

LAKE PARK

MASTER PLAN

Town of Carolina Beach, North Carolina



ADOPTED BY TOWN COUNCIL
JUNE 9, 2020





Acknowledgements

TOWN COUNCIL MEMBERS

LeAnn Pierce, Mayor
Jay Healy, Mayor Pro Tem
Lynn Barbee
JoDan Garza
Steve Shuttleworth

PARKS & RECREATION COMMISSION MEMBERS

Duke Hagestrom
Alex Torres
Michael Callahan
Shannon Fussell
Heather Kenny
Charlie Thomas
Jason Kesler
Bill Nadeau

TOWN STAFF

Ed Parvin, Interim Town Manager
Eric Jelinski, Parks & Recreation Director

PLANNING CONSULTANTS

Alfred Benesch & Company
2359 Perimeter Pointe Parkway, Suite 350
Charlotte, NC 28208
704-521-9880
www.benesch.com

TABLE OF CONTENTS

<i>OVERVIEW</i>	1
<i>PARK HISTORY</i>	1
<i>Existing Park Facilities</i>	2
<i>Existing Park Utilities</i>	8
<i>Archaeological/Historical Sites</i>	8
<i>Zoning/Surrounding Land Use</i>	8
<i>Setbacks</i>	9
<i>Roads/Access</i>	9
<i>Natural Features</i>	9
<i>Significant Natural Communities</i>	13
<i>PREVIOUS PLANNING EFFORTS</i>	15
<i>CONCEPT DEVELOPMENT / PUBLIC INPUT</i>	16
<i>ADVISORY BOARD INPUT</i>	21
<i>PROGRAM DESCRIPTION</i>	22
<i>PROGRAM ELEMENTS / PHYSICAL NEEDS</i>	22
<i>ORDER OF MAGNITUDE BUDGET ESTIMATE</i>	19
<i>PROJECT COSTS</i>	27
<i>PHASING</i>	28
<i>PARK OPERATIONS</i>	29

Overview

The Town of Carolina Beach is a growing contemporary beach town in the Wilmington metropolitan area with a very active outdoor recreation community. Year-round the Town provides residents and visitors of all ages access to a variety of park facilities. These facilities are important to the overall health, beautification, and quality of life for the community.

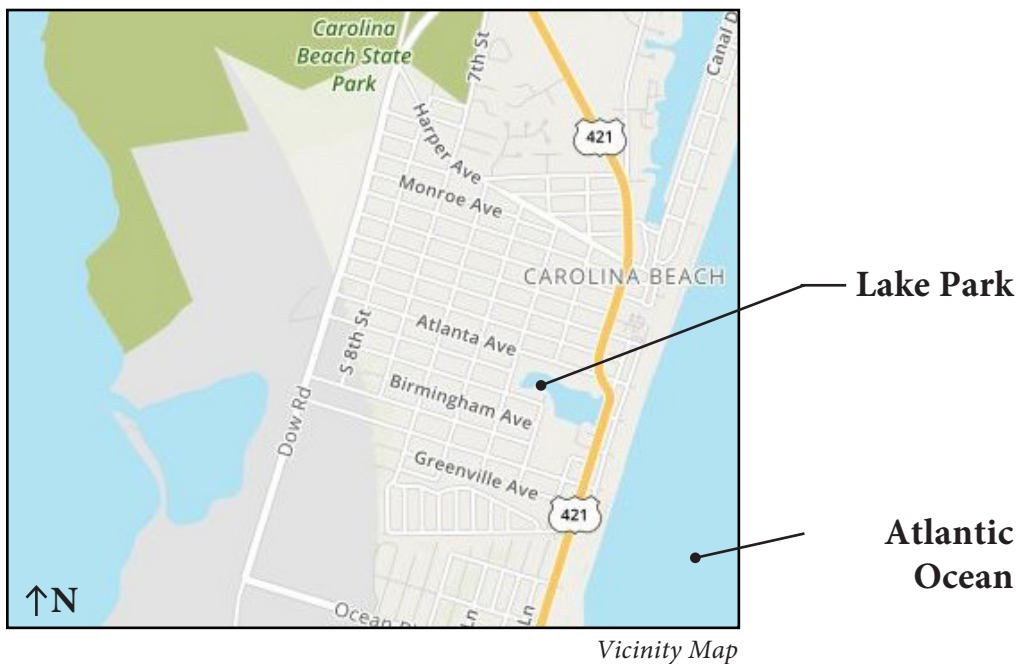
Recognizing the value of a well-rounded park system the Town of Carolina Beach completed the 2017-2022 Parks, Recreation and Open Space Master Plan. One of the outcomes of this comprehensive masterplanning effort was assessing, analyzing, and evaluating the present condition of existing park facilities and to establish an action plan for improving and upgrading each facility. Specifically, a key priority of the comprehensive masterplan is to prepare a master site plan for updating facilities at Lake Park.

After years of use, partial dredging of the lake, and changing building codes the park needs updating. Likewise, changes in the public’s use of parks and recreation facilities have resulted in demand for a wider variety of play and special events experiences. Recognizing this need and following the recommendation of the comprehensive master plan the Town initiated a site-specific master planning process to enhance Lake Park.

This masterplan report provides a plan to re-develop Lake Park. It starts with an assessment of existing park conditions, provides a summary of the public input used to develop park improvements, and describes how Lake Park will be renovated to meet the current recreation needs in the community.

Park History

Lake Park is generally located in the center of Carolina Beach southeast of Carolina Beach State Park and north of Kure Beach. This existing park is surrounded by residential property on three sides and bordered on the east side of the park by Lake Park Boulevard South.



The 11.5-acre lake is the center of the 18-acre existing park owned by the Town. Lake Park was once noted by Guinness Book of World Records as being the closet freshwater lake to the Atlantic Ocean.



View looking east across Carolina Lake

Carolina Beach Elementary School and the Atlantic Ocean are within a block or two of the park. The Parks and Recreation Department host special events throughout the year including the Light Up the Lake celebration during the holiday season, outdoor movies and concerts, a chili cook-off in April, and a Farmer's Market in the Summer. Several thousand people, both locals and tourist, recreate in the park year-round.

EXISTING PARK FACILITIES

Carolina Beach Lake Park, referred to as Lake Park, was created in 1996 after Hurricane Fran caused significant destruction to the Carolina Beach area. Lake Park is generally a passive special events park facility where park guests enjoy picnicking, swinging, paddle boating, viewing piers, walking around the scenic lake and entertaining at the Stingray Amphitheater.

Playground

The existing playground consists of a small metal framed swing set with a capacity of two swings. The play surface is sand. The swing set should be demolished and replaced with an expanded playground complete with new equipment and swings. The equipment should be age appropriate, accessible to all persons, have a safety surface, and shade. Existing parking and restrooms are located near the playground.

Picnic Shelter

An existing picnic shelter is located near the parking lot and restroom. The picnic shelter is wood frame with a metal roof. It is lighted, has electrical receptacles, and several picnic tables. The picnic shelter is in good condition but does need an accessible path of travel. A grill, trash can, and bike rack are located near the shelter. These amenities need an accessible path of travel and use area.

Amphitheater

The amphitheater is in relatively good shape. The turf, walks, and stage area are used for special events held each year. The amphitheater structure itself is dated and does not provide any shade or protection from the wind. The stage, an elevated concrete pad is not ADA accessible. The concert lawn around the amphitheater is small and limits the size of the events that can be held in the park. The amphitheater could be relocated to the Veterans Island area to provide a larger concert lawn space. Considering the growing demand and special events programming at the park the amphitheater needs to be replaced with a covered multi-use performance stage.



Existing Lake Park Amphitheater

Restroom

The existing restroom building has two toilet fixtures, one male and one female. Several portable toilets are located beside the restroom. The park restroom is dated and does not have enough permanent toilets given the special events held at the park. The location of the restroom also makes a pinch point in the walk system. Because the restroom is behind the amphitheater people going to the restroom create a distraction during shows. The restroom should be replaced and relocated elsewhere in the park.

Observation Piers

Five existing timber piers are located along the shoreline of the lake. While these facilities are in somewhat good shape and appear to be well maintained these facilities are in decline. The timber piles supporting the docks area beginning to rot, the handrails are weathering, and the decking and railing system are not ADA compliant. Additionally, the observation area is not large enough to accommodate a picnic table. When these dock structures have reached their life expectancy, they should be replaced with a slightly larger shelter that accommodates a picnic table. All new shelters should be ADA compliant.

Regarding the location of the piers, the pier closet to South Third Street near the pump house should be re-located southeast to avoid the noisy generator.



Existing Pier on Carolina Lake

Sidewalk System

The most well used and popular recreation activity in the park is 0.67-mile looped concrete sidewalk around the lake shoreline. The walk system is accessible and in good condition. Only a few cracked sections were observed. These sections should be replaced. Two existing timber boardwalks/ bridges are located on the southern end of the park. The decking and handrails are becoming unstable, the slope at the approaches exceeds ADA requirements, and the width of the structures is much narrower than the connecting walk system. These structures need to be replaced with a wider ADA compliant boardwalk system in the future.

Educational Displays

Given the proximity of the park to Carolina Beach Elementary School several educational displays are located on the sidewalk system around the lake. School kids and general public can learn about how stormwater control measures such as grassy swales filter stormwater runoff. Displays at the restroom help people learn how rain barrels help the environment. Numerous Story Walk displays are located on the west end of the lake where students experience an interactive story.



Educational Displays at Lake Park

Paddleboat Dock and Ticket Booth

An existing paddleboat dock is located on the central northern shoreline of the park. It is timber pile supported structure. It consists of an upper fixed pier with a light framed wood gangway sloped down to a lower floating dock. The dock holds 15-18 boats. The structure is dated and is not ADA accessible. The entrance to the dock needs an accessible path of travel. The gangway needs to be replaced with an ADA compliant type that includes rails.

The ticket booth appears to be in good condition but the use area around the structures needs to be ADA compliant. From an operations standpoint future discussion may be needed to evaluate the possibility of incorporating the ticketing and concessions area with the new restroom building when it is replaced.



Existing Paddleboat Dock at Lake Park

Site Furnishings

Numerous benches are in the park adjacent the sidewalk. Shade trees or covers need to be installed to provide shade for these existing seating areas.

Landscaping

While the park has some trees scattered intermittently throughout the park and buffer plantings near the parking area and 2nd street entrance they offer very little shade and visual appeal. Landscaping is needed along Lake Park Boulevard, all park entrances (except at 2nd street), to screen the pump house, and through the entire park in general.

Farmers Market

During the summer Lake Park is home to a thriving weekly Farmers Market where vendors sell vegetables, arts, and crafts. The market is held on the eastern shoreline of the park along Lake Park Boulevard. Due to shoreline erosion the space for vendor tents is getting smaller every year. The addition of a bulkhead along the shoreline would stabilize the shoreline and improve the functionality of the space.

Parking

There is one existing parking area serving the park. It is inadequate to meet the demand on high use days, for special events, or on most days in the summer. Beach goers take advantage of the free parking and spaces fill up quickly leaving no where for park visitors to park. During special event most of the public park at the elementary school. The parking for the park should be expanded. There is an opportunity to add golf cart parking at the 3rd and 4th street entrances.



Limited Parking at Lake Park

ADA Accessibility

Accessible parking spaces have been provided for the park but paved walkways and use areas are not provided to all facilities. Some of the bridge approaches to the piers and paddleboat docks are not ADA compliant. Park renovations should include ADA improvements that provide access and remove barriers for all persons with disabilities.

Lake Shoreline

In the summer of 2017 the lake was partially dredged. Dredging operation stopped after the waste area became full. The Town plans to resume dredging operations in the future. Park improvements should be coordinated appropriately with dredging of the lake. Areas of the lake shoreline have minor erosion from both wind and water. These areas should be stabilized preferably with vegetation if possible as part of the lake dredging improvements. Improvements to the lake and lake shoreline stabilization are beyond the scope of this project.

Stormwater

The site's primary stormwater conveyance is a surface flow system through grassy swales with culverts that drain into the lake. The inlets of culverts have been armored with stone to filter run-off before getting into the lake. New construction in the park will require grading and the addition of impervious area. These improvements will necessitate the establishment of a stormwater drainage system to handle rainfall runoff. Low density best practices should be utilized for new construction if possible.

EXISTING PARK UTILITIES

Water Service

The Town of Carolina Beach has existing public water lines in all streets around the park and is available to serve the park. The existing on-site park restroom water line should be evaluated for re-use in park re-development.

Sanitary Sewer Service

The Town of Carolina Beach has existing public sanitary sewer lines in most streets around the park and is available to serve the park. The on-site sanitary sewer system serving the existing park restroom should be evaluated for re-use.

Electrical

Existing underground power is located around the lake along with many receptacles. It should be evaluated for re-use as the park is re-developed.

ARCHAEOLOGICAL/HISTORICAL SITES

No significant cultural/historical sites are known to occur on or near the proposed park area per [www.nationalregisterofhistoricplaces.com/NC/New Hanover](http://www.nationalregisterofhistoricplaces.com/NC/New%20Hanover) accessed on January 9, 2020.

ZONING/SURROUNDING LAND-USE

Lake Park is zoned C (Conservation) and the properties adjoining the park are zoned T-1 (Tourist), R-1 (Residential), and NB (Neighborhood Business District). According to the present Code of Ordinances a park is a permitted use.

SETBACKS

Various setbacks per the Carolina Beach Code of Ordinances will apply for any improvement made in the park. Front, rear, and side yard setback dimensions vary depending on the zoning classification. Dimensions should be confirmed prior to implementation of any improvements.

ROADS/ACCESS

The park has suitable vehicular and pedestrian access. The park is bordered by Atlantic Avenue to the north which serves as the main entrance for the park. Lake Boulevard is to the east. Fourth Street is to the west. Third Street and Lake Drive terminate into the park. There are four pedestrian access points, one on each side of the park. One service access is from Lake Park Boulevard.

NATURAL FEATURES

Hydrology

Carolina Lake, a jurisdictional water, is the focal point of the park. The lake covers 11.5 acres. The lake watershed is over 500-acres. It is a freshwater lake with saltwater infiltration. After large rain events the lake water is pumped to Henniker's Ditch which drains into the Cape Fear River.



View looking West across Carolina Lake

The lake is used for water quality and volume. The surface water from all the remaining park land flows into the lake. All portions of the lake and park is located with Zone AE, a special flood hazard area.

The Town's Code of Ordinance have regulations that regulate the uses in the lake.

A scenic wetland marsh is located on the south eastern corner of the park. Prior to development a wetland determination should be prepared to locate all jurisdictional areas. Any park development should be sensitive to wetland areas. Nationwide permits may be required for improvements impacting jurisdictional waters.

Carolina Lake along with the wetland areas provides many benefits to the park such as scenic value, the sound of flowing water, habitat for wildlife, and educational opportunities.

Soils

According to the Geotechnical report prepared by ECS Southeast the soil composition for the lake bottom sediment is comprised of four main soil types OH, OL, (organic materials) MH (elastic silt), and CH (high plastic Clay). These soils are unsatisfactory for structural fill.

The site is in the Coastal Plain Physiographic Province of North Carolina. The Coastal Plain is composed of seven terraces, each representing a former level of the Atlantic Ocean. The site is located within two blocks of the Atlantic Ocean shoreline. Soils in the area generally consist of sedimentary materials transported from other areas by the ocean or rivers.

Based on the U.S. Geological Survey the site of the park lies within the Surficial Deposits (Qp-Quaternary) geologic formation. The formation generally consists of alluvial sands, silts, and clays.

From the random sampling of soil performed by geotechnical engineers the soil consists of silt with organic material, fine to medium sand depending on the location.

Based on the U.S. Department of Agriculture the soil composition for the land around the lake consist of three main soil types (Ly, TM, and Ur). More detailed characteristics of the on-site soil types are listed below:

Ly – Lynn Haven Fine Sand, 0 to 2 percent

Farmland classification: Farmland of unique importance

Typical profile: 0 to 9 inches: sand, 9 to 12 inches: fine sand, 12 to 80 inches: sand

Depth to water table: 0 to 6 inches, poorly drained

Strength of soil: Low-special engineering required to strengthen soil

Percent of site with this soil type: 3.1%+/-

TM– Tidal Marsh, 0 to 1 percent

Farmland classification: Not prime farmland.

Typical profile: varies from silty clay loam to loam sand from 0 to 80-inch depth

Depth to water table: 0 to 6 inches, very poorly drained

Strength of soil: Low-special engineering required to strengthen soil

Percent of site with this soil type: 14.3%+/-

Ur- Urban Land sandy loam, 0 to 2 percent slopes.

Percent of site with this soil type: 16.5%+/-

This soil type is not rated.

Regarding the land around the lake half of the park is located in TM and half in Ur. Properties associated with the soils will likely require special design considerations to improve strength of soils for any proposed infrastructure and recreation activity. A subsurface soil investigation is recommended prior to development of any new facilities and infrastructure.

Landform

The topography of Lake Park is flat with pockets of steeper slopes along the shoreline of the Lake. Below is a general summary of slope across the park.

Minimum/Maximum Slope	% of park site
0-2%	95%

The topography for the site is suitable for recreation uses of any type. Grading operations will require a small amount of excavating and filling.

SIGNIFICANT NATURAL COMMUNITIES

Predominate Vegetation

The park site consists of mostly open maintained Bermuda grass lawn with intermittent palm trees. Additional species include live oaks, crape myrtles, wax myrtle, oleander, azalea, sable palms, cattails, and grasses.



Vegetation at Carolina Lake

Predominate Wildlife Species

In addition to a diverse vegetative community, the park provides wonderful habitat for a variety of birds and wildlife.

Cottontail Rabbit

Deer

Fox

Woodpecker

Squirrels

Opossum

Ducks

Geese

Sea Gulls

Hérons

Ibises

Egrets

Pelicans



Park wildlife

Lake park support a variety of aquatic and amphibian species. Common species likely to be found at the park include:

- Catfish
- Largemouth Bass
- Striped Bass
- Redfish
- Perch
- Puffer Fish
- Shad
- Mullet
- Pinfish
- Pigfish
- Croaker
- Mussels
- Alligator
- Turtles
- Snakes
- Frogs
- Lizard
- Crabs
- Shrimp



Park wildlife

Previous Planning Efforts

2017-2022 Parks, Recreation and Open Space Master Plan for the Town of Carolina Beach, NC

The Town's Parks, Recreation and Open Space Master Plan provided assessments and recommendations for its park system.

The purpose of the Parks, Recreation and Open Space Master Plan is to ensure that elected officials, parks and recreation staff, and citizen leaders have a tool to guide decision making and actions to provide future generations with adequate parks, recreation facilities, and open space.

The 2017-2022 Parks, Recreation and Open Space Master Plan provides important information and recommendations that factored into the updating of Lake Park.

A Needs assessment survey was conducted as part of the system-wide master planning process. When asked to respond to the question, "In your opinion, "what are the five (5) most important NEW recreational facilities, areas, and parks the Town needs to provide?" the top responses were sidewalks and pedestrian lanes; paths, trails, and crosswalks; bike, hike and greenway lanes, trails and paths; a year round swimming pool, a dog park; athletic fields; public restrooms and showers; water access sites and facilities; and a splash pad.

Regarding facility development, specific recommendation to Carolina Beach (Lake) Park included:

- Construction of a Sprayground
- Construction of a rain garden in the grassy swale area
- Construction of roofs over the existing benches
- Beautification of the park entrance at Fourth Street and Claredon Avenue
- Install several decorative aeration fountains in the lake
- Construction of a playground
- Shoreline restoration and stabilization to control erosion
- Installation of fitness equipment along the sidewalk
- Repair and replacement of existing bridges
- Install landscape screening along Lake Boulevard
- Construction of a small outdoor performance area
- Construct additional parking
- Provide bike friendly routes between Lake Park and the Town of Kure Beach
- Construct a path for bikes and pedestrians from Lake Park to the Carolina Sands neighborhood

Key comments and recommendations from interviews included:

- Update the facilities at Lake Park

The most consistent themes arising from the entire needs assessment process included:

- Need to provide additional amenities at Carolina Beach Park
- Need to provide a splash pad
- Need to provide an enhanced Lake Park

Concept Development / Public Input

Two separate public workshops were held for Carolina Beach Lake Park. Each workshop was publicized on the Town's webpage, Facebook, flyers, and advertisements in the Island Gazette.

Each workshop was scheduled for approximately two hours; however, people could arrive and leave the workshop as their schedules would allow, while still having the opportunity to participate to the fullest extent. The public could move individually through "information stations" at their own pace. Park and Recreation Staff and the Planning Consultant monitored the stations, noted feedback, and answered questions.

Public Workshop #1

The first public workshop was held in conjunction with the Town's Bike Rodeo on November 2, 2019 at Carolina Beach Recreation Center. The Bike Rodeo is a free interactive event where the public enjoys music, food, games, raffles, give-a-ways, and other activities while learning about bike safety. The Town's Police and Park & Recreation Department host the event. Over 500 people attended the event.

During the Bike Rodeo the public was invited to drop in the Arts and Crafts Room in the Recreation Center to view several exhibits about the park including a site analysis map, character images of potential recreation

activities, and provide input on improvements/activities they would like to see at Lake Park.



Public Input Workshop #1 held during the Bike Rodeo

Over sixty citizens attended the workshop. Elected officials, Parks & Recreation Advisory Committee members, and several political (Town Council) candidates were in attendance. Staff from Benesch (the park planning consultant) and the Town’s Parks and Recreation Department facilitated the workshop and were available to discuss the project with the public.

The format of the workshop was an informal drop in style public workshop. Following sign in, attendees were invited to review display boards that provided information on existing conditions information on the site (hydrology, soils, vegetation, etc.) and ask questions about the project and the Town’s future plans to re-develop the existing park.

Following their review of the existing conditions information, attendees were invited to consider a list of potential recreational activities that are typically found in a park and a list of potential renovations for the park. The recreational activities list also had a display showing picture examples of the different types of recreational activities to help educate the public on different types of activities and to help generate ideas.

Attendees were given 5 adhesive dots (orange and green) and asked to identify the activities and/or renovations that they felt should be included on the park master plan. In addition to providing a list of appropriate facilities/activities, attendees were instructed that they could add any facilities/activities they felt should be included in the plan that were not listed on the display.



Public Input Workshop #1

Several attendees asked about when the park might be re-developed. They were informed that the City does not have immediate plans for park re-development. The plan is to complete the Master Plan by Winter 2020 and then apply for grants in Spring 2020. Once funding has been secured, plans will be designed, bids solicited, followed by construction.

Generally, everyone attending the workshop was very supportive of park re-development and felt that recreational facilities would be well used by those living in the area.

Based on input from attendees, the following facilities were listed as the top priorities (in order of preference):

1. Splash Pad
2. Playground

3. Acquire wetland area adjacent to the park
4. Amphitheater/Stage
5. Farmer's Market
6. Volleyball
7. Replace Restroom
8. Outdoor Fitness Equipment
9. Picnic Shelter/Picnic Area
10. Eno (hammock) Village
11. Shuffleboard
12. Fill in east end of lake to create more greenspace in the park
13. Seating Areas
14. Cornhole
15. Art Displays
16. Repair cracked sidewalk
17. Maintain structure-pay off debts
18. Landscape Improvements
19. Install roofs over benches
20. Replace bike racks
21. Horseshoes
22. Educational displays
23. Wider sidewalks
24. Repair observation piers/gazebos
25. Open Space
26. Bocce
27. Covered Piers

In addition to “voting” on recreational facilities for future park re-development, attendees were invited to provide written comments with regard to the park master plan. The following comments were made by citizens:

- Ten (10) citizens requested for the Town to develop a public swimming pool facility at the Old Library (presently no swimming pool is proposed for Lake Park but citizens took this meeting as an opportunity they would like to see the Town develop one at the Old Library).
- Two citizens requested a dog park with pet waste bags and stations
- One person requested a parking garage
- A person suggesting building sidewalks to the ocean
- One comment read, “ move garbage cans in state park not just at trail heads”
- One citizen suggested adding duck food vending machines
- One lady commented, “Maintain structures. Pay off debts.”
- Two moms suggested to add a fence around the splash pad.
- Someone requested for more goose removal and clean-up
- One commented requested for the fountains to work.
- Someone requested a bar be added to the park.
- One gentleman suggested extending the sidewalk further south along Lake Park Boulevard.

Overall, the workshop was well attended and provided very good information with regard to desired activities and park re-development concerns. Input from the workshop was used to develop a program for park re-development and a preliminary plan for the park.

Public Workshop # 2

At the second workshop the public reviewed the preliminary master plan and provided feedback on the preliminary park re-design.

The second community workshop was held December 19, 2019 from 6:00-8:00 pm at Town Council Board room of Town Hall. Twenty people attended the second workshop. Staff from Benesch (the park planning consultant) and the Town's Parks and Recreation Department facilitated the workshop and were available to discuss the project with attendees.



Public Input Workshop #2

The format of the workshop was once again an informal drop in. Following sign in, attendees were invited to review display boards from the first community workshop that provided information on existing conditions on the site (man-made features, soils, slopes, etc.) and ask questions regarding the park site and the City's future plans to renovate and the park. Following their review of existing conditions information, attendees

were invited to consider a conceptual site plan derived from input gathered at the first community workshop. An image board was also presented that displayed the recreation activities and facilities shown on the conceptual plan.

As part of their orientation attendees were informed that the master planning process would be completed by the end of January, with a presentation of the final master plan along with a cost estimate to the Parks & Recreation Commission. Upon a recommendation from the Parks & Recreation Commission, the plan will be presented to Town Council for acceptance and direction.

Everyone attending the workshop were all very supportive of the conceptual plan as presented with only minor refinements.

Comments were made regarding facilities not shown in the conceptual plan:

- Change the car parking on the west end of the park to golf cart parking. Use pervious paving instead of asphalt
- Add golf cart parking at the end of Third Street
- Make the park ADA compliant
- How will the water for the water park be paid for? Our water bill has increased over 100% over the past 4 years. We do not want our water bill to increase because of the splash pad.
- Need to ensure modifications do not increase flood potential.
- What can be done about the geese?
- Can plans with more or less options be provided? For example, none of these items will replace existing structures while others are new and might not be beneficial.
- Would like to see the Phase 1,2, and 3 strategy
- Agree on waterpark cost and continued maintenance
- Add multi-use path and curb along Lake Park Blvd from park to Alabama Ave!!
- Eliminate parking at west side of park.

Participants were asked if they were in support of the Town pursuing a PARTF grant. All but one person were in favor(95%) of the Town pursuing a grant for park improvements.

Advisory Board Input

Parks and Recreation Commission Recommendations

The Town of Carolina Beach Parks and Recreation Commission is an appointed citizens advisory group that provides input on department policy, budgets, programs, and facilities. The commission is representative of all communities within the Town. The commission is also charged with presenting park and recreation concerns before the public and elected officials. Along with Town staff, the park and recreation director, the Town of Carolina Beach Parks and Recreation Commission served in a project advisory capacity for this park masterplan.

Program Description

Using the information from the site analysis, public workshops, discussion with park staff as well as the 2017-2022 Parks, Recreation, and Open Space Masterplan, the following top ten list of desired activities for the park have been established:

1. Sprayground
2. Playground
3. Amphitheater/Stage
4. Farmer's Market
5. Seating Area
6. Replace Restroom
7. Landscape Improvements
8. Picnic Shelter/Picnic Areas
9. Eno (hammock) Village
10. Wider Boardwalks

With this program, a Master Plan was developed that provided a passive park along the shoreline of Carolina Lake. The park provides paddle boating in the lake, a new bandshell for special events, a new Farmer's Market Multi-Purpose Pavilion, new picnic shelters, trails for walking and running, playgrounds and spraygrounds, areas to sit and relax, additional parking, new restroom building, and many other recreation activities.

Program Elements / Physical Needs

Sprayground

The public has expressed strong interest for a splashpad during the system wide planning effort and the public workshops for this project. Waterplay is a very popular activity in coastal communities. Young mothers feel it is easier and safer for their children to play in a sprayground instead of on a beach or in the nearby ocean. A sprayground is more affordable water play option than a swimming pool.

A new large zero-depth sprayground will be constructed on the northeast corner of the park. It highly visible from Lake Park Boulevard and can be lighted at night for added visual effect. This sprayground will provide a wonderful outdoor activity without the operational and liability costs of a swimming pool.

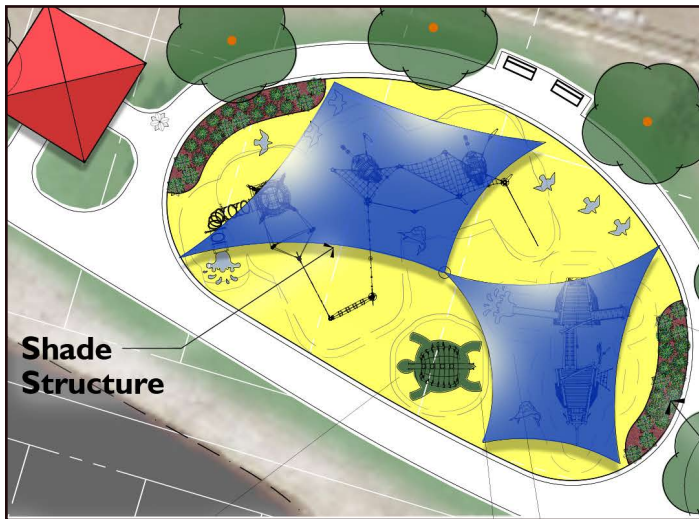
The sprayground deck will provide space for sunbathing. The surface of the deck may have a shell or other aquatic theme to it. A seat wall, tables, shade structures, and other site furnishings will be designed around the sprayground to provide a safe and enjoyable place for both children and adults.

A restroom will be constructed near the sprayground. A small separate utility building will be needed near the sprayground to store chemicals and pump equipment. The sprayground design will have a re-circulation system so the water can be recycled. This best practice will reduce the cost of water.

Playground

The center piece of the park will be a new themed playground. The expanded playground will provide a wide variety of play activities such as slides, swings, climbers, and be divided into age appropriate areas. The playground will feature an amazing one of a kind explorer ship. Play equipment and play surfacing will be

designed to meet all accessibility, ASTM, and CPSC requirements. A new shade structure will be erected, and large maturing trees planted near the playground to provide shade.



Proposed Playground



Explorer Ship Play Elements

Amphitheater (Bandshell)

The Town hosts many special events at Lake Park. With the growing popularity, interest by the public, and history of special events at the park a new covered bandshell facility with a concert lawn will be constructed in the northeast corner of the park. This will be a multi-purpose facility that can be rented if desired and used for other gatherings and performances. The new concert lawn will provide additional lawn seating and much needed open space for the park.

In efforts to create room for new bandshell and concert lawn a new bulkhead will be constructed along the shoreline and incorporate the existing Veterans Island. The construction of this bulkhead should be closely coordinated with the future lake dredging project and will likely require approval from regulatory authorities.

Seating Areas

Shade is important in coastal North Carolina. Fall, spring, and summer can be hot. Clusters of benches are located throughout the park and all these benches are in the open. The renovation for the park will include the installation of covered roofs and large maturing shade trees for benches.

Farmer's Market

Lake Park has a thriving weekly Farmer's Market in the summer. Presently vendors erect portable tents along the shoreline on the east side of the park adjacent Lake Park Boulevard. The master plan proposes two new Farmer's Market Shelters with a connecting plaza between the shelters.

The addition of these shelters will allow for greater staff programming opportunities and provide a multi-purpose revenue generating facility that can be used for reunions, receptions, showers, birthday parties, weddings, civic meetings, and other public gatherings.

The main attraction on the east end of the park the new Farmer's Market has been located near the road to

give the park more curb appeal from Lake Park Boulevard and because this is the area of the park where the Farmer’s Market is located presently.

A new concrete plaza adjoins the shelters, creating an event space, with locations for seasonal vendors. Vendors can set up temporary canopies to display fruits, vegetables, cut flowers, art, and other merchandise under the shelters and in the plaza. A new decorative fountain located in the plaza between the shelters adds visual appeal to the space.

A bulkhead will be constructed along the shoreline to create room for the shelters and adjoining plaza. In addition to providing more usable space on the east end of the park a bulkhead will stabilize the eroding shoreline and be more attractive than riprap. The construction of this bulkhead should be closely coordinated with the future lake dredging project and will likely require approval from regulatory authorities.



Proposed Farmer’s Market Shelter

Restroom

The park will be greatly improved by replacement of the existing restroom building. A new restroom will be built near the main park entrance at second street. The new location eliminates the bottleneck with the park’s sidewalk system and creates more space for the concert lawn area.

While a detailed floorplan and building designs have not been prepared at this time, the new restroom building will support the splash pad, bandshell, have more toilets, be ADA compliant, and match the overall architectural character of other park structures and houses adjacent the park. In addition to replacing the restrooms some consideration should be given to adding space for storage, concessions, changing, and ticketing.

Landscape Improvements

An important element in park redevelopment will be making landscape improvements. Strong interest was expressed during workshops for landscape improvements. The masterplan proposes to improve the landscape in the park in several ways.

New landscaping (trees, shrubs, and other plant materials) are needed around the park entrances, throughout the overall park, and along Lake Park Boulevard.

New large maturing trees around the lake, playground, and picnic shelter will provide shade.

All new planting areas need to be amended with compost, topsoil, and other amendment to support health plant growth. The on-site native soils have very little topsoil and easily erode.

Irrigation should be installed in selective locations to help with turf and plant establishment. Not only will the addition of irrigation help the park look more attractive, it will make the park more maintenance friendly and keep sediment out of the lake.

A decorative fence is proposed along Lake Park Boulevard. The fence could have themed panels like shells, sailfish, or other patterns found in coastal North Carolina. The combination of new fencing and landscape along Lake Park Boulevard will create a very attractive streetscape along the park and oceanview properties.

New decorative columns are proposed at pedestrian entrances.

Picnic Shelters

Presently the park only has one picnic shelter. With the addition of many new recreation facilities there will be greater demand for picnic shelters. The masterplan provides many new picnicking opportunities in a variety of ways. Picnic shelters will be built near the playgrounds. As the fixed piers are replaced, they will be built back slightly larger to accommodate a picnic table. The farmer's market shelter and covered stage can all be used for picnicking when not being used for special events.

The new picnic shelters will have revenue generation potential if desired.

Eno (Hammock) Village

The masterplan proposes a unique Eno "Island" Village on the southeastern corner of the park. An existing tree covered island connected to land by timber bridges provides an ideal setting for an Eno Village. This will be a great location for kids and young adults to stretch out a hammock, hangout, and catchup on social media.



Proposed Eno (Hammock) Village

Paddle Boating Dock

Paddle boating is a very desirable activity for the park and has been for years. This recreational activity provides a lot of fun on the water, a great vehicle to explore the lake, get exercise, and enjoy the company of your paddling partner. During the public workshops several citizens requested for the paddleboats to remain after the park is re-developed. The public was re-assured paddle boating will remain. The budget estimate for the project allocates funds to replace the fixed pier and gangway with a new accessible and safer structure.

Fixed Piers

The covered fixed piers around the shoreline provide a perfect place to view the lake in the shade. All fixed piers for the park are showing sign of moisture deterioration and starting to decline. The masterplan proposes to replace all piers as they age out. The new piers should be constructed back slightly larger to accommodate a picnic table and be compliant with the latest building codes.

Boardwalks

Several elevated wooden boardwalks connect the sidewalk system in the park allowing walkers to cross the lake and wetlands. Like the fixed piers these structures have moisture deterioration and are starting to

decline. The masterplan proposes to replace all boardwalks as they age out. The new boardwalks should be constructed back wider to accommodate two people passing at the same time. Additionally, any section of boardwalk that is sloped needs to be compliant with the latest building and accessibility codes.

Parking (vehicular and golf carts)

Playgrounds, picnic shelters, sidewalks, and other recreational activities function best when parking is reasonably accessible. Carrying picnic baskets and supplies long distances greatly diminishes use and restricts access to those with mobility challenges. Roads and parking provide park visitors the means to access the new recreational facilities. The existing parking lot will be renovated and expanded to create a new 42+/- space parking lot to provide visitors convenient access to the lake and recreational facilities. The idea is to re-configure the existing lot slightly. Re-organizing the existing parking lot will gain an additional 11 spaces. A second smaller golf cart parking area will be constructed on south 4th Street. The material for the golf cart parking areas will be constructed using pervious pavers to make be more environmentally friendly.

Concert / Events Lawn

Open greenspace is in high demand for the park. Park re-development will include a strategically located 0.22-acre Concert/Events lawn space near the amphitheater. Situated at the east end of the park with scenic views of Carolina Lake the concert/events lawn will provide an attractive multi-use space in the park. It is sized large enough to allow for unorganized play such as football, frisbee, soccer, and other lawn games. It will be used for lawn seating during concerts and provides additional vendor space as well. A paved loop trail defines the greenspace and allows visitors to access the lawn.

Project Costs

The next step in the planning process is to determine order of magnitude cost for the proposed improvements. In order to develop project cost, quantity estimates were taken for all proposed improvements. These quantity take-offs (linear feet of trails, square footage of picnic shelters, etc.) were then applied to unit construction cost to develop an order of magnitude cost for park improvements. A detailed breakout of costs are provided at the end of this report.

It should be noted that these probable costs are preliminary project costs based on preliminary plans. Design details such as grading, storm drainage, and site furnishing selections have not been made at this early stage in the planning process. In order to offset the many unknowns of the facility development, a 10% contingency has been included in the cost estimate.

As noted in the detailed cost breakout at the end of this report, all of the proposed facility improvements identified in this Master Plan can be constructed for approximately \$4.7 million. This total redevelopment cost includes approximately \$700,000 for bulkhead construction and its associated site work.

Phasing

With a construction cost of \$4.70 million, it is likely the Town will phase construction of the improvements for Lake Park. The general phasing strategy is outlined below:

Phase One

\$350,000*

- Play Equipment
- Play Surfacing
- Landscaping for Playground
- Sitework/grading
- Contingency: 10%
- Contractor Fees: 10%

Phase Two

\$1,500,000*

- Demolition
- New Bandshell
- New Restroom
- Associated Bulkhead
- Utilities
- Sitework/grading
- Contingency: 10%
- Contractor Fees: 10%

Phase Three

\$970,000*

- Splash features
- Concrete deck
- Pumphouse and Utilities
- Shade Structures
- Seating and Fencing
- Sitework/grading
- Contingency: 10%
- Contractor Fees: 10%

Phase Four

\$950,000*

- Farmer's Market Shelters
- Plaza and Fountain
- Associated Bulkhead
- Decorative Fencing
- Utilities
- Sitework/grading
- Landscaping
- Contingency: 10%
- Contractor Fees: 10%

Phase Five

\$930,000*

- Lake Improvements
- Boardwalks
- Shoreline Restoration
- Remaining Improvements
- Contingency: 10%
- Contractor Fees: 10%

Total Project Estimate

\$4,700,000*

*** Phasing budget rounded to the nearest \$1,000.**

Park Operations

Park Maintenance / Operations

Operating, maintaining, and managing Lake Park will require a coordinated effort by the Parks and Recreation Department. Lake activities are limited to daylight hours. Gated entrances and selective security fencing will control use of the park after hours. Park staff are responsible for paddle boat rentals and ensure paddleboaters wear a life vest.

Development of new sprayground may require additional staff to keep the park safe, attractive, and clean. In a scenario where a fee is charged to use the sprayground, a staff person may be needed for supervision, to collect fees, and to monitor entry and exit to and from the sprayground.

Another scenario may be to re-locate the ticketing/concession operation for paddle boat rentals to a new centrally located restroom building and allow the same staff person to manage the sprayground. Additional discussion will be needed regarding any staffing decisions.

With addition of new facilities, the proposed park provides many new revenue generation opportunities through facility rentals and program fees.

As for safety the park staff will patrol the park, aid visitors regarding the proper use of facilities, and deter acts of vandalism and destruction. Staff will coordinate shelter rentals, paddleboat rentals, sprayground admission and concessions.

Additional manpower possibly on full time or part time basis should be considered to maintain a quality level of service for park visitors. Re-developing Lake park will increase the amount of maintenance for the overall park system.

Environmentally Sensitive Construction/Park Operation

Lake Park provides an important environmental asset to the community by preserving land and water resources. The preservation of existing trees and vegetation improves air quality and water quality. The preservation of existing wetlands and controlling run-off into the lake improves water quality. These natural resources serve as a filtration system for water leaving the surrounding areas.

Stormwater is rain that is not absorbed into the ground. This water flows across the land from surrounding areas into the stormwater system and into Lake Park, which then flows to the nearest body of water. For Lake Park these bodies of water are the Cape Fear River, Myrtle Grove Sound, and the Atlantic Ocean.

Lake Park and the stormwater control measures around the park provide valuable water quality filtration for the area around the park.

As a public agency, Carolina Beach recognizes its role in environmental protection and plans to develop the facilities at Lake Park with minimal environmental impact. While the details for minimizing the environmental impact of park construction and operations will be worked out in future design phases, some of the design principles that will be encouraged include:

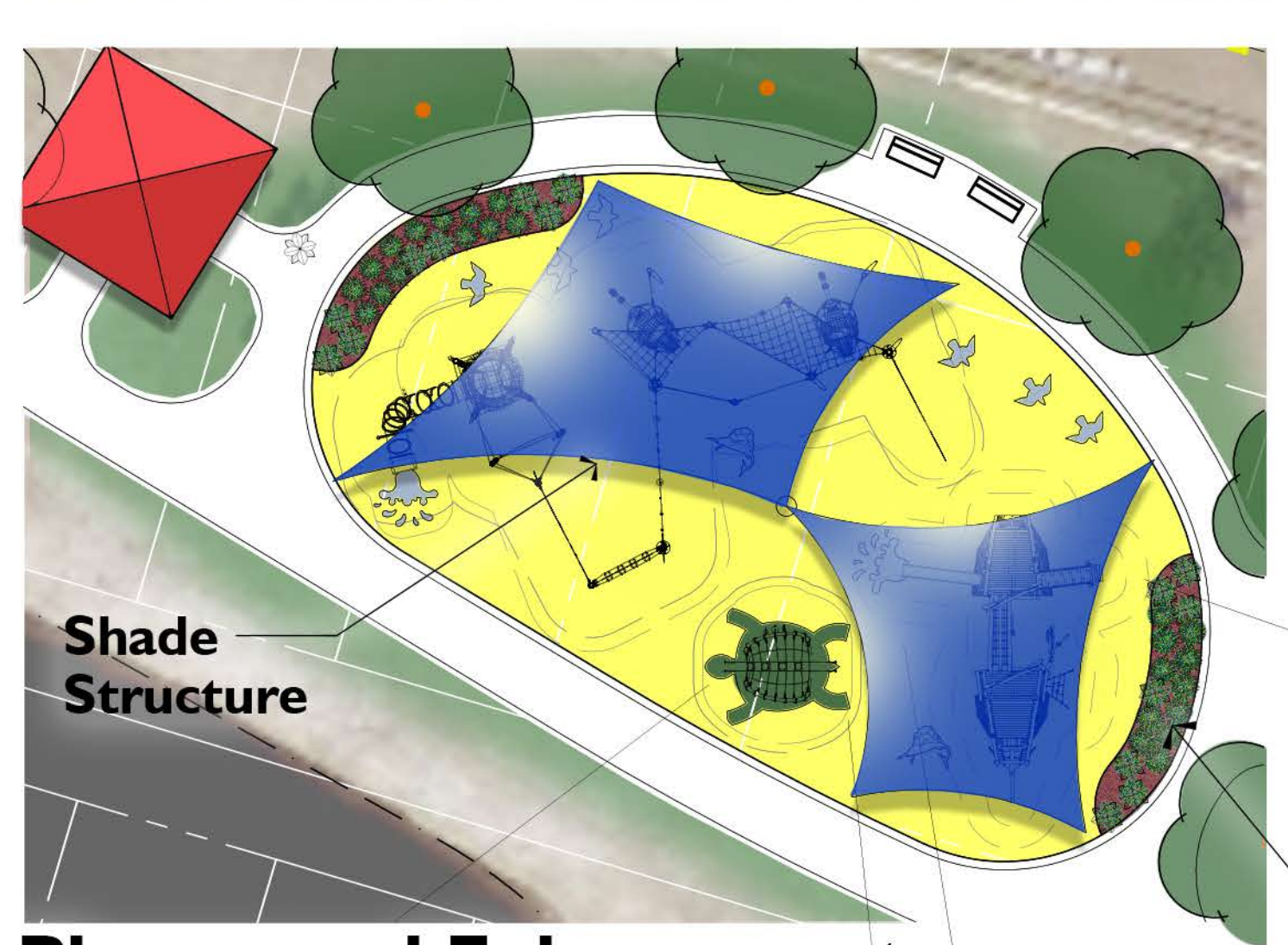
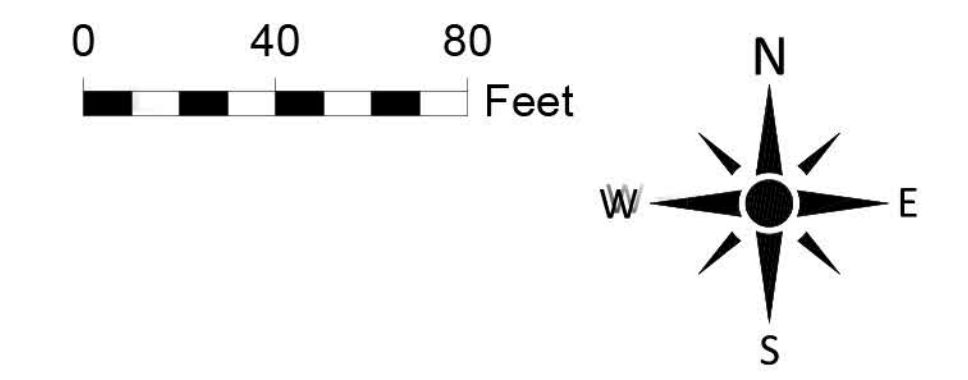
- Comply with CAMA: all portions of the park is located in an area of environmental concern
- Comply with requirements of the Army Corps of Engineers
- Site planning to minimize grading and the removal of existing vegetation
- Balance earth movement to minimize haul off/haul on transportation costs/fuel
- Use local building materials
- Utilize energy efficient lighting
- Use storm water control measures to filter run-off
- Plant wildflowers and native grasses
- All areas of the park are located in a special flood hazard area
- Use pervious paver systems where possible

Lake Park | Master Plan

Carolina Beach, North Carolina



Town of Carolina Beach | 01.16.2020





Lake Park

Order of Magnitude Budget Estimate

Based on Master Plan

January 20, 2020

Item	Cost
Demolition	\$86,012.00
Lake Improvements	\$305,300.00
Boardwalks	\$164,320.00
Sidewalk	\$83,324.00
Play Areas	\$350,000.00
Utilities	\$58,000.00
Parking Improvements	\$47,000.00
Site Furnishings	\$173,900.00
Park Buildings	\$867,500.00
Farmers Market	\$545,325.00
Splash Pad	\$778,200.00
Fencing	\$149,000.00
Landscaping and Shoreline Restoration	\$330,000.00
General Contingency and Escalation-10+/-%	\$385,000.00
Probable Sub-Contractor Budget	\$4,236,869.00
Contractor Overhead, Profit, and General Conditions (10%)	\$423,686.90
Probable Total Construction Budget (With Contingency)	\$4,660,555.90

Budget Estimate includes replacement of piers, docks, and boardwalk once functionally obsolete.

Estimate assumes vegetation used for shoreline stabilization.

Lake Park

Demolition

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	Remove existing restroom	ls	1	\$12,000.00	\$12,000.00
2	Remove existing concrete	sf	6,845	\$6.00	\$41,070.00
3	Remove existing picnic shelter and concrete pad	sf	768	\$6.50	\$4,992.00
4	Remove concrete pad and stage structure	sf	2,700	\$6.50	\$17,550.00
5	Remove and salvage existing flag pole	ls	1	\$2,000.00	\$2,000.00
6	Remove boardwalk to Veterans Island	sf	400	\$10.00	\$4,000.00
7	Remove existing asphalt and stone (existing parking)	cy	120	\$20.00	\$2,400.00
8	Remove wood guardrail	lf	200	\$10.00	\$2,000.00
				Probable Demolition Budget	\$86,012.00

Lake Improvements

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	New fixed pier with covered picnic area	ea	3	\$75,000.00	\$225,000.00
2	Existing pier demolition	sf	750	\$10.00	\$7,500.00
3	New floating pier (paddleboat)	sf	660	\$70.00	\$46,200.00
4	Existing paddleboat dock demolition	sf	660	\$10.00	\$6,600.00
5	New Aeration fountains	ea	1	\$20,000.00	\$20,000.00
6	Shoreline restoration (vegetation)	lf		\$300.00	\$0.00
				Floating Docks and Pier Budget	\$305,300.00

Boardwalks

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	New boardwalk, 10' wide	sf	1,520	\$100.00	\$152,000.00
2	Existing boardwalk demolition	sf	1,232	\$10.00	\$12,320.00
				Boardwalk Budget	\$164,320.00

Sidewalk

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	New concrete sidewalk	sy	1,452	\$45.00	\$65,340.00
2	Sand under sidewalk, 4" depth	ton	408	\$35.00	\$14,280.00
3	Fine grading	sy	1,852	\$2.00	\$3,704.00
				Probable Sidewalk Budget	\$83,324.00

Play Areas

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	Play equipment allowance (including installation)	ls	1	\$200,000.00	\$200,000.00
2	Swings-8 swings	ls	1	\$8,330.00	\$8,330.00
3	Swing installation	ls	1	\$1,990.00	\$1,990.00
4	Play surfacing-rubber	sf	6,000	\$14.00	\$84,000.00
5	Shade structures (allowance)	ls	1	\$0.00	\$0.00
6	Landscaping (trees and shrubs)	ls	1	\$6,000.00	\$6,000.00
7	Playground edging/curb	lf	600	\$20.00	\$12,000.00
8	Playground under drain	lf	800	\$12.00	\$9,600.00
9	Playground surfacing subbase (stone)	ton	102	\$40.00	\$4,080.00
10	Concrete sidewalk	sy	400	\$45.00	\$18,000.00
11	Sitework/grading	ls	1	\$6,000.00	\$6,000.00
				Probable Play Area Budget	\$350,000.00

Lake Park

Utilities

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	2" PVC domestic water line	lf	300	\$30.00	\$9,000.00
2	1" domestic water	lf	400	\$30.00	\$12,000.00
3	1.5" domestic meter box	ea	2	\$2,000.00	\$4,000.00
4	Tapping fee allowance, domestic water	ls	1	\$5,000.00	\$5,000.00
5	Backflow device, 2" for restroom water	ea	1	\$5,000.00	\$5,000.00
6	Backflow device, 1" for decorative water	ea	1	\$3,500.00	\$3,500.00
7	UG Electrical to park buildings	ls	1	\$10,000.00	\$10,000.00
8	4" sanitary sewer, gravity line	lf	100	\$25.00	\$2,500.00
9	Misc. water fittings, supports, bends	ls	1	\$3,500.00	\$3,500.00
10	Drinking fountain	ea	1	\$3,500.00	\$3,500.00
			Probable Utilities Budget		\$58,000.00

Parking Improvements

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	New parking area-6 spaces, paving	ls	1	\$11,000.00	\$11,000.00
2	Expand existing parking area	ls	1	\$20,000.00	\$20,000.00
3	Sitework/grading	ls	1	\$12,000.00	\$12,000.00
4	Erosion control	ls	1	\$4,000.00	\$4,000.00
			Probable Parking Budget		\$47,000.00

Site Furnishings

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	New covered swings	ea	5	\$17,500.00	\$87,500.00
2	New covers over existing benches	ea	4	\$15,000.00	\$60,000.00
3	New benches	ea	7	\$1,200.00	\$8,400.00
4	New trash cans	ea	6	\$1,000.00	\$6,000.00
5	New picnic tables	ea	8	\$1,200.00	\$9,600.00
6	New bike rack	ea	2	\$1,200.00	\$2,400.00
			Probable Site Furnishing Budget		\$173,900.00

Lake Park

Park Buildings

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	Restroom	sf	1200	\$200.00	\$240,000.00
2	Covered stage/bandshell	sf	1500	\$135.00	\$202,500.00
3	Covered stage/platform and steps	sf	1500	\$20.00	\$30,000.00
4	Bulkhead associated with bandshell area (+/-50%)	lf	400	\$500.00	\$200,000.00
5	Bulkhead railing associated with bandshell area (+/-50%)	lf	400	\$100.00	\$40,000.00
6	Sitework and fill behind bandshell bulkhead, assumed 6' deep	ls	1	\$65,000.00	\$65,000.00
7	Picnic shelters	ea	2	\$30,000.00	\$60,000.00
8	Paddleboat ticket booth	sf	150	\$200.00	\$30,000.00
				Park Building Budget	\$867,500.00

Farmers Market

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	Covered Shelters, 1600 sf ea.	sf	3200	\$60.00	\$192,000.00
2	Concrete plaza	sy	1002	\$45.00	\$45,090.00
3	Sand, 4" Depth-under sidewalk	ton	221	\$35.00	\$7,735.00
4	Bulkhead associated with farmers market (+/-50%)	lf	400	\$500.00	\$200,000.00
5	Bulkhead railing associated with farmers market area (+/-50%)	lf	400	\$100.00	\$40,000.00
6	Sitework and fill behind farmers market bulkhead, assumed 6' deep	ls	1	\$25,000.00	\$25,000.00
7	Existing Pier demolition (in farmers market plaza footprint)	sf	550	\$10.00	\$5,500.00
8	Decorative Fountain	ls	1	\$30,000.00	\$30,000.00
				Farmers Market Budget	\$545,325.00

Splashpad (4,350 SF)

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	Splash features, pumping and chemical equipment (allowance)	ls	1	\$500,000.00	\$500,000.00
2	Concrete play surface (wet and dry)	sf	2	\$1,100.00	\$2,200.00
3	Color play surface-rubber	sf	4350	\$14.00	\$60,900.00
4	Pumphouse	sf	256	\$100.00	\$25,600.00
5	Shade Structure allowance	ls	1	\$100,000.00	\$100,000.00
6	Seat wall	sf	450	\$30.00	\$13,500.00
7	Seat wall footing	lf	150	\$40.00	\$6,000.00
8	Fencing around splashpad	lf	300	\$200.00	\$60,000.00
9	Sitework/grading	ls	1	\$10,000.00	\$10,000.00
				Splashpad Budget	\$778,200.00

Decorative Fencing

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	Decorative fencing	lf	750	\$80.00	\$60,000.00
2	Decorative columns (gateway structures)	ea	14	\$4,500.00	\$63,000.00
3	Gateway signs	ea	7	\$2,000.00	\$14,000.00
4	Kiosk	ea	1	\$12,000.00	\$12,000.00
				Decorative Fencing Budget	\$149,000.00

Landscaping and Shoreline Restoration

Item No.	Item	Unit	Estimated Quantity	Unit Price	Sub-Total
1	Shoreline restoration enhancements	lf	600	\$300.00	\$180,000.00
2	Seeding, trees, shrubs, groundcovers, and native grasses	ls	1	\$100,000.00	\$100,000.00
3	Irrigation allowance	ls	1	\$50,000.00	\$50,000.00
				Landscaping Budget	\$330,000.00

Alfred Benesch & Company

704.521.9880

