Pacific, Louisiana Wildlife and Fisheries, Department of Agriculture & Forestry, the local chapter of the AIA, the LA chapter of the American Society of Landscape Architects, local community groups, Friends of Brechtel Park, the 2009 Evangelical Lutheran Church in America (ELCA) National Youth Gathering, and Boy Scout troops from as far away as New Jersey. Volunteer work, previously unorganized, is being coordinated through the Brechtel Park website where volunteer groups and management personnel document their work and the ecological conditions and upload forms. www.brechtelpark.us

Continued volunteer services are contributing significantly to the restoration of Brechtel Park. Scout groups have cleared some invasive plant species and constructed songbird boxes, duck boxes, bat boxes, and blue bird boxes. In July 2009, Volunteer efforts of 900 youth from the Evangelical Lutheran Church in America (ELCA) National Youth Gathering cleared trails and many invasive plant species. Friends of Brechtel is a non-profit organization that is initiating tree planting workshops, acquiring funding for the restoration of the lagoons, and organizing various community activities within the park.

Technical Advisory Panel

To support the RMP recommendations and enhance the viability of the park's successful restoration, B+D formed a technical advisory panel that includes eleven experts in the areas of hydrology, soil, grazing, aquatic habitats, wildlife, avian behavior, forest restoration, general conservation/restoration, entomology, and climatology. The collaboration of these applied science professionals respects the park's history and guides volunteer and maintenance operations in restoring the park's environmental integrity.



Technical Advisory Panel Member Meeting Jan.31.2009
Source: BROWN+DANOS

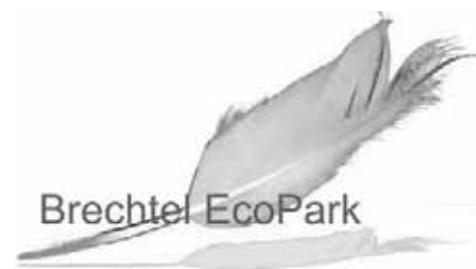
GOALS

B+D, working as the prime technical expert for the EcoPlan, has developed the following goals and strategies to support the enhancement efforts of Brechtel Park and the Resource Management Plan (RMP).

1. Restore Brechtel Park's ecosystems disturbed by Hurricane Katrina, while simultaneously developing the EcoPark Plan.
2. Develop a plan for protecting, restoring, managing, and enhancing Brechtel Park as an EcoPark.
3. Provide passive recreational attractions that are primarily ecologically based and emphasize the enjoyment of the site's natural resources.
4. Organize and direct volunteer groups in properly restoring the EcoPark. Volunteer work to include maintenance and documenting ecological conditions.
5. Promote Brechtel Park as an ecological and environmental education center within the New Orleans area.



Butterfly in Brechtel Park
Source: BROWN+DANOS

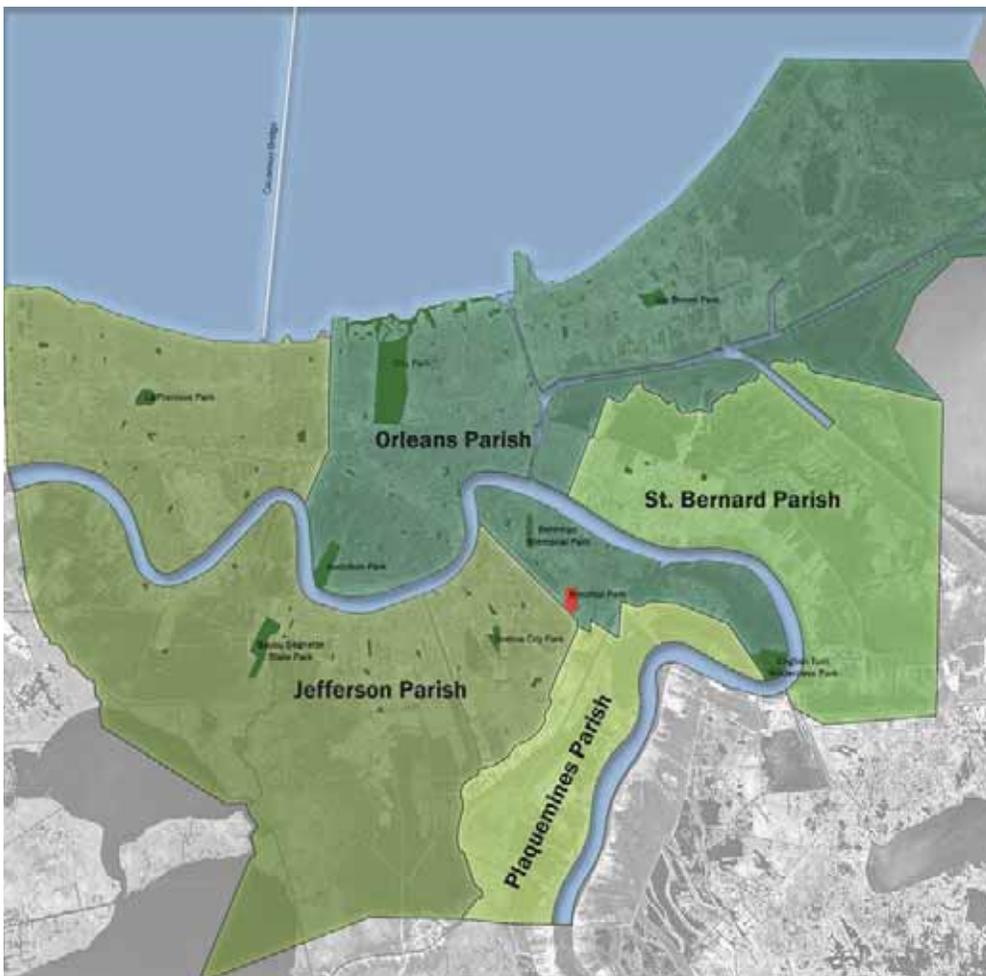


SITE INVENTORY AND ANALYSIS

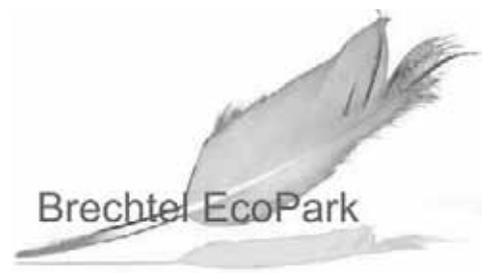
During the development of the EcoPlan, analysis was conducted and documented through technical advisory panel site visits, fish stock collection, soil and water testing, seasonal photographs, LIDAR data, and DOQQs (Digital Orthophoto Quarter Quads). Resource Management Zones were developed from the site analysis process, each zone classified by its environmental habitat sensitivity. The sensitivity of each zone determines permissible intensity of uses and management strategies.

Regional Context

The park is significant to the greater New Orleans area as an eco-tourist attraction, and is potentially a premier EcoPark with passive recreational opportunities for visitors and residents. It is listed on Louisiana’s Wetlands Birding Trail system as part of the Barataria Birding Loop and attracts many birding enthusiasts. Brechtel Park’s proximity to Orleans Parish, Jefferson Parish, and Plaquemines Parish also contribute to its regional importance. Brechtel Park’s size, location, recreational activities, and ecological importance attract regional residents, ecotourists, and birding enthusiasts.



Regional Park Analysis
Source: BROWN+DANOS



Neighborhood Context

Brechtel Park is located in Algiers, on the Westbank of New Orleans. Two golf courses are adjacent to the EcoPark: Brechtel Golf Course (open to the public) and Lakewood Country Club Golf Course (private). Alongside the northern and western border of the park are canals, the western canal draining a large portion of Algiers. Its eastern side, along Lennox Avenue, is directly adjacent to neighborhood homes. From General DeGaulle Drive onto Lennox Avenue, visitors travel through a suburban community to reach the entrance to the park. This progression to the entrance can be confusing, as it does not seem to lead to public recreational property and should be more clearly defined. An additional entrance from Tullis Drive at the southwestern edge of the site could be considered to improve the park's accessibility to the public.



Neighborhood Park Analysis
Source: BROWN+DANOS

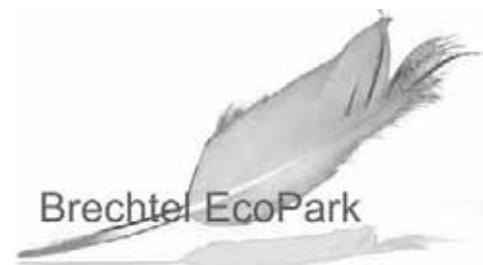
Facilities

- **Entrance:** Along Lennox Avenue, the park entrance is not prominent, making it difficult for visitors to identify. The current security at the park consists of a large gate, fencing, and entrance kiosk. The entrance kiosk and parts of the exterior fencing are in disrepair.
- **Structures and Site Furnishings:** The restroom facilities, pavilions, and picnic tables in the park are currently being repaired.
- **Roadway:** The existing roadway requires repair of potholes, the edge bollards and fencing, and speed bumps, some of which will be repaired using FEMA funds.
- **Parking:** Currently, the park seems to provide adequate parking.
- **Baseball Field:** Field and structural amenities are in disrepair.
- **Playground (New):** The playground located at the southern end of the lagoon was constructed after Hurricane Katrina and is in excellent condition.



Land Use

Source: BROWN+DANOS



- **Playground (Old):** A concrete border to the east of the new playground was previously used as a play area. It is no longer in use and its location is not appropriate to its surroundings. The border is approximately one foot high and it contains sand, soil, and plants.
- **Fishing Structures:** The benches and sidewalk leading up to the existing fishing dock located at the southern end of the site are in disrepair and impeding access to the existing fishing/viewing dock.
- **Trails:** The trail system includes: a perimeter trail around the lagoon, nature trails with the northwestern forested area, and a perimeter trail utilizing the roadway and pipeline. The majority of the perimeter trail around the lagoon has been maintained, but areas not maintained impede access to focal areas. The nature trails have been damaged by Hurricanes Katrina and Rita and are primarily unusable. Additional types of trails in the park could provide more activities for a wider variety of people, such as educational trails with interpretive signage and trails providing universal access to park users.
- **Campgrounds:** The campground areas located on Scouts Island offer the potential to engage the public in environmental stewardship activities. Site furnishings are currently being repaired. Invasive plant species, primarily around the water's edge, and encroaching vegetation to individual camping sites are preventing full visitor use of the island.

Climate

The site's climate has a substantial impact on its overall ecological system. In New Orleans, the land is adjacent to many water bodies, affecting the air's humidity and its ability to cool. Frequent and heavy rains are typical to this area causing flooding problems, wet conditions, and erosion particularly in areas with soils of low permeability. This also greatly impacts the type of trees and plants that are able to withstand these wet, humid conditions (National Weather Service Forecast Office New Orleans/Baton Rouge).

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Year</u>
Temperature													
2008: Mean Daily Maximum	60.5	68.9	71.9	78	84.6	90.6	92	89.6	85.3	78.8	71.1	68.2	78.3
2008: Mean Daily Minimum	45.5	49.3	52.8	60.3	68.7	74.6	75.6	75.4	72.5	61.5	50.9	50.3	61.5
2008: Average	53	59.1	62.4	69.2	76.7	82.6	83.8	82.5	78.9	70.2	61	59.3	69.9

Precipitation													
2008: Total (Inches)	3.34	2.88	2.15	6.7	7.19	4.4	3.24	7.21	11.17	1.78	1.77	2.21	54.04
2008: Days over 1 Inch	0	1	0	2	3	1	0	3	4	1	1	1	17
2008: Number of Days with Thunderstorms	4	4	4	10	6	16	15	11	3	1	3	0	77
Period of Record= 70 yrs (Inches)	4.81	5	4.83	4.55	4.62	6.06	6.33	5.72	5.48	3.14	4.23	4.87	59.64

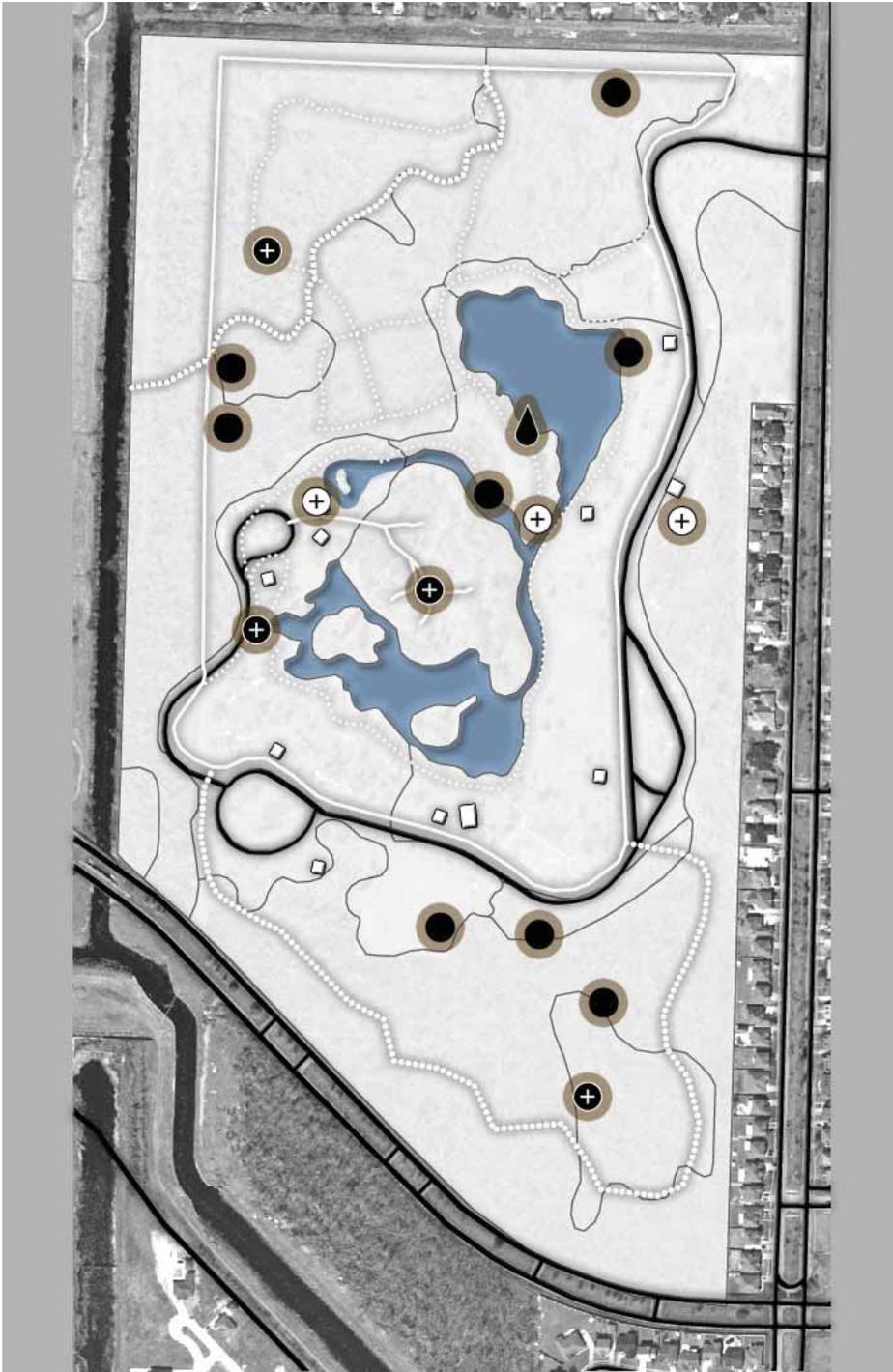
Winds													
Mean Speed (MPH)	10	9.1	9.9	8.4	9.3	6.2	5.5	6.7	9.8	7.4	7.4	9.2	8.2
Prevailing Direction (Tens of Degrees)	35	16	13	13	16	18	18	24	5	6	18	13	16

New Orleans Climate Data

Source: National Climatic Data Center
Asheville, North Carolina

Geology

The park's soil is classified as Westwego Soil, found in drained areas between natural levees and marsh. Westwego soil is comprised of organic material and semi-fluid clayey soil, deposited by a river or other running water that dries and shrinks due to artificial drainage. The site is a former backwater wetland, part of the Bayou Baratavia-Terrebonne Estuary, artificially drained in 1915 to prevent Yellow Fever. The main disadvantages of this type of soil are wetness, low permeability, and shrink/swell. When accommodating recreational activities it is recommended to add sandy or loamy material to the surface to reduce wetness (U.S. Geological Survey).



Soil/Water Sample Locations

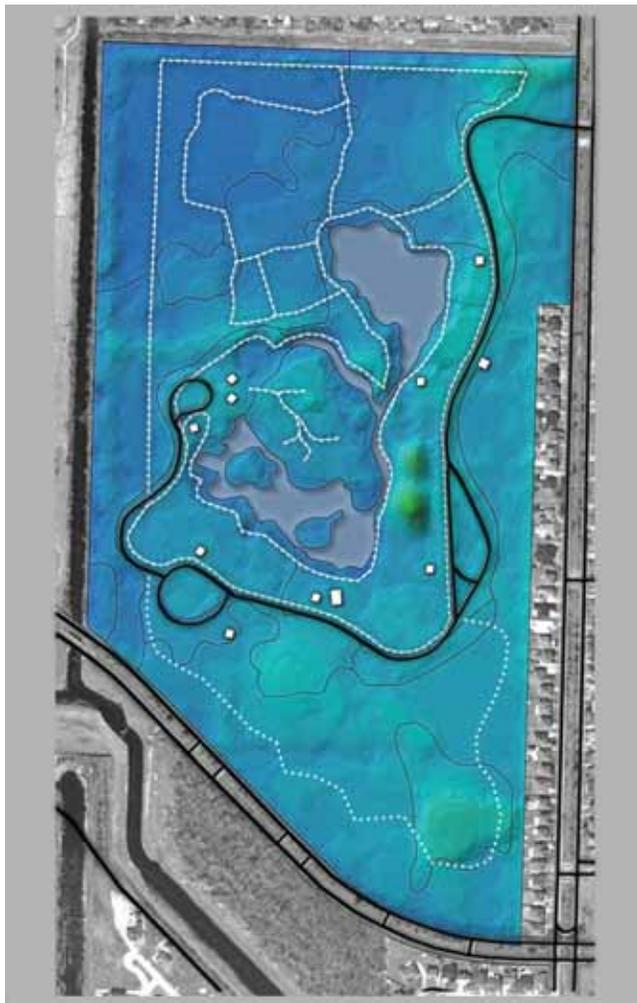
Source: BROWN+DANOS



Soil samples were taken in various site locations to help determine element content and soil texture. The soil textures in the park include: silty clay loam, silt loam, clay loam, and loam. This helps identify suitable plant palettes and areas of high silt content that may negatively impact the lagoon's water quality. Areas with soils of high silt content typically correspond in areas with a higher depth of sedimentation. These areas should use vegetation to filter stormwater runoff and soil erosion.

The first four inches of the surface of westwego soil is dark gray clay. The subsoil condition generally has a 29 inch depth with a dark gray to gray color. To a depth of 70 inches the soil is fluid clay and has a gray to greenish color. A primary consideration when developing or planting the land is its tendency to shrink and crack.

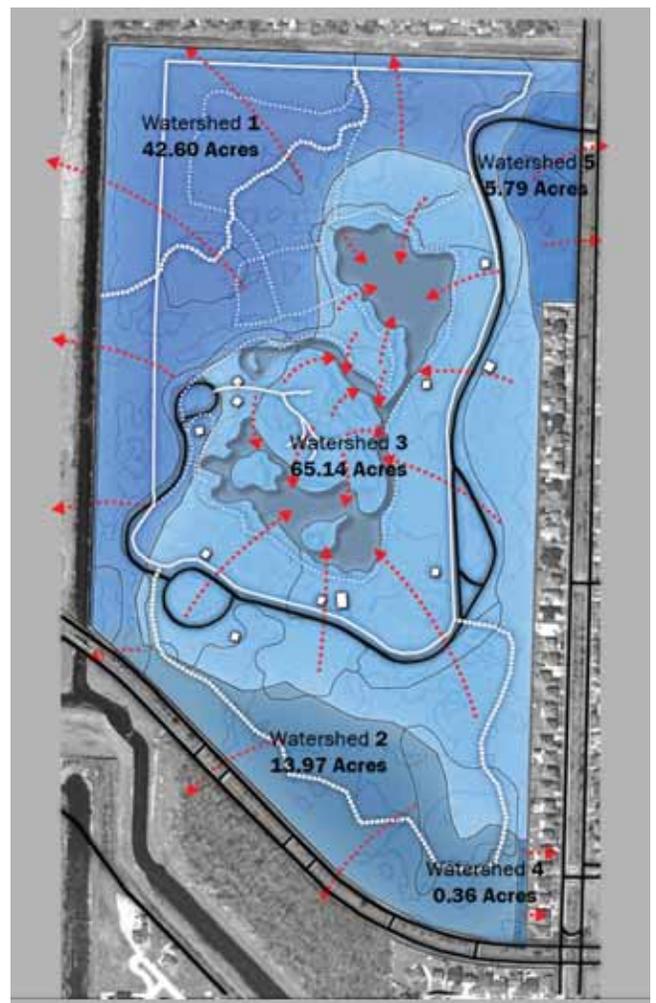
Soils affect the tree growth of the area. Its depth, fertility, texture, and water capacity all contribute to its ability to support plant and tree life. The depth of root zone also highly affects the tree's ability to grow and the types of trees that are able to grow. Westwego soils are typically well suited for bottomland hardwood trees that tolerate wetness and marshland plants that also tolerate wetness. It also supports wetland plants, wetland wildlife, and shallow water areas (United States Department of Agriculture).



Elevation Map

Source: BROWN+DANOS

LIDAR Data: Atlas-The Louisiana Statewide GIS
<http://atlas.lsu.edu/>



Watershed Analysis

Source: BROWN+DANOS

Topography

The site's flat topography, subtle slopes, and organic soil are typical of most Southern Louisiana landscapes. Brechtel Park's elevation ranges from 8 feet to -13 feet. LIDAR (Light Detection and Ranging) data, the only topographic data available park-wide, was used to most accurately determine the site's topography. The artificially constructed hills in the park are the highest point and the majority of the site has significantly less slope and elevation changes. Excavated materials from the initial construction of the lagoon were placed in the south eastern part of the site. The roadway, campground, baseball field, and site furnishings are typically in areas with higher elevations.

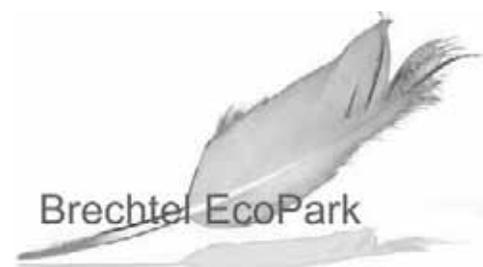
Hydrology

Brechtel Park's site was part of the Bayou Barataria-Terrebonne Estuary prior to its draining in 1915. Currently, the Barataria-Terrebonne Estuary watershed covers 15,769 square kilometers, drains 40% of the contiguous United States, and serves as a drainage basin to 28 states and a small part of Canada.

Lowering water levels in the lagoon prompted a thorough exploration of the park's hydrological system. The existing weir is located well above the water level, sometimes more than 4 feet and thus does not function to drain excess water from heavy rains. Ground water tables seemed to have been lowered, potentially caused by outside site disturbance. Brechtel Park's water table has been recorded as having a depth of 1 to 3 feet (Soil Survey of Orleans Parish).

Brechtel Park's 110 acres are drained by five watersheds. 65.14 acres drain into the lagoon system (Watershed 3). The northwestern portion of the site drains into the western canal, not contributing to the lagoon water system (Watershed 1). Large portions of the forested area in Watershed 1 have been ecologically compromised by Hurricanes Katrina and Gustav and subsequent invasion of exotic plant species, thus there is opportunity to regrade to maximize water contribution.

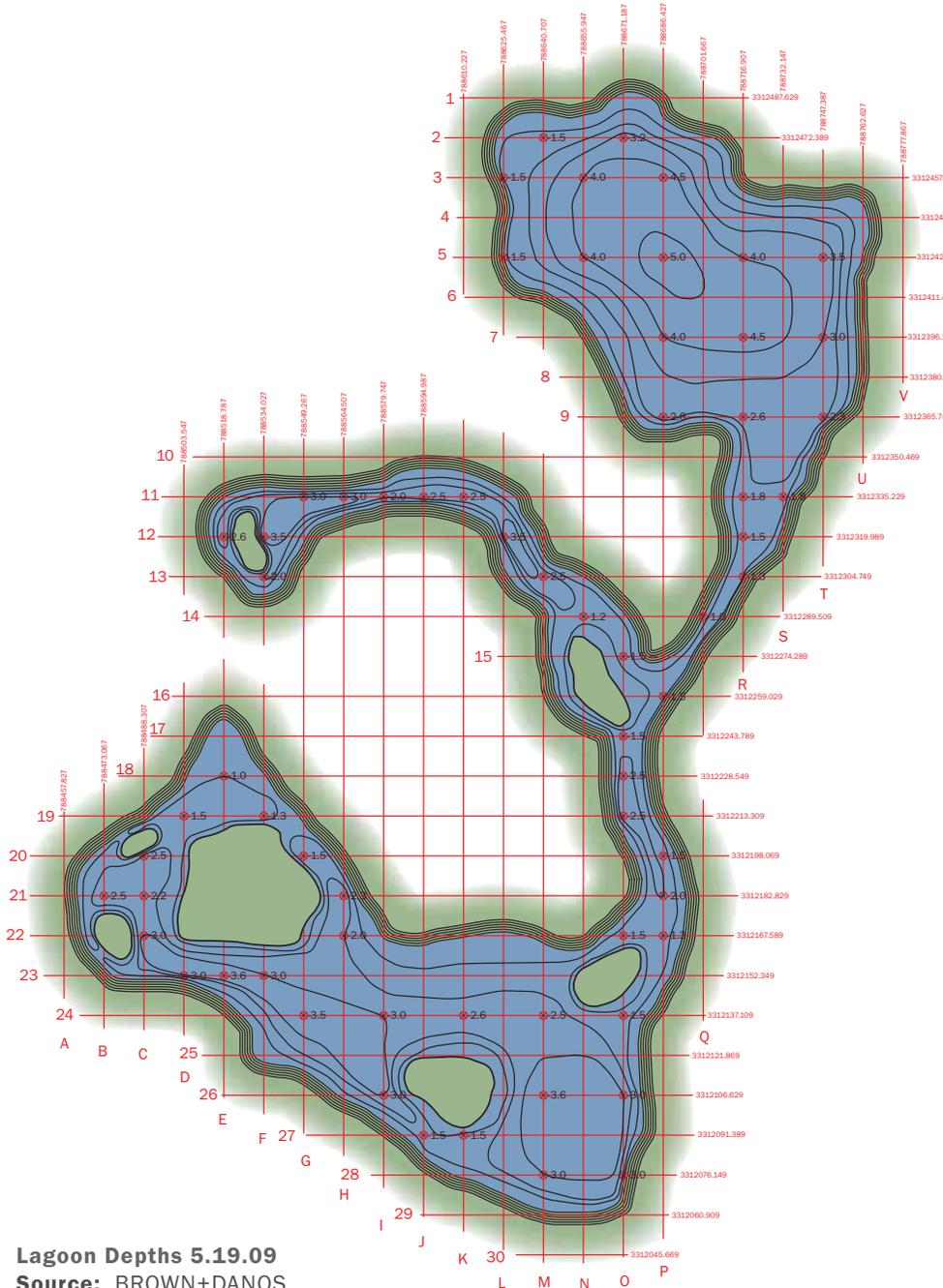
The southern portion of the site is thought to be remain wet longer than other areas of the park. This is potentially due to water flow from watersheds 2 and 4 being blocked by Tullis Drive and spoil placement, attributing to the wet conditions, particularly during major storm events.



Water Quality

Gravity and geographical features cause rain water to make its way to a nearby water body, the water from this natural process is called stormwater runoff. Stormwater runoff collects metals and pollutants that can negatively affect the water quality of the water body it enters. Negative impacts include high levels of pollutants, erosion, and sediment.

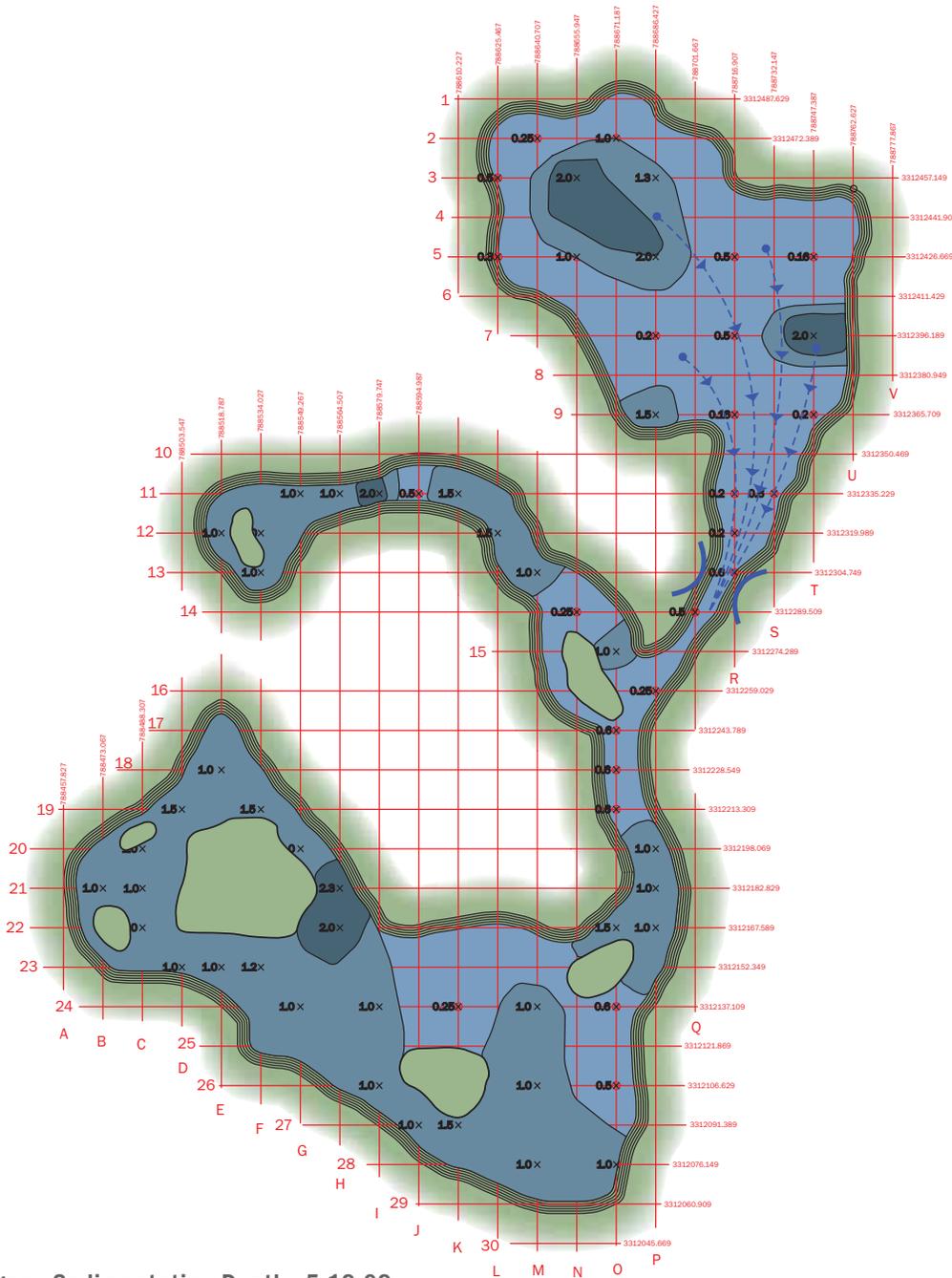
Water tests were conducted to determine the lagoon's water quality and its ability to support wildlife. Following water tests and depth measurements of the lagoon, sedimentation of muck at the bottom of the lagoon was determined to be the primary negative impact of stormwater runoff. Stormwater entering the lagoons and flowing from the surrounding barren and degraded landscape is depositing eroded soil and pollutants into the



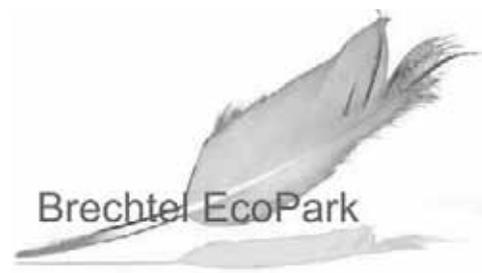
Lagoon Depths 5.19.09
Source: BROWN+DANOS

Brechtel Lagoon
Source: BROWN + DANOS

lagoon. This material settles to the bottom of the lagoon, reducing dissolved oxygen levels and compromising its ability to support healthy fish habitats. Constricted areas of the lagoon restrict water flow and also degrade the water quality of the lagoon.



Lagoon Sedimentation Depths 5.19.09
Source: BROWN+DANOS



Vegetation

Brechtel Park offers a unique user experience with nature in the middle of an urban environment. The forest of Brechtel Park, located in the Mississippi River Alluvial Plain Ecoregion is comprised primarily of Bottomland Hardwood Forests, a predominant natural community in this Ecoregion. The hydrologic conditions of Bottomland Hardwood Forests typically alternate between wet and dry conditions. This natural forest community supports many wildlife species, including species targeted for conservation.

Within the park, visitors can find a mix of cypress, sweet gum, maple, hackberry, live oak, tupelo, water oak, and magnolia trees. Specific natural communities of bottomland hardwood forest plant species can be found within a forest, associating themselves in their communities due to various environmental factors including: physiography, topography, and moisture conditions. Associations are usually mixtures of broadleaf and needleleaf deciduous trees and evergreen trees and shrubs. For instance, tree inventories developed previous to damage from Hurricane Katrina indicate four distinct species compositions. However, many other species known to bottomland hardwoods forests were also found within the park's forest (Natural Communities of Louisiana and Conservation Habitats & species assessments: Bottomland Hardwood Forest).



2004 Watershed Analysis
Source: BROWN+DANOS
Data: Georgia-Pacific



2008 Site Analysis & Tree Inventory
Source: BROWN+DANOS

70% of the large trees in the park were destroyed in both the northern and southern forests by Hurricanes Katrina (2005) and Gustav (2008). This damage continues to contribute to stormwater runoff carrying pollutants and sediments to the lagoons, infiltration of invasive species, degradation of wildlife habitat, and restrictions of recreational activities. Walking on the trails is hindered by underbrush and vines that lower visibility and in some cases completely block access.

Recently planted, young trees in the managed and active areas need to be frequently monitored and maintained. Many of these planted trees suffered from drought conditions in the summer of 2009.

Wildlife

Wildlife depend on food, cover, and water for survival. Brechtel Park has numerous opportunities to support wildlife in its bottomland hardwood forest and its lagoon, but the restoration, enhancement, and maintenance of its ecological systems is imperative to the survival of desired native wildlife species. Unfortunately, significant amounts of Brechtel Park's resources attracting wildlife were compromised by Hurricanes Katrina and Gustav.

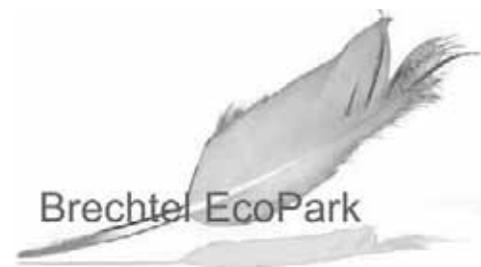
Vegetation provides shelter and food for various types of animals, varied forest stratification provides a variety of resources available to support this wildlife. Thus, the park's ability to attract wildlife is dependent upon forest and lagoon management and restoration. Native plants are particularly important in re-vegetation strategies because they have specifically adapted to support and provide for native wildlife (Wilson, R.) .

Orleans Parish supports numerous rare, threatened, and endangered species, the majority found in marshland communities. Brechtel Park is on the Louisiana's Wetlands Birding Trail system, its lagoon a major attraction to migratory birds. This makes the park a destination for birding enthusiasts, thus an economic driver to the park and the surrounding region. Although Brechtel Park benefits from the lagoon in attracting wildlife, an additional constructed wetland would help promote wildlife inhabitation. The Louisiana National Heritage Program published information on these species in April 2008. Endangered wildlife found in and around Brechtel Park is listed in the Appendix.



Brechtel Wildlife

Source: BROWN+DANOS



Trails

The Brechtel Park trail system was a passive recreational feature of the park that provided residents, community groups, bird watchers, and visitors with environmentally educational opportunities. Approximately fifty acres of the park, located in the northwest portion of the park, was explored utilizing the trails before storm damage. Hard surfaced trails on Scout's Island are no longer ADA accessible due to upheaval and cracking. Ecological effects from Hurricane Katrina contributed to the degradation of the previously functioning trails. Community residents have expressed a desire for the restoration of the existing trails and additional trails that provide more passive recreational opportunities and trail connectivity.

Continued volunteer services are contributing significantly to the restoration of Brechtel Park's trails. Volunteer efforts of over 900 youth in July 2009 aided in the restoration efforts by clearing the Barataria Trail and the portion of the Lagoon Trail that was overgrown and preventing access to Scout's Island.

Cultural Resources

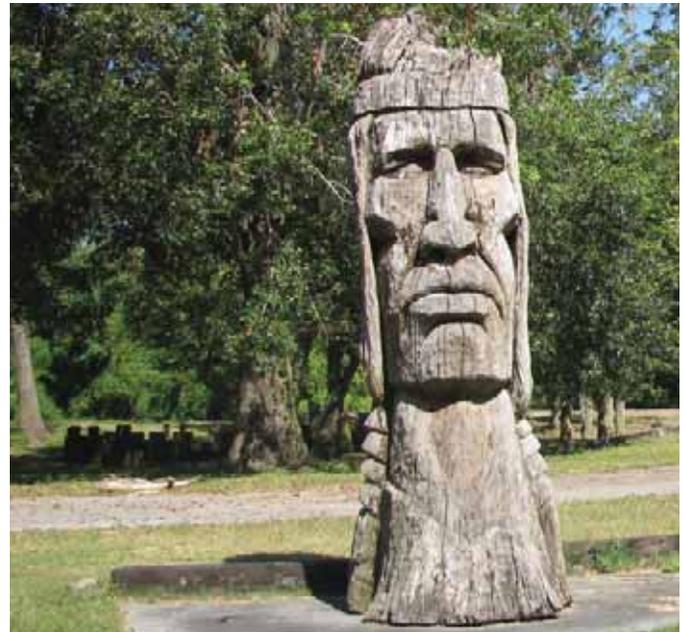
The people of south Louisiana have always utilized wetland systems as sources of recreation and education. Bird watching and fishing are popular activities for many residents. Water sports like sailing, boating, and swimming, are also common throughout Louisiana's wetlands. As human development has threatened wetland systems, residents are beginning to appreciate and admire the wetlands and utilize them as an educational resource. From ecological research to passive bird watching, the nearby lagoon provides an excellent opportunity to learn from nature.

Brechtel Park provides opportunities for water-related recreational and educational activities and has the potential to enhance its existing natural amenities. Visitors can closely view how a freshwater system is vital to the balance of a healthy ecological community, and how it affects the surrounding zones in the park and the region as a whole.

Brechtel Park has many elements that display local cultural art. A few of these notable artistic contributions include: a painted sign along the park drive that depicts the park's history, the "Whispering Giant" close to Scout's Island, and a metal sculpture of a Phoenix on one of the islands in the lagoon.



Scout Island Trail
Source: BROWN+DANOS



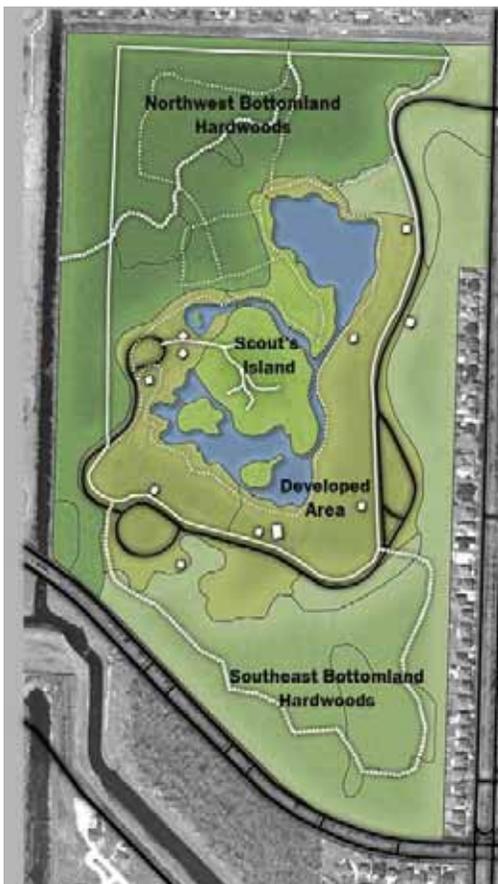
"Whispering Giant"
Source: BROWN+DANOS

The enhancement and restoration of the forested area in the park is a crucial component to promoting the park as a regional destination for families, day-campers, birding and nature enthusiasts, gardeners, novice fishermen, and plant lovers.

Conclusion

Site Analysis was used to identify the site's natural EcoZones, based on their similar ecological characteristics and communities prior to damage. These EcoZones were further broken down into subzones, as the basis for specific restoration strategies and management priorities within these subzones. The EcoPlan goals in the following chapter use these subzones to develop restoration recommendations intended to enhance the natural ecosystem and reestablish the EcoZones.

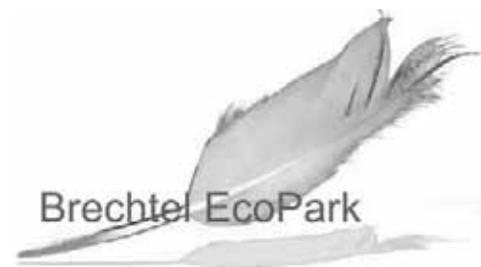
The Resource Management Plan describes the conditions and management regimes of the specific subzones, also with the intent to stabilize the site's natural EcoZones. It also includes work forms that can be used prior to or following the implementation of any EcoPlan recommendations.



Brechtel EcoZones
Source: BROWN+DANOS



Brechtel Subzones
Source: BROWN+DANOS.





Brechtel Park Desired Character Illustration

Source: BROWN+DANOS

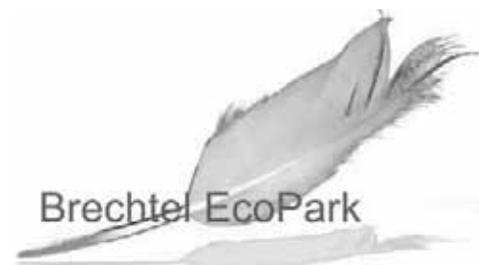
ECOPLAN

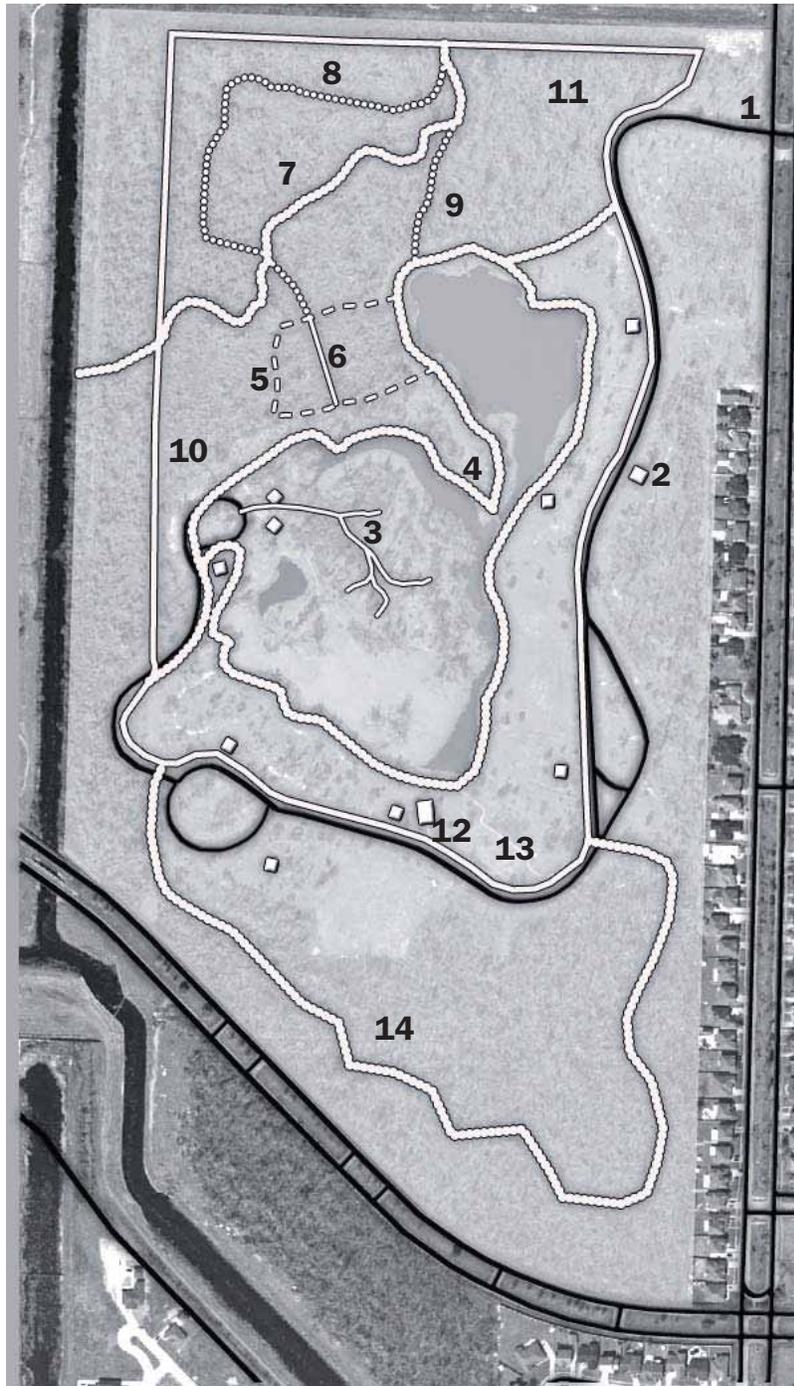
The EcoPlan will facilitate Brechtel Park's environmental education and ecologically based passive recreational opportunities and attractions. Through site analysis, public workshops, and collaboration with city officials and the City of New Orleans Parks and Parkways Department, recommendations were developed to enhance the ecological sustainability of the site. A list of goals for implementation accompanies each recommendation. Due to the interconnectedness associated with an ecosystem, some of the goals apply to more than one recommendation. The recommendations illustrated depict their desired ecological and recreational character and are not intended to be used for construction purposes. The following is a list of the EcoPlan recommendations:

- **Trail Restoration and Expansion**
- **Hydrologic Improvements**
- **Habitat Restoration and Enhancement**

Trail Restoration and Expansion

Clearing the nature trails of invasive species and placing interpretive, ecological signage along the trails are vital components to the EcoPlan and essential to the long-term protection of Brechtel Park's environmental integrity and citizen usability. The intent is to mitigate the spreading of invasive species and preserve as much tree cover as possible for wildlife habitat while also providing trail activities. The restoration and development of walking trails, boardwalks, and jogging trails in natural areas will provide for enhanced use and access to existing natural site amenities. Revegetation of areas along the trails will encourage additional avian habitation and provide visitors unique opportunities within an urban park to view the birds. Interpretive signage should be placed within these trails to educate users about native plant species, wildlife habitat, trail benefits, etc. Trail surfaces should be constructed specific to individual trail use. A trail map and a list of the trails recommended to be restored and added are on the following pages.





Map Legend

- | | |
|----------------------------|-----------------------------|
| 1 Entrance | 8 Westbank Loop |
| 2 Restrooms | 9 Algiers Trail |
| 3 Scouts Island Trails | 10 West Canal Trail |
| 4 Lagoon Trails | 11 North Canal Trail |
| 5 Barataria Trail | 12 Playground |
| 6 Terrebonne Trail | 13 Universal Garden Trail |
| 7 Barrier Trail (Proposed) | 14 Wetland Trail (Proposed) |
| | □ Pavilions/Structures |

Trail Map

Source: BROWN+DANOS

- **Restore Nature Trails:** The previously existing trails in the northwest portion of the park were used for bird watching, exercise, cultural exhibits, and scout education. All nature trails should be cleared of obstructions and surfaced with a 3" depth of mulch.



Nature Trail Character Illustration

Source: BROWN+DANOS

- **Introduce Invasive Barrier Trail:** The Algiers Trail has been proposed to create a barrier between areas highly infested with invasive plant species and areas less affected in the Northwest Forest. In addition to its functional intent, it will also be an educational component following major regrading and restoration efforts in the highly infested portion. Users will be exposed to examples of forest succession and restoration strategies. As the Algiers Trail is part of the nature trail system, its surface should be a 3" depth of mulch.



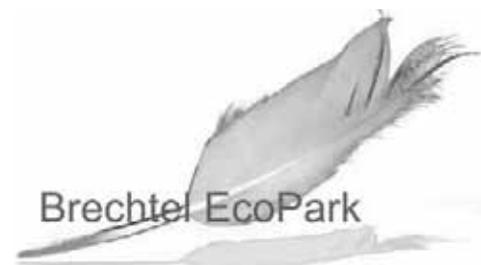
Protected Forest

Barrier Trail

Intensive invasive mitigation
& replanting showcasing
forest succession

Invasive Barrier Trail Character Illustration

Source: BROWN+DANOS



- **Maintain Lagoon Trails:** The trails along the lagoon should be maintained regularly to allow visitors access to view the park's aquatic wildlife and natural elements. The trail leading from the bridge at the center of the lagoon to Scout's Island is a high priority for continued maintenance.



Lagoon Trail Character Illustration
Source: BROWN+DANOS

- **Extend Perimeter Trail:** The extension of the Perimeter Trail will provide bicycle, walking, fishing, and fitness opportunities within the trail and will be accessible for persons with disabilities. A hard, permeable surface is recommended to accommodate multiple uses, high traffic, and universal access. Surfacing should be ADA accessible and permeable. The proposed extension to the Perimeter Trail would also enhance the existing Perimeter Trail by extending the system's usability.
- **Enhance Perimeter Trail:** The existing Perimeter Trail along the park's roadway should be enhanced through interpretive signage.



Perimeter Trail Character Illustration
Source: BROWN+DANOS

- **Enhance Scout's Island Trails:** The existing trail system on Scout's island should be restored because of the area's focus and high activity. Surfaces should be ADA accessible and preferably permeable.



Scout's Island Trail Character Illustration

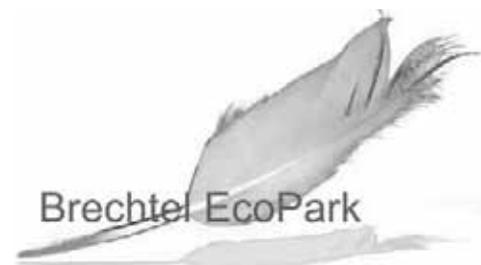
Source: BROWN+DANOS

- **Introduce Wetland Trail:** The Wetland Trail is recommended to extend the Perimeter Trail, expose visitors to the ecology of the southern part of the site, provide access for managing and maintenance activities, and showcase the recommended Constructed Wetland. Portions of the proposed Wetland Trail should be equipped with boardwalks, fishing piers, and look out points to support the trail's sustainability and usability. Surfacing should be ADA accessible and permeable.



Wetland Trail Character Illustration

Source: BROWN+DANOS

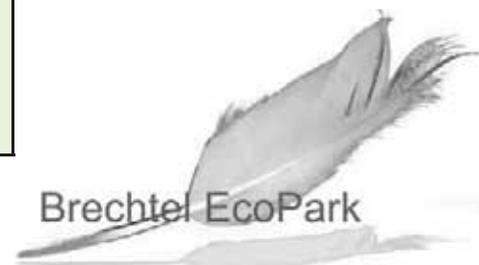


The following table summarizes the actions required for the implementation of the EcoPlan trail recommendations.

ActionPlan: Trails

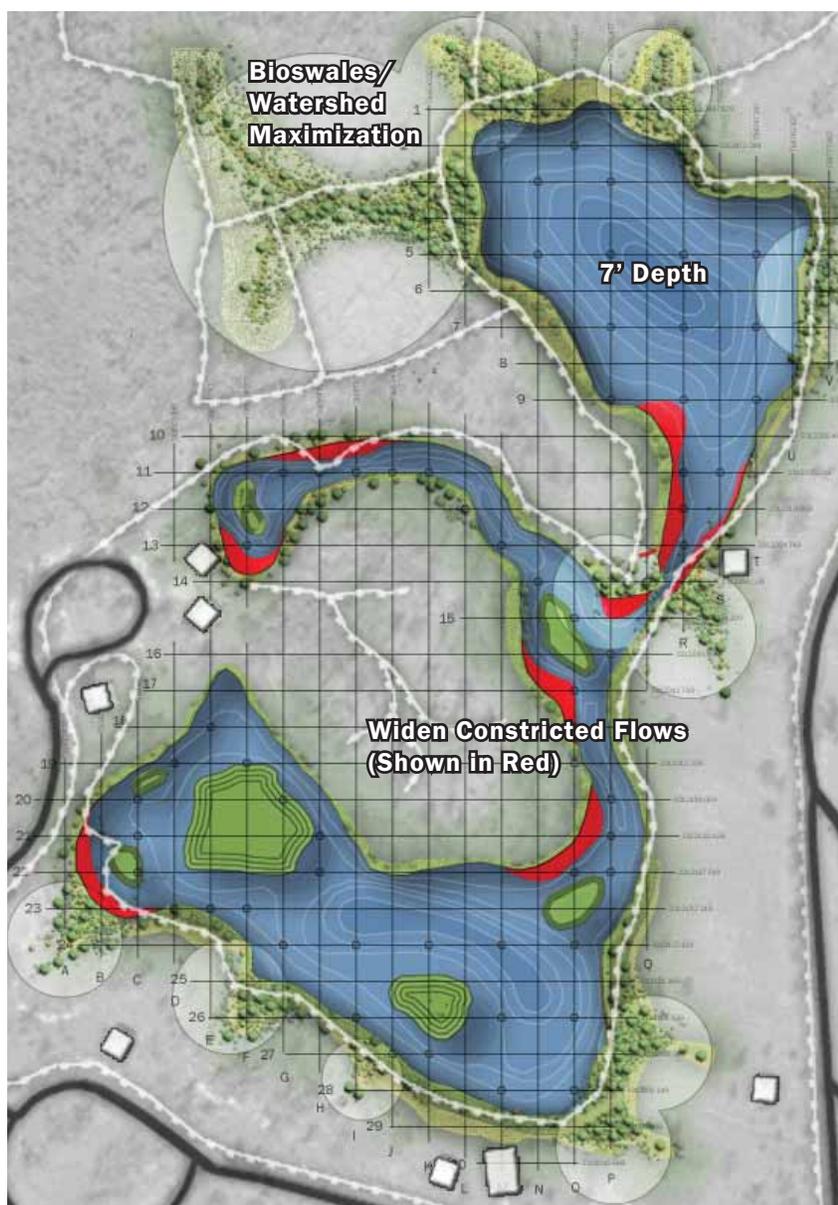
Goal	Action	Rationale
Restore Nature Trails	Clear trails of natural debris to average human height level. Clear ground floor from obstructions. Apply mulch.	The restoration of the previously existing nature trails is a major priority based on public opinion and recreational value.
Introduce Invasive Barrier Trail	Implement a nature trail in the Northwest Bottomland Hardwood Forest between areas severely impacted and less impacted by invasive plant species.	The Barrier Trail will mitigate invasive by creating a physical barrier and landmark for implementation and management procedures.
Enhance Lagoon Trails	Introduce boardwalks/fishing piers from the Lagoon Trail. Clear and mulch overgrown areas.	The Lagoon Trail provides access to view aquatic wildlife and natural elements.
Extend Perimeter Trail	Surface the existing pipeline trail at the north and west border of the Northwest Bottomland Hardwood Forest.	Utilize available space and provide pedestrians, disabled patrons, management, and bicyclists with universal access to the park's natural elements.
Enhance Perimeter Trail	Enhance Perimeter Trail with interpretive signage.	To enhance and promote the ecologically educational component of the park.
Enhance Scout's Island Trails	Restore Scout Island's trails. Remove invasive species and natural debris. Label select native plants with interpretive signage.	To provide visitors with a universally accessible and educational destination.
Introduce Wetland Trail	Implement a trail to allow access to the proposed Constructed Wetland.	To allow users access to the wetland's wildlife and educational benefits.

Considerations	Schedule Considerations
Install interpretive signage along trail depicting: plant identification, ecological information, trail recreational benefits, etc.	Clearing should avoid Spring and Fall times when possible to prevent invasive spread through disturbance of the plants' fruit/seed.
Surface trail with a natural, permeable material. Invasive mitigation west of Barrier Trail should be selective, intense mitigation to the east.	Avoid Spring and Fall when possible to prevent invasive spread through disturbance of the plants' fruit/seed.
Surface with natural materials to allow water flows into the lagoon.	Boardwalks/fishing piers should be built following lagoon regrading and dredging.
Surface with a pervious, hard material. Contact pipeline company prior to construction.	During non-rainy seasons.
Place signage in highly visible areas. Consider larger signs in high use areas.	As soon as possible.
Surface with an ADA accessible material. The closest campsite and at least one picnic table should be accessible by this trail for disabled park patrons.	As soon as possible.
Surfaced with a natural, permeable material. Build boardwalks in trail areas that retain water. The trail plan is an estimated location of the trails. Exact location to be determined onsite during construction, considering: avoiding the destruction of native trees, obtaining views of natural elements, and avoiding disturbance to wildlife.	Following the implementation of the Constructed Wetland. Fall and Winter times are best to prevent disturbance of bird nesting seasons.

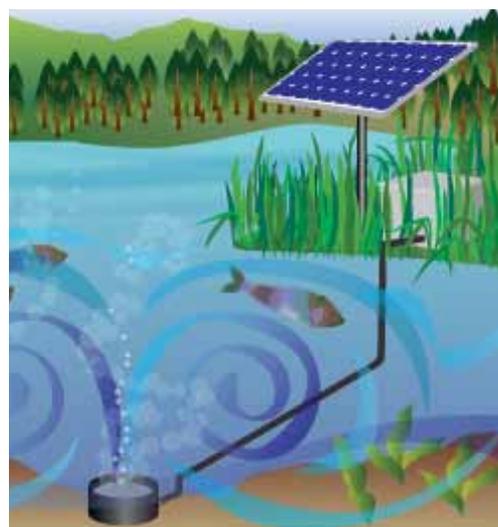


Hydrologic Improvements

- **Lagoon:** The lagoon at Brechtel Park was designed as a major recreational feature in the park that many citizens have enjoyed over the years. Currently, the lagoons of Brechtel Park have very low water levels, fish stocks are low, and large portions are overwhelmed with aquatic invasive species. The existing weir is currently being evaluated for its ability to properly drain during heavy rainfall events. Many concerned community stakeholders have advocated for the revitalization of the lagoons to initiate the restoration of Brechtel Park and strengthen its position as a regional park. Maximizing the watershed contributing to the lagoon, dredging areas with heavy muck sedimentation, restoring and creating a littoral shelf, and creating wildlife habitat are all recommendations that support the healthy restoration of the lagoon. To further support the health of the lagoon, solar powered aerator(s) and floating man-made islands that utilize plants to filter water and increase wildlife habitats are also recommended (Getsinger and Louisiana Cooperative Extension Service).



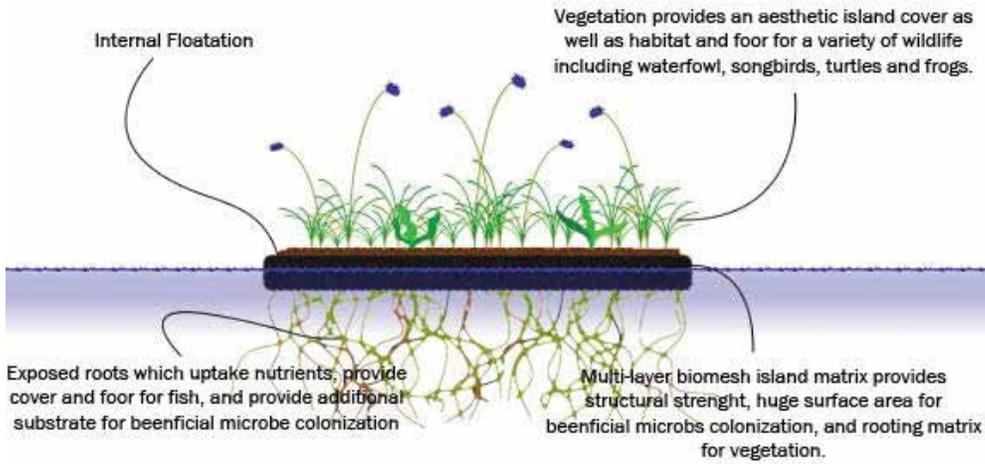
Proposed Lagoon Restoration
Source: BROWN+DANOS



Solar Aerator
Source: <https://shop.solardirect.com/images/solar-aerator-illustration.jpg>

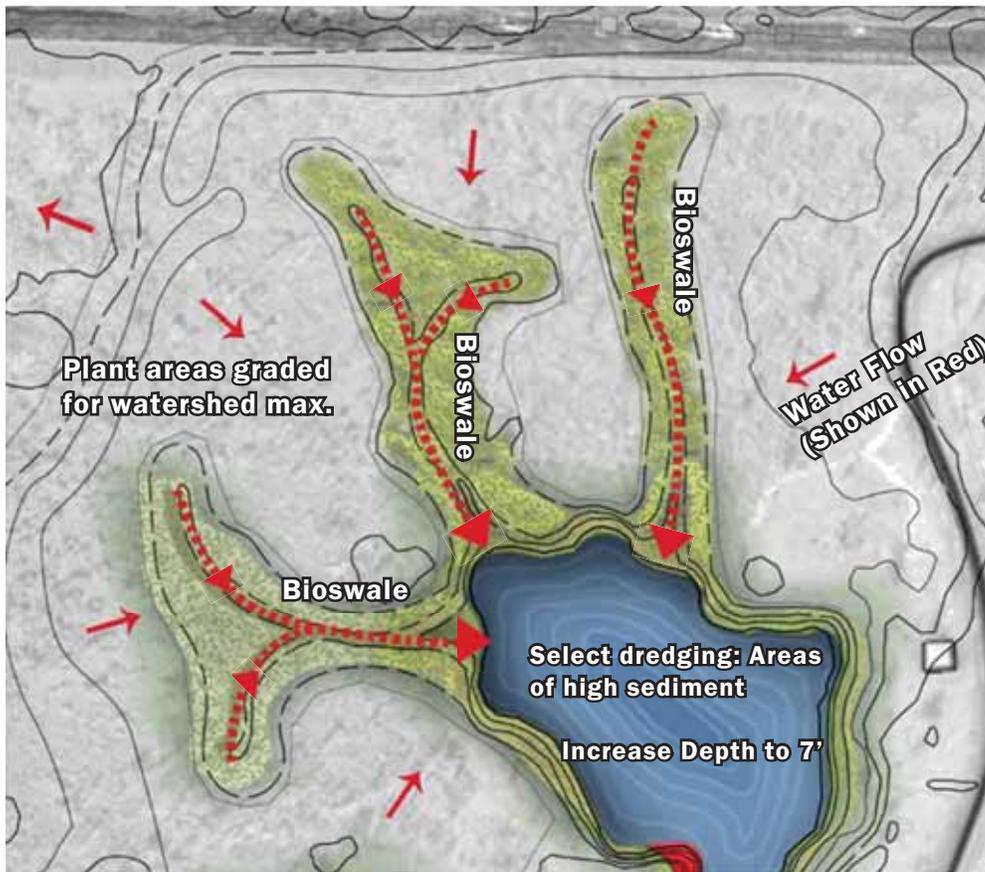


Solar Aerator
Source: <https://shop.solardirect.com/images/solar-aerator.jpg>



Floating Island

Source: <http://www.thepondguy.com/>



Proposed Watershed Maximization to Lagoon Detail

Source: BROWN+DANOS



The following table summarizes the actions required for the implementation of the EcoPlan lagoon recommendations.

ActionPlan: Lagoon

Goal	Action	Rationale
Maximize Contributing Watershed	Clear and grade 20.45 acres of the Northwest Bottomland Hardwood Forest.	An increased watershed will help maintain healthy water levels in the lagoon.
Improve Water Quality	Regrade lagoon bank along its north, east, and south. Introduce bioswales that direct and filter water entering the lagoon from the managed area.	Bioswales filter stormwater runoff and thus, increase water quality, wildlife habitat, healthy fish stocks, and recreational viability. Appropriate lagoon bank grading will increase user safety.
Improve Water Quality	Introduce vegetated "floating islands" to the lagoon system.	"Floating islands" filter water and provide wildlife habitat.
Remove Sediment	Selectively dredge areas with heavy sediment and constricted water flows.	The regrading of the lagoon will enhance its usability and wildlife habitat. Sediment in the lagoon potentially contains pollutants that negatively impact the lagoon system and fish stock. Constricted water flows typically have high levels of sedimentation. Some areas need to be widened and deepened to increase water flow.
Enhance Littoral Shelf	Enhance littoral shelf to provide wildlife habitat and support a healthy lagoon system.	Nestbuilding species of fish require stable substrates and/or a desirable littoral shelf.
Maximize Depth	Increase depth of lagoon in select areas.	Depths of the lagoon dictate its ability to sustain certain species of fish. Inadequate depth can result in fish kills during the summer when water temperatures in the lagoon increase, resulting in dissolved oxygen levels.
Increase Oxygen Levels	Implement a solar powered aerator to increase oxygen levels and demonstrate the use of renewable resources to generate power.	Retaining appropriate levels of oxygen in the lagoon sustains fish stocks. Aerator will circulate water, minimizing stagnant areas.

Considerations	Schedule Considerations
The closing of the park may be necessary to keep the public safe. A stormwater pollution protection plan (SWPPP) must be developed to prevent runoff pollution to lagoon. Area to be reforested following grading work.	Construction during dry periods to avoid soil disturbance. Fall and Winter times are best to prevent disturbance of bird nesting.
The closing of the park may be necessary to keep the public safe. A stormwater pollution prevention plan (SWPPP) must be developed to prevent runoff pollution to lagoon. Plant bioswales with wet tolerant native plants.	Construction during dry periods to avoid soil disturbance. Fall and Winter times are best to prevent disturbance of bird nesting.
Consult floating islands manufacturer to determine specifications. Plant with native and non-threatening species.	Following lagoon restoration activities.
Dredging activities should not undermine the structural integrity of existing structures (i.e. pedestrian bridge, pavilions, etc.). A stormwater pollution prevention plan (SWPPP) must be developed. Remove dredging spoils from site. Limit construction equipment to a defined construction limit line.	Construction during dry periods to avoid soil disturbance. Fall and Winter times are best to prevent disturbance of bird nesting.
There are various littoral shelf enhancement methods including: stake reefs, brush piles, tire reefs, and peagravel. Integrate littoral shelf enhancement plans in an overall lagoon construction plan.	Construction during dry periods to avoid soil disturbance. Fall and Winter times are best to prevent disturbance of bird nesting.
Construction activities should not undermine the structural integrity of existing structures (i.e. pedestrian bridge, pavilions, etc.). A stormwater pollution prevention plan (SWPPP) must be developed. Remove dredging spoils from site. Limit construction equipment to a defined construction limit line.	Construction during dry periods to avoid soil disturbance. Fall and Winter times are best to prevent disturbance of bird nesting.
Consult manufacturer when determining Aerator(s) locations.	Following lagoon restoration activities.



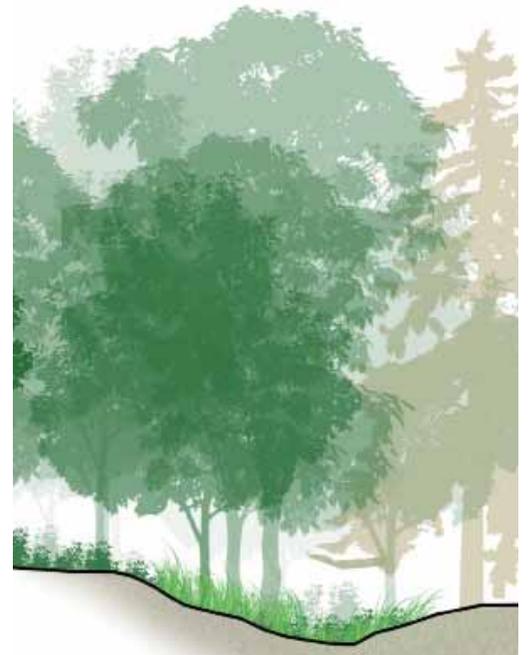
- **Constructed Wetland:** A 1.1 acre Constructed Wetland is proposed in existing low lying areas in the southern portion of Brechtel Park to act as a natural habitat for local plants and animals and filter stormwater runoff. A trail will be located alongside the proposed constructed wetland, educating visitors about the important ecological functions of freshwater wetlands. In addition to the wetland, grading landforms along the eastern property line will redirect water towards the wetland. Schematic plan provided is not for construction.



Proposed Constructed Wetland
Source: BROWN+DANOS



Constructed Wetland
Brays Bayou Wetland, Houston TX
Source: BROWN+DANOS



Illustrative Section
Source: BROWN+DANOS



Constructed Wetland
Brays Bayou Wetland, Houston TX
Source: BROWN+DANOS



Proposed Constructed Wetland Detail
Source: BROWN+DANOS

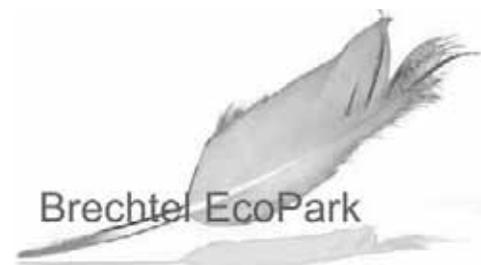
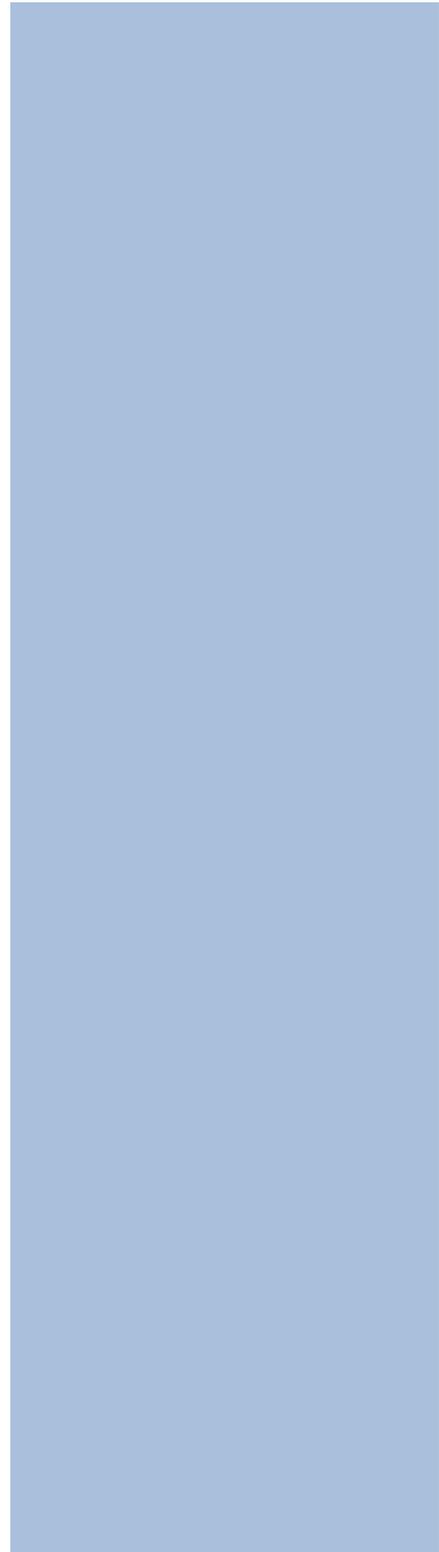


The following table summarizes the actions required for the implementation of the EcoPlan constructed wetland recommendations.

ActionPlan: Wetland

Goal	Action	Rationale
Maximize Wetland Watershed	Regrade the southeastern property and to redirect water towards the Constructed Wetland.	Retaining stormwater onsite is an ecological and educational solution that will promote the park's ecological identity.
Construct Wetland	Construct a 1.1 acre wetland in the southern portion of Brechtel Park.	A constructed wetland has many benefits including: providing wildlife habitat, collecting water onsite, directing water flow appropriately, filtering stormwater runoff, adding educational park components, and increasing recreational activities.
Reforestation	Revegetate areas cleared for regrading with native plants.	Revegetating will prevent stormwater runoff pollution, support the ecological integrity of the forested area, and provide additional wildlife habitat.
Wetland Planting	Revegetate areas cleared for regrading native plants.	Revegetating will prevent stormwater runoff pollution, support the ecological integrity of the forested area, and provide additional wildlife habitat.

Considerations	Schedule Considerations
Closing a portion of the park may be necessary to keep the public safe. A stormwater pollution prevention plan (SWPPP) must be developed to prevent runoff pollution. Limit construction equipment to a defined construction limit line.	Construction during dry periods to avoid soil disturbance.
Closing a portion of the park may be necessary to keep the public safe. A stormwater pollution prevention plan (SWPPP) must be developed to prevent runoff pollution. Limit construction equipment to a defined construction limit line.	Construction during dry periods to avoid soil disturbance. Replant during the spring or fall.
435 seedling trees per acre and a seeded understory are numbers based on LDWF and Stewardship Forest recommendations for a bottomland hardwood forest. See Appendix for Native Plant List.	Immediately following grading work. Preferably during the fall or spring.
Native plants selected should be tolerant of wet conditions. See Appendix for Native Plant List.	Immediately following grading work. Preferably during the fall or spring.



Habitat Restoration and Enhancement

Reforestation

Restoring the forest is the most challenging element of the EcoPlan, but also the most crucial to the park's sustainability. Reforestation, invasive plant mitigation, and wildlife enhancement are all intimately connected and dependent upon each other to maintain the park's ecological balance. Hurricanes Katrina and Gustav damaged over 70% of the park's canopy, contributing to widespread infestation of invasive plant species. Forested areas in the northwest have suffered the most from these storms. The most devastated area in the northwest is recommended for immediate large area and selective clearing, followed by reforestation because damage has been too severe to recover without such intervention. It is no longer considered suitable for wildlife habitat and is a threat to surrounding forested areas. The proposed Barrier Trail will help to prevent the spread of invasive plant species.

The Louisiana Department of Wildlife and Fisheries has developed the following indicators of a sustainable and healthy forest:

- Plant selection for reforestation should consider the specific hydrological and soil conditions of the areas targeted for reforestation (Refer to the Appendix of this document for native plants and their desirable conditions)
- Diverse tree species are important to obtaining varying levels of size, structure, and composition because it supports trees that mature at varying rates, thus continuing the natural cycle and balance of the forest. A diverse forest typically has more insects, acting as a food source to wildlife. Also, diverse forests are known to improve soil health, enhance natural regeneration, and greater structural diversity. Reforestation strategies that utilize fast maturing tree species in combination with shade tolerant, slow maturing species have been successful (i.e. Eastern Cottonwood with Oaks).
- Desirable stratification is as an average of heterogeneously distributed stocking of: Overhead canopy (60-70%), Midstory and Understory (25-40%).

(Wilson and Louisiana Department of Wildlife & Fisheries).

Habitat Type	Percent of Area	Description
Forest Cover	70-100%	Large (>10,000 acre) contiguous forested areas are desired. At any point in time, a minimum 35% and optimum 50% of the forest should meet the desired stand structure conditions (See <i>Management of Bottomland Hardwood Forests, Table 2</i>).
Actively Managed Forest	70-95%	Forests that are managed via prescribed silvicultural treatments to meet desired stand conditions.
- Regenerating Forest	≤ 10%	Forest regeneration on areas > 7 acres (e.g., clearcuts where >80% of overstory has been removed) or forest restoration on agricultural lands (i.e., reforestation). However, achieving increased forest cover via reforestation overrides the 10% limitation.
- Shrub/Scrub	≤ 5%	Thamnic woody vegetation (hydric or mesic) within bottomland forests, including forests in early seral (successional) stages.
Passively Managed Forest	5-30%	Forest areas that are not subjected to silvicultural manipulation (e.g., no-cut, wilderness, set-aside, and natural areas).

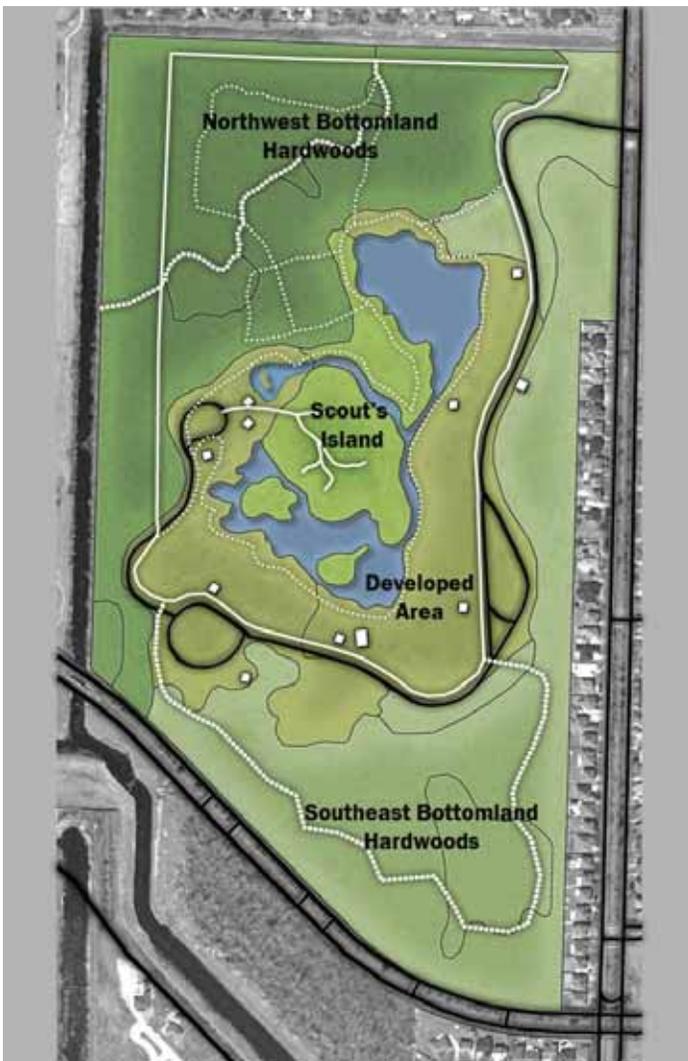
Desired Bottomland Hardwood Forest Conditions

Source: *Restoration, Management, and Monitoring of Forest Resources in the Mississippi Alluvial Valley*: Lower Mississippi Valley Joint Venture Forest Resource Conservation Working Group

Brechtel Forest Recommendations:

- General: Reforestation should begin by removing invasive plant species in the area selected for restoration. Areas selected for restoration should have an adjacent area of equal or greater amount of land to the area selected to provide habitat for displaced wildlife. Following invasive plant species removal, the area should be evaluated for its overall health, forest diversity, and available wildlife habitat. It is recommended that this evaluation utilize the above LDWF recommendations and Table and the following Work Forms found in the Resource Management Plan: Forest Stratification and Forest Measurement.

Choose from the Native Plant list in the Appendix of this document and avoid plants listed in the Invasive list. Forest diversity and forest succession can be promoted by planting many native plant species that provide a variety of wildlife benefits and planting both fast and slow growing trees. For example, Cottonwoods (*Populus deltoides*), fast growing and providing shade, can be planted with Oaks, slow growing and long-living.



Brechtel EcoZones
Source: BROWN+DANOS



Brechtel Reforestation Recommendations Based on EcoZones:

- Developed Area:** This area is currently the most active and maintained. It has also been the area primarily benefiting from volunteer efforts. However, there is a continual need for invasive species evaluation and mitigation, especially around the lagoon. Trees planted by volunteers need to be monitored regularly for adequate depths and width of mulch, hydration, encroaching vines and invasive plant species, and healthy growth. Mulch should have a 3” depth and spread around the trunk to the drip line (horizontal growth). Established trees should be monitored for encroaching invasive plant species and vines.
- Scout’s Island:** This area of the park is the primary focal point with amenities that support Boy Scout and user activity. Due to its significance, maintaining and contributing to the natural and ecological character is a primary focus of the EcoPlan. Volunteers in July 2009 have removed much of the invasive plant species, but it is extremely important to continue surveillance and mitigation of encroaching invasive species and vines. Following repairs to site amenities in this area, locations for additional plantings should be identified based on desirable shade, educational exposure, and user compatibility.
- Northwest Bottomland Hardwoods:** Although much of Brechtel Park suffers from invasive plant species growth and their negative affects upon ecosystem health, the Northwest Forest of Brechtel Park is the area primarily in need of major mitigation and reforestation efforts. Prior to Hurricane Katrina, this forested area was equipped with numerous nature trails, located near Scout’s Island (a primary focus within the park), and adjacent to the lagoon and pipelines (allowing user access to the forest). User accessibility to this forested area strengthens its need for restoration.

Goal	Action	Rationale
Selective Clearing	Selectively clear areas with native plants to avoid wildlife disturbance.	To help the area naturally restore itself and maintain available wildlife habitat.
Intense Mitigation of Overpopulated Areas	Remove invasive plants from areas completely taken over. Protect areas with native plant species, including area east of proposed Barrier Trail.	Clearing overpopulated areas will help prevent invasive spread into healthy forested systems.
Plant Selection	Select diverse, native bottomland hardwood species.	Selecting site appropriate native plants will aid the balance of the park's ecosystem and discourage invasive plant infestations.
Planting	Plant recently cleared areas with diverse, native bottomland hardwood species.	Immediately planting recently cleared areas with will discourage invasive plant species growth.

The recommendation in this EcoPlan for lagoon watershed maximization requires some of the Northwestern Forest to be cleared and graded. The proposed Barrier Trail will help mitigate the spread of invasive species and areas east of it are recommended for regrading and intensive invasive mitigation strategies. These recommendations not only provide additional water flowing in the lagoon and invasive mitigation, but also implement a new ecologically educational component to the park. Following watershed maximization grading and revegetation, users entering the park and utilizing the nature trails will be able to view and understand the process of forest growth.

- **Southeast Bottomland Hardwoods:** Secondary to the Northwest forest, this area suffers from invasive species growth, primarily the Chinese Tallow Tree. Following the implementation of the Constructed Wetland and Trail, areas cleared and regraded should be planted with native plant species tolerant of wet conditions. Areas not impacted by construction activities should be managed for invasive plant species and evaluated for additional plantings, chosen for their ability to withstand the specific site conditions and provide wildlife habitat.

The spread below summarizes the actions required for the implementation of the EcoPlan forest recommendations.

Considerations	Schedule Considerations
Preserve native trees. Native plant species that enhance the vertical and horizontal stratification of the forest should be immediately planted. See Appendix for Native Plant List	During dry periods to avoid soil disturbance.
Avoid poison use. When using poisons, consider its impact on the ecosystem, water quality, and existing native plants. Do not allow poisons to flow into bioswales, wetlands, or lagoon. Carefully dispose of containers & applicators. When using heavy equipment, activities should be limited to focus areas. To increase wildlife habitat, preserve large decaying trees and existing established trees when possible. Large areas to be cleared should have an area adjacent not cleared for displaced wildlife.	Poisoning and construction during dry periods to ensure successful application and avoid soil disturbance. Replanting during the spring or fall.
Select native plant species based on hydrological and soil conditions. Utilize a mixture of early maturing and shade tolerant slow growing species. Consider the achievement of desired stratification levels.	Prior to planting. Volunteers submit plant list and gain approval from managing agency.
Sub-soiling has been known to increase growth and survival of recently planted species. Initial planting density of 435 seedlings per acre comprised of 30-60% hard mast species.	Following the completion of construction/grading work. Preferably during the fall/spring.



Note: A SWPPP (Stormwater Pollution Prevention Plan) must be developed prior to any construction or grading activities to minimize negative effects of stormwater runoff to the lagoon. Any areas that are graded or cleared should be replanted during the fall or spring to maximize plant survival rates. New plants should be continuously evaluated following the recommendations of the Resource Management Plan.

Invasive Plants Removal and Mitigation

One of the most prevalent challenges in restoring Brechtel Park as an EcoPark is the task of removing and managing invasive plant species. Combating invasive species, educating visitors about the benefits of native species, and providing visitors a unique, ecological experience are essential elements of the EcoPlan. The restoration of the nature trails in the wooded areas of the park has been identified as a major priority to support these elements. To achieve this goal, the trails will be cleared of natural debris and invasive plant species. Interpretive signage, including plant identification and other site specific ecological information, is an educational feature proposed to complement the nature trail. This signage would help visitors understand and appreciate the importance of using native plants and the adverse impacts of invasive species.

Although there are many invasive plant species threatening the park's ecological stability the Chinese Tallow Tree, Cat's Claw, and Water Lettuce have been identified as high threats. For a more comprehensive listing of invasive plant species to avoid planting and mitigate existing, refer to the Invasive Plant List in the Appendix of this document. All the species listed within it are all invasive plants that have the potential to radically alter the damaged and susceptible ecosystem.

- **Chinese Tallow Tree** *Sapium sebiferum*: An extremely invasive plant in Louisiana that was introduced from China in the 1700's for its ornamental characteristics. It has the potential to completely change the natural ecosystem to which it is introduced. They have tremendous reproductive potential because they become reproductive at an early age, produce many seeds that are spread rapidly by birds and water, and have the ability to resprout roots and shoots from cut stumps. Their ability to reproduce rapidly and replace natural vegetation effects wildlife habitability, earning the Chinese Tallow Tree a place on The Natural Conservancy's list of "America's Least Wanted-The Dirty Dozen."

Chinese Tallow Trees cannot be mitigated by simply cutting them down. Their reproductive ability allows them to resprout from the trunk. Therefore, they should be cut low to the ground and an herbicide applied to the exposed trunk stump. Chemicals containing Triclopyr have been known to be effective when applied to recent cuts. It is important to be sure the entire trunk is covered without dripping. It is best to remove this species



Tallow Tree at Brechtel Park
Source: BROWN+DANOS



Cat's Claw and other vines in Northwest Forest
Source: BROWN+DANOS

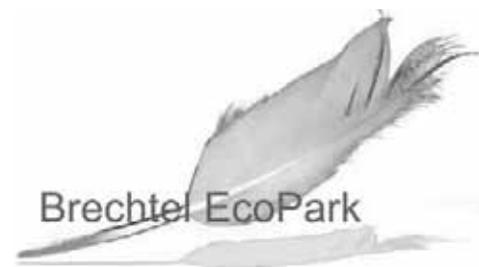
prior to its seeding season in late summer. If the structure of the tree removed has fruit/seeds, it is extremely important to collect the fruit/seeds to mitigate any further reproduction. *Clearcast* is a chemical application used in large forest areas that was developed to target Tallow trees without harming beneficial native tree species. *Clearcast* manufacturer should be consulted for specifications and application of this substance.

Chinese Tallow trees are found in various locations and sizes within Brechtel Park because of their ability to thrive in a variety of ecological conditions. Recently, volunteers removed many of these invasive species from around the lagoon and managed area. Sizes found in this area typically had a diameter ranging from 1 inch to 12 inches. Young saplings were found in the southeastern forested area. Various sizes were found in the northwestern forest as it is more affected by storm damaged and subsequently invasive species growth.

- **Cat's Claw** *Macfadyena unguis-cati*: Identified as an invasive plant that needs to be mitigated and controlled because of its potential to take over existing, weakened trees. Trees in Brechtel Park were significantly weakened following Hurricanes Katrina and Gustav, thus leaving them susceptible to the effects of Cat's Claw. Cat's Claw can alter the ecosystem and affect wildlife habitats. Cat's Claw is a woody vine that can climb high using tendrils that are hooked at the end, similar to its namesake. In the spring, it has yellow trumpet shaped flowers. Its fruit/seeds are narrow and pea-like pods approximately 12 to 15 inches long. It cannot be mitigated by hand removal because of its high survivability in almost all conditions. Therefore, the vine should be cut low to the ground and an herbicide applied to the cut with a sponge brush. Chemicals containing Triclopyr have been known to be effective when applied to recent cuts. It is best to remove prior to seeding in the early spring, if the removed vine has fruit/seeds, it is extremely important to collect the fruit/seeds to mitigate any further reproduction.



Water Lettuce in the Lagoon
Source: BROWN+DANOS



- **Water Lettuce** *Pistia stratiotes*: Resembles a head of lettuce with thick leaves and floats on the surface of water bodies. It rapidly spreads, impedes recreational activities, and adversely affects wildlife and fish stock. It is listed on the Federal Noxious Weed List, but is still available for purchase through aquarium suppliers. Water lettuce should be removed from the surface and bagged. Allowing it to sink can cause oxygen depletion in the lagoon.

(Center for Bioenvironment Research at Tulane and Xavier Universities, National Plant Data Center).

- **Vines**: Although Cat’s Claw is the primary vine targeted for removal, many additional invasive vines are in the park’s forest, competing with existing and weakened trees. These vines also need to be removed and mitigated in the same way explained for Cat’s Claw.

The following table summarizes the actions required for the implementation of the EcoPlan invasive plants recommendations.

ActionPlan: Invasive Plants

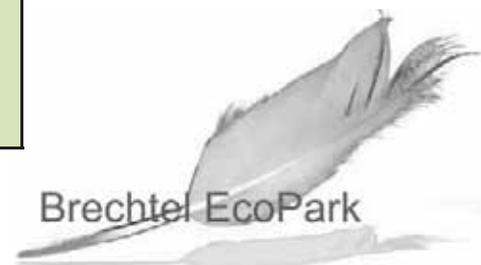
Goal	Action	Rationale
Lagoon Invasive Plant Removal	Remove and protect lagoon from invasive aquatic plant species.	Invasive aquatic species can alter the lagoon's ability to support a healthy system for wildlife. Water flow can be constricted in areas with high infestation.
Intense Mitigation of Infested Areas	Remove invasive plants from areas completely taken over. Protect areas with native plant species. Including area east of proposed Barrier Trail.	Clearing infested areas will help prevent invasive spread into healthy forested systems.
Selective Clearing	Selectively clearing invasive plants to preserve areas with available native plants. Including areas: Developed, west of proposed Barrier Trail, and Southeast Forest.	Selectively clearing areas with native vegetation will help the area naturally restore itself and maintain available habitat for wildlife.

Animal grazing methods could also be explored for invasive species mitigation. This method offers many ecological benefits, as it alleviates the need for chemical applications. The management of a herd, invasive species fruiting seasons, human interface, predators, herd health factors, area selected, and other related issues should be carefully planned prior to implementing a grazing program.

The ongoing removal and mitigation of invasive plant species is an integral component to the successful restoration of Brechtel Park. To help mitigate invasive plant growth and restore the forest, a reforestation management plan must also be implemented. For recommended bottomland hardwood plants refer to the Appendix and for management strategies refer to the Resource Management Plan.

Note: Chemical applications should be evaluated for their potential to negatively impact water quality prior to use.

Considerations	Schedule Considerations
<p>Avoid poison use. Invasive plant species should be netted, bagged, and removed from site. During lagoon regrading and draining invasive species should be bagged and removed. Plant material should not sink to the bottom of lagoon and decompose because it will deplete oxygen levels.</p>	<p>Invasive aquatic plant species should be removed during lagoon regrading.</p>
<p>Avoid poison use. When using poisons, consider its impact on the ecosystem, water quality, and existing native plants. When using heavy equipment, activities should be limited to focus areas. To increase wildlife habitat, preserve large decaying trees and existing established trees when possible. Large areas to be cleared should have an area adjacent not cleared for displaced wildlife.</p>	<p>Poisoning and construction during dry periods to ensure successful application and avoid soil disturbance. Replanting during the spring or fall.</p>
<p>Preserve native trees. Native plant species that enhance the cleared area's vertical and horizontal stratification should be immediately planted.</p>	<p>Avoid Spring and Fall times when possible to prevent invasive spread through disturbance of the plants' fruit/seed.</p>



Establishment of Wildlife Habitat

An important aspect of Brechtel Park is its ability to provide wildlife habitat. Wildlife contributes to the natural balance of the ecosystem and educates visitors about the environment. Avian inhabitation in Brechtel Park is of particular significance because it is part of the Barataria Birding Loop and attracts birding enthusiasts. The lagoon is a primary resource of the park to attract and provide for wildlife, thus its restoration is vital to the park's ability to sustain wildlife. The forests in the park also provide resources needed by wildlife, but their damage and subsequent invasive overgrowth has compromised many opportunities for wildlife. Wildlife previously inhabiting severely damaged areas have been displaced to other parts of the forest, and habitation opportunities continue to be threatened by encroaching invasive terrestrial and aquatic plant species. Reforestation recommendations include large area and selective clearing with subsequent revegetation (Wilson).

Louisiana Department of Wildlife and Fisheries have developed the following strategies for attracting and providing for wildlife.

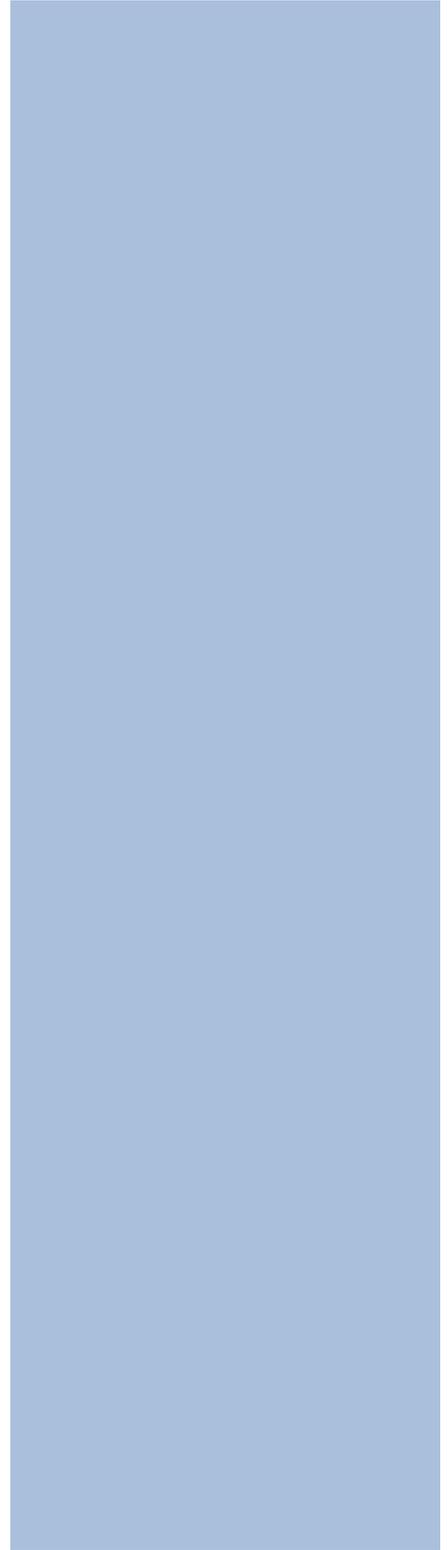
- Wildlife depends upon a diverse ecosystem with various available resources for food, shelter, and water for survival. Fruits, nuts, vegetables, flowers, leaves, twigs, sap, pollen, nectar, and bark are all items in an urban forest that provide food for a variety of wildlife. Thus, the more diverse the plant palette, the healthier and more diverse the entire ecosystem will be. Native plants that provide food or shelter for these animals should be preferred for reforestation and vegetation enhancement activities. Refer to the Appendix of this document for a Native Plant list with species that support wildlife identified.
- Wildlife is particularly attracted to forests with vertical and horizontal stratification
- Wildlife is also attracted to canopy gaps: 4 to 6 cavities or cavity potential trees per acre
- Considering 680 seedlings per acre (vs. 435 per acre sited for Reforestation) of mostly hard mast species to enhance survival rates.

Brechtel Wildlife Recommendations:

- **General:** Wildlife needs food, shelter, and water to survive. Therefore, areas located near water are particularly attractive to wildlife and should be prioritized for wildlife enhancement activities. All areas chosen for enhancement should utilize the above LDWF recommendations and the Wildlife Enhancement Work Form found in the Resource Management Plan. Plant selection should utilize the Native Plant list in the Appendix and consider plants that provide wildlife with food. Providing wildlife food year round can be promoted by planting many native plant species that have varying blooming and fruiting seasons. For example, American Beautyberries provide wildlife food in the fall while Coral Honeysuckle provided food in the summer.



Brechtel EcoZones
Source: BROWN+DANOS



Brechtel Wildlife Recommendations Based on Established Zones:

- **Developed:** Much of this area is adjacent to the lagoon, thus, attractive to wildlife. There are many duck boxes located around the lagoon, but need to be individually maintained. Many are not located at the proper height or distance from the water's edge, these should be moved and/or reinstalled. All boxes should be cleaned of debris inside and outside. Box locations and other wildlife enhancements should be determined based on minimal human disturbance to the area.



Desired Habitat Illustration: Developed
Source: BROWN+DANOS

- **Scout's Island:** Following repairs to site amenities in this area, locations for additional wildlife enhancements should be identified based on human disturbance, educational exposure, and user compatibility.



Desired Habitat Illustration: Scout's Island
Source: BROWN+DANOS

- **Northwest Bottomland Hardwoods:** Because the Northwest Forest of Brechtel Park is the area primarily in need of major mitigation and reforestation efforts, wildlife enhancement is a vital component to this area's restoration. Any major clearing, grading, and revegetation activities should have an adjacent area equal or greater to that area, that is available for displaced wildlife. A bat box has been installed in this area and should be monitored for required maintenance. Additional bat boxes in areas that are close to the lagoon with minimal human disturbance could be installed to mitigate mosquito problems in the park.

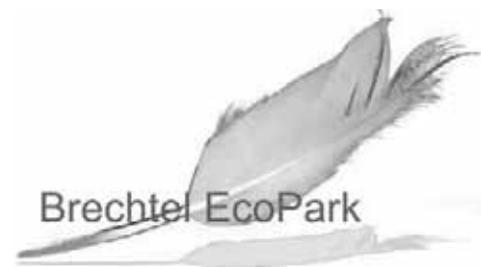


Desired Habitat Illustration: Northwest Bottomland Hardwoods
Source: BROWN+DANOS

- **Southeast Bottomland Hardwoods:** Following the implementation of the Constructed Wetland and Trail, areas cleared and regraded should be planted with native plant species tolerant of wet conditions. Areas not impacted by construction activities should be managed for invasive plant species and evaluated for additional plantings, chosen for their ability to withstand the specific site conditions and provide wildlife habitat. Any wildlife enhancement structures should be chosen to attract wetland wildlife.



Desired Habitat Illustration: Southeast Bottomland Hardwoods
Source: BROWN+DANOS





Brechtel EcoPlan Recommendations Illustration
Source: BROWN+DANOS

Additional Recommendations

The following recommendations are not part of the EcoPlan, but recommendations determined following site analysis to enhance the perception and use of the park.

Master Plan: To ensure the usability and continued environmental viability of Brechtel Park, a Master Plan should be developed to efficiently, economically, and environmentally utilize the available capital funding and set forth an ecologically sustainable plan for appropriate programs and uses and their locations. The Master Plan would designate appropriate program elements and uses for the ecologically-focused park and site. The programmed passive recreational elements and their locations should be based upon ecological principles respectful of the area's environmental, cultural, and economical sensitivity to promote overall park sustainability. The Master Plan should be a complementary component to the EcoPlan and Resource Management Plan, all plans focused on the long-term protection of Brechtel Park's environmental integrity while providing for public use and enjoyment. The following is a list of possible elements for the Master Plan considered to reflect the ecological characteristic and integrity of the park while also promoting user enjoyment. All new elements should be carefully designed during the development of the Master Plan and some existing elements should continue to be refurbished in coordination with FEMA recovery projects.

Entry Enhancement: Upon arrival at Brechtel Park, identifiable markers on either side of the entrance drive should denote arrival to the park and act as an identification and icon for the park. The size, shape, color, and font size should be carefully considered to maximize visibility and integrate with the ecological theme of the park. The landscape around the signage should be well maintained to increase visibility into and out of the park. An additional entrance from Tullis Drive should be considered to increase user accessibility.

Additional Parking: Any proposed parking areas should be located in areas of low ecological sensitivity. They should also utilize permeable paving surfaces and considered the use of best management practices that filter water to increase water quality and retain water onsite.

Interpretive Center: The development of a small Interpretive Center, located in an area with low ecological sensitivity in respect to the EcoPlan, could act as a gateway into the landscape and the starting point for all activities that occur within Brechtel Park. The building's interior could include indoor spaces for park staff offices, restrooms, meeting space, and small gathering rooms. The exterior spaces around the building could include smaller intimate gathering areas, a large covered pavilion, and adjacent larger open spaces for functions such as weddings, community meetings, and other outdoor functions.



Shade Exhibits and Gardens: In select areas within the wooded areas of the park there is the potential for planted shade exhibits. These exhibits will showcase native and naturalized species of plants who find their habitats in the shady forests of South Louisiana. Other gardens could include butterfly gardens, hummingbird gardens, and wildflower gardens. Interpretive signage indicating their common and scientific name would help enhance the educational experiences of the park. The type of garden and its location should be determined by sun exposure, soil type, and moisture conditions. Existing tree stock should be conserved when determining the type and location of additional gardens.

Universal Garden Path: To the east of the old playground, a concrete border approximately one foot high is a degraded concrete path with various stations, also in disrepair. This area should be restored as a transitional space from the park's drive and parking area to the existing fishing/viewing dock. It should be landscaped and equipped with interpretive signage to provide park users an interesting progression to the dock. It is recommended that the path and programmed elements to this area focus on accommodating disabled patrons.

Lookout Towers: Various lookout towers for wildlife observation could be located in the forested areas of Brechtel Park to promote the park as an ecological attraction. These wooden structures will give the park user opportunities to experience birds and other wildlife high within the forest canopy.

Repurpose Old Playground: To the east of the new playground, a concrete border approximately one foot high contains sand, soil, and plants. This area needs to be either demolished or repaired and reused for a different purpose.

Campground: Invasive plant species, primarily around the water's edge should be removed and mitigated. Vegetation encroaching individual camping sites should be removed.

Note: Recreational uses incompatible with Brechtel EcoPark include: athletic fields and courts, community gardens, large playground areas, large parking areas, large buildings not focused on ecology, manicured gardens, and non-native species gardens. There are approximately 30 parks within a 15 mile radius that are already providing or can include these facilities.

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