

Design Options for a Nature Park at McAllis Point

**Texas A&M University at Galveston
MARS 680 Capstone Class Project**

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Section 1

Background

Galveston Island is a 32-mile long barrier island located about 50 miles southeast of Houston. Prior to the 1900 hurricane, which devastated the entire city, Galveston was the largest trade center in Texas and the largest cotton trader in the country.¹ While Galveston was rebuilding from the storm, Houston began to grow as the major center of commerce in the area, fueled by the creation of the Houston Ship Channel. This led to a shift in the economic structure of Galveston from a predominately shipping community to a tourist destination.² The economy of Galveston has been diversifying in the past few years, with \$1.7 billion in new investments planned or underway in Galveston Island that include industries such as health care, life sciences/biotechnology, tourism/hospitality, off-shore oil, maritime, services, retail, education and government. This growth is predicted to cause an increase in 3,800 new homes in the Galveston area.³

The west end of Galveston Island is an area that is growing particularly fast. Quiet beach communities outside of the city attract people from all over the world, particularly people from the Houston area that want a weekend getaway close to home. The west end of Galveston currently has a few large developments in progress, such as the 60 acre Beachfront Village, the 157 acre Sunset Cove development, and the 1000 acre Pointe West development.⁴ Present parks or preserves on the west end are scarce, and include Lafitte's Cove Nature Preserve, the Galveston Island State Park, and the Houston Audubon Society's Dos Vacas Muertas Bird Sanctuary.



Figure 1. Locations of parks and preserves on the west end of Galveston Island.

The rapid growth of the west end is urging local citizens and environmental groups such as the Trust for Public Land (TPL) to try to preserve greenspaces. Through a process called greenprinting, which uses Geographic Information System (GIS) to combine geographic data with community stakeholder conservation priorities, TPL is working on developing a comprehensive plan for the west end of Galveston Island that can allow for sustainable growth. Priorities identified during greenprinting meetings include habitat and shoreline protection, drainage and flood management, preservation of the island's local character, and access and connectivity for public recreation. Due to increasing interest in the local community to preserve some of the last remaining open spaces on Galveston Island's west end, TPL and the Texas General Land Office (GLO) partnered to acquire McAllis Point, a 300-acre tract of undeveloped land and water on the west end that is not marked for commercial or residential development.⁵

McAllis Point property is divided into three sections; 173 acres of water and wetlands owned by the state, 56 acres of mostly lowland bayfront property with a narrow connection to FM 3005, and 71 acres of uplands (Figure 2). In January 2006, TPL signed an option agreement with the McAllis Point landowner to acquire the land, which was valued at \$5 million. This agreement expired April 5, 2006.⁶ Because the TPL did not have all the funds necessary to purchase the entire property before April 5, a partnership with the GLO was formed to help TPL in its preservation efforts. The GLO agreed to buy and hold the 127-acre portion of the property for one year to allow TPL to raise the necessary funds to buy the property. If the funds can be raised in time, then TPL will have first right of purchase on the land and will pay fair market value for the property. To date, TPL has raised approximately \$2.5 million from federal land conservation funding, the City of Galveston, Galveston County, and members of the community, and plans to acquire the 56 acres of bayfront property with that money.⁷ Additional funding is necessary to acquire the remaining 71 acres of upland coastal prairie. Although TPL is securing the funding for the purchase of McAllis Point, the land will ultimately be turned over to Galveston County, who will then allocate the park management to a local non-governmental organization.⁸



Figure 2. Location of McAllis Point, showing sections of property.

Since \$1.5 million of the \$2.5 million raised for the 56 acres was federal grant money from the Coastal Estuarine Land Conservation Program (CELCP) and the National Coastal Wetlands Conservation Grant Program, certain restrictions were placed on the property. The National Coastal Wetlands Conservation Program requires that coastal wetland ecosystems are conserved, intrusion into the project area is minimized, natural resource benefits are protected, and that a conservation easement is placed on the property so it is protected into perpetuity. The CELCP requirements are a little more specific, calling for building restrictions and specifying activities permitted on the land. For example, activities such as resource protection restoration and enhancement, hiking, hunting, fishing, access for swimming, canoeing, kayaking, research, and education are permitted. Minor construction of permanent structures are only permitted if they relate to the above activities. Agriculture, aquaculture, hard erosion control, sports facilities, playgrounds, roads, and buildings are not permitted.⁹

This report will first examine how the 56-acre tract at McAllis Point could be designed to provide an area for outdoor recreation while preserving the natural habitat and character of the west end of Galveston Island. Secondly, it will illustrate how the additional 71 acres, if acquired, could be incorporated with the 56 acres to create a unique “window to the bay”. The proposed concept for the entire 127 acres will enhance the recreational and habitat values of the proposed nature preserve beyond the typical wetland restoration projects seen elsewhere on west Galveston Island. The McAllis Point “window to the bay” will be the central access point to Galveston Bay, the surrounding marshes, existing nature preserves/parks, and bird islands.

Section 2

General Description

McAllis Point is a large undeveloped 300-acre area on west Galveston Island. A majority of the representative habitats found on Galveston Island can be found on the property. The broad range of habitats includes open water, algal flats, intertidal marsh, brackish marsh, freshwater marsh, and coastal prairie. The McAllis Point tract of land extends from Galveston Bay to FM 3005. Open water, algal flats, and intertidal marsh constitute approximately 173 acres; the remaining 127 acres is comprised of brackish marsh, freshwater marsh, and coastal prairie. Barbed wire fences separate the property from the adjacent western and eastern properties in addition to the fence along FM 3005. There is no fence between the marsh and the bay.

Linear boundary swales, along the east and west boundary of the property, were cut to aid in draining water from FM 3005 to the bay. Other than the two cut swale features the hydrology of the property has been left intact as indicated by the presence of depressional wetlands and interdunal swales.

Biological

The unfragmented 300 acres attracts a variety of resident and migratory birds. McAllis point may become one of the few refuges available for wildlife such as sandhill cranes and mottled ducks due to the extensive development planned for west Galveston Island. The broad diversity of habitats provides areas for foraging, shelter, and breeding of wading birds, shorebirds, waterfowl, and grassland birds (Figure 3). An impressive number of bird species have already been sighted on the property (Table 1).



Roseate spoonbills, white ibis, tricolored heron, and snowy egrets foraging in a wetland on Galveston Island.



Sandhill cranes foraging in a grassland habitat.



Mottled duck resting along the shore of the Laguna Madre in South Padre Island, Texas.



Killdeer calling on a shore in Corpus Christi, Texas.

Figure 3. Examples of birds observed at McAllis Point

Table 1: Bird Species Observed

- Black-Bellied Plover (*Pluvialis squatarola*)
- Great Blue Heron (*Ardea herodias*)
- Great Egret (*Ardea albus*)
- Killdeer (*Charadrius vociferous*)
- Loggerhead Shrike (*Lanius ludovicianus*)
- Long-billed Dowitcher (*Limnodromus scolopaceus*)
- Meadowlark (*Sturnella magna*)
- Merlin (*Falco columbarius*)
- Northern Harrier (*Circus cyaneus*)
- Roseate Spoonbill (*Ajaia ajaja*)
- Sandhill Cranes (*Grus canadensis*)
- Speckled Belly Goose (*Anser albifrons*)
- Willet (*Catoptrophorus semipalmatus*)

The upland habitat and freshwater depression wetland areas located on the property are capable of supporting many of the mammals, reptiles, and amphibians that presently live on Galveston Island.¹⁰ Presently, the coastal prairie portion of the property is overgrazed by cattle (Figure 3). The continued use as pasture land for cattle disrupts the natural ecosystem and leads to a general monoculture of plant species. Upon a site visit to the area in October 2006, the uplands portion appeared to be very monotonous, dominated by one species of nightshade. Plant species diversity is important in increasing animal diversity, thus restoration activities of the uplands portion to native coastal prairie habitat is important in increasing animal diversity, particularly bird diversity. The removal of the cattle and some minimal management could easily restore the coastal prairie to a more pristine state.

Increased diversity and density of the prairie plant species would provide better habitat for grassland birds and other endemic animal species. During a December 2005 site visit

of the area, participants from the Galveston Bay Estuary Program, U.S. Fish and Wildlife, Texas Parks and Wildlife, and TPL recorded 13 species of birds. However, a site less than a mile east from this property at the Galveston Ornithological Societies Bed and Breakfast, which has been planted with a dense forest of oak trees, fruit trees such as mulberry, hackberry, plums, peach, and berry vines, and flowering plants such as lantana, has recorded over 300 species of birds in its six years of existence.¹¹ This shows that by diversifying the plant species in an area, the animal species diversity will also increase.



Figure 4. Comparison of relatively undisturbed natural coastal prairie on Galveston Island (left) with disturbed upland habitat on McAllis Point property (right).

Twenty different species of vegetation have been identified on the 300 acres (Table 2). The species present are primarily salt tolerant due to the lands proximity to both Galveston Bay and Gulf of Mexico. Emergent (smooth cordgrass), transitional (bushy broomsedge), and prairie (little bluestem) plant species exist on the property demonstrating the differing plants communities typically present on a barrier island. Trees and other large woody plants are conspicuously absent.

Table 2: Vegetation Identified

- Bushy Bluestem, *Andropogon glomeratus*
- Bushy Broomsedge (*Andropogon glomeratus*)
- Carolina Wolfberry (*Lycium carolinanum*)
- Croton (Dove Weed) (*Croton capitatus*)
- Dewberry (*Rubus spp.*)
- Dog Fennel, (*Eupatorium spp.*)
- Glasswort (*Salicornia spp.*)
- Gulf Cordgrass (*Spartina spartinae*)
- Keygrass (*Monanthochloe littoralis*)
- Little Bluestem, (*Schizachyrium scoparium*)

Marsh Elder (*Iva frutescens*)
Marshhay Cordgrass (*Spartina patens*)
Needle Rush (*Juncus roemerianus*)
Pennywort (*Hydrocotyle* spp.)
Prickly Pear (*Opuntia* spp.)
Saltgrass (*Distichlis spicata*)
Saltwort (*Batis maritima*)
Smooth Cordgrass (*Spartina alterniflora*)
Smutgrass (*Sporobolus indicus*)
Wild Indigo (*Baptisia* spp.)

Biophysical

Estuarine wetlands biological production has been well documented in the literature. Almost all bay and gulf marine organisms are directly or indirectly dependent on the estuarine food web or have some life cycle stage that lives within the system. The McAllis Point property would provide many ecological services other than wildlife habitat such as nutrient cycling, flood impact reduction, water quality improvement, and erosion control for the surrounding residential and commercial communities.

In the last decade, aerial photography shows no dramatic change in the land use or significant loss of marsh habitat. National Wetlands Inventory (NWI) information, however, shows that there has been significant loss of estuarine emergent marsh, palustrine emergent marsh, and seagrass in the general area of the McAllis Point property between 1956 and 1989.¹² Between 1956 and 2002, updated NWI data indicates 80 acres of estuarine emergent marsh, 11 acres of palustrine emergent marsh, and 35 acres of seagrass have been lost specifically from the McAllis Point area. The loss of estuarine emergent marsh from the McAllis Point area accounted for about 22% of the total lost in the general area.

The site would be a good candidate for shoreline protection and intertidal marsh restoration. Similar projects, such as Jumbilee Cove, have been undertaken nearby and have been successful in restoring marsh and increasing the acreage of seagrasses. Restoration of submerged aquatic vegetation could be crucial to stabilizing the shoreline while providing a food source for fish, waterfowl, and sea turtles.

Surrounding Properties

The west end of Galveston Island is experiencing rapid development. The properties surrounding the McAllis Point tract of land are no exception. Much of the development is beyond the initial planning stage and is occurring at a rapid pace. The residential and commercial developments are fragmenting many of the barrier islands habitats and reducing the green space which was once abundant. The preservation of the McAllis property in its entirety would serve as a constant reminder to the natural heritage of west

Galveston Island and provide a “window to the bay”. Even this considerable tract of land is being encroached upon by present and future development along its boundaries.

Kahala estates and FM 3005 separate the 300 acre McAllis Point tract of land from fully extending to the beach of the Gulf of Mexico. The overall distance from the southern edge of the property to the beach is approximately 500 feet. Kahala estates are composed of a single line of houses wedged between the beach and FM 3005.

Indian Beach, another residential development, borders the property to the east. A 7.6 acre portion of Indian Beach adjacent to the McAllis property near Galveston Bay appears, from aerial photography, to be intertidal and brackish marsh. The area is not platted for houses and maybe left undisturbed which would add to the overall beauty and preservation of the entire area. Large 300 ft deep lots in Indian Beach abut the eastern swale boundary of the upland coastal prairie of the property.

Immediately to the west of the property is the remaining 98 acres of relatively undeveloped land still owned by the McAllis family. About ten acres of upland near FM 3005 has the remnants of the old McAllis family house. The property adjacent, to the undeveloped 98 acres is the developed Silver Leaf subdivision.

Section 3

Multiple uses for the land were examined; however, several restrictions exist for the 56 acres. For the “window to the bay” concept to be implemented fully, it is imperative to acquire the additional 71 acres.

A list of the pertinent laws and regulations has been included. The final design of the park took into account all the known laws and regulations including the the more restrictive guidelines being applied to the 56 acres because of federal funding source requirements. The final design will need to be sure to follow all state, local, and federal regulations.

Federal laws and state regulations can be found on the web at:

Federal laws – <http://www.epa.gov/owow/wetlands/regs/eo.html>

State regulations – <http://www.gol.state.tx.us/coastal/regulations.html>

The following facilities and improvements were explored to enhance the park experience while preserving and enhancing its natural qualities:

- Nature/Interpretive Center,
- Birding/Wildlife Observation Towers,
- Running/Hiking/Bicycling trails,
- Restaurant/Snack Shops,
- Kayak Launch and Rental Center,
- Fishing Pier
- Parking
- Freshwater Ponds and Marsh

- Wooded Area

The proposed design provides a medium sized natural area with limited amenities that would be a “window to the bay” and important link in a series of bayside natural areas along West Galveston Bay.

56 Acre Design

Due to the restrictions on the 56 acres, the only improvements listed above that can be developed is a small parking lot, a hiking/bicycling/running trail, the kayak launch, small observation points, and a fishing pier. Even with these limited amenities, the layout still accommodates natural preservation and some human and recreational opportunities.

A proposed road will go in along the western side of the property since an entrance to the property already exists. A small parking lot, for approximately 10 cars, would be located at the end of the road. A kayak launch point would be located close enough to the parking lot for ease, while the trails follow the perimeter of the 56 acres.



Figure 5. Park design with 56 acres

127 Acre Design

Acquisition of the additional acreage would allow the park to become much more than a roadside park along FM 3005. The “window to the bay” concept could be implemented to not only preserve one of the last remaining large greenspaces on west Galveston Island, but also provide access to other equally important natural resources nearby.

The overall design was created to minimize disturbance to the 127 acres while enhancing the value of the park and encourage its use. In addition to the improvements indicated in the 56 acre design, a nature/interpretative center would be built on the 71 acres. The center would provide educational opportunities for local schools, tourists and area residents. The incorporation of a kayak rental/storage area would facilitate access to the unique areas of the park and other parks only accessible by water while providing a source of funding for park maintenance. A freshwater pond with trees planted around it would be located along the eastern edge of the property. The trees and pond were designed to insulate the property from the adjacent residential area by increasing the natural aesthetic value while promoting species diversity.



Figure 6. Park design with entire 127 acres.

Nature/Interpretive Center

The center will be located just off of the designed road along the west side of the 56/71 acre boundary. The outside of the building should be designed to reflect the natural look of the surrounding area of the park. The building has been designed on stilts with two additional floors (three floors total including the bottom underneath).

The first floor will be used to rent kayaks as well as selling water and snacks. A small enclosed room could be used as storage to lock up those kayaks or other goods.

A ramp leads to the major part of the center on the second floor. When entering the floor, an information desk can be found with maps of the park as well as other applicable information. Sandwich shops as well as an optional restaurant can be found on this floor with a wrap around deck continuing around the perimeter of the building with benches and/or some picnic tables. This allows for the visitors to enjoy the area as they snack or rest. This floor would also house educational classrooms where students from the area can come to participate in hands on activities. Another option would be a conference room or hall that can be rented out for meetings or other larger activities.

The third floor would be a covered observation deck consisting of coin operated binoculars to maximize the viewing potential of not only the land, but the different species of animals attracted to the surrounding habitats that would be clearly visible from the observation decks vantage point. Picnic tables would be located here to provide for additional seating. A green roof system (essentially a garden) is proposed to keep the temperature down inside the building during the warmer months while reducing energy costs. The plants to be included will be native Texas plants. The garden will help to educate the public/visitors about native plant species and also be another source of habitat to attract additional species of animals.

“In order for a coastal building to be considered a ‘success,’ four things must occur:

- ❖ The building **MUST** be designed to withstand coastal forces and conditions
- ❖ The building **MUST** be sited so that erosion does not undermine the building or render it uninhabitable
- ❖ The building **MUST** be constructed as designed
- ❖ The building **MUST** be maintained/repaired.”¹³

Those who live on or near Galveston Island, or who visit, are keen on the fact that historically Galveston has had plenty of hurricanes and other floodwater events. Therefore the building needs to be built to withstand these events. “From 1990 to 1996, seven category I, three category II, three category III, and four category IV hurricanes struck the upper Texas coast. It is important to realize that characteristics of a particular storm, other than its peak wind damage may occur.”¹⁴ The building should be built to withstand at least a category three hurricane. This means to withstand 111-130mph winds as well as a storm surge of 9 to 12 feet above the normal surge.¹⁵ The natural design of the Texas coast poses many problems as well: the gentle sloping, low-sand supply, and low-energy lend to more significant impacts during a storm¹⁶.

The Federal Emergency Management Agency (FEMA) performed an independent study (which was sponsored by the Florida Home Builders Association) where they evaluated the effects of hurricanes on homes. Below is a list of their discoveries:

- ❖ “Wind damage accounted for a fraction of the destruction
- ❖ The greatest destruction was caused by water infiltration, not catastrophic structural failure (which building codes emphasize), even in houses properly constructed to withstand such failure.”¹⁷

Not only should the design of the building be built to withstand these events, the materials need to be considered as well. “FEMA defines a flood-restraint material as any building material capable of withstanding direct and prolonged contact (i.e., at least 72 hours) with floodwaters without sustaining significant damage (i.e., requires more than cosmetic repair).”¹⁸ The building should be built up on stilts tall enough to withstand the 9-12 foot storm surge. Any metals used should be corrosive resistant, and the wood should be moisture and decay-resistant material to ensure the life and the structural soundness of the building.¹⁹ This includes the wood being “pressure-treated or naturally decay-resistant, including redwood, cedar, some oaks and bald cypress.”²⁰ Since the possibility of large amounts of scouring and erosion is present, the foundation or piers should be “deep enough to resist the effects of scour and erosion; strong enough to resist wave, current, flood, and debris forces; capable of transferring wind and seismic forces on upper stories ground.”²¹ The building material for the walls should be made of concrete. “Cast-in-place concrete walls are a stronger, faster building technique than concrete masonry unit block. Cat-in-place walls deliver superior resistance to wind pressure and wind-borne debris.”²²

Birding/Wildlife Opportunities

The goal is to make the wildlife watching as unobtrusive as possible which is why the coin operated binoculars would be placed on the roof of the Nature/Interpretive Center. For those individuals with disabilities, wheelchair accessible coin operated machines will be strategically placed to allow them to participate fully and equally; this also helps the center to be within the requirements of Title III of the Americans with Disabilities Act (or ADA).

There is also a proposed a birding tower at the end of the fishing pier. Both the pier and the birding tower should be made of Trex or an equivalent material. Trex is a composite material that is made entirely of recycled material such as plastic and wood.²³ Several advantage points pertinent to our location is Trex does not deteriorate in harsh weather; splinter free; resists moisture, insects, and sunlight; contains no toxic chemicals or preservatives, and has tremendous traction even when wet (meeting ADA criteria).²⁴ Trex does come in natural finishes to ensure the natural theme of the park and also comes with a five year commercial guaranty²⁵.

The producers of Trex, Trex Company, Inc., is an environmentally friendly company that purchases approximately 300 million pounds of used polyethylene and an equal amount of sawdust each year to use in their products; these materials would normally end up in a

landfill.²⁶ In addition, the company claims to purchase 50% of the recycled grocery bags on the market²⁷. Therefore, using Trex would support an eco-friendly company while keeping a natural look for the park.

Running/Hiking Trail

The trail system includes the trail around the perimeter of the 56 acres. An additional trail system has been added to the design; again around the perimeter as well as going through the tree planting connecting it to the nature/interpretive center. The trails will be constructed of permeable concrete which consists of a coarse aggregate, Portland cement and water.²⁸ As was the case with the Trex, the permeable concrete has several advantages associated with its use including: helps reduce runoff, helps reduce transport of pollution, preserves natural drainage patterns and boundaries, highly skid resistant and smooth, and it follows the Americans with Disabilities Act Accessibility Guidelines (ADAAG).²⁹ The trail will also be designed to be five feet wide and flat, again keeping with the ADAAG guidelines.³⁰

Parking/Roads

There will be a road past the nature interpretive center to a small loading\unloading zone near the kayak launch. The parking lot is planned just to the south of the building including a turn-around for buses. The parking lot will be constructed of a porous paving material rather than an asphalt or concrete to allow the pavement to absorb water and “cool the paving surface and ambient air temperatures.”³¹ “Cool paving can reflect more artificial light, providing better nighttime lighting on street and sidewalks. Pavements with a 30% reflectance result in 30% more light. The higher lighting levels increase safety for pedestrians and drivers.”³²

Fishing Pier

For the fishing pier, the wood should be made of the same pressure-treated wood that was proposed for the Nature/Interpretive Center section. This will help to guaranty the life of the pier as well as helping to ensure the stability of the structure.

Tree Planting

Although a wooded habitat is not a widespread native habitat on Galveston Island, providing dense forested cover near the coastline is extremely important for migratory songbirds, which use these areas to rest and hide while migrating through the Galveston area. Safe areas for migrating birds are particularly important during fallouts, when incredible numbers of long distance migrants become grounded due to high winds. In these circumstances, a safe haven is crucial to their survival. Since the native prairie habitat has already been disrupted by cattle ranching, adding an additional habitat to this disrupted habitat would be considered an addition, not detriment to the native coastal prairie habitat. In addition to providing habitat for bird species, this area can include a

trail system that will allow visitors access to shade and the opportunity to view different plants and animal species.

An area along the eastern edge of the property (on the 71 acres) has been reserved for tree planting. This will help to promote species diversity, allowing for birds to migrate or rest in these areas which in turn benefit avid birders. The trees will aid in increasing the aesthetic value of the property by blocking the view of the developed area along the eastern boundary of the property while potentially reducing noise too. The idea is to achieve a more natural environment amongst the residential developments. The area was also chosen because it is a natural upland thus ensuring the success of the planting, as well as the ease, much greater. These trees will be native trees to the island such as live oak and possibly some shrubbery to generate greater numbers of species. Figure 4 provides an example of how this habitat could look.

Freshwater Pond

A freshwater pond is proposed adjacent to the center of the planted trees. The pond will provide additional habitat and help to attract additional avian miscellany such as the mottled ducks. The wooded and pond habitat will provide a resting area and freshwater for birds during fallout events.. A trail encircles the pond through the tree planting that connects to the Nature/Interpretive Center to capitalize on the ease of accessibility as well as the view from both the second and third floor of the building.



Figure 7. Wooded area in Lafitte’s Cove Nature Park that could serve as an example for proposed wooded area in McAllis Point.

Kayak Launch

A kayak launch was placed in the little inlet along the eastern side of the wetlands. There is an opening that will allow kayakers to enter into the bay while the inlet area is still placid enough for beginners to learn and enjoy. This is just an area where kayakers can pull their kayaks up to rest and maybe enjoy some of the other functions of the park. It is also close enough to the planned parking lot so unloading and access is uncomplicated and effortless.

Section 4

Connecting McAllis Point

Nature tourism is a growing industry both nationally and internationally. Galveston's proximity to both the Gulf of Mexico and Galveston Bay, coupled with the high abundance of bird species makes it an ideal ecotourist destination. By adding McAllis Point to the other preserved natural areas on the west end of Galveston Island, the potential of connecting this park via bike trails or kayak trails to other parks or to the city of Galveston exists, creating the potential to expand Galveston Island as an ecotourist destination.

Biking appears to be a common form of exercise and nature travel in Galveston, as evidenced by the substantial number of bikers observed along FM 3005. The west end of Galveston Island is a beautiful place to bikeride, however, besides the beach; there is a lack of safe areas to bike through. While McAllis Point could provide an area for people to bike in, it is a small area that would not attract intermediate to advanced bike riders. However, if a bike trail that spanned almost the entire length of Galveston Island could be developed that tied in access to many of the nature parks present, then bicyclists at all levels could be attracted to this area. The bicycle trail could start at the east end of Galveston Island, at the East End Lagoon Nature Park and continue down the seawall through the city of Galveston. At the end of the seawall, bicyclists could continue west, through neighborhoods north of Stewart road to the Lafitte's Cove Nature Preserve. The Pirates Beach Property Owner's Association had plans to create a bike trail from Lafitte's Cove to the Galveston Island State Park, thus, if it is ever created, this bike trail could tie into this one. Galveston Island State Park does not currently allow bike riding off of the paved areas of the road; however, bicyclists could park their bikes and hike some of the trails if they wanted a better view of the park. An ideal situation would be for the state park to provide a bike trail through the park that connected to Jamaica Beach, which would prevent bicyclists from having to ride in the very small shoulder between the state park and Jamaica Beach. The McAllis Point property lies only 1.3 miles west of Jamaica Beach, and would have to be accessed via FM 3005 or the beach. Approximately 2 miles west of the McAllis Point property lies the last nature preserve; the Houston Audubon Societies Dos Vacas Muertas Bird Sanctuary.

The bike trail would be an ideal situation for attracting bicyclists to Galveston Island, however, there are many obstacles that must be overcome for this plan to succeed. First

of all, existing plans for bike trails such as the one from Lafitte's Cove to the Galveston Island State Park would have to be approved. Furthermore, additional bike trails would need to be designed. For example, a bike trail along FM 3005 from the Galveston Island State Park to the Houston Audubon Societies Dos Vacas Muertas Bird Sanctuary would require about 4 miles of bike trails. The Texas Department of Transportation (TXDOT) has plans to elevate and widen portions of FM 3005 in the next few years. Jerry Mohn, president of the Galveston Island Property Owner's Association, met with TXDOT and asked them about the possibility of adding hike and bike trails to the road during this construction. They replied that there would be no room for bike trails because of private property conflicts when the road is widened.³³ Another conflict includes possible property owner opposition to the proposal that bicyclists would travel through neighborhoods east of 13 Mile Road, between the state park and the end of the seawall. A final problem is that the state park does not allow bicycling through the trails of their park, which makes it difficult to tie that in with the plan to connect nature preserves on the west end through a bike trail.

While bike trails have proved to be difficult to create in this situation, kayak trails are much easier to create. Since all waters are owned by the state of Texas, members of the public have complete access to the proposed kayak trails. Currently, Galveston Island State Park is one of the few places that any member of the public can launch a kayak from the west end of Galveston Island to access Galveston Bay. In the state park, however, parking areas are located far from the kayak launch site, making it difficult to easily launch a kayak. Adding an easily accessible kayak launch station at McAllis Point will give this area a unique advantage to the state park, possibly attracting a wider kayak audience. Geographic Information System (GIS) maps outlining the habitats of the area showed that bird rookeries were present in the bay just offshore of McAllis point (Figure 5). In a map showing species diversity, popular sport fish such as red drum, black drum, and spotted sea trout were reported in the area. The presence of bird rookeries and sport fish guarantee that there are recreational opportunities besides just sightseeing while kayaking, thus attracting a more diverse group of people to the area to kayak. These opportunities can also allow for various kayak trails to be developed that will cater to particular groups interests. For example, short trails around the perimeters of the rookery islands could attract birdwatchers that are beginner to intermediate kayakers who do not want to travel far to see birds. Kayak trails outlining fishing hot spots could be created for fishermen who want to fish in waters too shallow for boats to access. Longer trails that link to the state park or other interesting surrounding areas could also be developed for people who simply want to sightsee and access areas not available by land. The various kayak trails could attract people with different recreational agendas and could accommodate different levels of kayak expertise. By providing a kayak launch at McAllis Point, people would not only be able to kayak from McAllis Point, but also kayak into it from other areas. Since the park proposal calls for a nature center, trails, bird observation towers, and possibly a small shop with food, McAllis Point could serve as a stopover for advanced kayakers on long kayak trips or as a starting point for beginner to intermediate kayakers who want to access west Galveston Bay.



Figure 8. Map showing priority protected habitat areas in the area around McAllis Point

Section 5

Surge Park

In the event of a hurricane or other natural disaster, a developed park at McAllis Point could be utilized to aid in the recovery of the local residents both physically and mentally. The existing structures could be the focal point for offering food, water, and medical assistance immediately following the event. Temporary shelters could be erected on the property to provide short-term housing which would allow local citizens to rebuild their houses and lives. Beside the utilitarian function of a surge park on the property, familiarity with the area and its natural beauty could provide mental renewal for those recovering from the stressful event.

Section 6

Conclusions

This paper explained the possibility of designing a nature park at McAllis Point, specifying the amenities that could be provided by the acquisition of the 56 acres and the improved amenities that could be provided by the combination of the 56 and 71 acres. The nature park plan including the 71 acres was shown to be superior to the 56 acre plan for many reasons. Due to the increased size and fewer restrictions, the 71 acres would be

able to provide more recreational and educational opportunities, being one of the few places to hike and bike, and the only place to rent and store kayaks on the west end of Galveston Island. While the 56 acre tract would only allow for a kayak launch, a fishing pier with a conjoined birding tower, short trails, and a small 10 car parking lot, the 71 acres would be able to provide an interpretive center/gazebo, increased parking, a place for kayak storage and rentals, a more diverse assemblage of habitats, a place for restored coastal prairie habitat, and provide a window to the bay that could serve as a focal point for all nature preserves on the west end of Galveston Island. The increased amenities would not only allow for more recreational and educational opportunities, but would also provide income for the park which can be used for park maintenance. Considering the fast rate of development occurring on the west end of Galveston Island, the acquisition of the entire parcel of land is very important in preserving a piece of the natural character of the island that someday may be the last untouched area left for people to enjoy.

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