



**Jekyll Island Carrying Capacity &
Infrastructure Assessment - Draft**

**Public Input Presentation
8-28-2018**

SUMMARY

- **Retaining Jekyll Island's unique character and controlling additional development will be JIA's greatest challenge.** Just because you have capacity doesn't mean you should fill it. Most municipalities look at capacity as how much they can add, are reactive, and are in a crisis mode; Jekyll Island has to take the opposite approach.
- Comparing estimated capacity and projected number of visitors, the island is estimated to have additional capacity for 650,000 to 1 million visitors per year. Assuming a constant 2.0% increase of visitors, the island could exceed capacity (visitors and vehicles) in 5 to 10 years
- Island needs to increase revenue to be economically sustainable in a balanced manner that protects island character.
- Level of Service (LOS) analysis indicates transportation network (causeway, bridge, roads, roundabout) meets existing needs and projected vehicular needs for the foreseeable future. No traffic lights are projected.
- Infrastructure can accommodate current and potential projected needs, but **requires upgrades, maintenance and repairs.**
- Environmental change and sea level rise will likely impact character of the island but not impact capacity.
- Operating Procedures and Controls should focus on collecting additional data, improving monitoring, developing additional management strategies, and implementing strategies.

CARRYING CAPACITY

Carrying capacity is defined as the number of individuals who can be supported within a given area without degrading the natural, social, cultural, and economic environment for present and future generations.

- Demographics
- Vehicular Level of Service (LOS)
- Parking
- Number of Visitors
- Overnight Stays
- Facilities – Buildings
- Facilities - Sites
- Infrastructure Assessment
- Suitability Mapping
 - Environmental Capacity
 - Coastal Hazards and Risk Management
- Economic Viability

CARRYING CAPACITY - BASIC PRINCIPLES

- Carrying capacity addresses how to accommodate vehicles and people while preserving the character and resources of Jekyll Island.
- The process is based on desired resource conditions and visitor experiences.
- There isn't one number that indicates an absolute as to acceptable number of visitors.
- The impact per person is conditional on the method of visitation, seasonality of visit, length of stay, etc.
- Carrying capacity is not intended to be used singularly.

SUMMARY – CARRYING CAPACITY

JEKYLL ISLAND TOTAL		
	Range (low to high)	
Existing Practical Capacity (Buildings & Sites)	4,067,451 people	4,472,307 people
Projected Number of Visitors (as determined in 2017)	3,415,551 people	3,415,551 people
Available capacity	651,900 people	1,056,736 people

- *At a 2% increase in visitation, capacity could be exceeded in 5 years (4,081,899 visitors) to 10 years (4,506,746).*

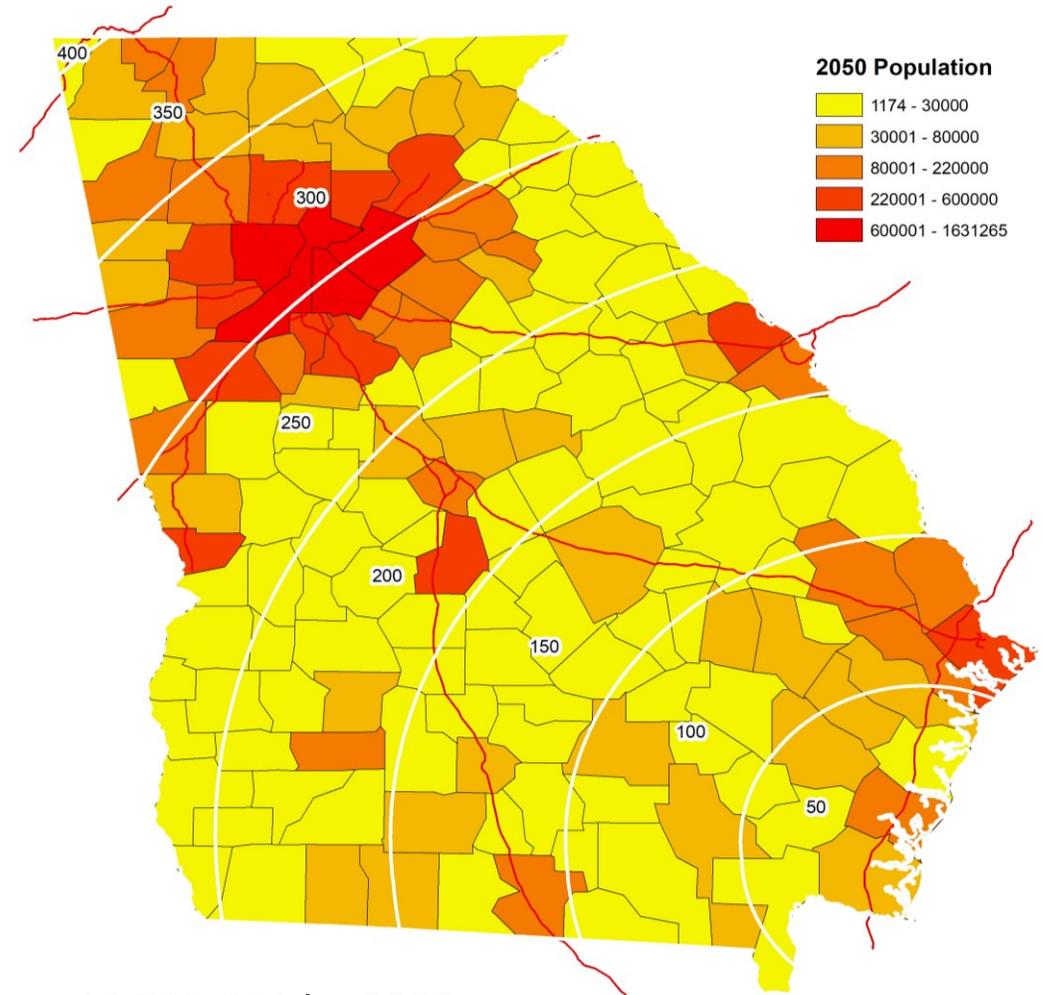
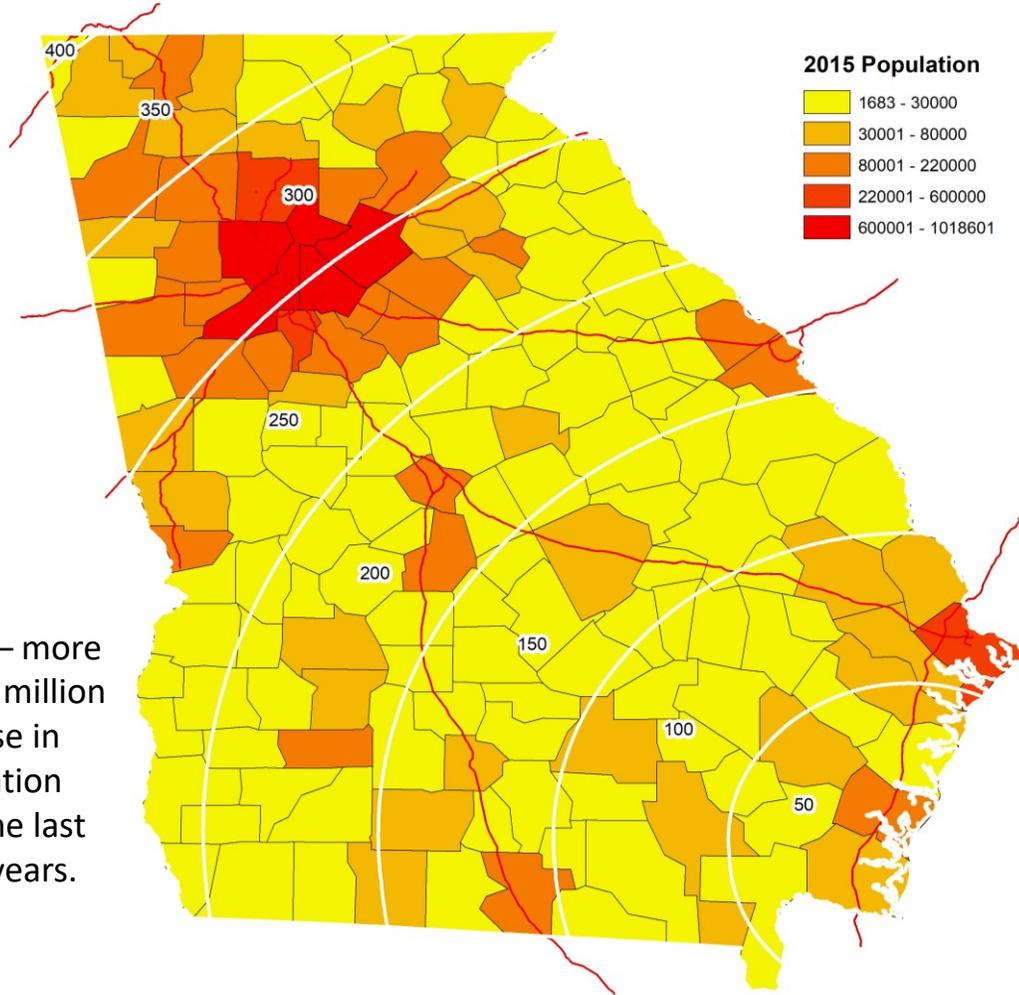
BASIC PRINCIPLES

- **Peak Season:** Summer months (March, April, May, June, July) where Jekyll Island typically receives a higher number of visitors coming to the island for vacation and go to the beach.
- **Off Season:** These are all other days of the year where visitation is less, and impact upon resources is less.
- **High Impact Days:** These are summer weekends, and festival/event days with large crowds. These days have highest number of visitors.
- **Maximum Capacity:** For buildings, based on fire marshal standards. For sites, based on metrics via industry standards.
- **Practical Capacity:** Adjusted based on seasonality, visitation, and functionality.

VISITATION - DEMOGRAPHICS

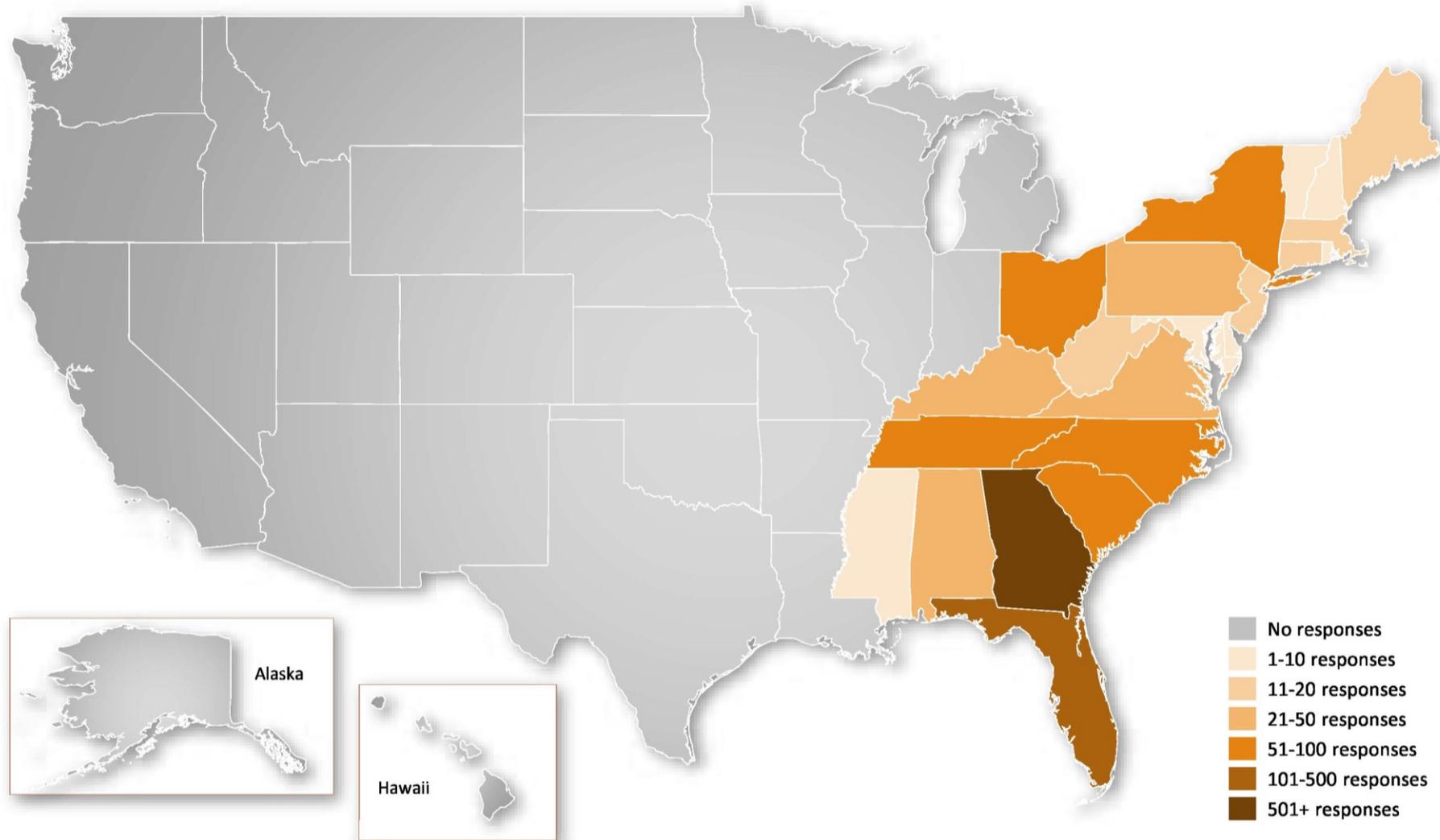
Glynn County's population is forecast to grow at 1.5% annually for the next 25 years.

South – more than 1 million increase in population over the last three years.



10,895,213 in 2020, to 14,709,321 by 2050

DEMOGRAPHICS – JI VISITOR SURVEY RESPONSES



South – more than 1 million increase in population over the last three years.

VEHICLE CAPACITY - TRAFFIC COUNTS



Gate Traffic Counts		
2013	904,877 vehicles	
2014	972,544 vehicles	7.0%
2015	1,071,576 vehicles	9.2%
2016	1,138,504 vehicles	5.9%
2017	1,163,829 vehicles	2.2%
	Five-year total	22.3%

VEHICLE CAPACITY - LEVEL OF SERVICE



Level of Service

Capacity in vehicles

Per day 2-lane rural facilities

LOS A

< 2,500

LOS B

2,500 – 4,500

LOS C

4,500 – 8,000

LOS D

8,000 – 14,000

LOS E

14,000 – 27,500

LOS F

> 27,500

Most of the roads on Jekyll Island have a LOS A or B, and LOS C on Peak Days.

The Jekyll Island Causeway was designed to accommodate 18,000 to 21,000 vehicles daily, and the AADT in 2016 was 4,270.

No traffic lights are anticipated.

PARKING CAPACITY



Parking - Jekyll Island	
Name	Parking Spaces
Village	315
Residential	1,404
Hotel	910
Historical	415
Facility	1,865
Beach	860
Total	5,769
Practical Capacity (90% of Total)	5192

VISITATION BASED ON VEHICLES & MULTIPLIER IN 2017



Number of Visitors Using 3.0 Multiplier			
2017	Cars	Multiplier	Projected Number of People
	1,163,829	3	3,491,487

Number of Visitors Using Different Multipliers			
	Cars	Multiplier	Projected Number of People
Off Season	562,778	2.5	1,406,945
Peak Season	601,051	3	1,803,153
High Impact Days	24 days	3.5	129,516
		Totals	3,339,614

- Multiplier is an estimated of number of people per vehicle

OCCUPANCY FOR BUILDINGS ON JEKYLL ISLAND



Practical Occupancy for Buildings on Jeekyll Island	
	People per Building
Hotels, Homes, Camping	2,379,636
Convention Center Workshops	55,000 to 66,000
Convention Center Activities	100,000
JIA Facilities	161,930
Buildings via Tour	32,700 to 42,510
Retail Village	234,786
Total	3,014,052 to 3,034,862

OCCUPANCY FOR JEKYLL ISLAND

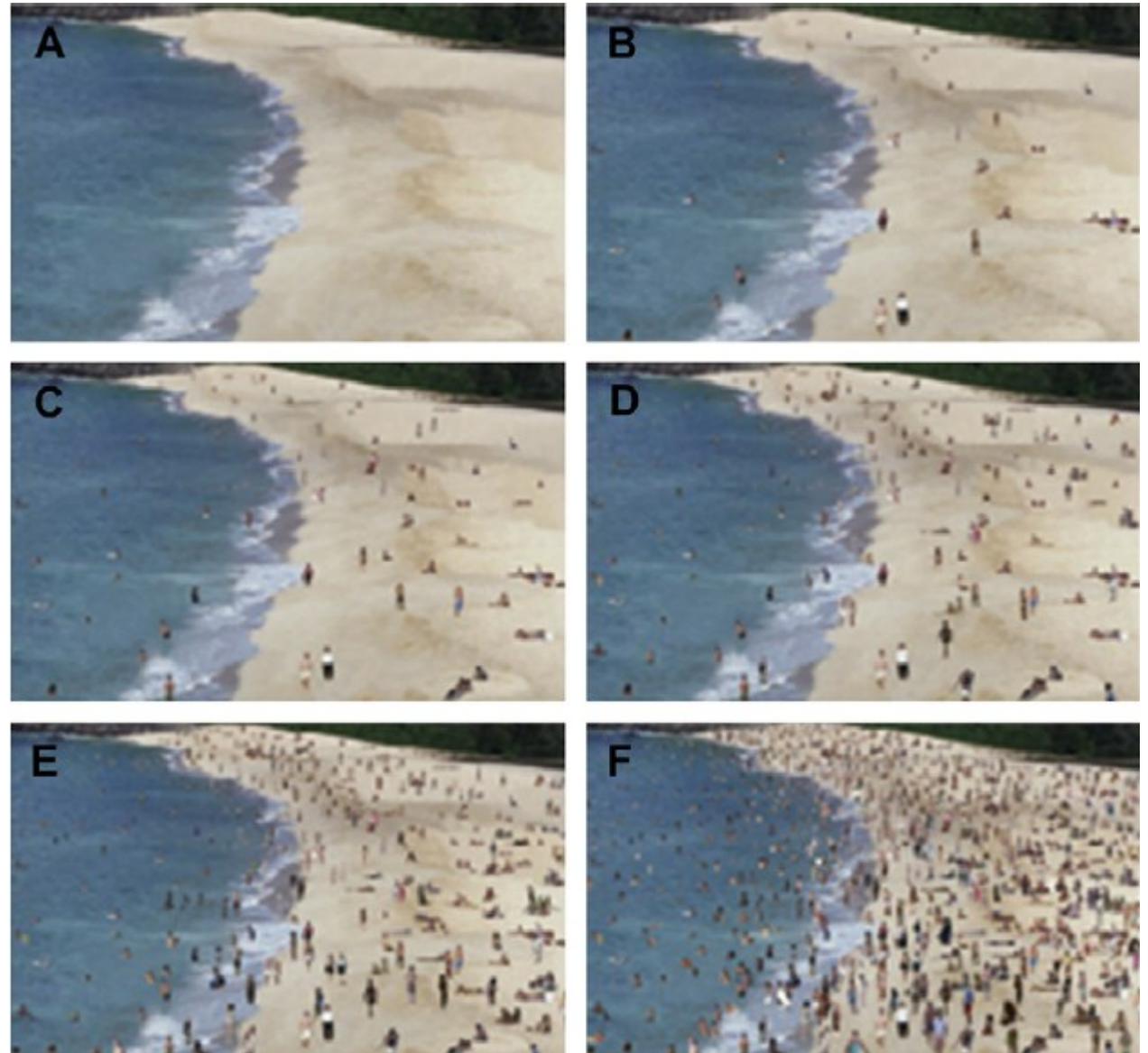


Practical Occupancy for Sites on Jekyll Island	
	People per Site
Summer Waves	142,500 to 182,400
Playgrounds	8,820 to 13,230
Golf	165,400 to 330,800
Tennis	75,898 to 75,898
Trails	204,624 to 296,352
Picnicking	47,187 to 85,995
Fishing	76,650 to 120,450
Beach	332,321 to 332,321
TOTAL	1,053,400 to 1,437,446

BEACH CAPACITY

	Number of people	sq ft per person
Photo A	0	0
Photo B	50	17,906
Photo C	100	8,953
Photo D	200	4,476
Photo E	300	2,984
Photo F	600	1,492

Photos B, C, and D illustrate the range of maximum capacity for Jekyll Island Beaches



BEACH CAPACITY



BEACH CAPACITY

Practical Occupancy for Beaches on Jekyll Island						
	Acreage	<i>Photo</i>	SF / person	Capacity (persons)	Total Off Season (213 days) per year at 50%	Total Peak Season (152 days) per year at 75%
Low Capacity	89	Photo B	17,906	215	22,929	24,544
Medium Capacity	148	Photo C	8,953	718	76,429	81,812
High Capacity	59	Photo D	4,476	574	61,150	65,457
	295				160,509	171,812
Practical Capacity - Total per year					332,321 people	

RECOMMENDATIONS - BEACHES

- Beaches are among the primary reasons people come to Jekyll Island. Expectations are that beaches are not over-crowded.
- Overcrowding of beaches could have a significant negative impact on the perceived character of the island.
- One of the best and proven ways to limit beach visitation is via parking restrictions.
- Maximum recommended beach capacity to maintain character of the island is 17,906 sq. ft. for Low Capacity Beaches, 8,953 sq. ft. for Medium Capacity Beaches, and 4,476 sq. ft. for High Capacity Beaches.

OCCUPANCY FOR JEKYLL ISLAND

TOTAL VISITOR CAPACITY	
	Number of Visitors
Buildings	3,014,052 to 3,034,862 people
Sites	1,053,400 to 1,437,446 people
Total Visitor Capacity for Jekyll Island	4,067,451 to 4,472,307 people

EXISTING CAPACITY COMPARED TO PROJECTED VISITORS

JEKYLL ISLAND TOTAL	
	Number of Visitors
Existing Capacity (Buildings & Sites)	4,067,451 to 4,472,307 people
Number of Visitors (per 2017 projections)	3,415,551 people
Available capacity	651,900 to 1,056,736 people

INFRASTRUCTURE - UTILITIES

- Key utility infrastructure
 - Water
 - Sewer

Mapping derived from JIA as-built data



INFRASTRUCTURE - WATER

- Water Supply / Distribution System
 - 5 Water Towers
 - 5 Water Distribution Wells located at
 - Towers #3, 4, 5
 - ~85,000 LF of Water Distribution Piping
 - Majority of water mains constructed of ductile iron
 - Old water distribution loop (made of transite pipe) extends north from Captain Wylly Rd.
- Permitted Usage = 2,150,000 gal./day



INFRASTRUCTURE - WATER

- Water Supply / Distribution System
 - Majority of water infrastructure is in good condition
 - Areas of concern :
 - Water treatment equipment (older than lifespan)
 - Transite pipe (subject to future failure)



INFRASTRUCTURE – SEWER

- Sewer Collection / Treatment System
 - 18 Sewer Lift Stations
 - 1 Wastewater Treatment Plant
 - 19 Septic Tanks
 - ~35,000 LF of Sewer Forcemain Piping
 - ~92,000 LF of Sewer Collection Piping
 - Permitted Discharge = 1,000,000 gal./day
 - 85% of sewer pipe is clay, making them more susceptible to leaks



INFRASTRUCTURE - SEWER

- Sewer Collection / Treatment System
 - Aging infrastructure is the biggest concern
 - Areas on the island with the greatest density are the oldest and are more susceptible to future problems, leading to reduced capacity
 - Full assessment (video inspection) of pipe conditions should be performed to identify areas for most critical repairs



INFRASTRUCTURE - SEWER

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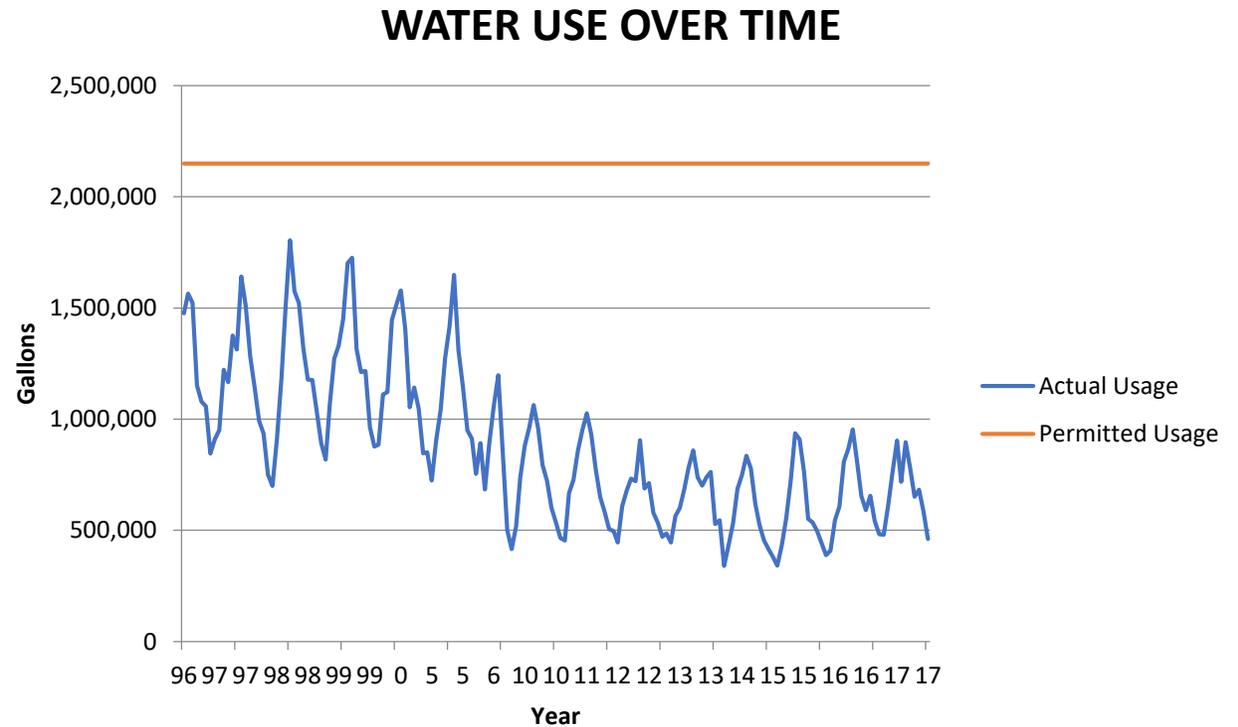
INFRASTRUCTURE - SEWER

- Sewer Lift Stations
 - Lift Station repairs should be prioritized by:
 - a) structure age
 - b) equipment age
 - c) equipment usage (pump starts per day)
 - Oldest lift stations are those in the historic district
 - Most active pumps are located in:
 - Lift Station #1
 - Lift Station #3
 - Lift Station #5
 - Lift Station #11
 - Lift Station #12
 - Lift Station # 15
 - Lift Station # 18



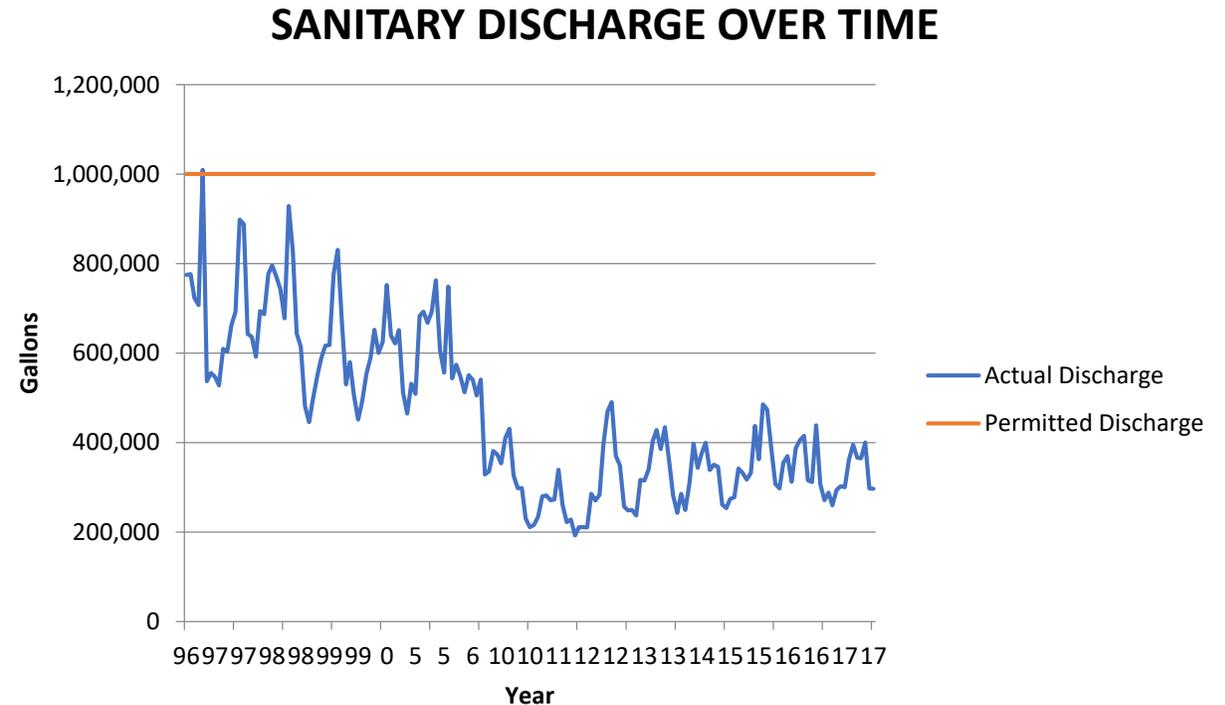
INFRASTRUCTURE – WATER CAPACITY

- Permitted Usage is 2,150,000 gallons per day per Georgia EPD
- Actual water usage from 1996 thru 2017 has been graphed
- Based on historic data the water usage has the ability to double its daily use before any new permitting modifications would be necessary
- Current water system has potential capacity for approx. 7.3 million people.
- The existing water system would have to be improved to maintain existing and future capacity.
- Just because Jekyll Island has capacity doesn't mean it should be used since overdevelopment would have a negative impact on character.



INFRASTRUCTURE – SEWER CAPACITY

- Permitted Discharge is 1,000,000 gallons per day per Georgia EPD
- Actual sewer discharge from 1996 thru 2017 has been graphed
- Increases in treatment plant size would be required once flows reached 80% of permitted amount. Based on historic discharges the current treatment plant/sanitary system has the capacity to accommodate 300,000 gal.
- Current sanitary system has potential capacity for approx. 5.6 million people.
- Existing water system would have to be improved to maintain existing and future capacity.
- Just because Jekyll Island has capacity doesn't mean it should be used since overdevelopment would have a negative impact on character.



ECONOMICS

No silver bullet to create financial self sufficiency; several small modifications in combination raise revenues and generate income.

Continue emphasis and prioritization on the ecological and cultural character of island & need for stewardship.

Recommendations are grouped into there categories:

1. Fees and island-generated revenues (\$1.5 million);
2. Dedicated public funds and voluntary preservation fund (\$100K);
3. Funding opportunities and partnerships with foundations, individuals, and organizations.

Possible revenue gains (\$1.6M)

ECONOMICS: ENTRY GATE FEE GENERATED REVENUES

Upgrade the entrance gate system as part of the JIA RFP

- Efficient Revenue Capture
 - A 5% increase in revenue capture would add approximately \$180,000 in revenue.
- Collect focused data

Expand variable, differential, or seasonal pricing strategy for High Intensity Days.

- Estimated 5,500 – 6,500 vehicles per day on High Intensity Days (~24), an additional \$4.00/vehicle would equate to \$440,000 - \$520,000 of additional annual revenue. Already do this for Shrimp & Grits, Tree Lighting, and Independence Day Celebration.

ECONOMICS: FEES & ISLAND GENERATED REVENUES

Decommission part of the golf course.

- Redeploy maintenance costs and raise green fees per . *JIA Assessment & Recommendations for the Jekyll Island Authority Golf Program by the National Golf Foundation (March, 2017)*
- Emphasis natural resources, stewardship, and preservation of island character.
- Total revenue potential (\$100K - \$150K)

Boost Convention Center revenue by increasing number of clients who utilize the full array of offerings (catering, banquet rooms, etc).

- Total revenue potential (\$300K - \$500K)

Other changes that directly and indirectly lead to revenue generation:

- Establish pricing for amenities in line with nearby state and local parks, and other competitors.
- Incorporate seasonal/variable-pricing strategy as warranted in campground
- Expand campground and update with alternative camping options
- Continued reinvestment in Summer Waves

ECONOMICS: ESTIMATED FEES & ISLAND GENERATED REVENUES

Recommendations	Potential Annual Revenue Impact
<ul style="list-style-type: none"> • Modernized Gate, segmented pricing. Est. 5% increase in gate revenue • Oversized vehicle rate increase (15 vehicles/day @180 days * \$5.00) 	<ul style="list-style-type: none"> • \$180,000 • \$13,500
<ul style="list-style-type: none"> • Dynamic/Variable Pricing. 24 days * \$5.00/vehicle * 5,500 – 6,500 cars 	<ul style="list-style-type: none"> • \$440,000-\$520,000
<ul style="list-style-type: none"> • Market comparable adjustments to select amenities <ul style="list-style-type: none"> ◦ Mini-Golf Rate & Bike rentals 	<ul style="list-style-type: none"> • \$60,000
<ul style="list-style-type: none"> • Campground <ul style="list-style-type: none"> ◦ Addition of alternative camping options (yurts, glamping, etc.) ◦ Campground expansion – 86 spaces * 150 days * \$43/night ◦ Camping – add variable pricing (24 days * 145 spaces * \$2.00/day) 	<ul style="list-style-type: none"> • \$63,750 • \$555,000 • \$ 7,000
<ul style="list-style-type: none"> • Golf course reduction and reconfiguration – revenue side only. 	<ul style="list-style-type: none"> ▪ \$100,000
<ul style="list-style-type: none"> • Additional revenue from State of George for non-operational projects. 	
<ul style="list-style-type: none"> • Exploring additional financial opportunities with Glynn County 	
<ul style="list-style-type: none"> • Water & wastewater fee increase to ensure financial stability in line with comparable utility sets – between 10-31%) 	<ul style="list-style-type: none"> • \$100,000-\$310,000

ECONOMICS: PRIORITY PROJECTS & FUNDING

Priority #1: Infrastructure & Resiliency

- Water tower
- New sewer line
- Sanitary sewer lift station repairs/upgrades
- Potable water treatment, water quality equipment upgrades
- Video inspect aging sewer pipes and prioritize upgrades
- Back-up power for critical infrastructure
- Install Variable Frequency Drives (VFD's) on all pumps
- Replace transite water pipes

ESTIMATED TOTAL EXPENSE: \$3-5M

ECONOMICS: PRIORITY PROJECTS & FUNDING

Priority #2: Improvements to Existing Facilities

- Gate modernization
- Summer Waves
- Fire / EMS
- Parking enforcement
- Campground
- Marketing (sales, educational, additional emphasis on island character)

ESTIMATED TOTAL EXPENSE: \$2.5-3M (does not include the main golf course or Clubhouse related expenses)

ECONOMICS: PRIORITY PROJECTS & FUNDING

Priority #3: Environment & Conservation

- Bike path improvements
- Public works (water filling stations, solar powered compactors)
- LED Lighting (convention center, village, historic district)
- Recycling program expansion (island-wide, receptacles & signage)
- Expanded ranger program (birding, wildlife, etc.)
- Eco-friendly restoration of buildings
- Review of golf courses for potential conservation expansion
- Update conservation plan
- Wastewater re-use for golf course irrigation

ESTIMATED TOTAL EXPENSE: \$1.7-\$2M+

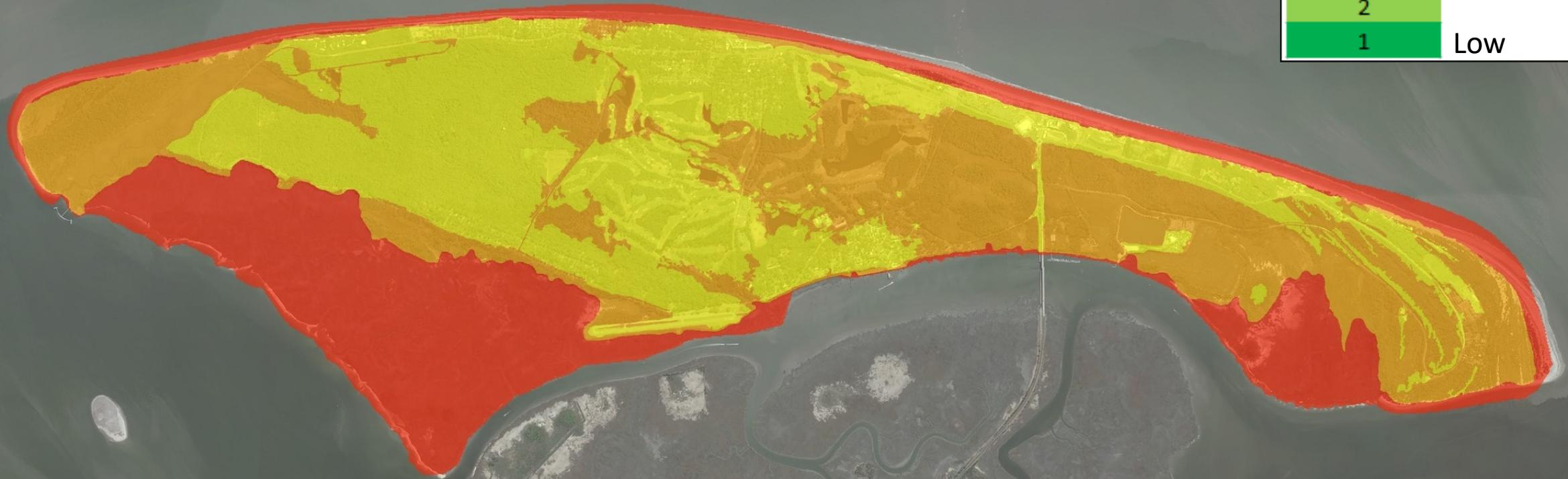
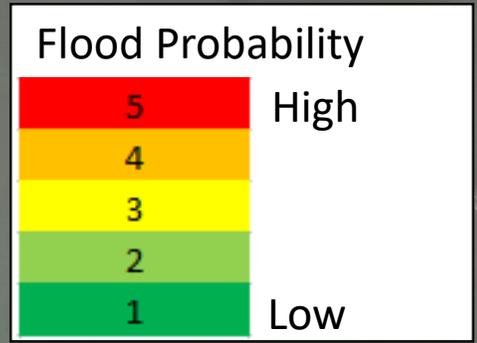
SUITABILITY MAPPING / ENVIRONMENTAL VULNERABILITY

- Understanding environmental vulnerability
- Identifying coastal risks
- Good reason for action
- Identifying easy vs hard, and understanding risks
- Reinforce, adapt and retreat, or a combination of both
- Information to incorporate into Master Plan

ENVIRONMENTAL RISK

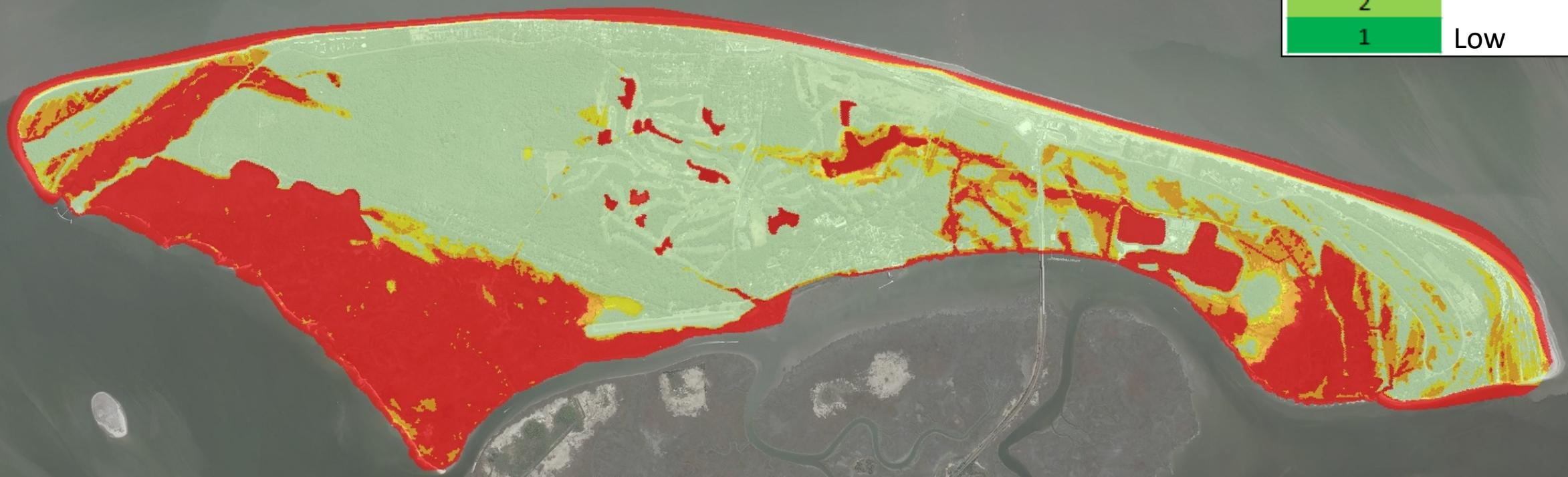
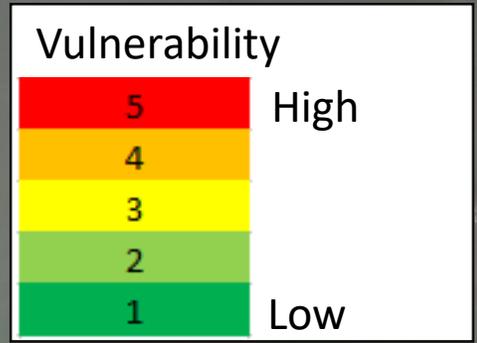


FLOOD ZONES

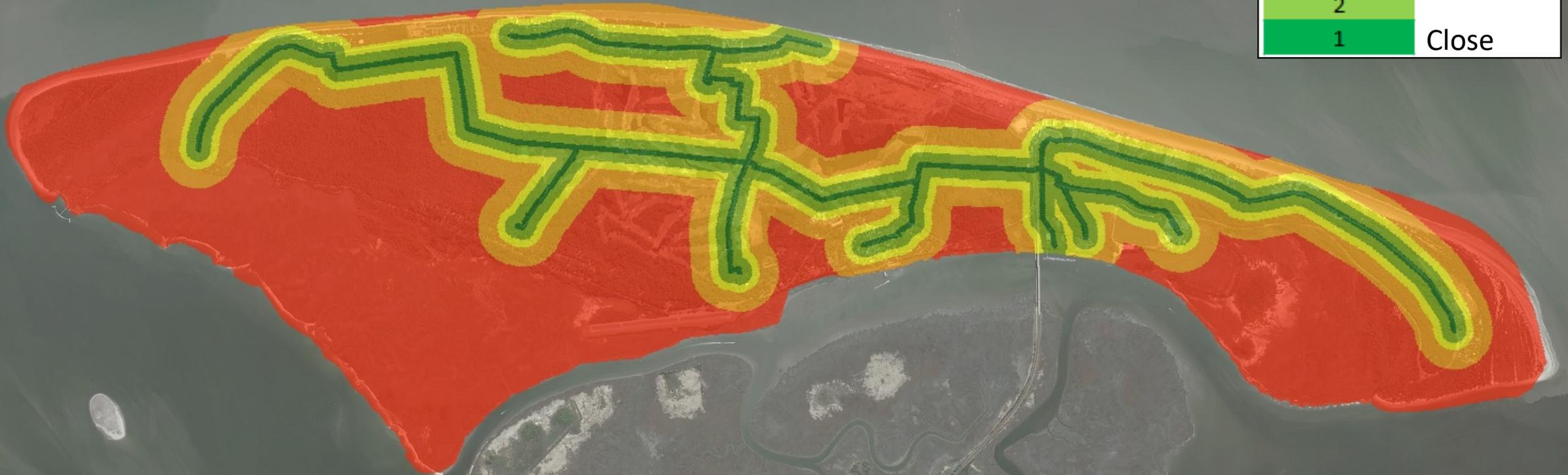


Based on FEMA DFIRM 2018

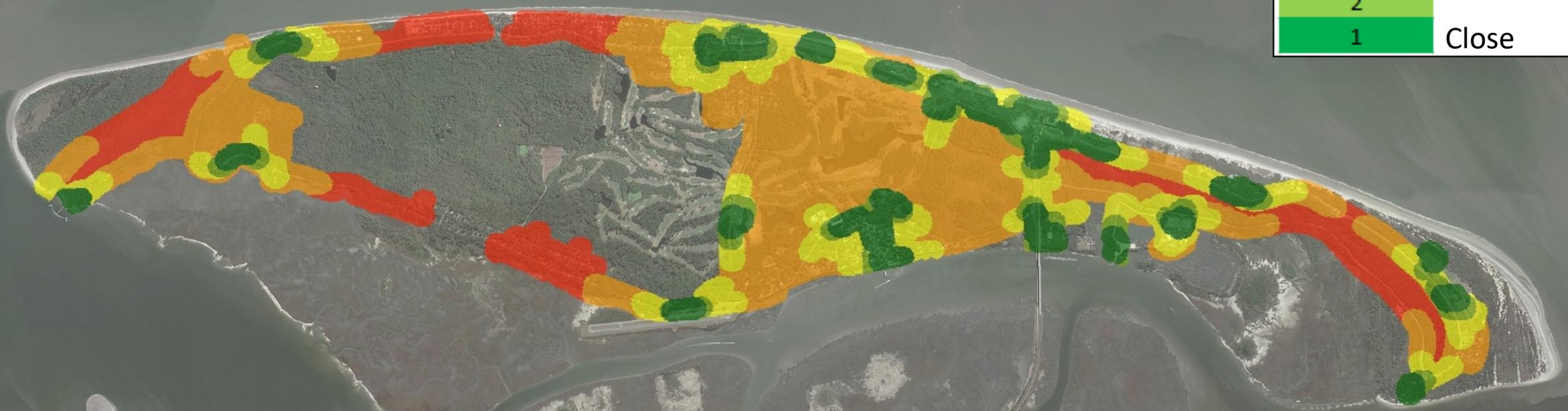
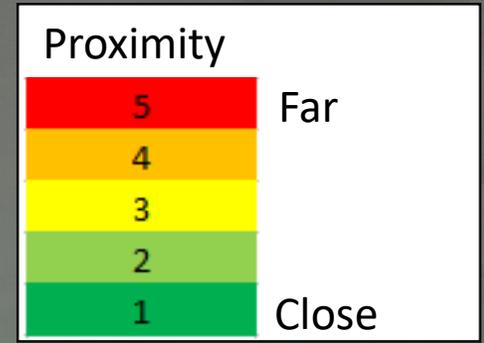
SEA LEVEL RISE



SANITARY PIPES



PROXIMITY TO PARKING



- Walk times from existing parking
- Residential areas not included

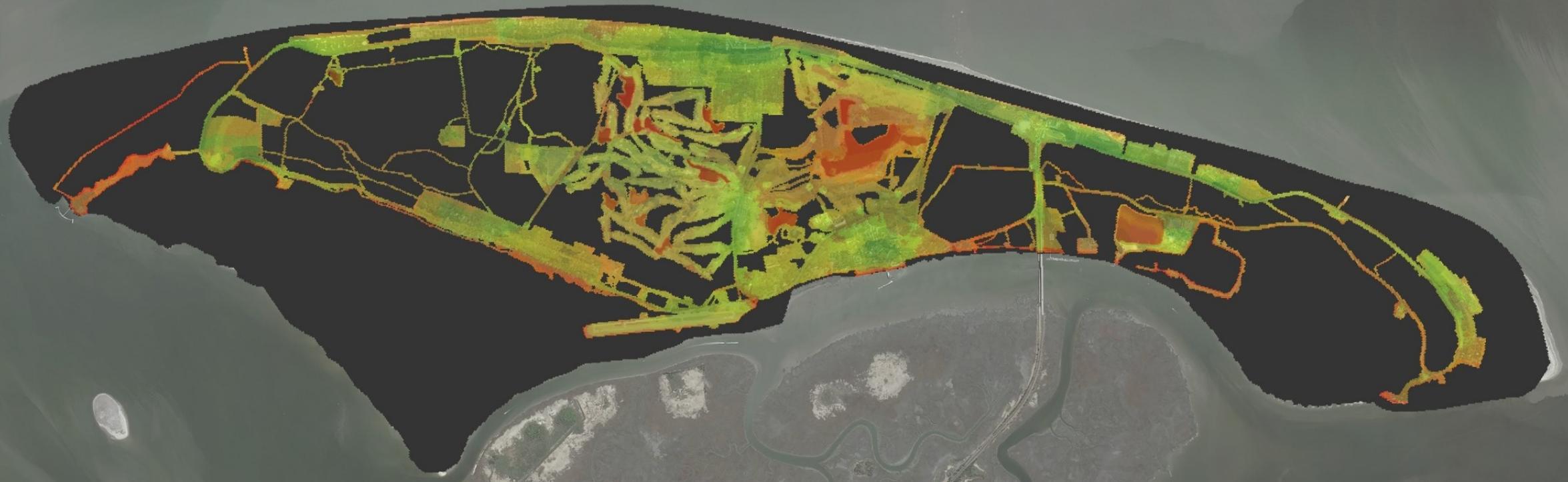
OVERALL SUITABILITY – OPTION 2



Reds	Protect / Do Not Encroach
Browns	Areas of Contention
Greens	Suitable Areas

System	Option 2
SLR	10%
Environmental Vulnerability	25%
Sanitary Lines	15%
Water Lines	15%
Proximity to Parking	15%
FEMA Flooding	20%
Total	100%

SUITABILITY IN DEVELOPED LAND



Reds	Protect / Do Not Encroach
Browns	Areas of Contention
Greens	Suitable Areas

Even Suitability
Existing Development

OPERATING PROCEDURES & CONTROLS

- Collect more specific, focused and accurate data.
- Enhance monitoring via cameras, sensors, traffic counters, and on-site observations to help determine accuracy of data
- Expand management strategies to provide controls for protecting and monitoring cultural and natural resources.



Questions, Comments,
Discussion



**Jekyll Island Carrying
Capacity & Infrastructure
Assessment**