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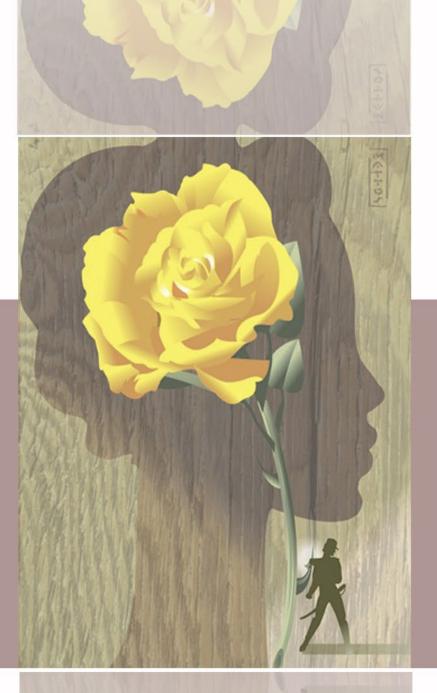
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1-Project Preview



Project Preview



The Master Plan Concept

The **Colonel James Morgan New Washington Prairie Master Plan** provides a vision for the development of a new community recreation area to serve the residents of Morgan's Point and visitors to the area. The focus of the redevelopment plan is to convert a previously underutilize 50-acre parcel of land, and to create a community green space that focuses on four basic elements:

Prairie – A restored native Texas coastal prairie that brings back native grasses, wildflowers, trees and shrubs.

Natural Buffer – This proposed open space development will serve as an important visual and physical green buffer between the highly developed commercial and Port of Houston facilities and the quieter residential areas of Morgan's Point.

Historical Interpretation – The development of this open space offers the opportunity to tell some of the story of the development of Morgan's Point, its influential settlers and their connections to the land.

Recreational Amenities – This recreational open space development includes many passive recreational amenities such as a system of walking trails, overlooks, rest areas, picnic facilities, ponds and play spaces.

The following pages within the Project Preview illustrate portions of the Master Plan vision and phasing recommendations for implementation. Fuller sets of information and descriptions of the development process are included in the remaining sections of the master plan document.



Five Families of Morgan's Point Interpretive Areas

A concept for rest areas that highlights the five families that played a part in the development of Morgan's Point. Located along the outer paved loop trail, the rest area offers seating, native prairie flower and shrub plantings, and interpretive elements that describe the history of Morgan's Point.

Project Preview





Master Plan Implementation Using a Phased Approach

The redevelopment of this 50-acre site holds great opportunities for a natural buffer, passive recreation and interpretation of the history of Morgan's Point. A process such as this, however, often spans many years as well as multiple city budget and grant funding cycles. This master plan recommends a phased approach that incorporates:

- Site regrading, infrastructure and efficient construction sequences
- Prairie restoration
- Establishment of recreation amenities that can expand over time

Phase 1:

- Site grading
- Excavate retention ponds
- Concrete loop trail
- Native tree planting clusters (including southern buffer trees)
- Prairie preparation and restoration
 - Continued clearing of non-native trees and grasses





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Phase 2:

- Main entrance drive and hardscape (including parking lot)
- Orchard
- Elevated prairie viewing platform
- Prairie boardwalk
- Prairie soft trails
- Bird blinds

Project Preview





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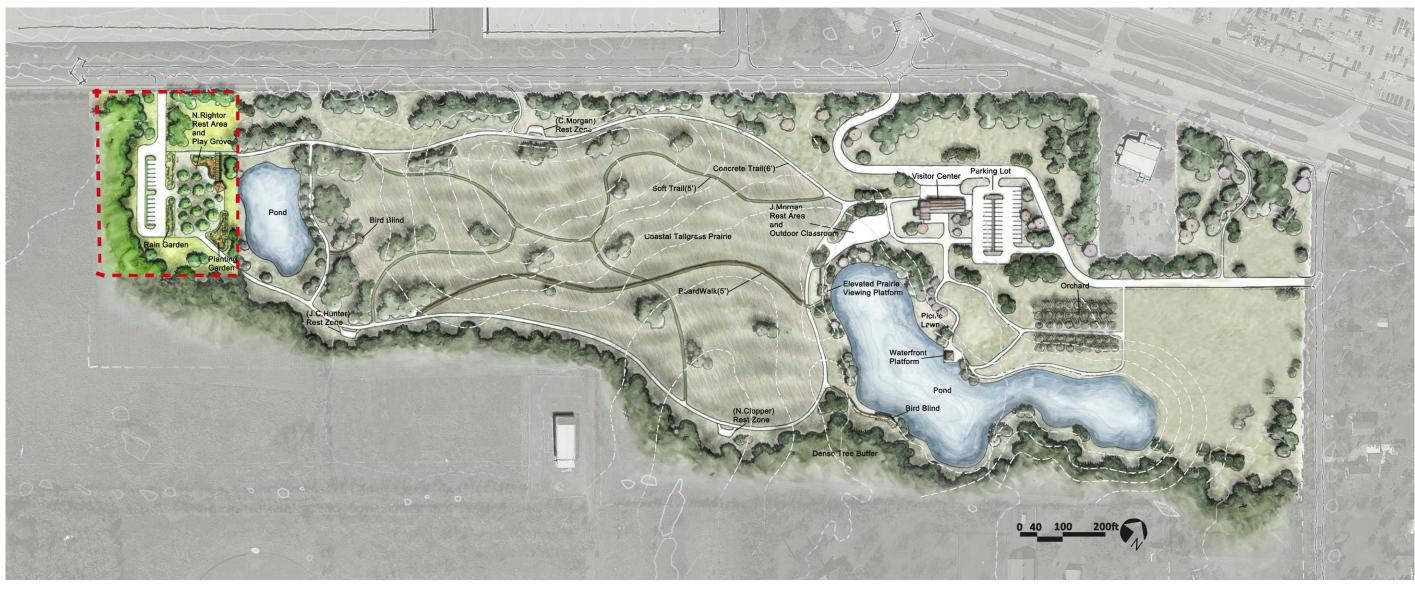
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Phase 3:

- Visitor's center
- Outdoor classroom
- Water platform
- Five families of Morgan's Point interpretive areas







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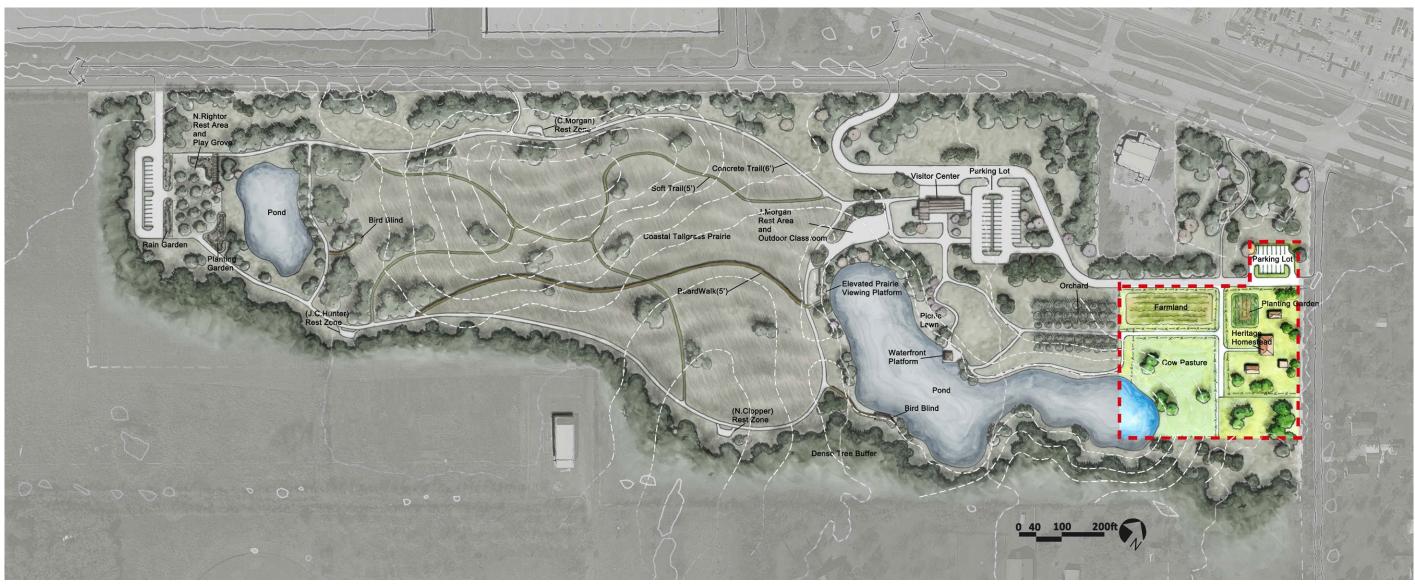
- Visitor's center
- Outdoor classroom
- Water platform
- Five families of Morgan's Point interpretive areas

Phase 4:

- West parking lot
- Community park playground and picnic grove

Project Preview





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- Site grading
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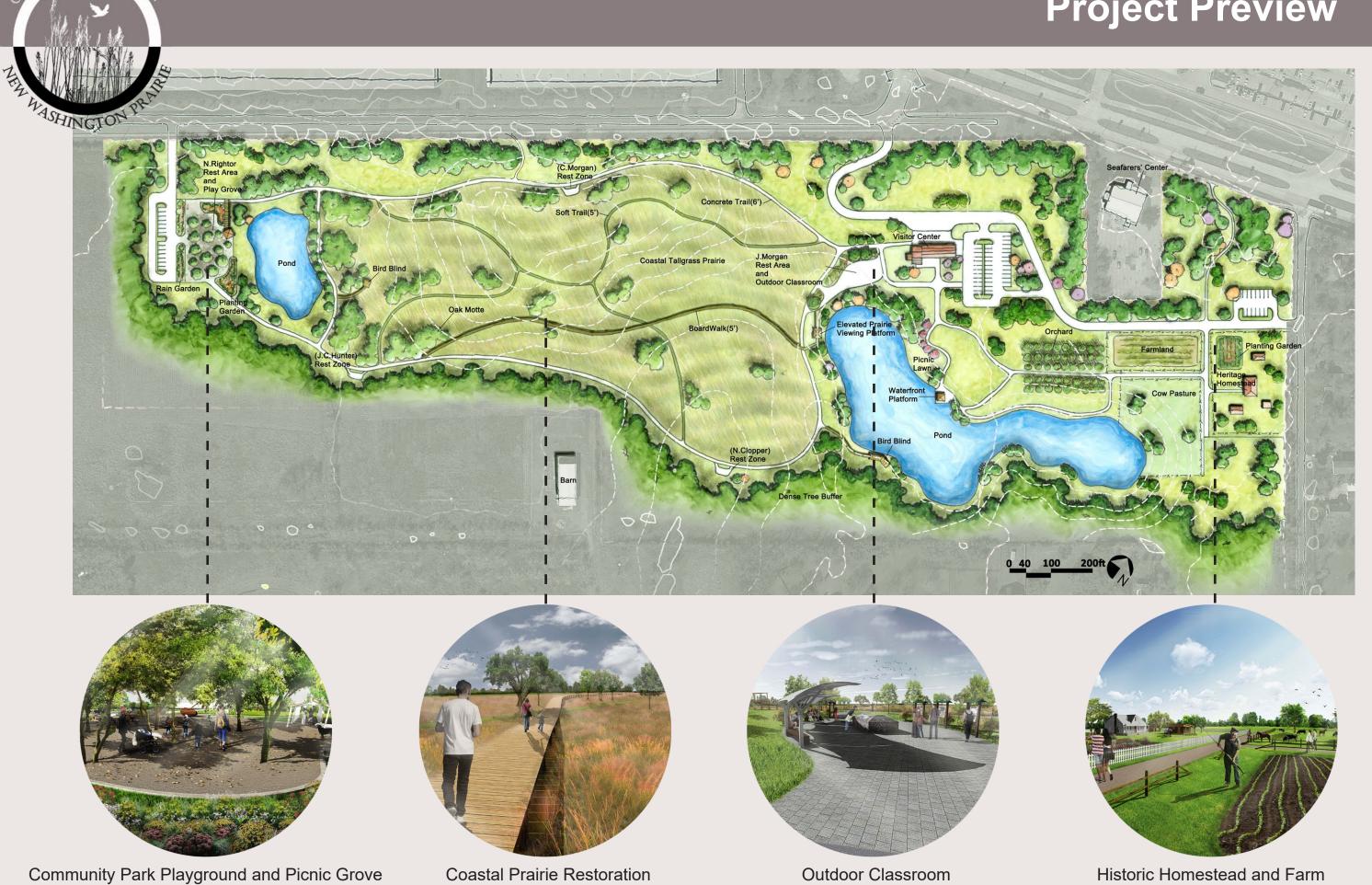
Phase 4:

- West parking lot
- Community park playground and picnic grove

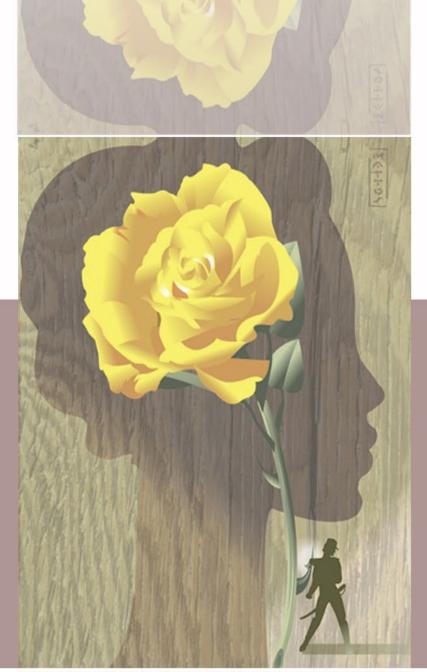
Phase 5:

- Heritage homestead and farm
- East parking lot

Project Preview



JAMES MOR



2-Introduction

Project Scope 2.1 Site Location 2.2

Site Information 2.3





Project Introduction

The purpose of the Colonel James Morgan New Washington Prairie master plan is to propose an open space nature preserve located on a 50-acre parcel in Morgan's Point, TX, which will serve as:

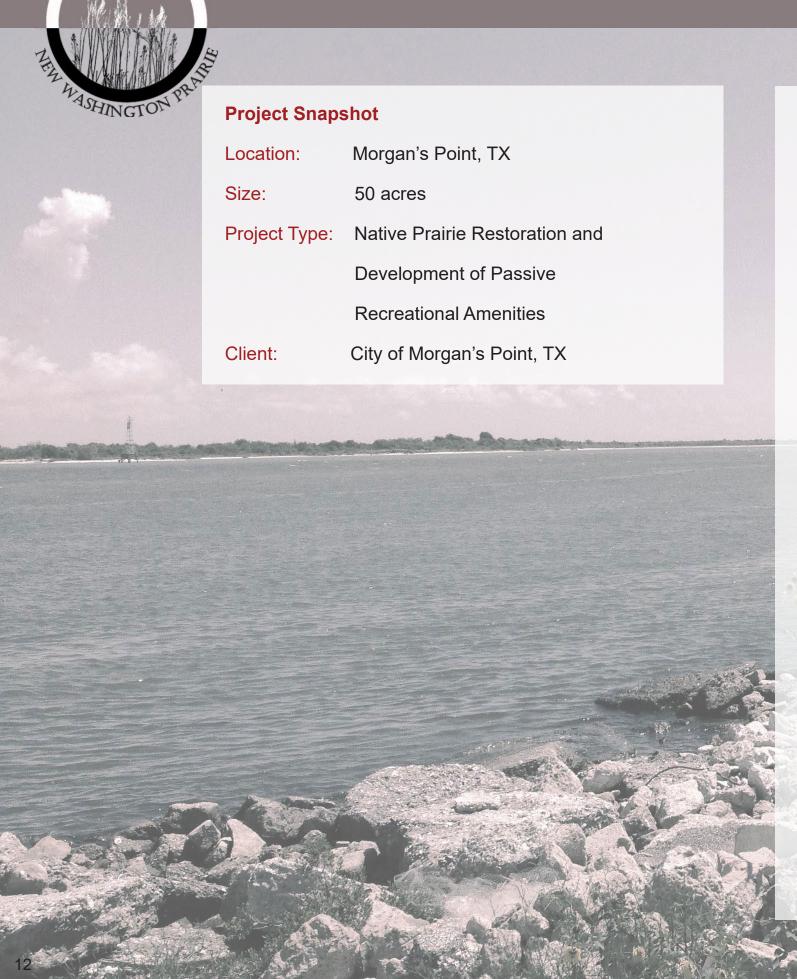
- A natural buffer between the residential portions of Morgan's Point and the Barbours Cut shipping terminal facilities to the north.
- A re-created coastal prairie preserve that features grass, forb, shrub and tree species that are native to the region and typical of coastal prairies.
- A means to tell the story of the founding of Morgan's Point and key points in the city's history.
- Recreational amenities that allows for small numbers of visitors to access the site through limited off-street parking, and passive activities such as walking trails, rest areas, and birdwatching facilities.

The project has been conducted using the following phased approach:

- Research and Analysis: Site inventory and analysis, literature review, study of coastal prairie restoration, study of city history, and case studies.
- Preliminary Design: Design program development, and preliminary master plan.
- Final Document: Master plan, design details, final representative graphics, final design package, and a final presentation to the City.

This project was produced by Texas A&M University Master of Landscape Architecture Student Wei Pan under the direction of Professor Eric Bardenhagen, Ph.D.

The project was administered in 2015-2016 through an agreement between the City of Morgan's Point and the Texas Target Communities Program, College of Architecture, Texas A&M University.

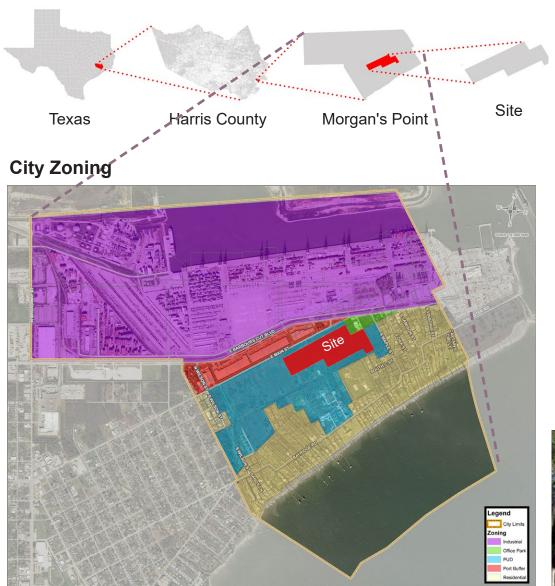


MES MOD

2.2 Site Location

ASH NOTON PROMISE

Site Location



Morgan's Point consists of 5 different zoning areas. The site is located within the planned unit development (PUD) zone. The area north of the site is zoned industrial, and is occupied by the Port of Houston's Barbours Cut Shipping Terminal. On the southern and eastern side of the site is a residential zone.

Reference:

https://en.wikipedia.org/wiki/Morgan's_Point,_Texas, http://www.census.gov/2010census/popmap/ipmtext.php?fl=48

http://www.texasescapes.com/TexasGulfCoastTowns/Morgans-Point-Texas.htm

City of Morgan's Point

Location: Morgan's Point is located in Harris County, Texas, on the shores of Galveston Bay at the inlet to the Houston Ship Channel, near the Cities of La Porte and Pasadena.

- 23 miles from Houston
- 27 miles from Galveston

Size: The City has a total area of 2.3 square miles (1,458 acres).

Population: (2010 US Census Data)

Total: 349

111 households

85 families

143 housing units

Density: 208.1/sq mi



Site Context















Site Boundary





Site Introduction

The 50-acre parcel of property was recently purchased by the City of Morgan's Point to ensure that it will be maintained as open space. The City desires a master plan for future improvements to support grant applications.

Site Interior Features

- The south edge of the site is surrounded by barbed wire and thick vegetation that has in recent years included predominantly invasive tree species.
- Most of the site area has remained meadow with non-native, invasive grasses.
- The northern area of the site is adjacent to the Barbours Cut Terminal. The south area of the site is adjacent to a residential area along with the Boys' and Girls' Harbor home for youth.
- There is one unpaved path running north to south across the site.
 Currently, this is the only access to the site.
- Vegetation types found on the site are diverse, from prairie-like meadows to small wooded areas, which include both native and non-native species.
- There is one barn on the southwestern corner, and the Houston International Seafarer's Center on the northeastern corner. Both of these structures lie outside of the site boundary.

Site Photo



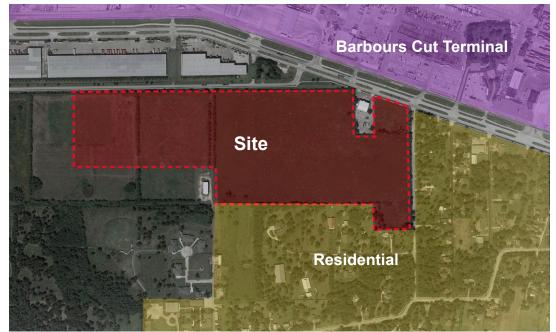






2.3 Site Information





Barbours Cut Terminal

N.T.S

The Port of Houston's Barbours Cut Shipping Terminal, or simply the Barbours Cut Terminal, is a major deepwater port in the Greater Houston area in Texas. It is part of one of the world's busiest ports by cargo tonnage. Barbours Cut is situated along the Barbours Cut Ship Channel, between La Porte and Morgan's Point, Texas. This channel, located at the mouth of Buffalo Bayou on Galveston Bay, is itself a tributary to the larger Houston Ship Channel, which runs from Houston, through the bay, to the Gulf of Mexico. It is located approximately 23 miles from downtown Houston. The terminal has six berths with 6,000 feet of continuous wharfs. The loading area covers 230 acres, with 255,000 square feet of warehouse/ storage space. The channel depth is 40 feet at low tide Opened in 1977, Barbours Cut is the largest of the Port of Houston's terminals and the first port in Texas to handle standardized cargo containers. It's also the centerpiece of the economy for the City Morgan's Point.

Reference:

https://en.wikipedia.org/wiki/Barbours_Cut_Terminal, http://www.portofhouston.com/container-terminals/barbours-cut/location-and-gate-hours/

http://www.shrader.net/news/pha-barbours-cut-terminal-project, http://www.sloanegallery.com/ross_sterling mansion and camp.htm

http://historichousecolors.com/portfolio-item/project-2013-garber-craftsman-morgans-point-texas-2/

Barbours Cut Terminal







Morgan's Point Residential

Following the start of the Texas oil boom in 1901, Galveston Bay became an attractive summer destination for the wealthy from Houston and nearby areas.

During the 1920s and 1930s, the shoreline between Morgan's Point and Sylvan Beach came to be known as the Texas "Gold Coast", a playground for the well to do.





Texas Governor Ross Sterling Mansion

Architect Alfred C. Finn of Houston drew the plans for this scaled-down replica of the American White House for oil executive, and former governor of Texas Ross S. Sterling (1875-1949). Completed in 1927 on the residential "Gold Coast" in Morgan's Point, it stands as a landmark on the Houston Ship Channel.

With 21,000 square feet of floor space, it was known as the largest private residence in Texas at the time it was built. It has seven fireplaces, 15 baths, 34 rooms -- including a dining room seating 300 guests.





A STANDARD TRANS

Site Morgan's Point Cemetery Morgan's Point Museum Boys & Girls Harbor

Boys & Girls Harbor

The Harbor was founded in 1947 by the Downtown Optimist Club of Houston to provide love, hope and security to children.

Boys and Girls Harbor is a charitable, long-term-care facility for abused, abandoned, and neglected children, ages five through eighteen.



Reference

 $http://morganspoint-tx.com \\ https://www.geocaching.com/geocache/GC4H6CD_ghosts-of-texas-morgans-point?guid=28804ab0-f661-4c40-9e62-bce2429ab7f5$

Morgan's Point Museum

- The Morgan's Point museum was founded by residents of Morgan's Point.
- The Museum has detailed history elements dating back to 1820.



Morgan's Point Cemetery

N.T.S

- The Morgan's Point Cemetery is the oldest cemetery in continuous use in Harris County. It was founded by Colonel James Morgan, who is buried here.
- The cemetery, which originally encompassed a much larger area, is surrounded by the Port of Houston's Barbours Cut facility.
- The Morgan's Point Cemetery Association, formed In 1922, cared for the cemetery until the City of Morgan's Point assumed responsibility for maintenance in 1965.



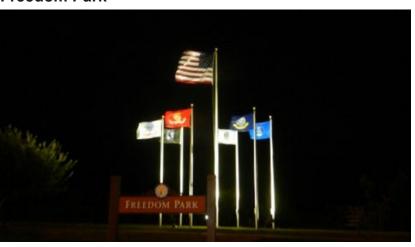


Morgan's Point Open Spaces Near the Site

Open spaces in Morgan's Point near the project site include Freedom Park and the Russel Applebe Hike and Bike Trail. Freedom Park is a small tract at the junction of East Barbours Cut Blvd. and East Main Street. The park recognizes all branches of the military and will serve as a strong visual statement near the proposed entry to the site. The Russel Applebe Hike and Bike Trail allows residents the opportunity to enjoy the outdoor beauty of Morgan's Point. Named after the late mayor of Morgan's Point, it consists of 2.9 miles contiguous miles of sidewalk throughout the City.

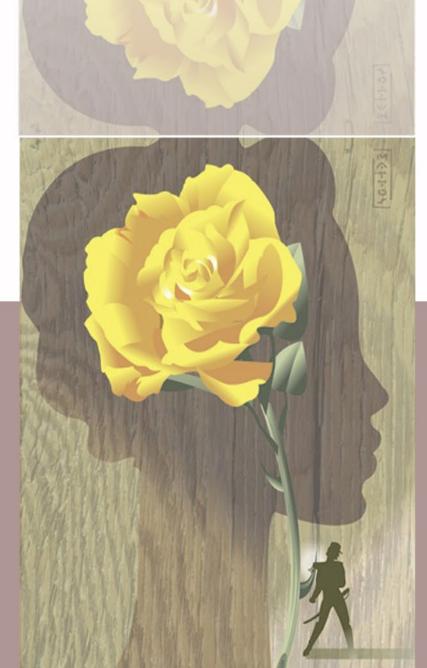
2.3 Site Information

Freedom Park



Russel Applebe Hike & Bike Trail





3-Coastal Prairie Restoration Research

Coastal Prairie Restoration Introduction 3.1

Literature Review of Prairie Restoration 3.2

Coastal Prairie Restoration Process 3.3

Appropriate Native Plant Species 3.4

Bird Migration & Coastal Prairie Restoration 3.5





3.1 Coastal Prairie Restoration Introduction

History of Coastal Prairies

The Coastal Prairie is located along the western gulf coast of the United States, in southwest Louisiana and southeast Texas, just inland from the coastal marsh. This Coastal Prairie is a tallgrass prairie similar in many ways to the tallgrass prairie of the midwestern United States. It is estimated that, in pre-settlement times, there were nine million acres of Coastal Prairie, with 2.5 million acres in Louisiana, and 6.5 million acres in Texas. Today, substantially less than one percent of the Coastal Prairie remains with remnants totaling less than 100 acres in Louisiana and less than 65,000 acres in Texas. While much of the former prairie has been converted to pasture for cattle grazing, the majority has been altered for growing rice, sugarcane, forage, and grain crops.

The Coastal Prairie Historical Range (Texas & Louisiana)

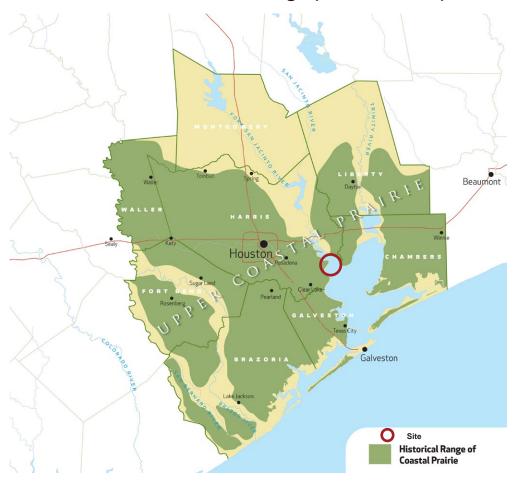


Map created by Katy Prairie Conservancy.
Based on previous maps by U.S. Fish & Wildlife Service and Fred
Smeins, Texas A&M University

Reference

http://prairiepartner.org/page/maps, https://www.flickr.com/photos/hnpat/21961506438/http://www.nwrc.usgs.gov/prairie/paradise_lost.pdf

The Coastal Prairie Historical Range (Houston Area)



Map created jointly by Texas Sea Grant and Katy Prairie Conservancy with the assistance of historian Allecya Galloway.

Prairies in the Houston region are known by many names depending on where you are and who you ask. These names include:

- Coastal Prairie
- Western Gulf Coastal Grasslands
- Gulf Coast Prairie
- Gulf Coast Tallgrass Prairie
- Coastal Plain
- Cajun Prairie (in Louisiana)
- Katy Prairie (Prairie just west of Houston)

All of these names refer to a once massive and interconnected grassland which blanketed over 9 million acres along the coast of Louisiana, Texas, and Mexico.

Since European settlement, the prairie has been our region's Heartland. It has fed us, clothed us, created jobs, helped build our transportation systems, and given us many of our cultural touchstones like the cowboy and barbeque.

The Importance of Restoration

Habitat deterioration is generally caused by human and/or animal activity, and can be augmented by external stresses such as droughts or disruption of natural fire patterns by human activities.

Overgrazing during the past 250 years, combined with a reduction in naturally occurring fires and frequent droughts, disrupted the ecological processes of nutrient cycling, energy flow, plant community dynamics, and in particular, hydrologic processes. Changes in soil fertility, increased erosion, and compaction contribute to decreased water infiltration and increased runoff, resulting in lower vegetation diversity, reduced surface coverage, increases in brush, and lower productivity.

Over time, plant species may lose vigor and die. Restoration is a holistic process which not only involves revegetation, but also entails the removal of non-native species, the reintroduction of soil biota (such as invertebrates, insects, and fungi), and the implementation of management strategies that will help the system function in a healthy manner. Increasing stability and water infiltration in the soil surface initiates repair and maintenance of damaged processes that enhance plant production and protect the soil surface with plant litter or living vegetation.



3.2 Literature Review of Prairie Restoration

AMES MOD

Management of Prairie Meadows*

Purpose of the Study

This article introduces five basic methods of managing prairie meadows, which include:

- 1) Mowing
- 2) Controlled Burning
- 3) Grazing and Haying(Rarely used)
- 4) Digging and Pulling Weeds
- 5) Selective Herbicides for Spot Treatment of Problem Weeds

Mowing:

Mowing is used for three purposes:

- Control of annual and biennial weeds in the first two years after seeding.
- Controlling cool season grasses and weeds in the third year of establishment and beyond, similar in its effect to prescribed burning.
- · Preventing invasion by trees and shrubs.

Mowing Tips:

- (First year) Mow the prairie seeding at six inches in height to keep back fast-growing annual weeds in the first growing season.
- (Second year) Mow annual and biennial weeds to a height of twelve inches in mid to late June, when most biennial weeds are in full bloom.
- (Third year and beyond) Spring burning should be initiated at the beginning of the third growing season.
- Mow as close to the ground as possible, right down to the soil surface if possible.

Reference:

*Diboll, Nile. "Management of Prairie Meadows." Prairie Nursery : Native Plants and Seeds. N.p., n.d. Web. 13 Apr. 2016.

Controlled Burning (Prescribed Burning):

Burning Tips:

- Good firebreaks must be in place well in advance of the burn.
 Natural barriers such as roads, driveways, lakes, and rivers make excellent firebreaks. A closely mown lawn also serves as a good firebreak.
- For a spring burn, mow firebreaks and rake them in the fall, not the spring. Spring mowing of firebreaks typically leaves combustible grass and other plant material in the firebreak.

Safe Burning Tips:

- Burn in the evening when winds are down, temperatures lower, and relative humidity is higher.
- Always burn into the wind, not with the wind.
- Always burn downhill, not uphill.
- To reduce the height of the flames, simply mow the area just prior to burning.
- Never burn on a windy day, or when winds are predicted.
- Burn in mid-spring after cool season grasses and weeds have greened up.
- Burn when soil moisture is high, such as just after a rain.

Timing of Spring Burning and Mowing:

- For controlling cool season grasses and weeds, mid-spring is best.
- If a prairie has numerous early spring-blooming flowers, it is best to burn in mid to late fall after the prairie plants have gone dormant, or in early spring prior to emergence of spring plants.
- If woody plants are a problem in the meadow, burning in late spring will do more damage to them than a mid-spring burn. Wait until the trees and shrubs have fully leafed out and then burn or mow

Digging and Pulling of Weeds:

Tips:

- Pulling and digging is not recommended in the first year of establishment, as the small prairie seedlings are not yet wellrooted, and are easily disturbed and killed.
- It is easiest to pull weeds just after a rain when the soil is moist.

Selective Herbicides for Spot Treatment of Problem Weeds

Why Herbicide:

Sometimes an aggressive perennial weed becomes a problem in a prairie meadow. Windblown seeds can enter from adjacent areas and become established. This usually occurs in the first three years of the planting, before the prairie has matured and developed the thick sod that helps to repel weeds. In such cases, it is sometimes necessary to utilize herbicides to eliminate unwanted aggressive plants.

Tips:

- Spraying Roundup (glyphosate herbicide) in a prairie is never recommended, as it is a broad spectrum herbicide that kills most plants on contact with their leaves. An alternative is to spot-treat specific plants with Roundup or a specific selective herbicide using an absorbent material that has been soaked in the appropriate herbicide.
- Some weeds are resistant to Roundup. Those that cannot be controlled by burning, mowing, or dug out individually (due to rhizomatous root systems) may require treatment with broadleaf herbicides.
- Plateau should never be used in a diverse prairie containing many different types of flowers and cool season grasses.

Conclusion:

- Prairie meadows can be managed using a number of different techniques. By taking the time to properly prepare the site by killing all perennial weeds prior to seeding, long term problems can be minimized. Well-timed mowing and burning are the most commonly used management methods, due to their relative simplicity and low costs. Proper planning and execution is essential when using fire as a management tool.
- On larger areas, selective herbicide treatment may be more cost effective.
- Prairie meadows can be managed cheaply and efficiently by using the appropriate technique at the right stage of development.



3.2 Literature Review of Prairie Restoration

Can Prescribed Fire Save the Endangered Coastal Prairie Ecosystem from Chinese Tallow Invasion?*

Purpose of the Study

Gain valuable knowledge about controlling the Chinese Tallow Tree, which is one of the most common and treatening invasive plant species growing on site, and research if prescibed fire can be an effective management tool for limiting its invasion into the coastal prairie.



Reference:

*Grace, James B. "Can Prescribed Fire Save the Endangered Coastal Prairie Ecosystem from Chinese Tallow Invasion?" Endangered Species Update 15.5 (1998): 70-76

https://picasaweb.google.com/115014782926827388722/SeabourneCreekParkPrescribedBurn?feat =email&gsessionid=1vRjsqy4_4UdqivOpPHwlw#5844878764505315618 http://www.nps.gov/plants/alien/map/trse1.htm

http://www.northcoastweeds.org.au/weed/chinese-tallow/

http://www.backyardnature.net/n/w/triadica.htm

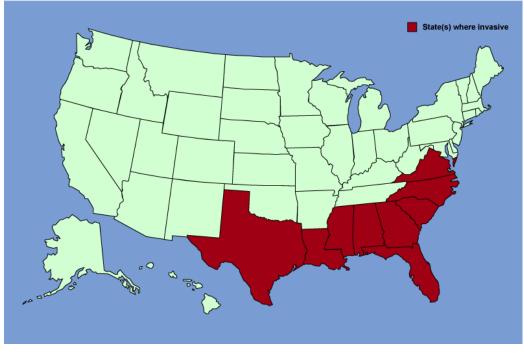
The Threat of Chinese Tallow Trees

- During the 1980s and 1990s, tallow abundance reached dramatic levels that have caused it to be recognized as one of the exotic plants of greatest threat to native habitat in the south United States.
- A number of characteristics of tallow contribute to its reputation as a
 threat to native species, both in prairie as well as in other community
 types within its range. Because it has been bred as a seed crop, primarily
 for the oils and waxes in its seeds and fruits, it has rapid growth, early
 reproduction, and prolific seed production.
- Through both rapid growth and reproduction, this invader can effectively suppress native woody and herbaceous species alike.





Chinese Tallow Tree Invasive Map in US



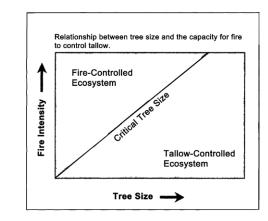
State(s) where reported invasive*: AL, FL, GA, LA, MS, NC, SC, TX, VA

Prescribed Fire

- Prescribed fire is currently viewed as one of the primary tools of choice for controlling tallow.
- When fire moves through the prairie, the native woody plants are typically killed or severely damaged, resulting in a maintenance of firetolerant and sometimes even firepromoting grasses and forbs. Through the process of repeated burning, it is believed that these communities become strongly selected for fire-tolerant species over those less able to withstand the many effects that fire can have on growth, survival, and reproduction.
- Once a site has become tallow regulated, the only means of recovering the ecosystem is through applications of herbicides in combination with mechanical activities.

Tips

- Repeated fires are effective for long-term fire management programs to control the invasion of Chinese Tallow Trees.
- Growing season burn can completely kill the tops of the shrubs, reducing the plants to basal sprouts and stimulating a resurgence of native grasses and forbs.
- The basic idea is that below some critical size, tallow is vulnerable to fire and that the critical size will depend on the intensity of the fire. In areas with poor fuels or subjected to a low intensity fire, only the smallest trees will be killed or top-killed. In areas with high fuel loads and intense fires, however, much larger trees will be heavily impacted.
- The long-term effects of the growing season burn were substantially greater than those from the dormant season burn, particularly on the survival and growth of basal resprouts.



3.3 Coastal Prairie Restoration Process



Site Existing Vegetation





Existing Challenges

- For many years the site has remained a meadow with non-native invasive vegetation, such as Chinese Tallow Trees, which can grow into a closed canopy forest and severely limit native prairie plant diversity.
- Invasive plants disrupt native natural habitats, which is a great threat to the ecosystem.
- Non-native plants in the ecosystem or their introduction can cause economic or environmental harm if they are allowed to thrive and spread.

Reference Prairie (Armand Bayou Nature Center)





Benefits of Prairie Restoration

- The coastal tallgrass prairie, which extends along the coastal plain of south-central Texas, represents the southernmost extension of the tallgrass prairie ecosystem.
- Coastal prairie provides wonderful habitat for wildlife.
- Native grasslands protect the watersheds in which they occur, increase water infiltration, water yield, and water supply by reducing erosion and reservoir sedimentation.
- Coastal Prairies help preserve the natural Texas heritage.

Coastal Prairie Restoration Steps

The process of restoring a native coastal prairie has multiple steps which occurs over a period of years and growing seasons. It is in many ways an incremental process that begins with an initial clearing and vegetation establishment, and then continues over time with periodic maintenance through a variety of methods. Below is an outline of this process and the basic methods used to establish and maintain a coastal prairie.

Mechanical Removal



Mechanical Chipping

Take invasive trees down to ground level and remove large logs to benefit future mowing.

Mowing

Control annual and biennial weeds, cool season grasses and weeds, and prevent invasive shrubs and trees.

Herbicide Application



Spot removal or herbicide treatment of perennial weeds.

Selective herbicide treatment to large area perenial grassy weeds, or group plants.

Reintroduce Native Climax Prairie Plants



Augment natural recruitment of native by planting additional climax species.

Prescribed Fire



Burning improves the vegetation and kills off invasives not wanted, and renews the soil to promote better growth.

Burning is the most effective way to restore a prairie.



Sample Prairie Grass Plant Species



Little Bluestem Schizachyrium scoparium



Switchgrass Panicum virgatum



Eastern Gamagrass Tripsacum dactyloides



Sideoats Grama Bouteloua curtipendula



Split-beard Bluestem Andropogon ternarius



Brown-seed Paspalum Tripsacum dactyloides



Big Bluestem Andropogon gerardii



Bushy Bluestem Andropogon glomeratus



Buffalograss Bouteloua dactyloides



Indiangrass Sorghastrum nutans



Silver Bluestem Bothriochloa laguroides



Sand Lovegrass Eragrostis trichodes

Native plant and seed mix selection is a very important part of any native landscape and coastal prairie restoration. Example species shown in the following pages include wildflowers, grasses, large and medium trees, shrubs and groundcovers that are all native to the coastal areas around Houston, and found in many coastal prairie landscapes that historically covered the region. These examples form an initial palette of plant materials from which detailed planting plans or implementation can draw from based on availability, cost and project phasing.

Coastal Prairie Seed Mix Example from Native American Seed

Contains:

Little Bluestem Indiangrass American Basketflower Aster Balsamscale Black-Eyed Susan Broomsedge Bluestem Brownseed Paspalum **Bushy Bluestem Cutleaf Evening Primrose** Florida Paspalum Gavfeather **Giant Coneflower Gulf Coast Muhly** Indian Blanket Lemon Mint Sunflower Marsh Elder

Partridge Pea Smartweed **Plains Coreopsis** Prairie Agalinis Poverty Three-Awn **Prairie Junegrass** Ragweed Rattlesnake Master Rough Dropseed Round-Headed Clover Sand Dropseed Sand Lovegrass Silver Bluestem Silveanus Dropseed Snakeroot Splitbeard Bluestem **Switchgrass** Tall Dropseed Tall Guara Tall Goldenrod

http://www.seedsource.com/catalog/detail.asp?product_id=2801 https://www.bamertseed.com/

Coastal Prairie Seed Mix Example from Bamert Seed Company

Contains:

Grasses:	
Little Bluestem	20-40%
Plains Bristlegrass	20-30%
Sideoats Grama	20-30%
Hooded Windmillgrass	10-20%
Buffalograss	10-20%
Big Bluestem	10-20%
Switchgrass	10-20%
Indiangrass	10-15%
Curly Mesquite	10-15%

Forbs:

5-10% Awnless Bush Sunflower Bundleflower 5-10%

The above seed mix example is provided by Bamert Seed Company.



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Sample Prairie Grass Plant Species



Green Sprangletop Leptochloa dubia



Longspike Tridens Tridens strictus



Western Wheatgrass Agropyron smithii



Blue Grama Bouteloua gracilis



Texas Wintergrass Stipa leucotricha



Plains Bristlegrass Setaria leucopila



Knotroot Bristlegrass Setaria parviflora



Gulf Cordgrass Spartina spartinae



Purple Silkyscale Anthaenantia rufa

Sample Prairie Wildflower Plant Species



Black-eyed Susan Rudbeckia hirta



White Wild-indigo Baptisia leucantha



Showy Tick Trefoil Desmodium canadense



Drummond Rain Lily Zephyranthes drummondii Hymenocallis littoralis



White Prairie Clover Dalea candida



Floweing Spurge Euphorbia corollata



Spider Lily



Gloriosa Daisy Rudbeckia hirta 'Rustic'



Snow on the Prairie Euphorbia bicolor



Snowy Orchid Platanthera nivea



Texas coneflower Rudbeckia texana



Button Snakeroot Eryngium yuccifolium



Sample Large Tree Plant Species

Oak

Quercus sp. Many different oaks do well in Houston area.



Live Oak Quercus virginiana

Elm

Water Oak Quercus nigera



Shumard Oak Quercus shumardii



Bur Oak *Quercus macrocarpa*



American Elm *Ulmus americana*



Cedar Elm *Ulmus crassifolia*



Winged Elm Ulmus alata



Slippery Elm *Ulmus rubra*



Eastern Red Cedar Juniperus virginiana



Pecan Carya illinoinensis



American Sweetgun Liquidambar styraciflua



Southern Magnolia Magnolia graniflora

Sample Medium Tree Plant Species



Texas Persimmon Diospyros texana



Possumhaw Ilex decidua



Yaupon Holly Ilex vomitoria



Mexican Plum Prunus mexicana



Mexican Buckeye
Ungnadia speciosa



Sophora secundiflora



Wax Myrtle
Myrcia cerifera



Texas Ebony Pithecellobium flexicaule



Sample Shrub Plant Species



Swamp Rose Rosa palustris scandens



American Beautyberry Callicarpa americana



Coralbean Erythrina herbacea



Rockrose
Pavonia lasiopetala



Mock Orange Philadelphus spp.



Texas Lantana

Lantana horrida

Flame Acanthus *Anisacanthus quadrifidus*



Yellow Bells Tecoma stans



Red Yucca Hesperaloe parviflora

Sample Groundcovers Species



Horseherb Calyptocarpus vialis



Dayflower Commelina sp



Fleabane *Erigeron sp.*



Pink Evening Primrose Oenothera speciosa



Christmas Fern
Polystichum acrostichoides



Wood Fern Thelypteris kunthii

Sample Vine Species



Cross Vine
Bignonia capreloata



Carolina Jessamine Gelsemium sempervirens



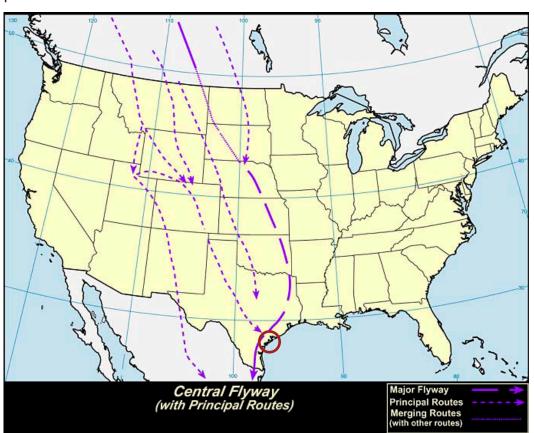
Coral Honeysuckle Lonicera sempervirens



3.5 Bird Migration and Coastal Prairie Restoration

Birdwatching In the Texas Coastal Region

Birdwatching is a popular outdoor activity across many parts of the United States. In recent decades, birding clubs such as the National Audubon Society and the local Houston Audubon club have gained in popularity. Morgan's Point is uniquely situated within two prime bird habitat and migration zones, the continent's Central Flyway, and the Great Texas Coastal Birding Trail (tpwd.texas.gov). The predictable routes and stopping points of the Central Flyway between winter feeding grounds and summer breeding grounds bring unique species such as Whooping and Sandhill Cranes and waterfowl such as the Redhead to the Morgan's Point area. Along the coast, wetlands and marshes host heron rookeries, egrets, Roseate Spoonbills among others that can be clearly visible from viewing platforms and blinds. The potential for an improved bird habitat in the prairie and ponds of the Col. James Morgan New Washington Prairie provides a great opportunity to increase passive recreation visitorship in Morgan's Point while also providing much needed habitat restoration along the Texas coast. On this page is a selection of common, unique and endangered bird species that could call the prairie home.



North America's Migratory Birds Rely on the Central Flyway



Whooping Crane Grus americana



Sandhill Crane
Grus canadensis



Reddish Egret

Egretta rufescens



Red Knot
Calidris canutus

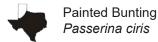
In Texas the migration corridor contains a wide range of rich habitats for birds, particularly along the Gulf of Mexico's coastal plain—prime real estate for such resident coastal birds as the Reddish Egret and such long-distance migrants as the Red Knot.

Local Birds Found in the Morgan's Point





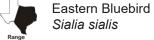












Endangered Birds Species Potentially Found in the Morgan's Point Area



Attwater's Greater Prairie Chicken Tympanuchus cupido attwateri



Black-capped Vireo Vireo atricapilla



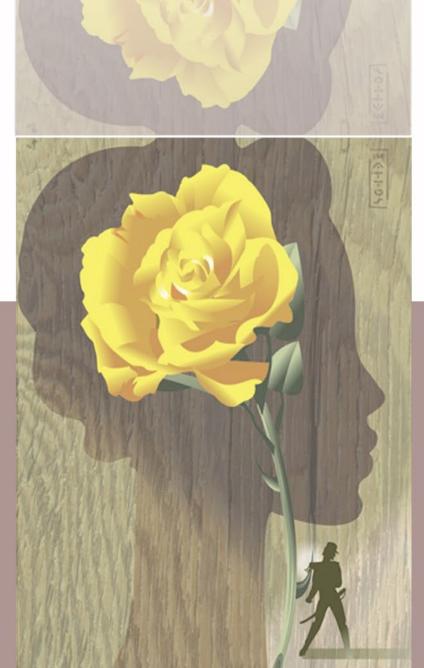
Golden-cheeked Warbler Dendroica chrysoparia



Red-cockaded Woodpecker Picoides borealis

Reference

http://tpwd.texas.gov/huntwild/wild/birding/, http://tpwd.texas.gov/publications/pwdpubs/media/pwd_lf_k0700_0167.pdf http://tpwd.texas.gov/publications/pwdpubs/media/pwd_lf_k0700_0849.pdf https://www.audubon.org/conservation/project/central-flyway-migration-corridor



4-Interpeting the History of the Forming of Morgan's Point

Morgan's Point History 4.1 Historical Timeline of Morgan's Point's Formation 4.2



AMES MORCANIA MASHINGTON PRIMARY

4.1 Morgan's Point History

Introduction to The History of Morgan's Point

Morgan's Point, was once known as Rightor's, Hunter's, and Clopper's Point, is twenty miles south of Houston at the junction of Buffalo Bayou and the San Jacinto River, at the northwestern extremity of Galveston Bay in southeastern Harris County. The community was first settled in 1822 by Nicholas Rightor, who lived at the end of the point. Johnson Calhoun Hunter, who was part of Stephen F. Austin's Colony of Old 300, received the initial Mexican land grant in 1824. In 1828, Joseph C. Clopper and his three sons bought the site, renamed it Clopper's Point, and planted orange and lemon seeds. Nicholas Clopper sold Patrick Moffit a 1,600-acre strip of land between the San Jacinto River and Galveston Bay. Moffit then sold the land to James Morgan. By 1835, Morgan had opened a store, built a warehouse, and, acting as agent for the New Washington Association, founded a colony called New Washington.

The planned development failed, but brought in a group of Scottish Highlanders, and left the beginnings of orange groves and cattle herds. In April 1836, a few days before the battle of San Jacinto, Antonio López de Santa Anna almost captured David G. Burnet and the ad interim government at New Washington. The Mexicans burned the settlement as they moved back to Buffalo Bayou. Although Morgan rebuilt his home, the town could not compete with the growth of Houston, and no attempt was made to reestablish a settlement until the 1870s, when the Houston Ship Channel was completed to the point, and the new town of Morgan's Point developed.

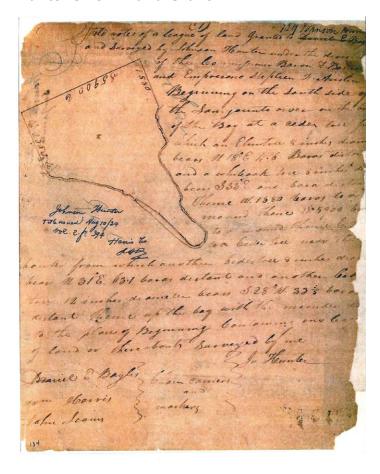
Early interest in channel improvement on Buffalo Bayou was delayed by the Civil War, but the establishment of a Confederate shipyard at the mouth of Goose Creek in 1864 proved the feasibility of dredging the harbors. Charles Morgan, the "Father of the Houston Ship Channel," was instrumental in completing the work to Morgan's Point in 1876. The Tabbs Bay Causeway and Morgan Point ferry connected the north and south sides of the Houston Ship Channel. The causeway was later destroyed by Hurricane Carla in 1961. The Baytown-La Porte tunnel under San Jacinto Bay was completed in 1954. The development of the Barbours Cut Terminal in the 1970s prompted residents to campaign for preservation of the town's cemetery and nineteenth-century homes. The Morgan's Point Cemetery, started by James Morgan on Orange Grove, the family estate, is marked by a state historical marker.



Morgan's Point Ferry (Circa 1932)



Hunter's 1824 Land Grant



Reference:

https://tshaonline.org/handbook/online/articles/hlm89, https://en.wikipedia.org/wiki/Morgan's_Point,_Texas

http://www.examiner.com/slideshow/meditation-morgan-s-point-cemetery

4.1 Morgan's Point History

First Settler--- Nicholas Rightor (Settled1821-1822)



Nicholas Rightor (1792–1841), first surveyor of Texas, was born in Cooperstown, New York, on June 24, 1792. He first appears as a surveyor under contract to the United States Government Engineer's office in St. Louis to survey in the Missouri and Arkansas territories beginning in 1815. His ability, however, was in doubt due to an 1826 rejection of his Arkansas surveys which were "subdivided by other surveyors, whose work is consequently affected by the errors of Mr. Rightor."

By 1820, Rightor had founded and platted the town of Helena, Arkansas. In 1821, he went briefly to investigate the Spanish lands of Texas, and arrived in New Orleans around November. He became friendly with Stephen F. Austin, who was outfitting his schooner, to take the first colonists to Texas. Austin, Rightor, David J. Marple, and an unknown number of others took the northern route up the Red River to buy supplies in Natchitoches before meeting the schooner on the Gulf Coast. Rightor's small boat was later wrecked on what is now Morgan's Point. After living on the point for about eight months, he returned to Natchez to marry Minerva Putnam on December 30, 1822.

He returned to Arkansas and resumed his life as a surveyor. He died August 18, 1841in Helena, Arkansas, the city he originally platted in 1820.



Reference:

https://tshaonline.org/handbook/online/articles/fri43, http://www.haskellfamilyhistory.com/database/17169.html, http://www.johnwayne-thealamo.com/forum/viewtopic.php?f=15&t=147&p=131599

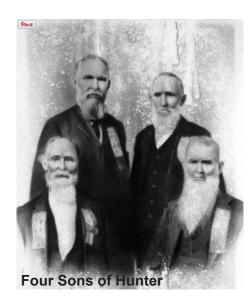
Second Settler--- Johnson Calhoun Hunter (Settled 1822-1828)

Johnson Calhoun Hunter (1787–1855), early Texas doctor and one of Stephen F. Austin's Old Three Hundred colonists, was born in South Carolina on May 22, 1787. He received a diploma in medicine in 1805. In 1813, he and his wife, the former Martha Herbert of Virginia, were living in Circleville, Ohio, where Hunter practiced medicine, taught school, had a mercantile business, and acted as county judge. He moved to New Madrid, Missouri, in 1817.



In 1821, he made an exploratory trip to Texas, going as far as San Antonio, where he left a supply of medicines with Juan Martín Veramendi. On that trip, he selected land near the Nacogdoches Road crossing of the Colorado River. The vessel bringing the Hunter family, including five children, to Texas was wrecked on Galveston Island in June 1822. After repairing the boat, the Hunters proceeded to land at the future site of Morgan's Point.

From his cypress-bark home on Sylvan Beach, near the mouth of the San Jacinto River, Hunter sailed the Santa María of San Jacinto, to bring supplies to the colonists. He also traded in bear oil and skins, acted as a surveyor and practiced medicine.



Hunter received a land title (then called a sitio) of land now in Harris County on August 10, 1824. The census of 1826 listed him as a farmer and stock raiser with a household including his wife, four sons, two daughters, and three servants. In 1829, Hunter moved to land now in Fort Bend County, bought part of the Randal Jones survey, and developed the Hunter plantation on Oyster Creek. For fifty years, the Hunter home was a landmark in the Richmond area.

Third Settler--- Nicholas Clopper (Settled 1828-1834)



Nicholas Clopper (1766–1841), early settler responsible for the acquisition of the Twin Sisters, was born in New Brunswick, New Jersey, on November 3, 1766. After unsuccessful business ventures in Pennsylvania and Maryland, he moved to Ohio in 1820. For the rest of his life he divided his time between Ohio and Texas.

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Two years later, he relocated to Stephen F. Austin's colony in Texas, hoping to recoup his fortunes through trade and land speculation. He bought half a league of land on the north side of Buffalo Bayou near Harrisburg in the fall of 1826. Clopper was an entrepreneur and recognized the potential for a city to be established downstream on the finger of land between San Jacinto and Galveston bays, purchasing the property in 1828. Disappointing profits from merchandizing and the death of his son, convinced Clopper to sell. Turning down an offer from Augustus Allen, later founder of the City of Houston, he accepted a more attractive offer from George Moffit Patrick who then sold to James Morgan in December, 1834. Morgan had a similar vision of establishing a city and laid out plans for his New Washington.

In 1835, Clopper presided over a meeting in Cincinnati, Ohio, which resulted in the acquisition of two cannons, the famous Twin Sisters, for the Texas Revolution.



Twin Sisters



Fourth Settler--- James Morgan (Settled 1834-1866)





James Morgan (1787–1866), pioneer Texas settler, merchant, land speculator, and commander at Galveston during the Texas Revolution, was born in Philadelphia, Pennsylvania, on October 13, 1787, the son of James and Martha (Prudun) Morgan.

In 1835, Morgan was appointed agent for a company called the New Washington Association, organized in 1834 by Lorenzo de Zavala and a number of New York financiers to develop Texas real estate. He immediately purchased for the company an enormous quantity of real estate in Harris and Liberty Counties, including the point at the mouth of the San Jacinto River variously called Rightor's, Hunter's, Clopper's, and later Morgan's Point. Here he laid out the town of New Washington. The company brought to Texas a number of Scottish highlanders and free blacks from New York, including Emily D. West, the so-called Yellow Rose of Texas, and planned a colony of free blacks from Bermuda. As agent, Morgan also operated one of two ships belonging to the company.

Reference

https://tshaonline.org/handbook/online/articles/fmo50 https://tshaonline.org/handbook/online/articles/fwe41

From March 20, 1836, to April 1, 1837, with the rank of colonel, he was commandor of Galveston Island and, planned and effected the fortification of the island during the spring campaign of 1836. President Sam Houston later charged him with mismanagement in this work. After the revolution, Morgan returned to the site of New Washington, which had been destroyed by the Mexicans, and erected a dwelling named Orange Grove.

In 1843, he and William Bryan were the commissioners charged with the secret sale of the Texas Navy. During the 1850s, Morgan was active in promoting the improvement of what later became the Houston Ship Channel. He owned extensive herds of cattle and reputedly imported the first Durham shorthorns into Texas. He also experimented with the cultivation of oranges, cotton, and sugarcane.

Orange Grove--- Home of James Morgan

James Morgan's home, Orange Grove at New Washington, became one of the most beautiful homes in Texas, and a gathering point, for the most influential men of the Republic of Texas.

It also became the contact point for foreign dignitaries on their arrival in the new Country of Texas. Morgan's hospitality was legendary and people went out of their way to visit him, including John J. Audubon, the world-renowned artist and naturalist.



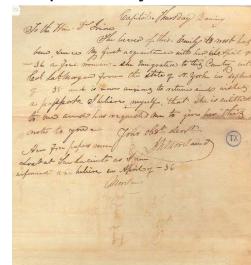
Emily West---The Yellow Rose of Texas

4.1 Morgan's Point History

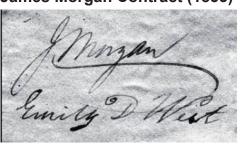
Emily D. West (Date unknown), erroneously called Emily Morgan by those who presumed her a slave of James Morgan and the "Yellow Rose of Texas" by twentieth-century myth-makers, was born a free black in New Haven, Connecticut. She signed a contract with agent James Morgan in New York City on October 25, 1835, to work one year as housekeeper at the Orange Grove Plantation.

On April 16, 1836, while James Morgan was absent in Galveston in command of Fort Travis, Mexican cavalrymen under command of Col. Juan N. Almonte arrived at New Washington to seize David G. Burnet, who was embarking on a schooner for Galveston Island. As the president and his family sailed away, the troops seized Emily and other black servants at Morgan's warehouse, along with a number of white residents and workmen. Gen. Antonio López de Santa Anna arrived at New Washington the following day, and after three days of resting and looting the warehouses, he ordered the buildings set afire and departed to challenge Sam Houston's army, which was encamped about ten miles away on Buffalo Bayou. Emily was forced to accompany the Mexican army. With regard to the Yellow Rose legend, she may have been entertaining Santa Anna when the Texans charged the Mexican camp.

Passport of Emily West



Signature of Emily West on James Morgan Contract (1835)



4.1 Morgan's Point History

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Fifth Settler--- Charles Morgan (Settled 1876-?)

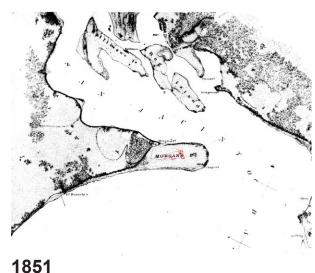


Charles Morgan (1795–1878), shipping and railroad magnate, was born on April 21, 1795, in Killingworth (presently Clinton), Connecticut, the son of George and Betsey Morgan. He moved to New York City at the age of fourteen, and soon began a ship chandlery and import business. That venture led to investments in merchant shipping and ironworks.

In 1837, Morgan opened the first scheduled steamship line between New Orleans and Galveston. From that axis he expanded his regular service to Matagorda Bay ports in 1848, Brazos Santiago in 1849, Vera Cruz in 1853, Key West in 1856, Rockport, Corpus Christi, and Havana in 1868, and New York in 1875. He was also both partner and rival of Cornelius Vanderbilt in attempts to establish an isthmian transit across Nicaragua in the 1850s. During the Civil War, Morgan's vessels were seized or chartered for military and naval service by both sides, but he profited from wartime charters and machinery contracts, and resumed his regular routes in 1866. Much of Morgan's postwar career was devoted to integrating his water lines with rapidly developing rail carriers in Louisiana and Texas. He was also deeply involved in the interport rivalries of New Orleans, Mobile, Galveston, and Houston. Among railroads, he organized, reorganized, and managed the New Orleans, Mobile and Texas, the New Orleans, Opelousas and Great Western, the Louisiana Western in Louisiana, the Gulf, Western Texas and Pacific, the Houston and Texas Central, the Texas and New Orleans, and associated lines in Texas. In the 1870s, he built, at his own expense, Houston's first deepwater ship channel to the Gulf, adjacent to Morgan's Point.

Reference: https://tshaonline.org/handbook/online/articles/fmogm

Change of the Ship Channel

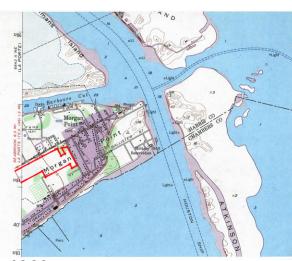




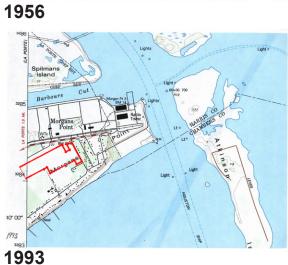


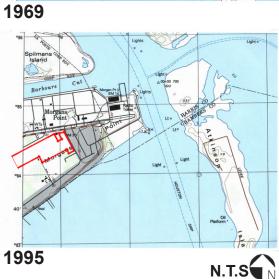






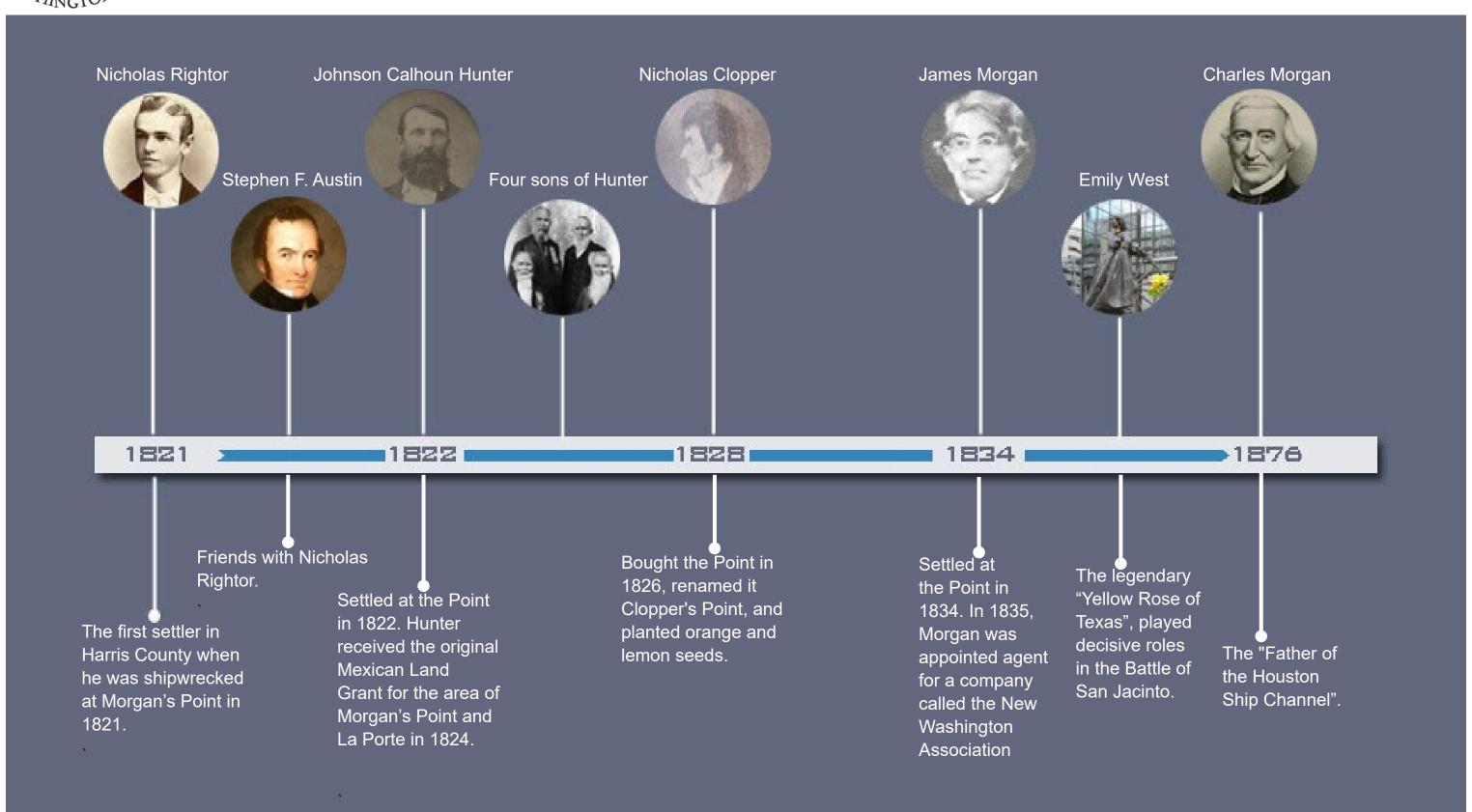


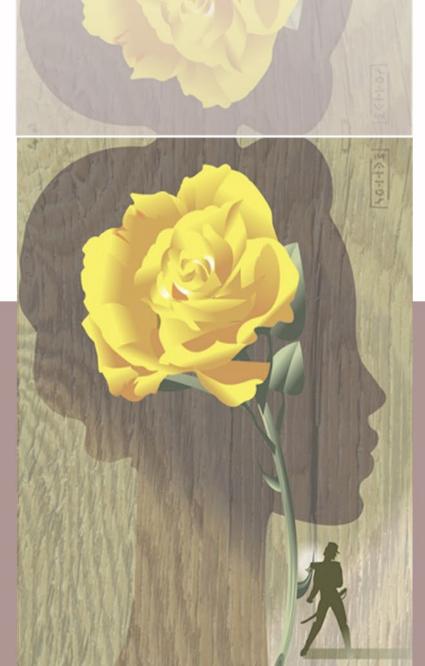






4.2 Historical Timeline of Morgan's Point's Formation





5-Master Plan Concept

Mission Statement 5.1

Goals, Objectives, & Design Elements 5.2 Community Park Playground and Picnic Grove 5.14

Phase I 5.3

Restored Prairie and Passive Recreaion 5.4

Phase II 5.5

Birdwatching Facility 5.6

Elevated Prairie Viewing Platform 5.7

Phase III 5.8

Five Families of Morgan's Point Interpretive Area 5.9

Outdoor Classroom and Prairie Viewing Platform 5.10

Visitor Center Alternative I 5.11 Visitor Center Alternative II 5.12

Circulation and Trail System 5.18

Grading Plan 5.19

Master Plan 5.17

Phase IV 5.13

Phase V 5.15

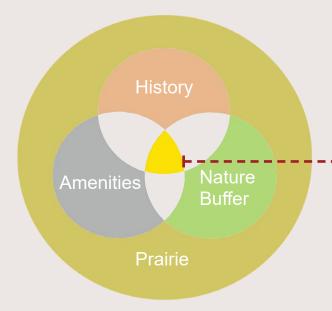
Eastern Site Aerial Perspective 5.20

Historic Homestead and 1830's Period Farm 5.16









Colonel James Morgan New Washington Prairie

Provide a planning document that will assist with the development of the Col. James Morgan New Washington Prairie to include the following four elements:

- Prairie: Coastal prairie restoration with native prairie grasses, trees and shrubs.
- Nature Buffer: To function as a nature buffer between residential areas and the Barbours Cut Terminal.
- History: To interpret the local history of the forming of Morgan's Point.
- Amenities: To provide appropriate amenities such as well-planned trails, parking, and interpretive signage.



5.2 Goals, Objectives, & Design Elements

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Goals

Goal 1: Develop the 50-acre site as green, natural, and restored coastal prairie for local residents and also target visitors from outside the city.

Objectives

Objective 1: Eradicate existing non-native grass and grow native prairie grass. Objective 2: Construct paths in the site, including

elevated trails comprised of low maintenance materials, and provide connectivity throughout the site.

Objective 3: Construct water features, and provide connectivity from other areas of the site.

Design Elements

- Elevated walking trails
- Ponds
- Water platform
- Resting zones
- Play and picnic grove
- Outdoor classroom

Goal 2: Site to function as a buffer between the residential area and the Barbours Cut Terminal.

Objective 1: Plant native trees to increase ecological diversity on the site, so it can function as a natural buffer between Barbours Cut Shipping terminal and residential areas.

Objective 2: Limit roads, parking, and structures to the northwest and northeast portion of the site.

- Native tree plantings
- Birdwatching blinds and platforms
- Parking lot
- Visitor's center

Goal 3: Develop interpretive facility that showcases the history of Morgan's Point. Objective 1: Integrate local history elements and education curriculum into the design.

- History interpretation signs and displays
- Heritage homestead period farm
- Outdoor classroom
- History trail

Goal 4: Increase recreation opportunities and amenities for the local community and promote healthy living.

Objective1: Offer ourdoor activity areas for the local residents.

- Picnic area
- Parking and play grove
- Walking trails





Master Plan Implementation Using a Phased Approach

The redevelopment of this 50-acre site holds great opportunities for a natural buffer, passive recreation and interpretation of the history of Morgan's Point. A process such as this, however, often spans many years as well as multiple city budget and grant funding cycles. This master plan recommends a phased approach that incorporates:

- Site regrading, infrastructure and efficient construction sequences
- Prairie restoration
- Establishment of recreation amenities that can expand over time

Phase 1:

- Site grading
- Excavate retention ponds
- Concrete loop trail
- Native tree planting clusters (including southern buffer trees)
- Prairie preparation and restoration
 - Continued clearing of non-native trees and grasses

5.4 Restored Prairie and Passive Recreation



A system of slightly elevated paved trails, boardwalk and soft trails will allow visitors to experience the beauty and serenity of the restored prairie throughout the year.





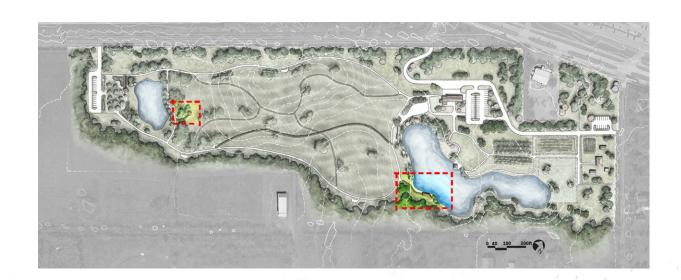
Phase 1:

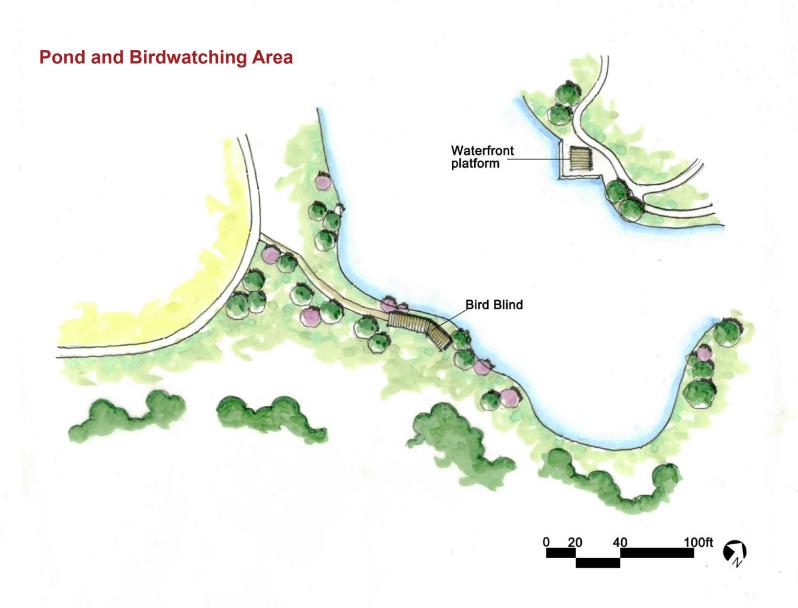
- Site grading
- Excavate retention ponds
- Concrete loop trail
- Native tree planting clusters (including southern buffer trees)Prairie preparation and restoration
- - Continued clearing of non-native trees and grasses

Phase 2:

- Main entrance drive and hardscape (including parking lot)
- Orchard
- Elevated prairie viewing platform
- Prairie boardwalk
- Prairie soft trails
- Bird blinds

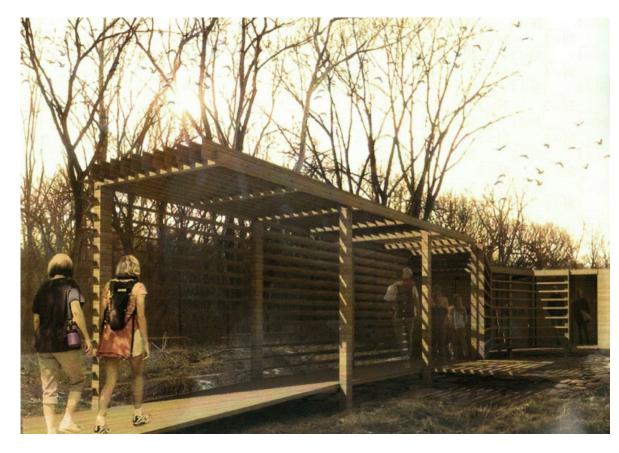
5.6 Birdwatching Facility





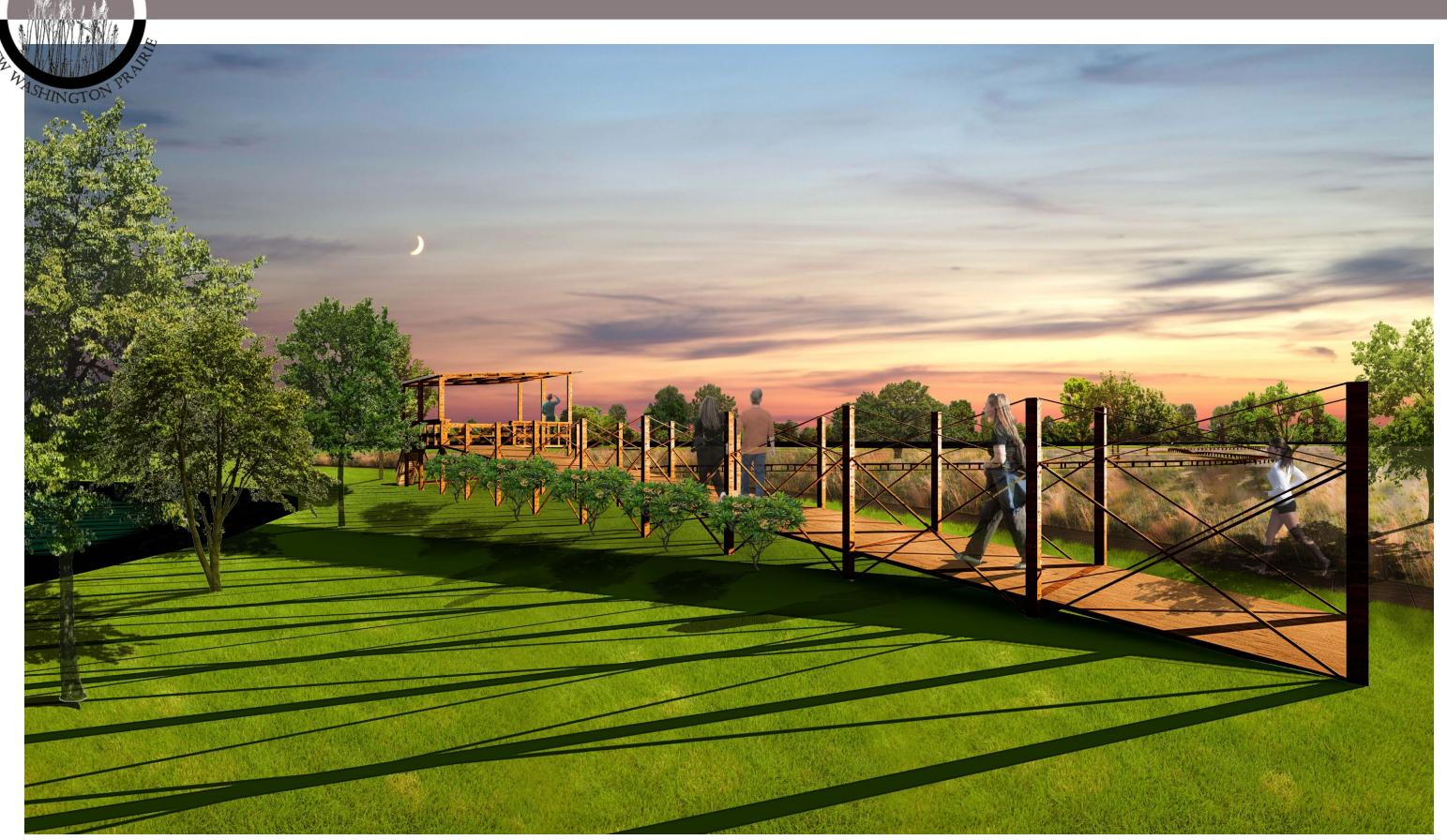
Bird Blind Examples







5.7 Elevated Prairie Viewing Platform



A proposed elevated prairie viewing platform can serve as a gathering point and a way to see the entire prairie and ponds from one location. The platform offers education opportunities, bird watching and includes ramps for full accessibility.

5.8 Phase III





Phase 1:

- Site grading
- Excavate retention ponds
- Concrete loop trail
- Native tree planting clusters (including southern buffer trees)
- Prairie preparation and restoration
 - Continued clearing of non-native trees and grasses

Phase 2:

- Main entrance drive and hardscape (including parking lot)
- Orchard
- Elevated prairie viewing platform
- Prairie boardwalk
- Prairie soft trails
- Bird blinds

Phase 3:

- Visitor's center
- Outdoor classroom
- Water platform
- Five families of Morgan's Point interpretive areas



5.9 Five Families of Morgan's Point Interpretive Area

Five Families of Morgan's Point Interpretive Areas

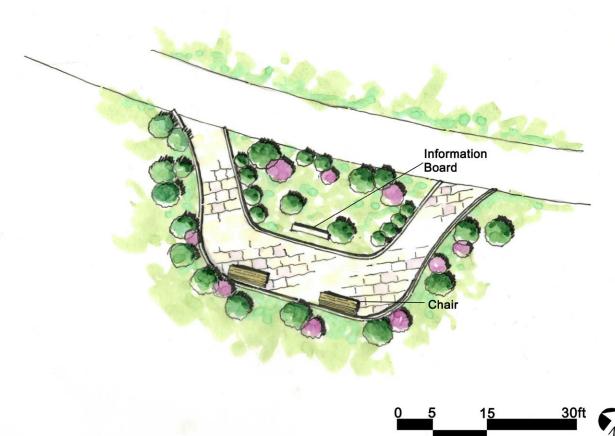
The design of the Five Families of Morgan's Point Interpretive Areas intented to tie the historical elements of Morgan's Point with the prairie. They also serve as rest areas for visitors. Two of these interpretive areas are located outside the prairie, which provides a feeling of privacy. The third is located within the prairie, which offers the relative open feeling of the prairie.



A concept for rest areas that highlights the five families that played a part in the development of Morgan's Point. Located along the outer paved loop trail, the rest area offers seating, native prairie flower and shrub plantings, and interpretive elements that describe the history of Morgan's Point.



Interpretive Rest Area Plan



5.10 Outdoor Classroom and Prairie Viewing Platform



Outdoor Classroom and Elevated Prairie View

- Located near the visitor center, prairie, and the picnic lawn area, the outdoor classroom serves as the circulation junction of the major activity zones in the design.
- The outdoor classroom functions as an area for learning and interpretation, either about the prairie restoration, or the history about Col. James Morgan and the story of the Yellow Rose of Texas. Shade structures and seats are provided for students and visitors.
- Connected with the outdoor classroom, the elevated prairie platform provides elevated perspectives for both the prairie and the pond.

Canopy Elevated Prairie Viewing Platform 0 20 40 100ft



Perspective view of the proposed outdoor classroom area between the pond and prairie.

5.11 Visitor Center Alternative I



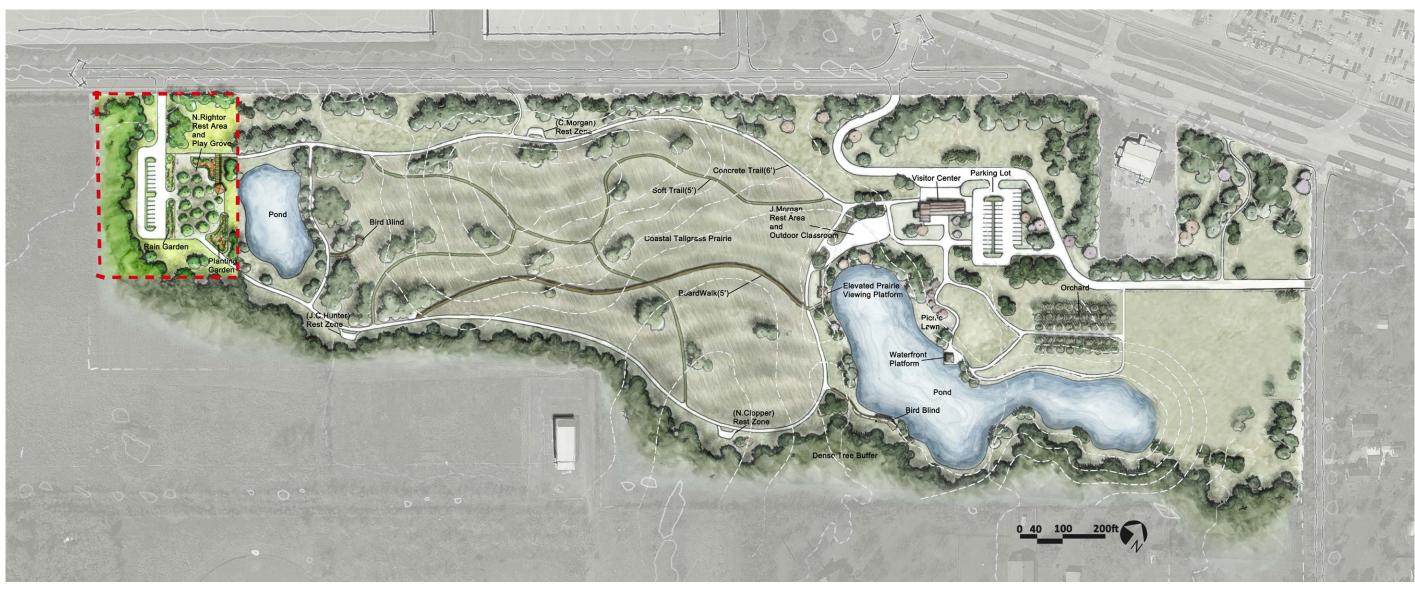
A simple visitor center can function as a gathering place for visitors, provide parking, shelter, and information about the site.

5.12 Visitor Center Alternative II



A more complex visitor center can function as a gathering place for visitors, provide parking, a gift shop, and house interpretation volunteers at the site.





Phase 1:

- Site grading
- Excavate retention ponds
- Concrete loop trail
- Native tree planting clusters (including southern buffer trees)
- Prairie preparation and restoration
 Prairie soft trails
 - Continued clearing of non-native trees and grasses

Phase 2:

- Main entrance drive and hardscape (including parking lot)
- Orchard
- Elevated prairie viewing platform •
- Prairie boardwalk
- Bird blinds

Phase 3:

- Visitor's center
- Outdoor classroom
- Water platform
- Five families of Morgan's Point interpretive areas

Phase 4:

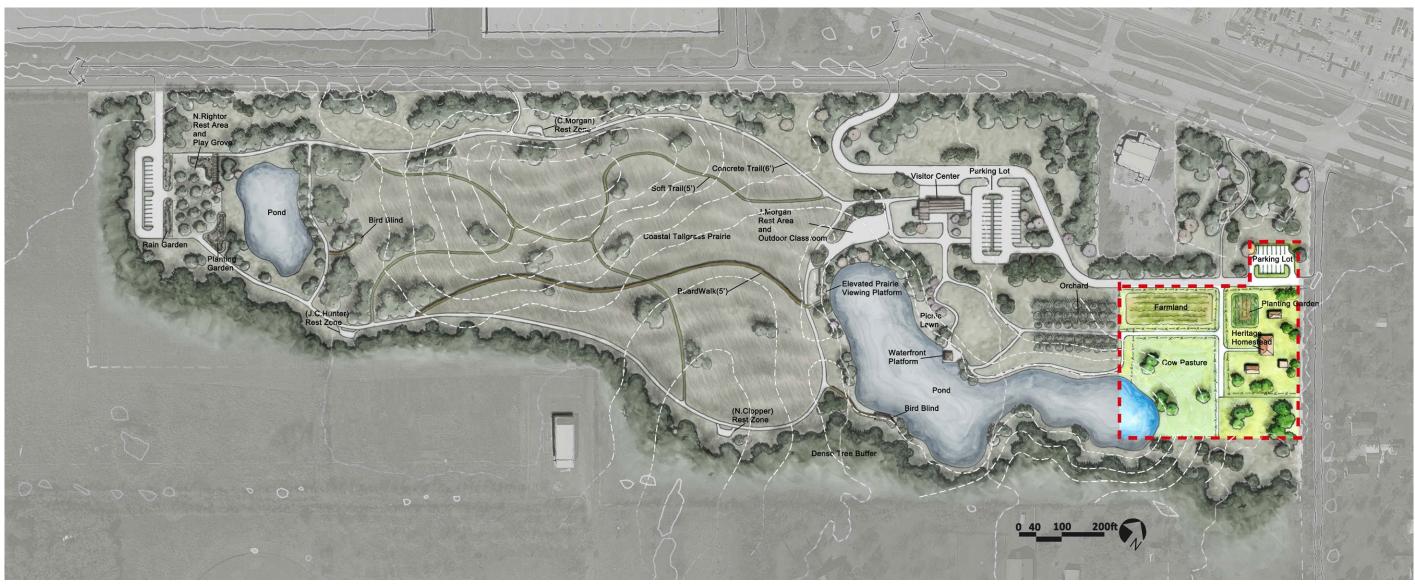
- West parking lot
- Community park playground and picnic grove

5.14 Community Park Playground and Picnic Grove



The Community Park Playground and Picnic Grove is a relatively private area with a closed tree canopy. The grove provides an outdoor rest and activity zone for local residents and visitors.





Phase 1:

- Site grading
- Excavate retention ponds
- Concrete loop trail
- Native tree planting clusters (including southern buffer trees)
- Prairie preparation and restoration
 - Continued clearing of non-native trees and grasses

Phase 2:

- Main entrance drive and hardscape (including parking lot)
- Orchard
- Elevated prairie viewing platform
- Prairie boardwalk
- Prairie soft trails
- Bird blind

Phase 3:

- Visitor's center
- Outdoor classroom
- Water platform
- Five families of Morgan's Point interpretive areas

Phase 4:

- West parking lot
- Community park playground and picnic grove

Phase 5:

- Heritage homestead and farm
- East parking lot

5.16 Historic Homestead and 1830's Period Farm



The historic homestead and period farm provides insight and learning opportunities about life in Morgan's Point during the 1830's.

JAMES MORC 5.17 Master Plan Soft Trail(5') J.Morgan Rest Area Coastal Tallgrass Prairie and Outdoor Classroo 50

5.18 Circulation and Trail System



Site Circulation and Trails

Proposed circulation incorporates the existing street network surrounding the site and links to the existing Russel Applebe Hike and Bike Trail. Trails within the site have been designed to provide numerous loops that offer a wide range of distances, textures, access to the interior of the restored prairie and levels of accessibility.

Trail types include:

Concrete Pedestrian Paths – Slightly elevated 6-foot wide path connected to all major areas of the site, and linked to the Russel Applebe Hike and Bike Trail. The total distance of the concrete path is 9,987 feet (1.87 miles).

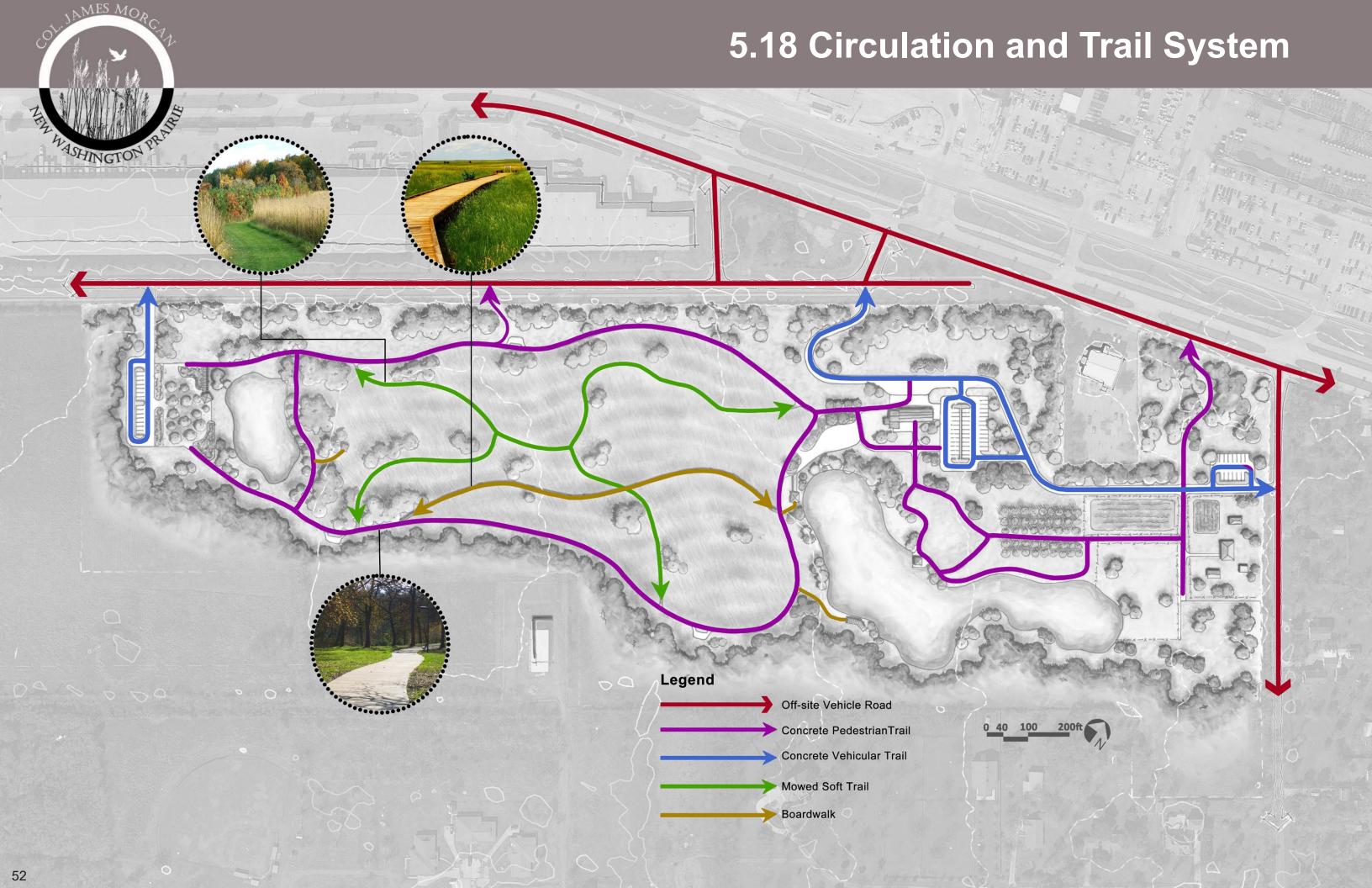
Boardwalk – An elevated boardwalk (1,226 feet) is proposed to traverse the restored prairie.

Mowed Soft Trails – Soft trails of four to six feet wide that are mown from within the prairie plantings will offer even more access to the center of the prairie. The illustration on the next page is a network of 2,292 feet (0.45 mile) of soft trails that are connected to the paved loop trail.

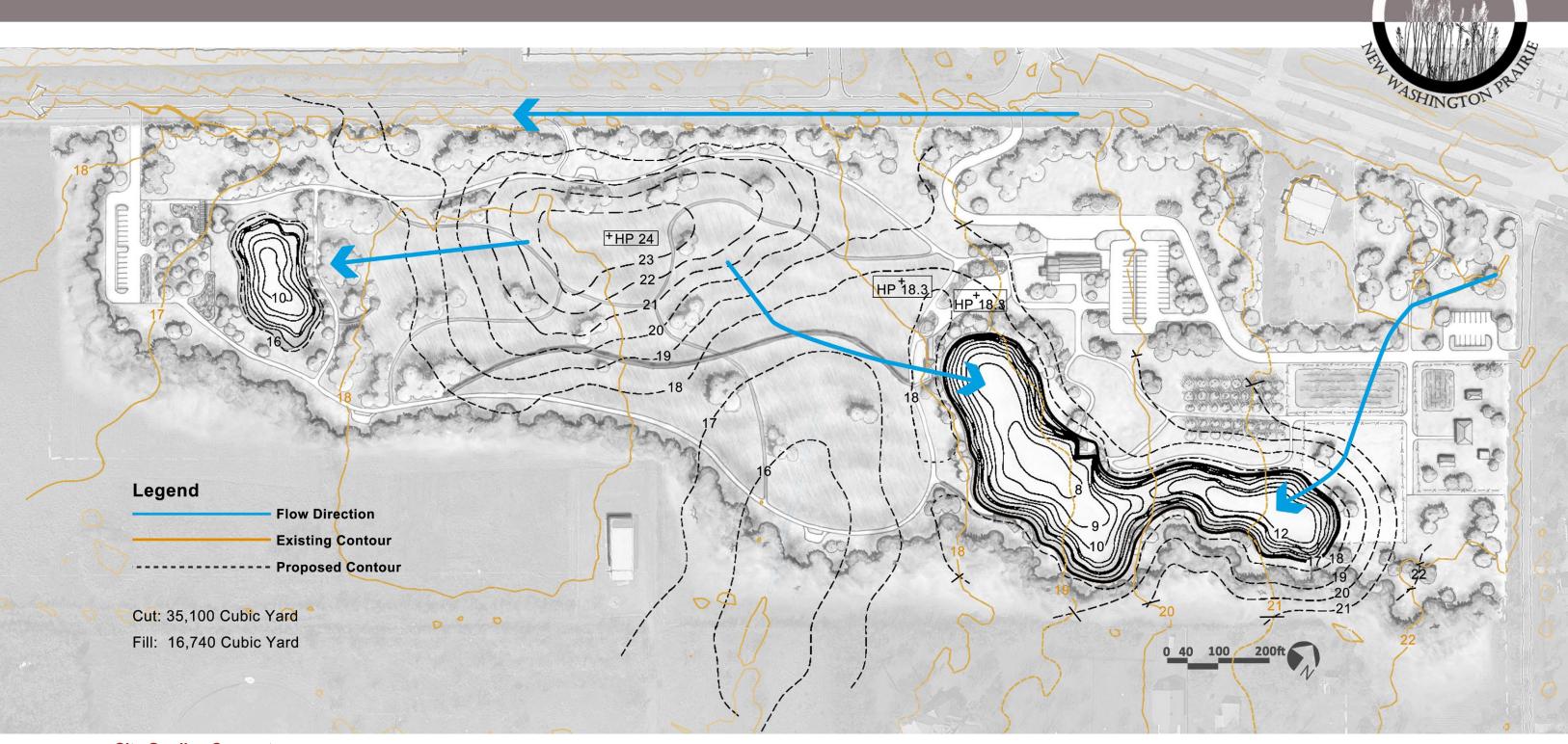
Concrete Vehicular Access – Concrete vehicular access allows access for visitors as well as service vehicles to reach the main entry, proposed visitor center, parking areas, picnic grove and the historic homestead. Total length of all paved vehicle access drives is 2,308 feet (0.44 mile).

Typical Concrete Pedestrian Path





5.19 Grading Plan



Site Grading Concept

This conceptual grading plan is based upon two-foot contour data obtained from the Houston-Galveston Area Council. Current stormwater patterns on the site flow from east to west-southwest and ultimately to the drainage channel approximately 1000' west of the site boundary. Proposed re-grading of the site includes the excavation of two ponds and use of cut material to gently mound the central portion of the prairie. Stormwater is directed to both proposed ponds and outflows should not be directed as channel flow off-site. A future detailed grading and stormwater management plan based on a topographic survey of the site will be needed to ensure that runoff is handled on-site and does not adversely impact surrounding landowners.

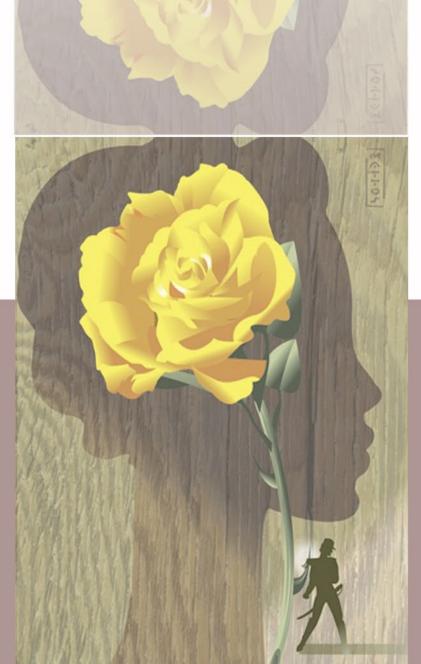
Data source: h-gac.sharefile.com

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5.20 Eastern Site Aerial Perspective



This aerial perspective depicts the eastern portion of the site including the pond, the visitor center, parking, picnic areas, orchard, and the historic homestead and period farm.



6-Appendix

Ecoregion & Climate 6.1

Topography 6.2

Soils & Vegetation 6.3

Drainage & FEMA FloodPlain 6.4

Current Circulation Systems 6.5

Case Study: Washington-on-the-Brazos State Historic Site 6.6

Case Study: Phil Hardberger Park 6.7

Case Study: Armand Bayou Nature Center 6.8



ASHINGTON PRIMA

Texas Ecoregion

Legend **REGIONS** BLACKLAND PRAIRIE COASTAL SAND PLAIN EDWARDS PLATEAU GULF COAST PRAIRIES & MARSHES HIGH PLAINS 0 50 100 200 LLANO UPLIFT **OAK WOODS & PRAIRIES** PINEY WOODS ROLLING PLAINS SOUTH TEXAS BRUSH COUNTRY TRANS PECOS Site Ecoregion---Gulf Coast Prairies & Marshes

Reference

https://tpwd.texas.gov/education/hunter-education/online-course/wildlife-conservation/texas-ecoregions

http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/mississippi/placesweprotect/east-gulf-coastal-plain-mississippi.xml

http://www.uh.edu/magazine/2015-spring/feature-stories/going-coastal.php

Gulf Coast Prairies & Marshes

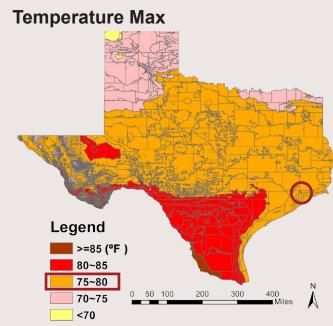
The Gulf Coast Prairies and Marshes region is a nearly level, slowly drained plain less than 150 feet in elevation, dissected by streams and rivers flowing into the Gulf of Mexico. The region includes barrier islands along the coast, salt grass marshes surrounding bays and estuaries, remnant tallgrass prairies, oak parklands and oak mottes scattered along the coast, and tall woodlands in the river bottomlands. Average annual rainfall varies from 30 to 50 inches per year, distributed fairly uniformly throughout the year. The growing season is usually more than 300 days, with high humidity and warm temperatures. Soils are acidic sands and sandy loams, with clays occurring primarily in the river bottoms. Native vegetation consists of tallgrass prairies and live oak woodlands. Brush species, such as mesquite and acacias, are more common now than in the past. Although much of the native habitat has been lost to agriculture and urbanization, the region still provides important habitat for migratory birds and spawning areas for fish and shrimp.

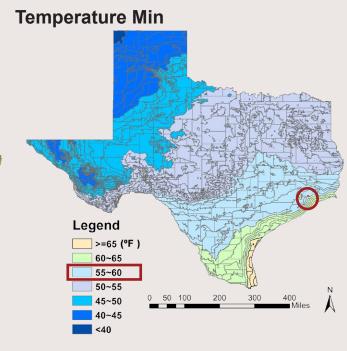


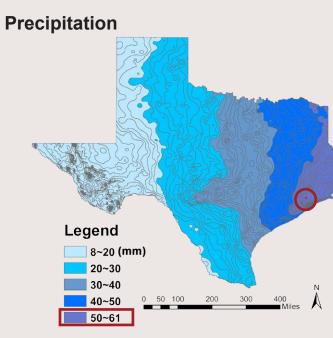




6.1 Ecoregion & Climate



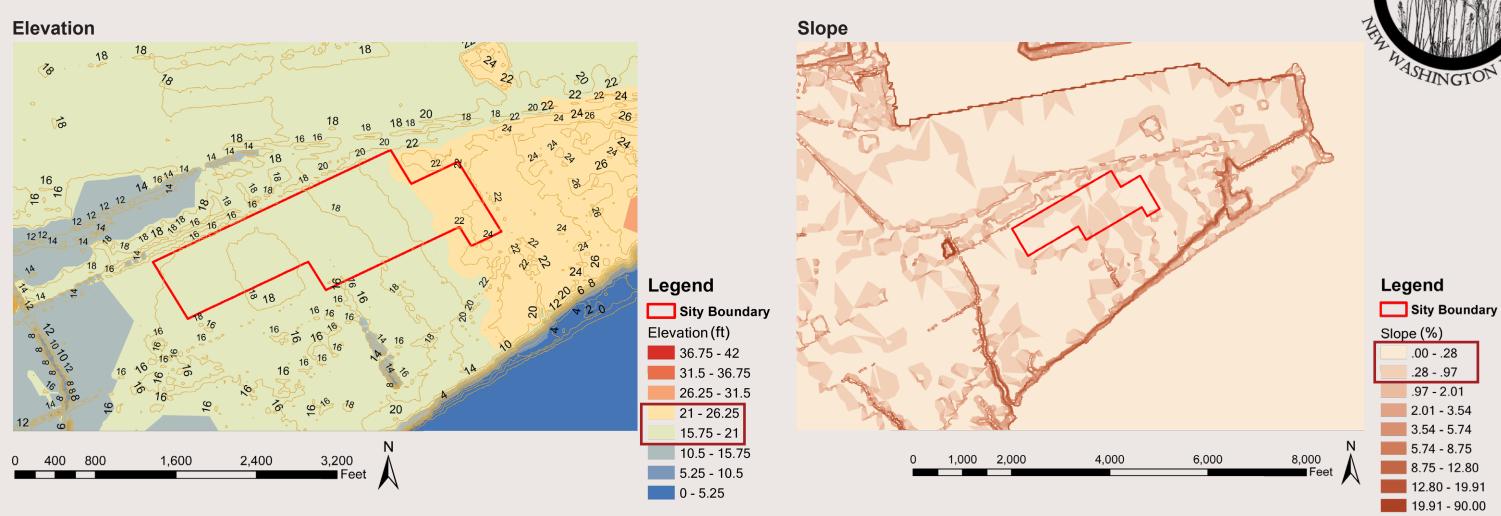




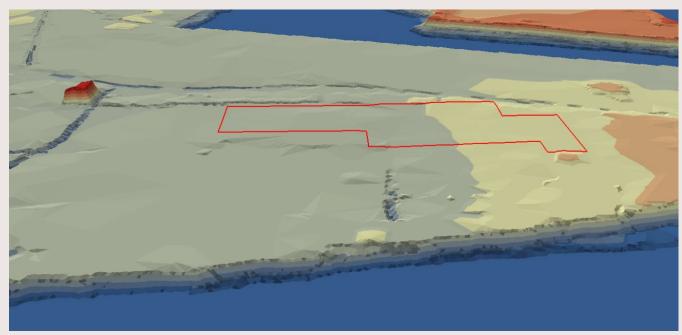
Summary

There are 203 sunny days per year in Morgan's Point, Texas. The July high is around 92 degrees. The January low is 44. Precipitation is around 49.3in. On average, the temperature is relatively high during the summer time, and warm in winter time. Precipatation is spread evenly throughout the year. Morgan's Point is a relatively ideal location for outdoor activities in spring, fall, and early winter.

6.2 Topography



Topography



Summary

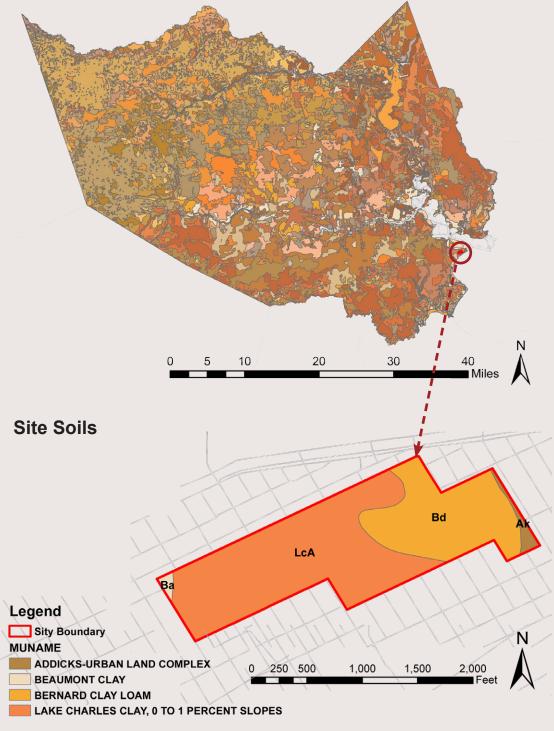
- The entire site is located approximately 20 feet above sea level, the general slope is less than 1%, which is very gentle, and can indicate poor or slow drainage.
- Total elevation change across the site from east to west is 8 feet.

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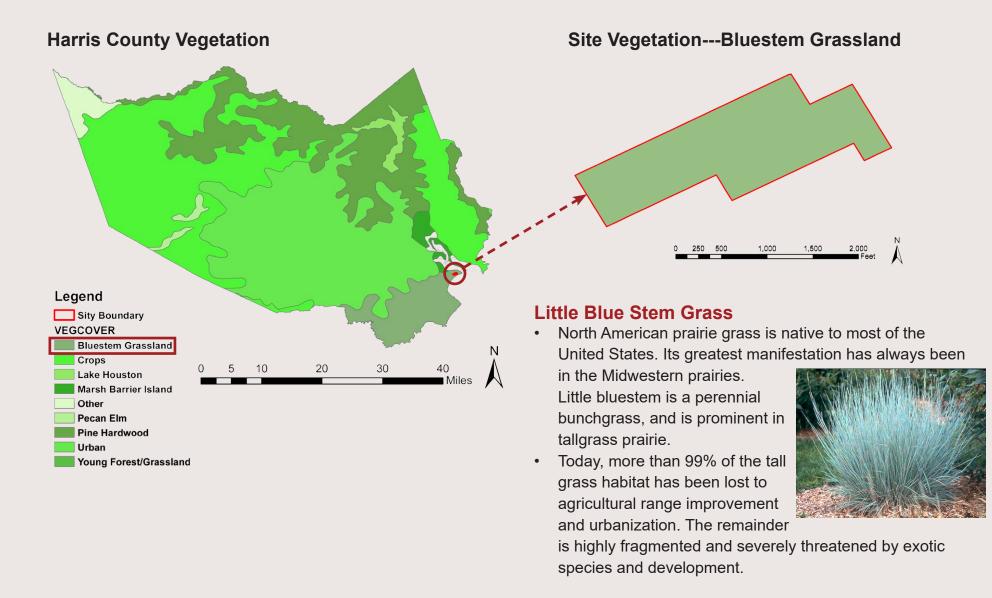
6.3 Soils & Vegetation

Harris County Soils



Soil Taxonomy

- Lake Charles Clay(LcA): This soil is used for cultivated crops, improved pasture, and native pasture, drains poorly. Surface runoff is very slow. Permeability and internal drainage are very slow. The available water capacity is high. Favorable structure and tilth are difficult to maintain in this soil.
- Bernard Clay Loam(Bd): This soil is used mainly for row crops, improved pasture, and native pasture. The native vegetation is tall prairie grasses, including andropogons and paspalums. somewhat poorly drained. Surface runoff is very slow. Internal drainage and permeability are very slow. The available water capacity is high. This is a productive soil because of its moisture holding capacity.
- Addicks-Urban Land Complex(Ak): Firm, moderately alkaline. Poor drainage is the greatest limitation. There are no limitations for landscaping or for gardening. Most of the acreage is for cultivating crops.
- Beaumont Clay(Ba): Crops grow moderately well on this soil. Most of the acreage is cultivated, and the rest is used for improved pasture or native grazing. poorly drained. Surface runoff and internal drainage are very slow. Permeability is very slow, and the available water capacity is high. Excess surface water and poor soil tilth are the main management concerns.



6.4 Drainage & FEMA FloodPlain

Site Stormwater Flows



Legend

Sity Boundary

Flowlines

- —— ArtificialPath
- CanalDitch
- --- Coastline
- --- Connector
- PipelineStreamRiver
- Underground Conduit
- **←** Flow Direction



Harris County FEMA Flood Plain Legend Sity Boundary 0.2 PCT ANNUAL CHANCE FLOOD HAZARD AREA OF MINIMAL FLOOD HAZARD AREA WITH REDUCED FLOOD RISK DUE TO LEVEE FLOODWAY RIVERINE FLOODWAY SHOWN IN COASTAL ZONE **Site FEMA Flood Plain** Legend Sity Boundary 0 250 500 1,000 1,500 2,000 Feet 0.2 PCT ANNUAL CHANCE FLOOD HAZARD AREA OF MINIMAL FLOOD HAZARD

Summary

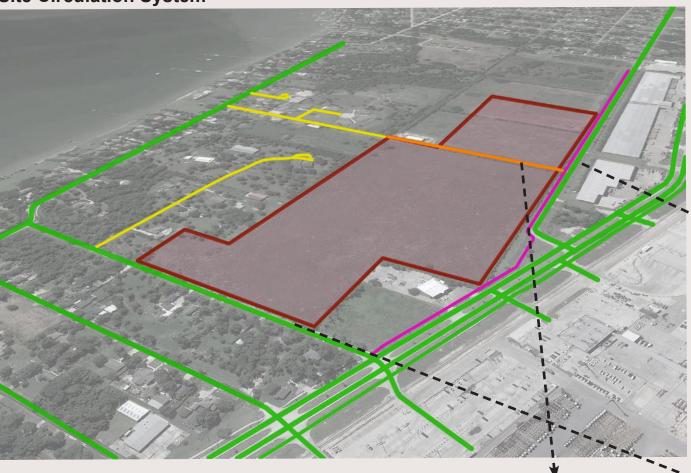
Generally, the 50-acre site has a low pobability of flooding.

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6.5 Current Circulation System

Site Circulation System



Legend

Sity Boundary

Major Vhicle Street

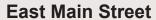
Pedestrian-orientated Street

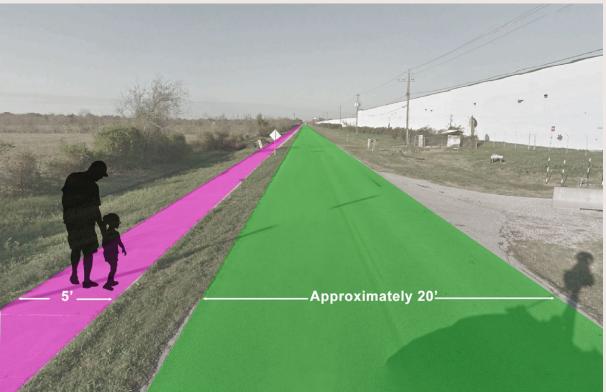
Neiborhood Street

Unpaved Cross-site Road

Summary

Current site accessibility is limited. There are two vehicle roads on the north and east sides of the property, which are fairly narrow. Additionally, there is a second unpaved trail that bisects the site.





South Maple Street



6.6 Case Study: Washington-on-the-Brazos State Historic Site



Introduction

Location: Washington County, TX

Size: 293 acres

Project Type: State Historical Park **Designer:** Texas A&M University

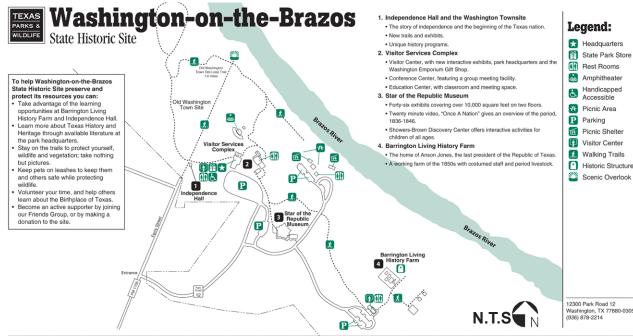
Project Statement: The picturesque Washington on the Brazos State Historic Site gives visitors unique insights into the lives and times of the 59 delegates who met on that very spot on March 2, 1836, to make a formal declaration of independence from

The expansive park grounds along the Brazos River provide a beautiful setting for picnicking, sightseeing and bird-watching. The Star of the Republic Museum, Independence Hall and Barrington Living History Farm, offer the visitor a unique insight into the lives and times of the men who fought and won Texas' independence from Mexico.

Purpose of the Study:

Gain valuable experience in bringing history elements into landscape architecture.

Site Plan



Reference:

http://www.mappery.com/map-of/Washington-on-the-Brazos-Texas-State-Park-Facility-and-Trail-Map http://wheretexasbecametexas.org/

Design Elements

The Star of the Republic Museum

The Star of the Republic Museum was created by the Texas Legislature, and is administered by Blinn College as a cultural and educational institution. Its purpose is to collect and preserve the material culture of the Texas Republic (1836-1846), and to interpret the history, cultures, diversity and values of early Texans.





Independence Hall

For Texans, Independence Hall is one of the most significant historic sites. In the raw frontier town of Washington in 1836, 59 men elected from municipalities across the territory met in an unfinished frame building to determine the fate of this vast land, which is Texas. Meanwhile, the forces of General Santa Anna laid siege to the Alamo.





Visitor's Center

The visitor center provides general information, but also offers a park information center that is climate controlled, where you can find restrooms, water fountains, and a place to relax as you prepare for your group's arrival.



Project Highlights

Barrington Living History Farm

The farm was the home of Anson Jones, last president of the Republic of Texas. Handcrafted reproduction log buildings and cropland demonstrate the working of a Brazos Valley farm, circa 1850. Interpreters in period costume work the farm.

Today, using Anson's daybooks and accounts as their guide, costumed interpreters use 1850s methods and materials for planting, cultivating and harvesting the fields and working with livestock.









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6.7 Case Study: Phil Hardberger Park

Phil Hardberger Park East Wurzbach Pkwy IORTH CENTRAL N.T.S

Introduction

Location: San Antonio, TX

Size: 311 acres

Project Type: Native Landscape Restoration **Designer:** Stephen Stimson Associates Landscape

Architects

Project Statement: The concept for Hardberger Park is cultivated wild. Over the last seven years, this Park has become an integration of the rich cultural history of San Antonio, blended with the diverse and resilient ecologies that are native to the region. The Park dedicates 75% of the 311 acre site to preservation and restoration of this native landscape, while seamlessly embedding 25% as low-impact recreation. Engaging state-of-the-art green infrastructure and a restored, diverse landscape, the Park has become a living laboratory for urban ecology, healthy living, and sustainability in south Texas.

Site Plan



Reference:

http://www.asla.org/2015awards/96405.html, http://stephenstimson.com/Phil-Hardberger-Park http://geekettebits.com/feature/phil-hardberger-playground-and-dog-park-park-san-antonio-tx/

Purpose of the Study:

Gain valuable experience in designing a city park by bringing the sense of community, along with native landsape restoration and cultural history presentation.

Functional Zoning Plan







Design Elements

The park includes numerous amenities and interactive areas that create a dynamic environment for recreation and learning about the ecology of the region. These amenities include:

Ecology Center
Playing+Picnic Grove
Sports Field
Children's Playground
Walking Trail
Sculpture Garden
Rock Climbing Wall
Swimming Pool
Water Park
Senior Center

Land Bridge
Outdoor Classroom
History Culture Museum
Heritage Homestead
Dairy Farm
Telescope Tower
Wildflower Garden
Orchard
Outdoor amphitheater



The conceptual framework for Hardberger Park, as a 'cultivated wild', designates 75% of the parkland as a renewed native landscape mosaic. This involves the preservation of heritage oaks, the restoration of woodlands and brush, and the reintroduction of the endangered oak savanna, the expansive native grasslands that personify a genuinely wild Texas territory. The remaining 25% of parkland is comprised of active areas for community gatherings and varied recreation carefully embedded in the native and restored landscape. The crafting of places takes inspiration from the City's cultural landscape, reinterpreting patterns of historic mission acequias and cultivated fields. The result is park programming that respects its natural context creating a dynamic relationship between built and natural elements.

Project Highlights

I. Nature Preservation

Phil Hardberger Park presents an opportunity to renew native plant communities and wildlife habitats that are decreasing rapidly in the region, recapturing the significant landscape identity of south Texas. The three Texan eco-regions of Edwards Plateau, Blackland Prairie and South Texas Plains converge in Bexar County and are manifested within the Park in the potential plant communities on the site, such as oak savannas and woodlands. Setting state-wide benchmarks for the timely reintroduction of diverse regional ecosystems and for the creative use of sustainable restoration practices, Phil Hardberger Park can be distinguished as a paradigm of native landscape renewal.

6.7 Case Study: Phil Hardberger Park



Restoring grasslands reintroduces a native ecosystem at the site by providing ecologically rich edge conditions and recapturing the unique landscape identity of South Texas.





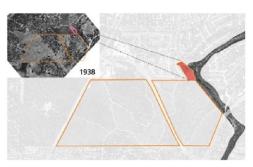
Protecting and preserving live oaks and oak mottes ensures woodland habitat integrity and enables increased biodiversity across the site.

Increasing the growth of native flora promotes overall biodiversity and demonstrating the unique qualities of Hardberger Park.



II. History Preservation

As a former dairy farm, Hardberger Park also exhibits remnants of the agrarian pattern of grazing and farming which are unique to the historic settlement of San Antonio's missions.



The heritage homestead at the northwest corner of the Voelcker property contains the most significant architecture features from the site's history as a dairy farm.

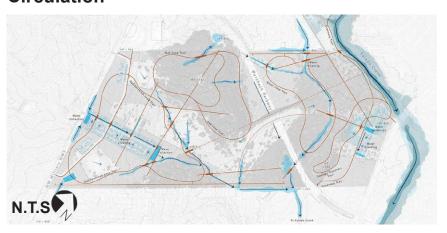
Dairy farm structures, at the Veolcker homestead such as the old stone house, dairy barn, and bungalow, will be elevated during a later phase for potentioal reuse.



III. Park Trail Design

Over six miles of trails, constructed primarily of native decomposed granite with an organic stabilizer weave carefully throughout the woodlands, and connect the new program spaces on both parcels. Boardwalks were created where trails cross watercourses, and the trail system respects existing large stands of heritage live oaks, persimmon and cedar elm, preserving these ecological communities in 'trail and tree encounters.'

Circulation



Soft Trail









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IV. Urban Ecology

Phil Hardberger Park is a model for a vibrant urban ecology, demonstrating the dynamic and productive interaction between natural processes and urban systems, and contributing to a legacy of great parks across the country. The presence of a living and working ecological system in the midst of the city fosters the stewardship of the natural and cultural landscape to inspire generations to care for Phil Hardberger Park and the larger environment.



Urban ecology centers support the missions of both science and education, contributing to a wealth of knowledge about our environment and helping foster ecologically responsible citizens through hands-on discovery.

Wildlife interactions Providing the ability for visitors to interact and observe wildlife engenders respect to other living things, and enables a deeper understanding of how to maintain and live with all creatures in the city.





6.8 Case Study: Armand Bayou Nature Center

Introduction

Location: Harris County, TX

Size: 2500 acres

Project Type: Urban Wilderness Preserve Governing Body: Harris County, TX **Project Statement:** Armand Bayou Nature Center(ABNC) is the largest urban wilderness preserve in the U.S. ABNC contains 2500 acres of the natural wetlands forest, prairie and marsh habitats once abundant in the Houston/Galveston area.

ABNC is home to over 370 species of birds, mammals, reptiles and amphibians. ABNC offers hiking trails, exhibits, field trips, Scout programs, birding, a historic farm and fun for all.

Purpose of the Study:

Gain valuable experience in coastal tallgrass prairie restoration in urban environment.

The mission of ABNC is twofold:

- To preserve the wetlands prairie, forest and marsh habitats with which we have been entrusted.
- To provide opportunities for people to experience the Armand Bayou habitats and the importance of preserving these vanishing habitats.

Through preservation and education, ABNC strives to "Reconnect People with Nature".





http://www.abnc.org/about-abnc/what-we-do.html, http://www.visithoustontexas.com/listings/armand-bayou-nature-

http://www.panoramio.com/photo/50331157

ABNC (Armand Bayou Nature Center), 2014. Natural Resource Management Plan. Provided via email by Mark Kramer, November 6, 2015.

I. Coastal Prairie Preservation and Restoration

Armand Bayou Nature Center preserves one of the most extensive holdings of coastal tallgrass prairie in the lower Galveston Bay watershed. Currently, 645 acres are actively managed, about 70% of the long-range goal of 900 acres within the current boundaries. All of the prairies at ABNC have been altered to some degree. initially by cattle grazing and agriculture. The greatest impact however has been the result of the recent expansion of the Chinese tallow tree (Sapium sebiferum).





Restoration Strategy

Project Highlights

(Adopted from ABNC Management Plan 2014)

Stage 1: Mechanical Chipping and Herbicide Application to **Tallow Trees (year 1)**

Restoration begins by attempting to kill the tallow trees through the application of cut-stump (typically using subcontractors and machinery) All stumps are to be taken down to ground level and large logs removed to limit future damage to mowing equipment later, foliar or basal application of herbicide. Applications are accomplished during the growing season, when the systemic chemical can be absorbed by the tree for maximum effectiveness.

Stage 2: Followup of Herbicide to Re-sprouting Tallow Trees (year 2)

One year after mechanical removal a followup application foliar herbicide will be conducted. Contractors will be hired to apply appropriate herbicides to restoration site. .

Stage 3: Reintroduce Native Climax Prairie Plants (year 3)

Planting additional climax species will augment natural recruitment of native plant species. The majority of these new plants will be salvaged from nearby areas slated for development or propagated at the ABNC.

To ensure that genotypes are adapted to regional conditions, introduced plants will be obtained from local sources whenever possible. Once prairies begin to mature, they will become a valuable source for local genotype seeds for use in other ABNC restoration projects.

Stage 4: Restored Prairie, Requiring Regular Maintenance (on-going)

Following woody plant removal and the reintroduction of native plant species, the prairie will be maintained by a combination of shredding, haying, spot treatment of herbicide and prescribed burning to suppress the invasion of woody species and promote diversity of climax plant species.

Fire has a number of associated benefits to the prairie. It removes dead plant material and thatch that has accumulated in previous growing seasons and returns it to the soil in the form of ash. This recycling of nutrients and the rapidly warming blackened soils following a prairie fire contribute to a healthy prairie. The single most important benefit of fire in the prairie landscape is the suppression of brush and other woody plant species.



II. Board Walk Design

The Center's core consists of a boardwalk through the forest and marshes, live animal displays, educational signage, bison and prairie platforms, butterfly gardens and a 1800s farm site.



