



McLean-Spell Park Masterplan Report

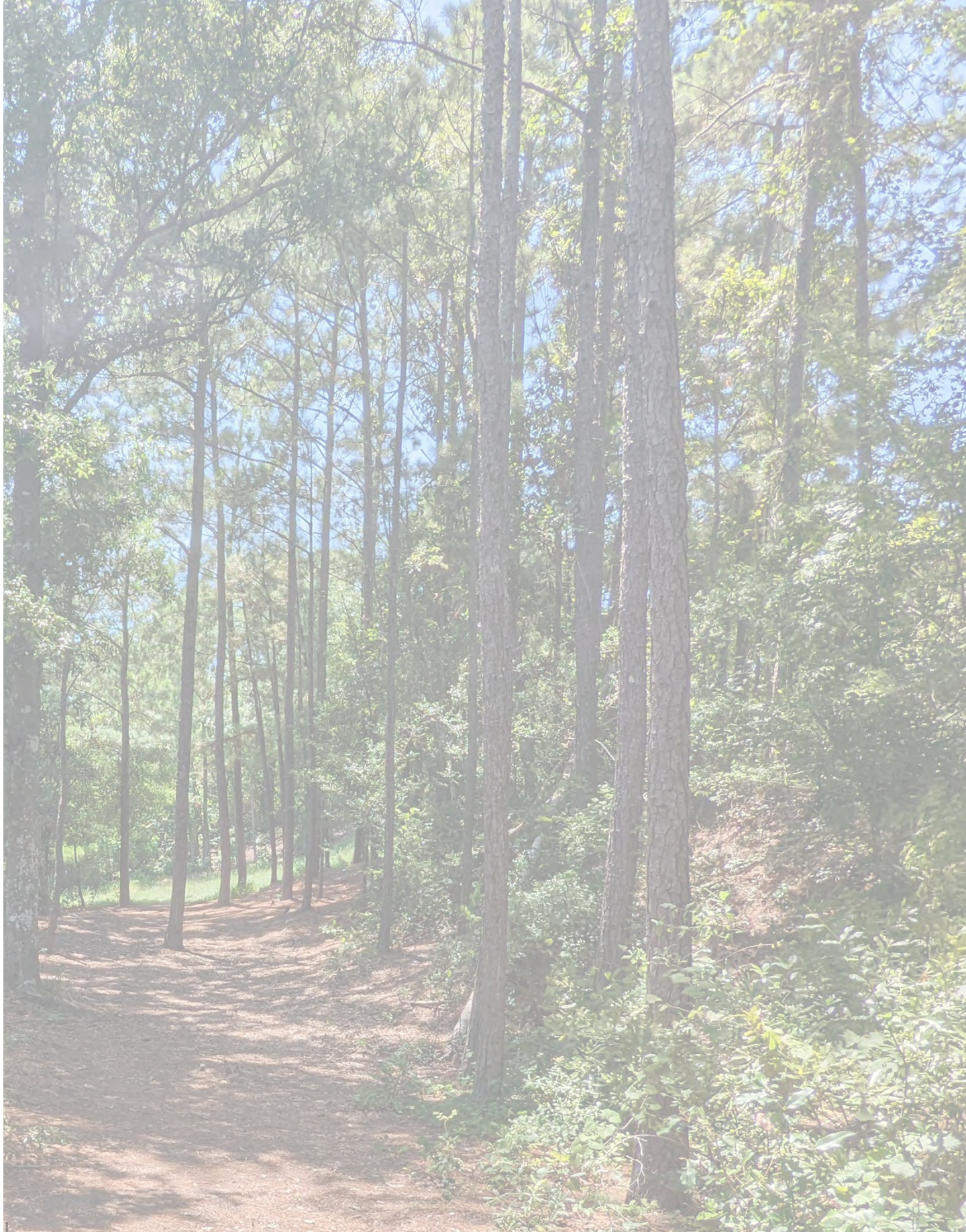


PREPARED BY:



SUMMIT
DESIGN AND ENGINEERING SERVICES

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Background

History of the Park

Existing Conditions

McLean-Spell Park is a 30-acre parcel named after the two founding families.¹ The park resides on the north side of HWY 58 and is mostly surrounded by single family homes. Blue Heron Park, the police station, fire department, and community center border the southern edge of the park along with Archers Creek and surrounding wetlands. Walking trails exist throughout the park as well as minimal signage and dog waste stations. Most of the park is forested and appears to be maritime forest, although the upper canopy is dominated by pine species with very few live oaks and southern magnolias which are present in other southeastern maritime forest communities.² Bogue Banks Water Corp. leases a site just over an acre on the park's northwest corner. Saltwater intrusion had affected the Castle Hayne Aquifer and the new well site is essential for freshwater supply to the community.³

Purchase of the Land

When the town purchased the parcel for \$3 million in 2017, it was zoned for multifamily residential development. Funding for the purchase came from multiple different sources including \$1.5 million from the US Department of Defense Readiness and Environmental Protection Integration Program, \$500,000 from the NC Parks and Recreation Trust Fund, and \$545,000 from the NC Land and Water Trust Fund (formerly known as the Clean Water Management Trust Fund).¹

Easements

As a result of the funding used to acquire this property, a restrictive easement was placed over the entire property. The easement will be held in perpetuity and was recorded under Carteret County Register of Deeds Book 1608, Page 67. Prior to any new use or construction, Marine Corps Air Station (MCAS) Cherry Point must be notified via certified mail no less than ninety (90) days in advance. Within ninety (90) days of receipt of the request, MCAS Cherry Point will grant or withhold its approval in writing.

The purpose of the easement is to limit development or use of the property to avoid development or uses that would be incompatible with the mission of MCAS Cherry Point and its outlying facilities. The purpose of the easement is to also preserve habitat on the property in a manner that is compatible with environmental requirements that may eliminate or relieve current or anticipated environmental restrictions that would or might interfere with current or anticipated military training, testing or operations at MCAS Cherry Point and its outlying facilities. Specific use restrictions can be found under section two of the aforementioned recorded easement.

Masterplan for Park Improvements

Summit Design & Engineering was contracted in the Spring of 2022 to develop a masterplan for the park for the interior ten acres with costs not to exceed \$60,000. Prior to masterplan development, Summit Design & Engineering worked with the town to facilitate public engagement and examine local amenities to generate a needs assessment. Ultimately, that information was collected and analyzed to inform the design elements recommended for the park.



1. https://www.carolinacoastonline.com/news_times/article_67f7460e-bb34-11ec-a442-ab07870df2af.htm

2. <https://nseagrants.ncsu.edu/coastwatch/previous-issues/2015-2/summer-2015/amazing-coast-hear-the-call-of-a-maritime-forest/>

3. https://www.carolinacoastonline.com/news_times/article_74330c3a-e4e0-11eb-96e1-83bb6e955bc3.html

Public Engagement and Needs Assessment

In order to provide the best option for the Emerald Isle community, the town conducted a public engagement process to ask residents what they wanted in a park, and collected socioeconomic information to ensure the community was accurately represented in the public engagement process.

Community Survey

Respondent Breakdown

The survey for McLean-Spell Park public engagement was open for five weeks (June 13 - July 16) and received 1,238 total responses. The majority of survey respondents answered online, but 28 respondents used the option to submit a paper survey to Town Hall. The paper surveys were tallied with the online surveys

A card was placed at parks and around town with a QR code inviting people to participate in the survey.

The majority of respondents (68%) self-identified as Emerald Isle residents, while 78% of respondents stated that they own property in the town. Of respondents who live in Emerald Isle, 76% live in the town year-round, while 11% and 13% of respondents live in Emerald Isle 6-12 months per year and 2-6 months per year, respectively. Outside of Emerald Isle, Cape Carteret was the most represented Carteret County locality, followed by Swansboro and Cedar Point. Unsurprisingly, 97% of respondents who do not live in Emerald Isle visit the town for vacation or for leisure. Respondents skewed older with 52% at least 55 years old. The most represented age group was 55-64 years, with 28% of respondents.

Park Facility Use and Desire

In a short answer question asking respondents what parks they use in the area, 26% of respondents mentioned Emerald Isle Woods Park (included responses such as Emerald Isle Woods, Emerald Woods, etc.). Walking/hiking/biking trails were mentioned by roughly 13% of respondents. Other popular responses included playgrounds, boat ramps, and the rec center. Over half of respondents (53%) stated that they only

use Emerald Isle parks “a few times a month” or “infrequently.” Among respondents living at home with them, 21% reported that they use playgrounds in the area, while 14% stated that they visited Emerald Isle Woods Park.

When asked which amenities they wished they had access to in Emerald Isle parks, dog parks and picnic areas were each selected by 29% of respondents. Of respondents, 24% stated that they would like to have access to pickleball courts, while 19% stated that they would like access to exercise stations. In terms of facilities that would be inappropriate for Emerald Isle parks, skate parks were selected by 32% of respondents. Dog parks, bocce courts, basketball courts, pickleball courts, and a frisbee golf course were each deemed inappropriate by 15% - 20% of respondents.

Other Comments

When asked for general comments about the future development of McLean-Spell Park, a significant number of respondents stated that they would like to “keep the area natural,” “preserve as many trees as possible,” “keep it green,” etc. Some respondents stated that Emerald Isle is in need of a public swimming pool or a dog park. Others stated that exercise stations or well-maintained trails would be appropriate on the site.

Public Meetings

The town hosted two virtual public meetings on Wednesday, July 6th, from 12:00 - 1:00 pm and 6:00 - 7:00pm, both of which were well-attended by approximately 12-15 people each.

On Wednesday, July 13th, the town held an in-person public meeting at Town Hall, at 6:00pm. The meeting was extremely well-attended, with approximately 40 people in attendance.

Over half of the attendees (28 people) spoke, with unanimous opposition to the removal of trees or significant change to the existing forested park. There was support for improvement of trails and adding unobtrusive amenities such as benches or educational signage. Emerald Isle has a higher median age of residents than

Demographic Summary

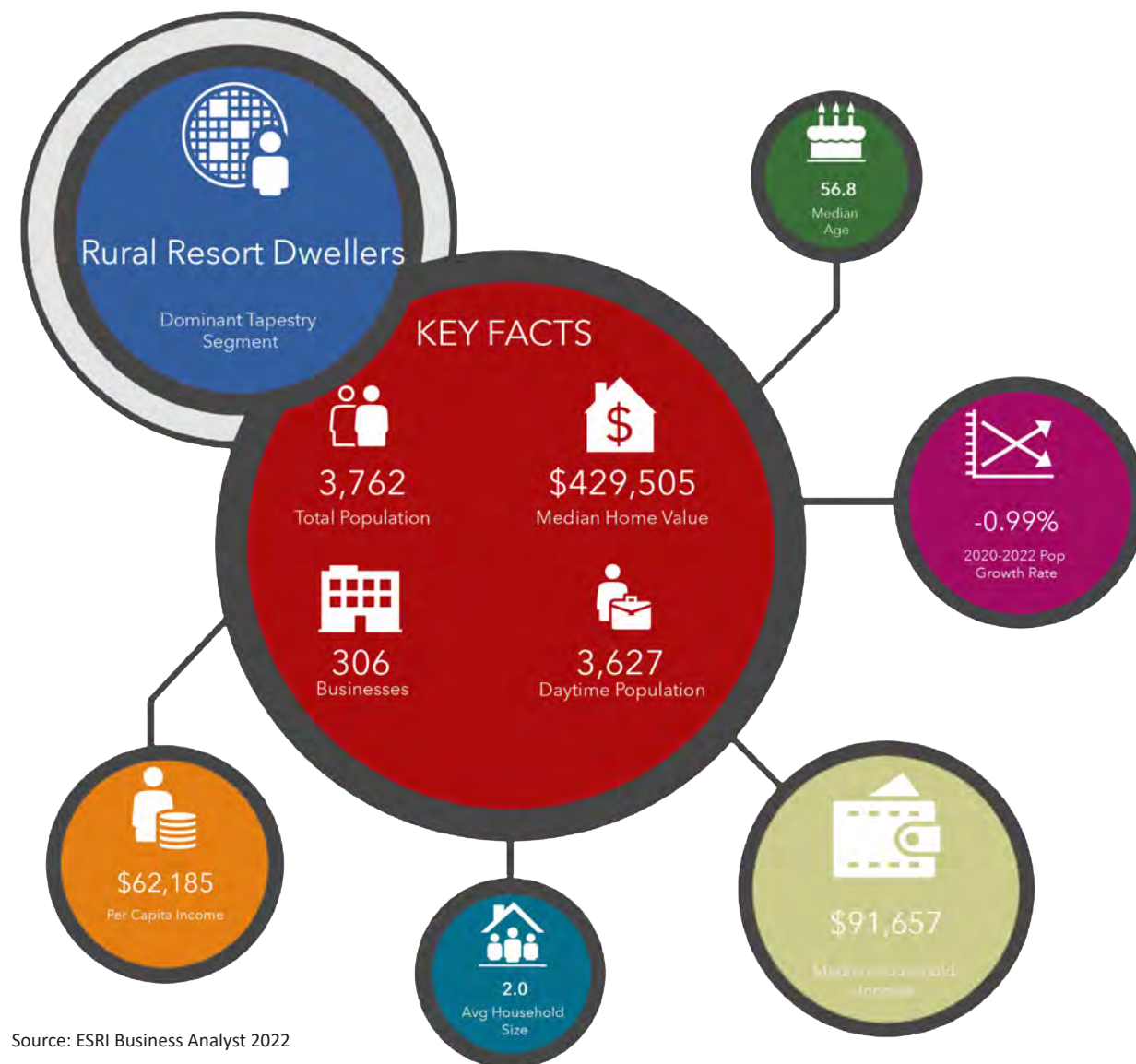
the rest of Carteret County, as well as higher levels of income and net worth. The median household income is \$91,657, and the average household has just two people in it, pointing to many residents being empty nesters.

The majority of residents 51% have a college degree or higher, and 80% of residents are classified as white collar.

The median age is also higher: Carteret County has a median age of just under 45, while Emerald Isle's median age is just under 57.

The median home value is nearly \$430,000.

These demographics all point to a picture of Emerald Isle residents as financially comfortable, well-educated, and at or around retirement age on average.



Source: ESRI Business Analyst 2022



Existing Land Use

The map on the following page shows existing land use for the Town, including points of reference

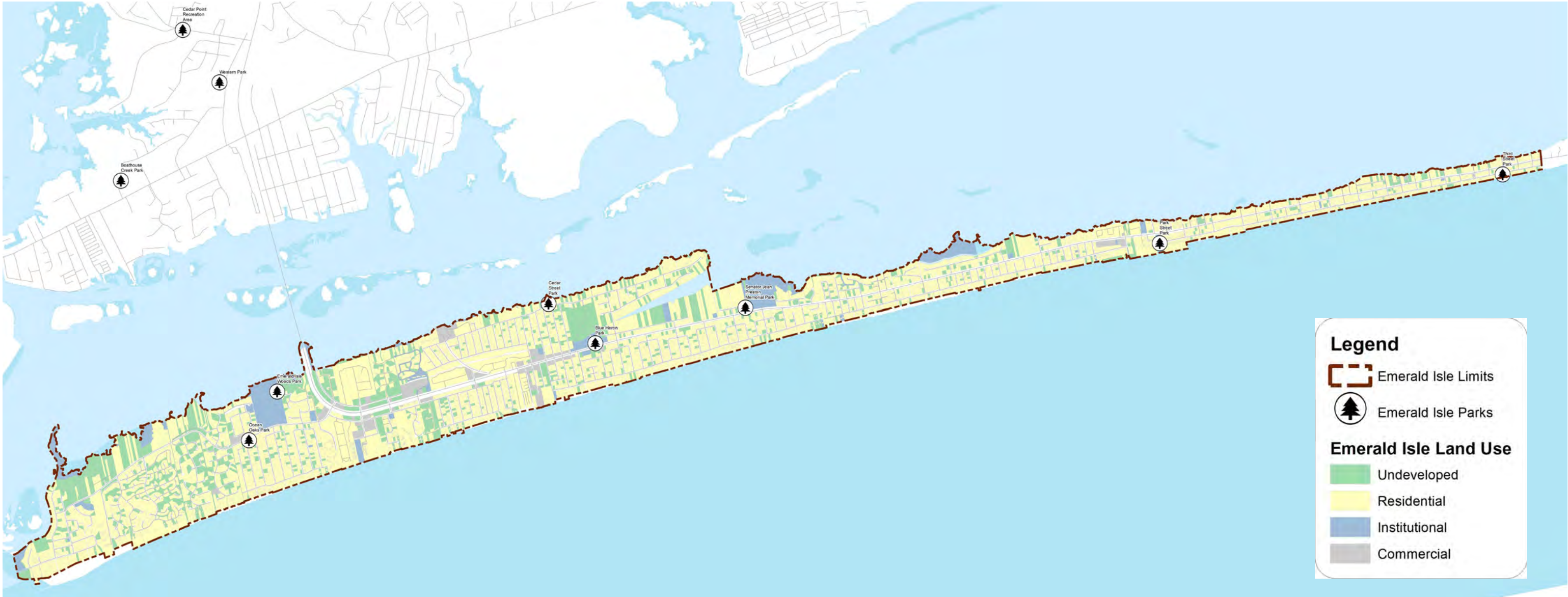
Parks Inventory

In order to take into account all other amenities that Emerald Isle residents had in parks both in and around the town, the project team visited all parks within an easy driving distance from Emerald Isle. The parks are described in Appendix A.

Conclusion

Emerald Isle residents have plenty of choices when it comes to parks, both in town and within a short drive. While there is some desire/need for new facilities like pickeball courts or dog parks, there is strong support for keeping the mature trees, walking trails, and shady forest of McLean-Spell Park intact.

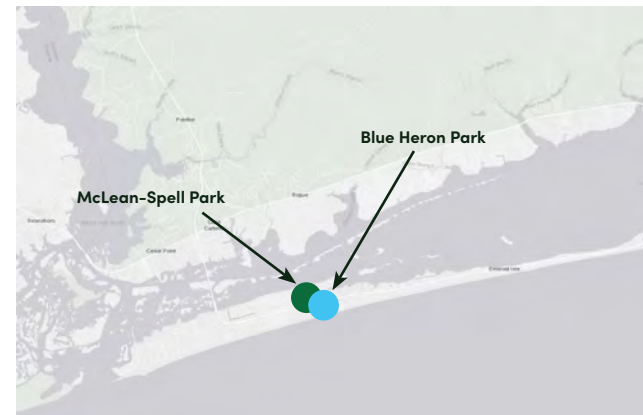
Based on community input and needs assessment, Emerald Isle residents would welcome the following amenities somewhere in a Town park: exercise stations, playground, dog park, bocce court, basketball court, pickleball court.



Appendix A: Existing Parks Inventory

Blue Heron Park

This park is adjacent to the McLean-Spell Park site and is co-located with the Bogue Banks Water Corporation office and tower, Emerald Isle Public Works yard and office, Emerald Isle Police Department, and the Emerald Isle Community Center. The actual area of park amenities is small. There is a forested area, a picnic pavilion with tables, two tennis courts with added pickleball lines, a concrete basketball court, and a public bathroom facility. There are also trash cans and wooden bicycle parking racks. Across from the Emerald Isle Community Center there is a new wooden pedestrian bridge leading to the trails through the McLean-Spell Park site. There is a parking lot for the community center as well as limited spaces on the tennis court/playground eastern side of the park.



Ocean Oaks Park

This is a small neighborhood park equipped with a playground and swing benches oriented towards the playground. There is a dog pick up bag dispenser and a trash can, as well as a little free library. The limited parking area was cordoned off with a chain at the time of visit and parking is not allowed on the streets nearby.



3rd Street Park

Third Street Park is a small public beach access that includes a handicap access ramp, trash can, and picnic table as well as a limited public parking lot. There is a standing water problem in the center of the gravel lot. A "Little Free Library" has been set up. There is also a wooden bicycle parking rack.



Eastern Beach Access / Park Street Park

Large public paid parking lot with beach access. The beach access includes benches and picnic tables as well as a memorial stone to the fishing pier that used to exist at this spot. There are structured bathroom facilities with outdoor showers. There are also a couple of bicycle rack parking spaces.



Senator Jean Preston Memorial Park

Recently built playground with picnic seating areas, a grass field, and benches. The playground area is large with many different play areas. There is a parking area with trash cans, a Little Free Library, and an unfinished sidewalk connection to the adjacent neighborhood with a bicycle parking rack.



Cedar Street Park

This park is small, featuring a grass field with benches, a trash can, a wooden bicycle parking rack, and a pier out into the sound that allows fishing.



Emerald Isle Woods Park

Large maritime forested area with hiking trails, a canoe launch, and a disc golf course built into the forest with limited clearing. There are bathrooms and a picnic shelter with grills available for public use. The hiking trails feature scenic views of the sound side of the island.



Theodore Roosevelt Natural Area

The Theodore Roosevelt Natural Area is a large 292-acre maritime forest nature reserve surrounding the North Carolina Aquarium at Pine Knoll Shores, on the eastern side of the island (12.5 miles from McLean-Spell Park). Amenities include two nature trails through the forest with views of the wetlands and sound.



Cedar Point Recreation Area

Large U.S. Forest Service Recreation Area that includes campgrounds, hiking trails, and kayak launches along the coastal wetlands with preserved forest areas.



Boathouse Creek Park

Mostly natural area with hiking trails, kayak launch, fishing pier with a pavilion level with seating areas. Some open fields, generally forested.



Western Park

Large active recreation-based park. Sports facilities and fields for baseball, soccer, basketball, lacrosse, football, and tennis. There is a community center facility as well as bathrooms located throughout the park along the large central parking lot area. There are limited bicycle racks located near different fields. Trash cans located throughout the park as well.

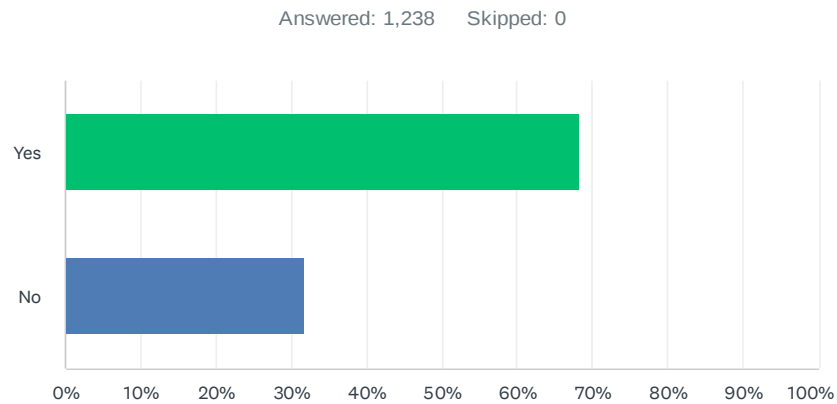


Appendix B: Full Survey Results

The following pages show the full survey results from the McLean-Spell Park community survey. The survey was open for five weeks (June 13 - July 18) and received 1,238 total responses. The majority of survey respondents answered online, but 28 respondents used the option to submit a paper survey to Town Hall. The paper surveys were tallied with the online surveys

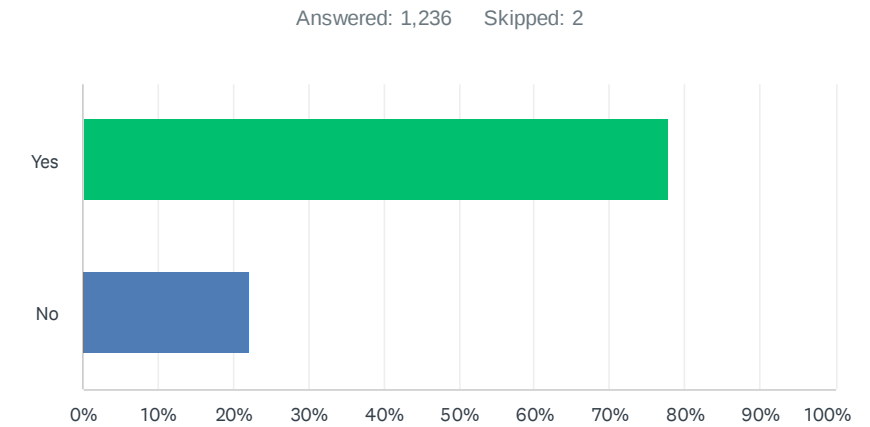
A card was placed at parks and around town with a QR code inviting people to participate in the survey.

Q1 Are you a resident of Emerald Isle?



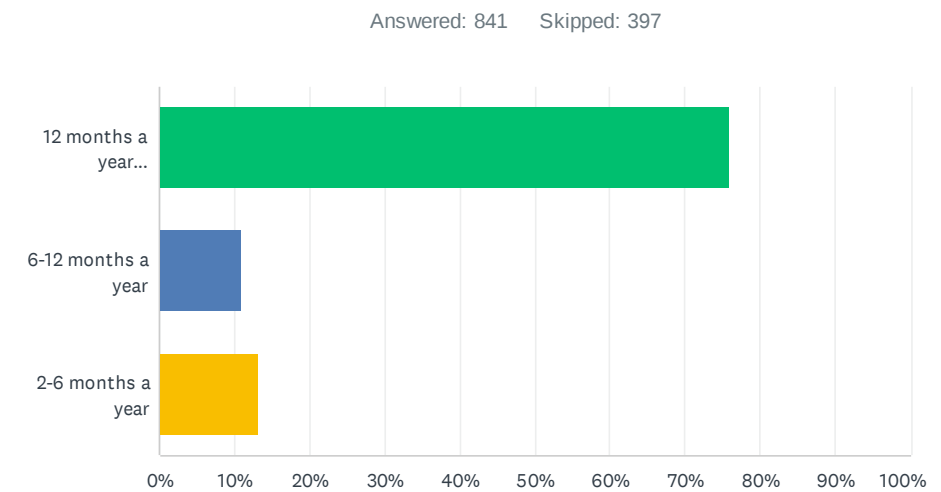
ANSWER CHOICES	RESPONSES
Yes	68.17% 844
No	31.83% 394
TOTAL	1,238

Q2 Are you a property owner in Emerald Isle?



ANSWER CHOICES	RESPONSES
Yes	77.91% 963
No	22.09% 273
TOTAL	1,236

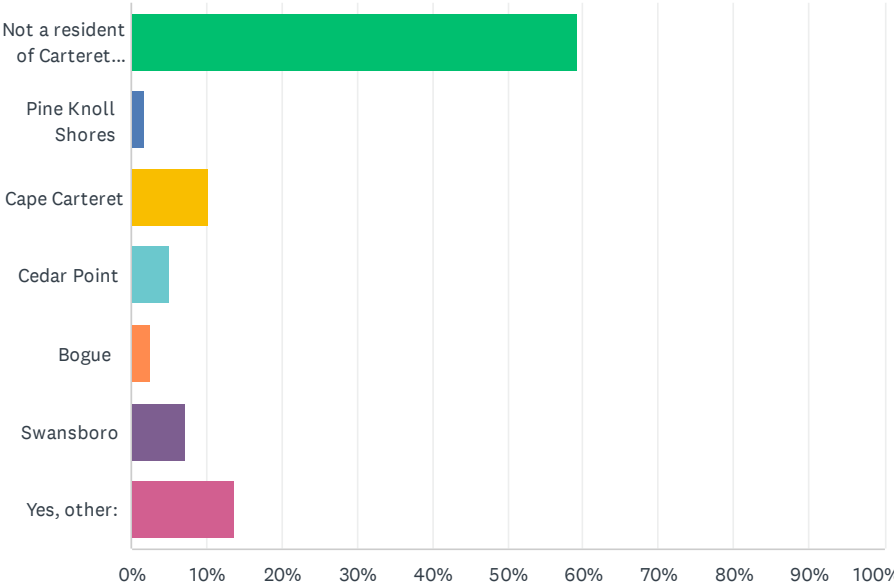
Q3 If you are a resident, how long do you live in Emerald Isle each year?



ANSWER CHOICES	RESPONSES
12 months a year (year-round)	75.86% 638
6-12 months a year	10.94% 92
2-6 months a year	13.20% 111
TOTAL	841

Q4 Are you a resident of a Carteret County locality?

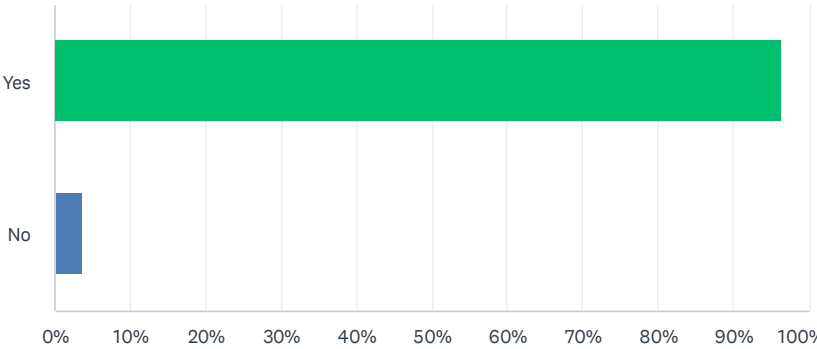
Answered: 388 Skipped: 850



ANSWER CHOICES	RESPONSES	
Not a resident of Carteret County	59.28%	230
Pine Knoll Shores	1.80%	7
Cape Carteret	10.31%	40
Cedar Point	5.15%	20
Bogue	2.58%	10
Swansboro	7.22%	28
Yes, other:	13.66%	53
TOTAL		388

Q5 Do you visit Emerald Isle for vacation or for leisure?

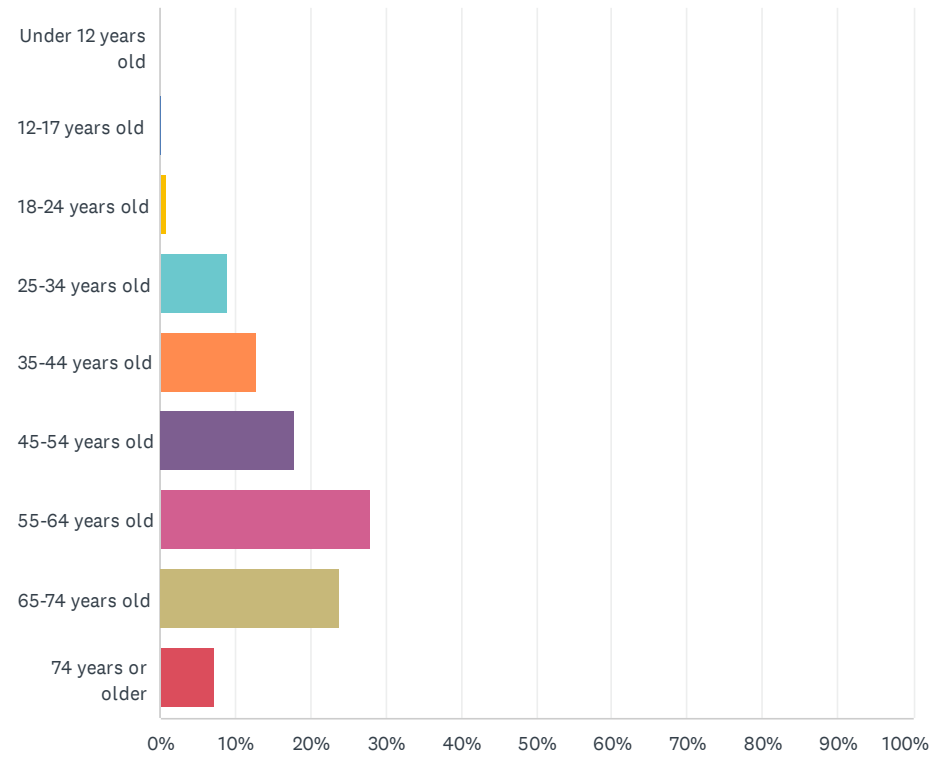
Answered: 388 Skipped: 850



ANSWER CHOICES	RESPONSES	
Yes	96.39%	374
No	3.61%	14
TOTAL		388

Q6 How old are you?

Answered: 1,095 Skipped: 143

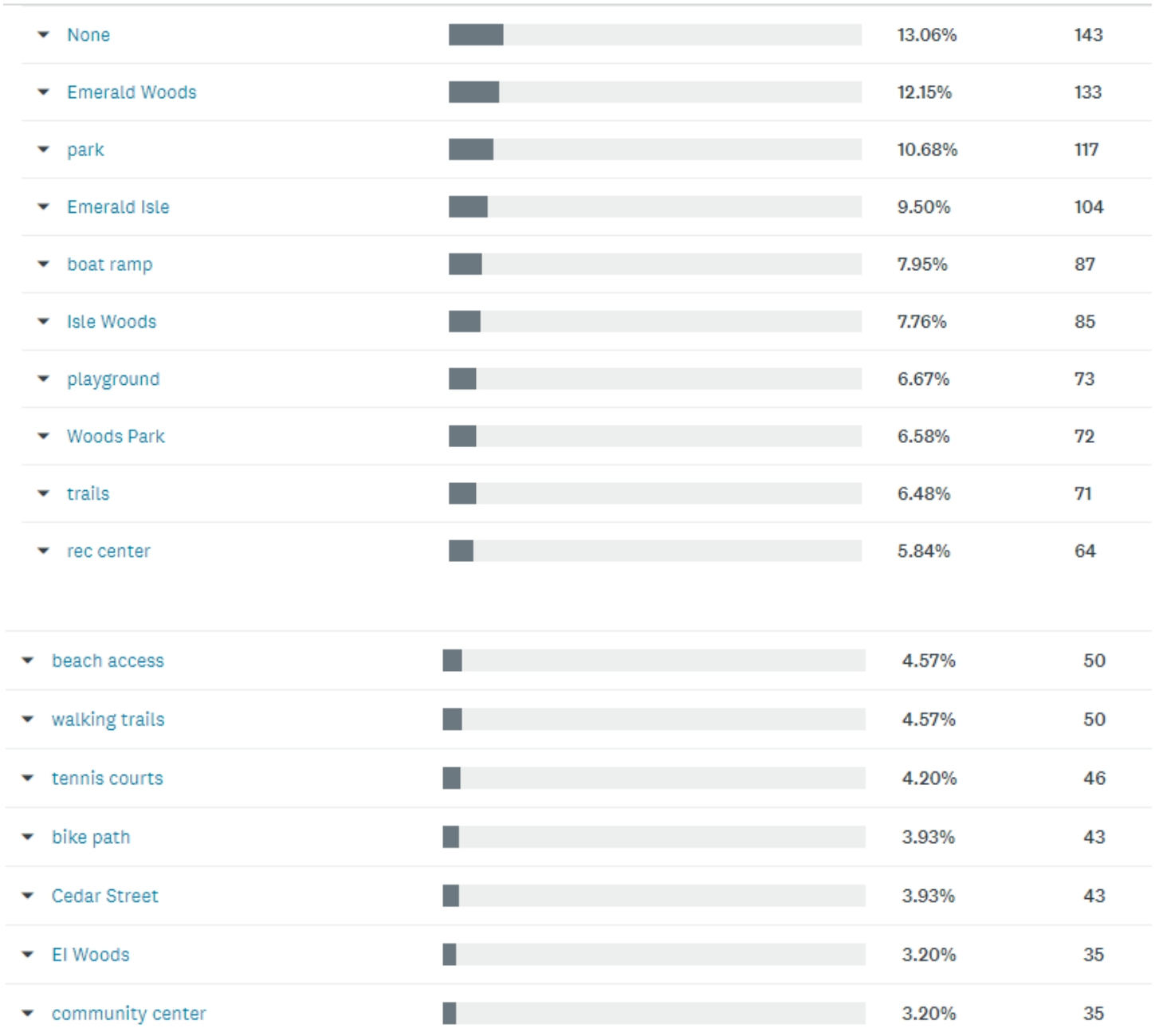


ANSWER CHOICES	RESPONSES	
Under 12 years old	0.09%	1
12-17 years old	0.27%	3
18-24 years old	0.91%	10
25-34 years old	9.04%	99
35-44 years old	12.88%	141
45-54 years old	17.81%	195
55-64 years old	27.85%	305
65-74 years old	23.84%	261
74 years or older	7.31%	80
TOTAL		1,095

Q7

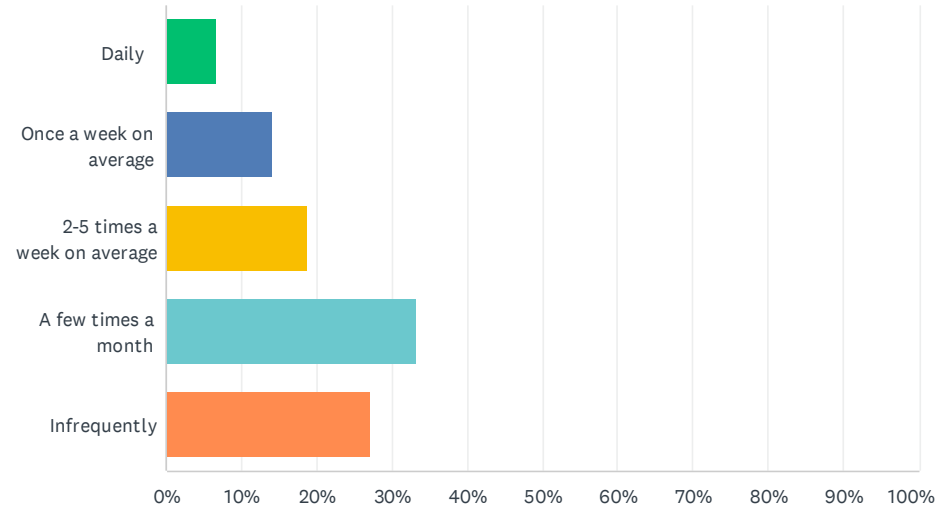
What park facilities do you currently use in the area?

Answered: 1,095 Skipped: 143



Q8 How often do you currently use parks and associated amenities?

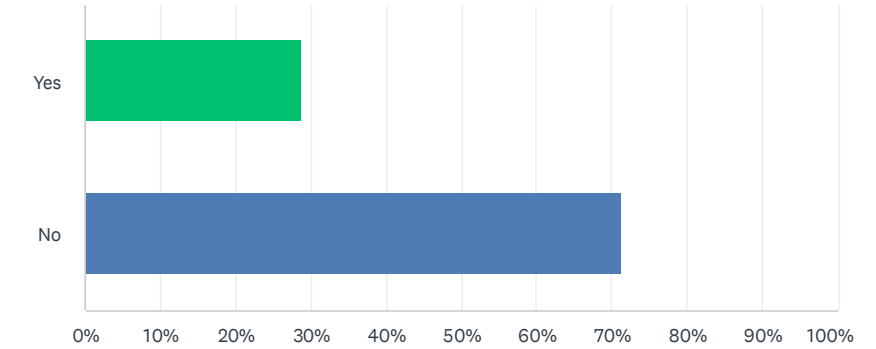
Answered: 1,095 Skipped: 143



ANSWER CHOICES	RESPONSES	
Daily	6.58%	72
Once a week on average	14.16%	155
2-5 times a week on average	18.81%	206
A few times a month	33.33%	365
Infrequently	27.12%	297
TOTAL		1,095

Q9 Do you have children who live at home with you?

Answered: 1,095 Skipped: 143

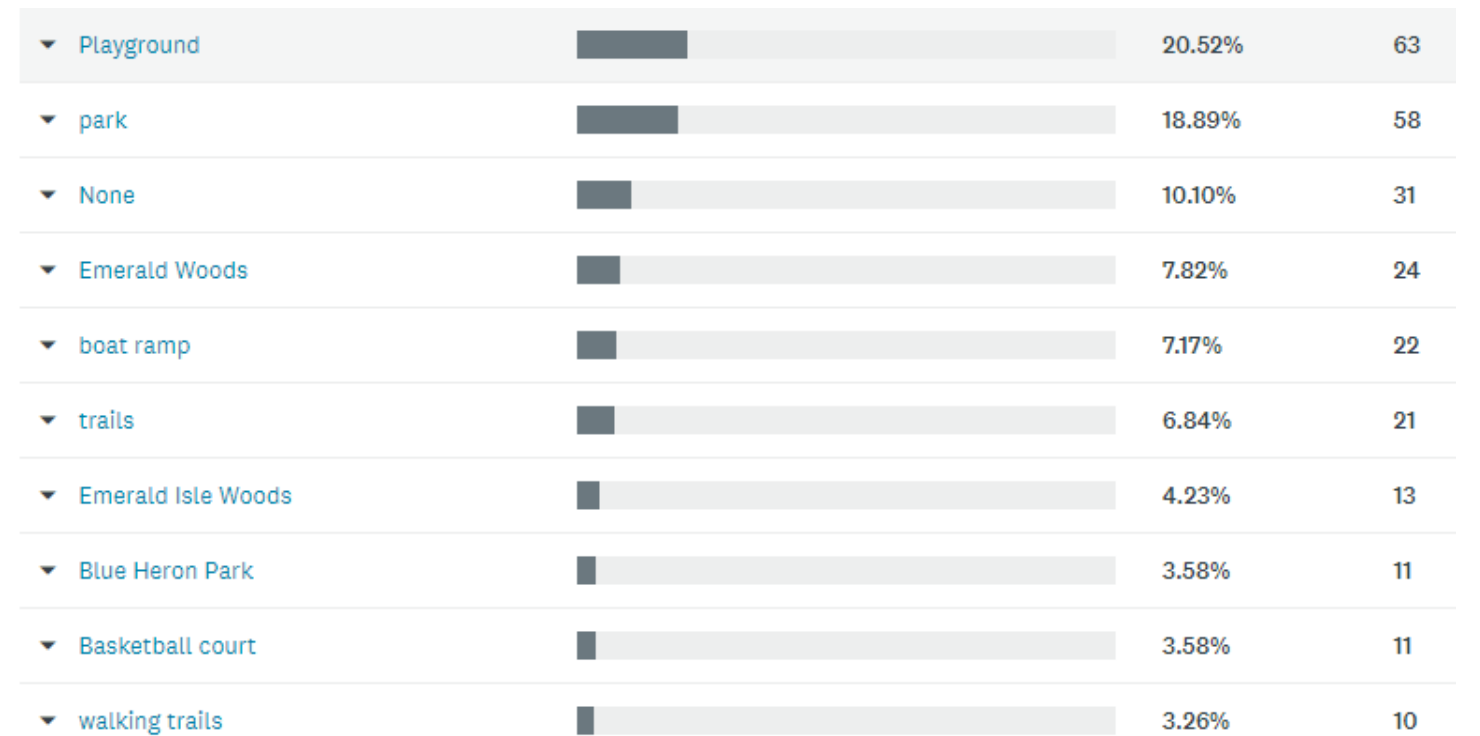


ANSWER CHOICES	RESPONSES	
Yes	28.77%	315

Q10

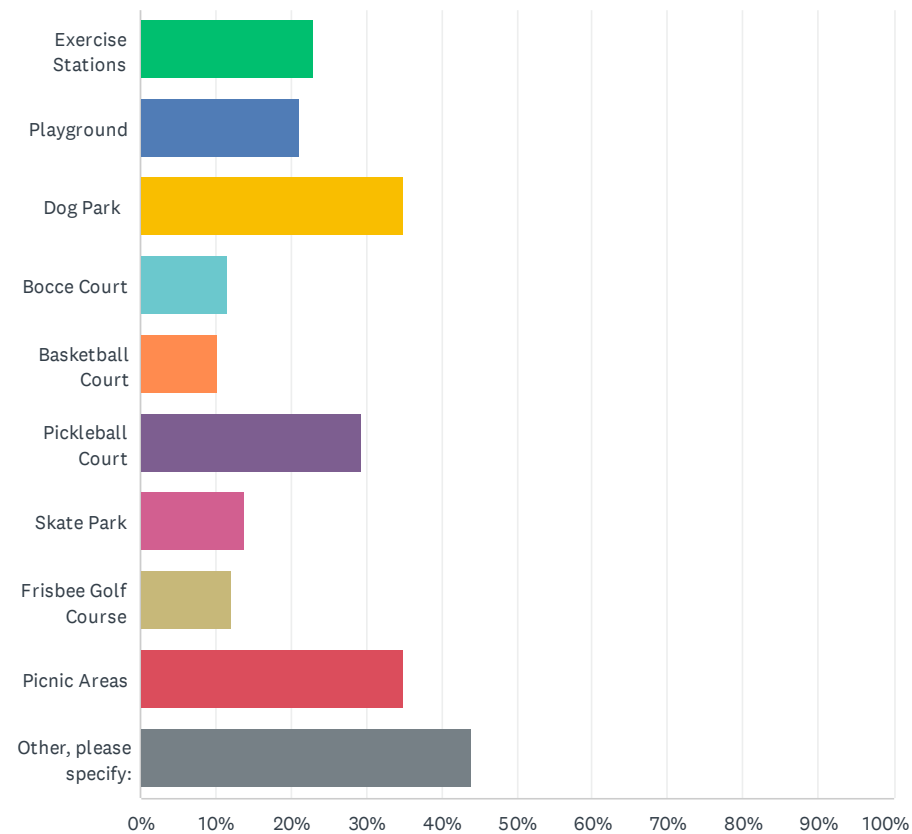
What park facilities do your children use in the area?

Answered: 307 Skipped: 931



Q11 What amenities do you wish you had access to in an Emerald Isle Park?

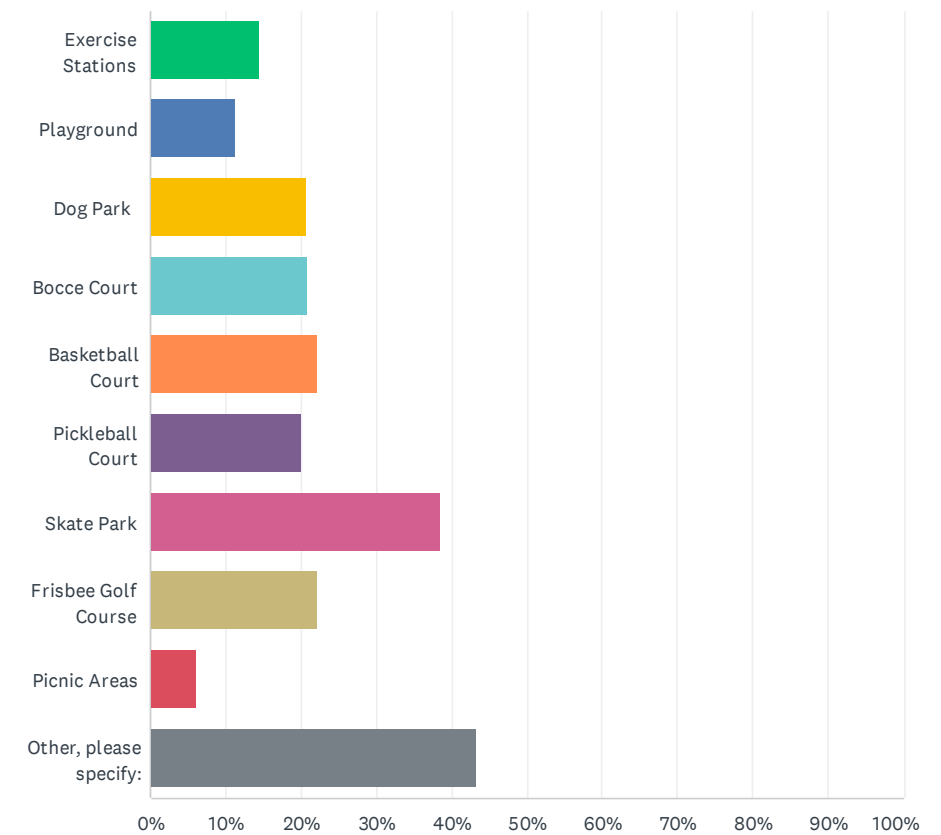
Answered: 1,013 Skipped: 225



ANSWER CHOICES	RESPONSES	
Exercise Stations	23.00%	233
Playground	21.13%	214
Dog Park	34.95%	354
Bocce Court	11.45%	116
Basketball Court	10.17%	103
Pickleball Court	29.32%	297
Skate Park	13.82%	140
Frisbee Golf Course	12.14%	123
Picnic Areas	34.95%	354
Other, please specify:	43.93%	445
Total Respondents: 1,013		

Q12 Are there any types of activities that you don't think are appropriate in an Emerald Isle Park?

Answered: 1,013 Skipped: 225



ANSWER CHOICES	RESPONSES	
Exercise Stations	14.41%	146
Playground	11.35%	115
Dog Park	20.63%	209
Bocce Court	20.83%	211
Basketball Court	22.11%	224
Pickleball Court	19.94%	202
Skate Park	38.50%	390
Frisbee Golf Course	22.21%	225
Picnic Areas	6.22%	63
Other, please specify:	43.24%	438
Total Respondents: 1,013		

McLean-Spell Park Site Analysis

Prior to the design process, site analysis for McLean-Spell Park was conducted to understand the basic hydrological and environmental context of the park. These analyses were developed using a variety of Esri's GIS (Geographic Information System) tools.

Hydrology: Wetlands & Floodplain

The southern portion of McLean-Spell Park is bordered by Archers Creek and surrounding wetlands. The site does present some topographical change and there are flood zones found along Archers Creek.



NC Natural Heritage: Biodiversity & Wildlife Habitat Assessment

The site presents an important wildlife habitat corridor which traverses the island along the east-west axis.



McLean-Spell Park Masterplan

After reviewing feedback from in-person and online public meetings, analyzing the survey results, and meeting with the town commissioners, Summit Design & Engineering put together a masterplan for McLean-Spell Park which takes a minimal impact approach. With the goal of preserving existing vegetation while creating more passive recreation opportunities, the plan is broken down into two phases of implementation. Phase I takes place within the existing park boundary and includes an arborist report, trail updates, exercise stations, a dog park for small and large dogs, a water fountain, and a picnic shelter. Phase II will mostly take place outside of the McLean-Spell Park boundary, utilizing the space at Blue Heron Park next-door, and includes an updated restroom facility, an educational deck, and pickleball courts.

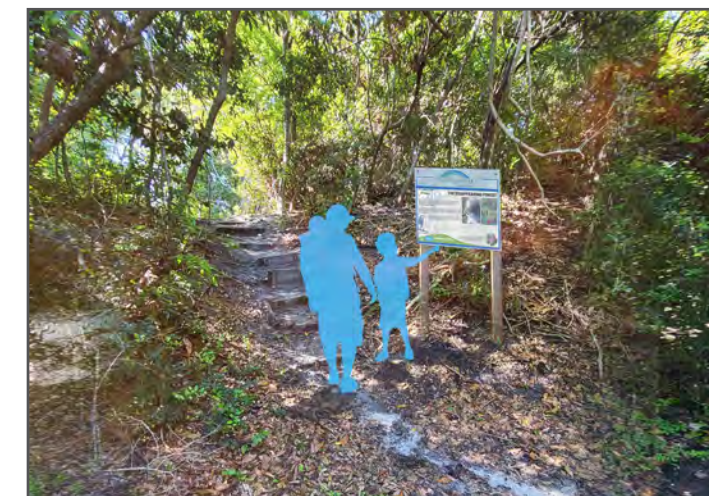
Phase I

Arborist Report

To best inform the trail updates, it's recommended to conduct an arborist report which examines the health of the trees directly adjacent to the trails. Any safety risks associated with low hanging limbs or trees in poor health should be addressed. However, trees located off the trail, even if they are dead or dying (known as "snags"), are recommended to remain as-is since they provide important ecological benefits such as habitat for woodpeckers, bats, insects, fungi, and more.¹

Trail Updates

After the arborist report is performed and tree work has been completed, other updates such as signage, erosion control, and new trail connections should be implemented. Constructed stairs on hills can be used to minimize erosion on the sandy soil, signage can function as wayfinding as well as environmental educational talking points, and boardwalks can help to minimize impact on any frequently flooded parts of the park.



Exercise Stations

Exercise stations placed at various nodes along the trail can create recreational opportunities without significant environmental impact. Prefabricated or easily assembled equipment can simplify the job; opting for wood rather than plastic will blend with the existing "naturalistic" character of the park.



Water Fountain

With the addition of the Bogue Banks well in the Northwest portion of the park, it's feasible to run a waterline to supply the dog park with a drinking station. The drinking station will ensure that even on the warmest of summer days, potable water will be available for park users and their furry companions. Running the water line parallel to existing trails will reduce the need for clearing vegetation.

Dog Park

A ~1 acre dog park with separate runs for large and small breeds can be added to the park without significantly impacting the trees. Fencing in an area without clearing any healthy trees or performing major topography work will give canine park users the perfect place to be off leash. Signage, trash receptacles, and waste bags are recommended.



Picnic Shelter

A picnic shelter within the park can provide more rest opportunities for park users. It's recommended to site the shelter nearby the main entrance, outside of the existing wetlands, and in a relatively cleared and level part of the park to best minimize impact. The shelter is currently sited near a trail node, but ground-truthing to confirm best existing conditions is encouraged.



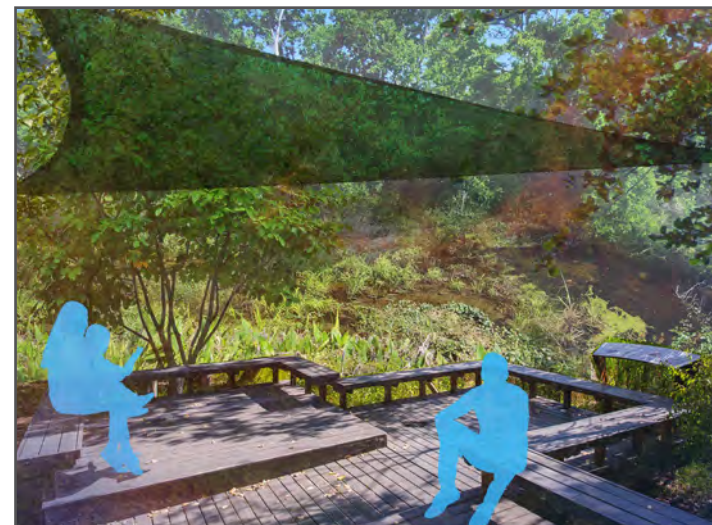
Phase II

Updated Restroom Facility

The existing Blue Heron Park restroom facility will be updated to serve park user needs for both McLean-Spell and Blue Heron Park.

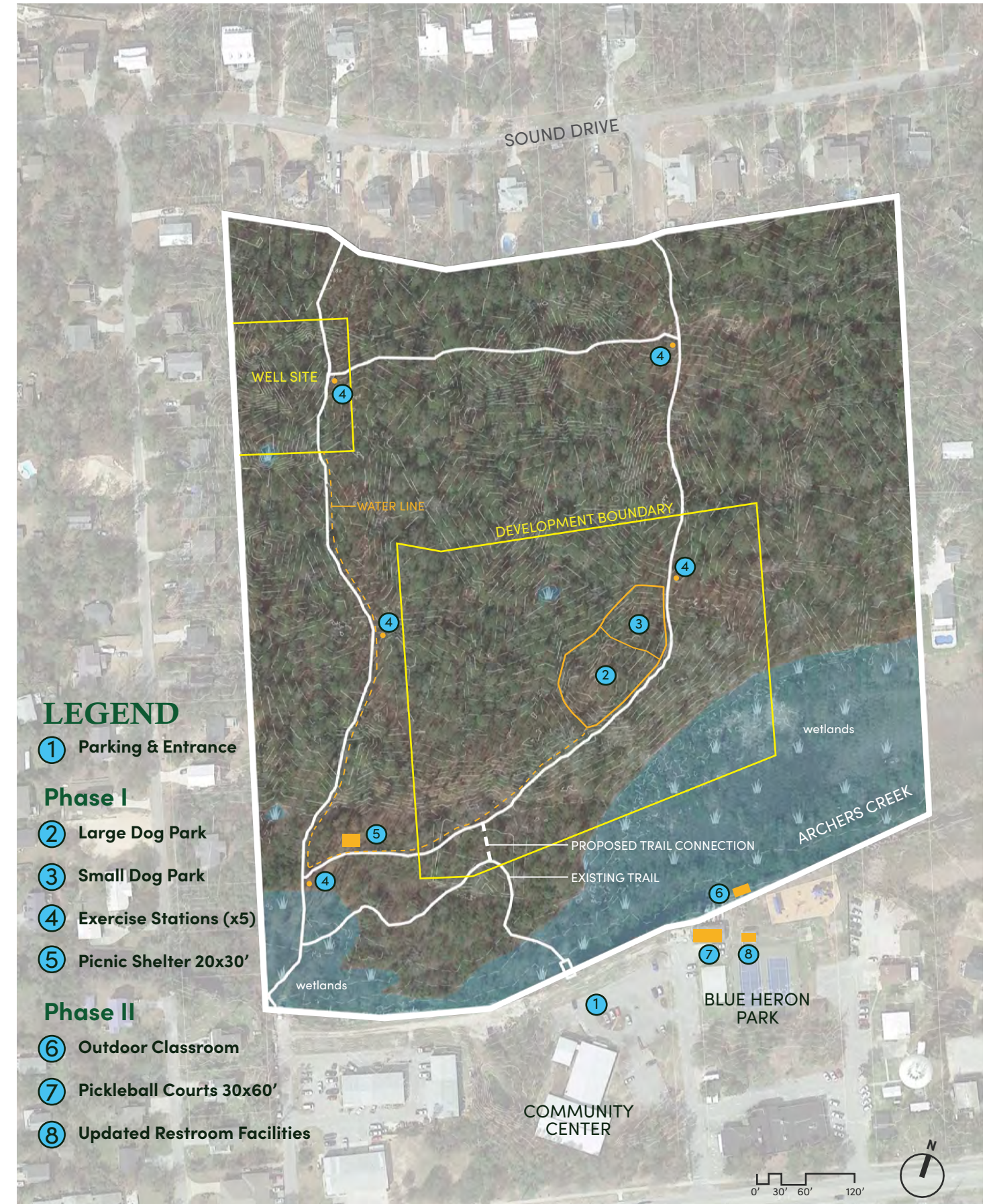
Outdoor Classroom

Archers Creek is a valuable wetland full of biodiversity. By adding an elevated deck with shade sails, this flexible outdoor classroom space can serve after-school groups as well as other site users without significant impact.



Pickleball Court

During Phase II, the town will examine the existing conditions of Blue Heron Park in order to accommodate a pickleball court. For reference, a pickleball with recommended perimeter space is 30'x60'. To best prevent runoff from the pickleball court from entering Archers Creek, a linear rain garden which is ~20% the size of the pickleball court is recommended as a buffer.



Further Recommendations

Salt Water Intrusion

What Is it?

Saltwater intrusion occurs when seawater encroaches into fresh groundwater supplies. This has occurred in many coastal aquifers in the United States and can be caused by excessive groundwater pumping, sea level rise, droughts, or a combination of the three.¹

Saltwater intrusion is the reason for the new well site located within McLean-Spell Park. There are some steps that communities can take to alleviate the pressure on fresh groundwater aquifers and mitigate saltwater intrusion.

Mitigation Efforts

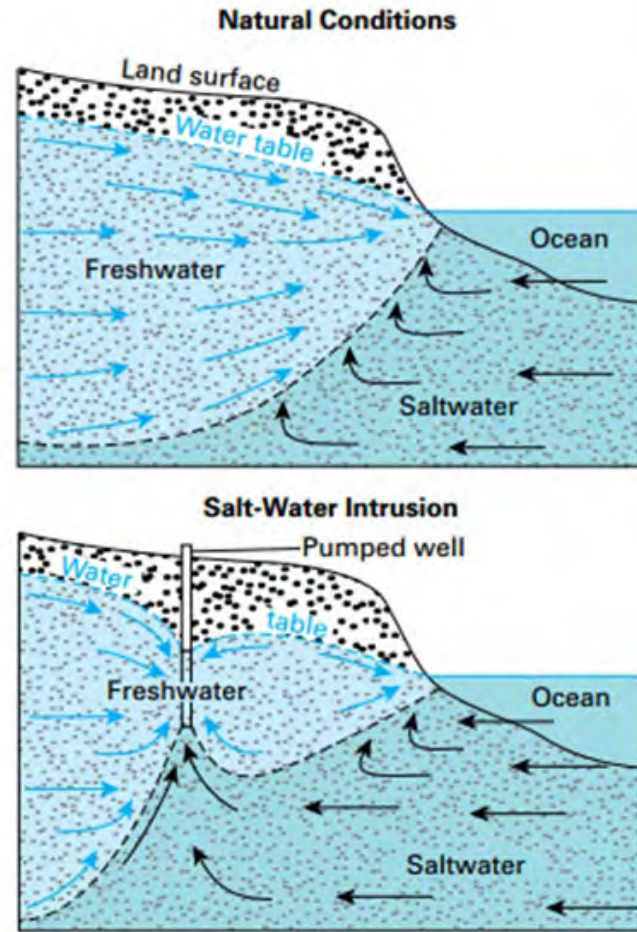
The EPA recommends several strategies to help adapt to saltwater intrusion. Reducing demand on potable water use, especially during periods of heavy tourism, can lessen the demand on pumping fresh water from the aquifer. Potable water used for irrigation can be reduced by planting drought tolerant plants- many native species are great for this purpose! Opting for irrigation from a rain barrel, going turf-free, or planting a clover lawn can all help in terms of irrigation.²

Other strategies to mitigate saltwater intrusion include replenishing the aquifer by encouraging stormwater infiltration. The key to effective stormwater infiltration is reducing impervious surfaces, slowing down the runoff, and giving the runoff a place to slowly infiltrate such as a rain garden or vegetated swale. Permeable pavers and gravel make great alternatives to asphalt and concrete. Another benefit of effective stormwater infiltration is improved water quality. When runoff is able to infiltrate rather than going directly into local water bodies, contaminants and excess nutrients are able to be filtered before entering creeks and wetlands.

Go Permeable for Infiltration

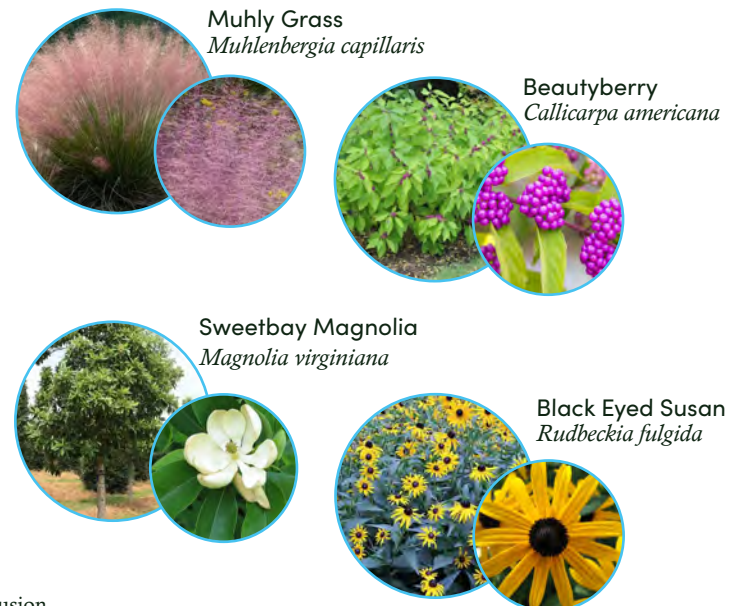


1. <https://www.usgs.gov/mission-areas/water-resources/science/saltwater-intrusion>
 2. <https://www.epa.gov/arc-x/climate-impacts-water-utilities#tab-3>



Source: USGS.gov "The Process of Saltwater Intrusion"

Plant Natives for Less Irrigation



The Maritime Forest

What Is it?

Maritime forests are found along coastal barrier islands and support amazing biodiversity. They act as important migratory bird habitat and wildlife corridors amidst surrounding coastal development. The shrubs and trees on the perimeter are typically the most salt-tolerant whereas the larger trees on the interior are more protected from the salt spray. Woody species that are found here include wax myrtle, yaupon holly, American holly, beach olive, loblolly pine, red cedar, and live oak.¹ Many different animals and insects can be found here including painted buntings, glass lizards, white tailed deer, and many more.²

Maintaining the Health of the Forest

McLean-Spell Park boasts 30 acres of undeveloped land which includes diversity of ground cover. Important for the health of the forest is ensuring that invasive species are controlled and don't outcompete the native

Common North Carolina Invasives



Chinese Privet
Ligustrum sinense



Chinese Sumac / Tree of Heaven
Ailanthus altissima



Pampas Grass
Cortaderia selloana



Mimosa Tree
Albizia julibrissin

1. <https://oceanservice.noaa.gov/facts/maritime-forest.html>
 2. <https://ncseagrant.ncsu.edu/coastwatch/previous-issues/2015-2/summer-2015/amazing-coast-hear-the-call-of-a-maritime-forest/>

ones. Invasives found in North Carolina forests and wetlands include Chinese privet, Chinese sumac or tree of heaven, alligator weed, mimosa tree, and pampas grass. Partnering with local groups and organizing work days to help eradicate these species will aid the health of the forest. It's recommended to get confirmation from a specialist when invasives are spotted.

Another recommendation for the health of the forest includes tree plantings. If possible, leave dead and dying trees as-is since they provide important habitat for birds, insects, and mammals. However, if trees must be removed, consider planting appropriate species in their place. Diversifying the forest within McLean-Spell Park with species found in other southeastern maritime forest communities can be beneficial. Live oak, southern magnolia, and eastern red cedar are all species that would be appropriate for the ecosystem of this park. It may be necessary to protect newly planted trees from grazing wildlife, such as deer. Work with a specialist, such as an ecologist who is familiar with southeastern maritime forest ecology, to identify the best location and species to plant in the park.

