



Jekyll Island Carrying Capacity &
Infrastructure Assessment

10-16-2018

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.***
- This assessment does NOT seek to identify the MAXIMUM number of people, vehicles, and development that can fit on the island. Instead, this assessment seeks to identify a PRACTICAL carrying capacity that identifies what Jekyll Island can accommodate without impacting the unique cultural and natural resources and character of the island.

OVER-RIDING CONCERN

- One concern is the potential impact on island character that a continued increase in the number of people and vehicles coming to the island may have in the future.
- This increase is estimated to be approximately 7% per year over the last four years, and that trend is likely to continue.
- At this rate (and assuming current context), Jekyll Island will reach Practical Capacity in 3 to 4 years.
- Increase in visitation is expected to be ongoing issue, but it will need to be addressed in the near future so alternative scenarios can be proactive rather than reactive.

ENTRY GATE TRAFFIC COUNTS

Jekyll Island Gate Traffic Counts		
2013	904,877	
2014	972,544	7.0%
2015	1,071,576	9.2%
2016	1,138,504	5.9%
2017	1,163,829	2.2%
	Total % change	28.6%

Gate Entry Numbers (Vehicles)			
	2016	2017	2018
Jan	67,061	72,934	66,907
Feb	76,445	83,063	83,990
March	98,686	103,771	107,496
April	106,298	117,977	108,094
May	122,685	115,925	109,714
June	125,143	126,290	135,232
July	142,820	145,775	152,733
August	94,642	95,084	106,320
Sept	93,064	64,387	98,683
Oct	64,702	86,437	n/a
Nov	74,879	79,100	n/a
Dec	72,079	73,086	n/a
	1,138,504	1,163,829	969,169

VISITATION MULTIPLIERS

Visitation Numbers			
2016	Vehicles	Multiplier	People
<i>Off Season</i>	546,916	3	1,640,748
<i>Peak Season</i>	591,588	3	1,774,764
Totals	1,138,504	Totals	3,415,512
2017			
<i>Off Season</i>	562,778	3	1,688,334
<i>Peak Season</i>	601,051	3	1,803,153
Totals	1,163,829	Totals	3,491,487

Visitation Numbers			
2016			
<i>Off Season</i>	546,916	2.5	1,367,290
<i>Peak Season</i>	591,588	3	1,774,764
<i>High Impact Days</i>	24 days	3.5	104,888
		Totals	3,246,942
2017			
<i>Off Season</i>	562,778	2.5	1,406,945
<i>Peak Season</i>	601,051	3	1,803,153
<i>High Impact Days</i>	24 days	3.5	129,516
		Totals	3,339,614

PRACTICAL OCCUPANCY FOR BUILDINGS AND SITES

Practical Occupancy for Buildings		
	Sliding Scale	
Hotels, Homes, Camping	2,379,636	2,379,636
Convention Center Workshops	55,000	66,000
Convention Center Activities	150,000	150,000
JIA Facilities	161,930	161,930
Buildings via Tour	32,700	42,510
Retail Village	234,786	234,786
Total	3,014,052	3,034,862

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

Number of People

AVAILABLE CAPACITY (People)

JEKYLL ISLAND TOTAL		
	<i>Range of People per Year</i>	
<i>Buildings</i>	3,014,052	3,034,862
<i>Sites</i>	1,053,400	1,437,446
	4,067,451	4,472,307

JEKYLL ISLAND TOTAL		
<i>Existing Capacity (Buildings & Sites)</i>	4,067,451	4,472,307
<i>Projected Number of people</i>	3,415,551	3,415,551
<i>Available capacity</i>	651,900	1,056,756

AVAILABLE OCCUPANCY (People)

Years Before Capacity is Reached for Jekyll Island								
Visitation (based on 2017 numbers)	Increase in People	Visitation after Year 1 (Projected)	Increase in People	Visitation after Year 2 (Projected)	Increase in People	Visitation after Year 3 (Projected)	Increase in People	Visitation after Year 4 (Projected)
3,491,487	244,404	3,735,891	261,512	3,997,403	279,818	4,277,222	299,406	4,576,627
3,339,614	233,773	3,573,387	250,137	3,823,524	267,647	4,091,171	286,382	4,377,553

PARKING SPACES

Parking - Jekyll Island	
Type of Land Use	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

PARKING SPACES TO ACCOMMODATE HIGH IMPACT DAYS



LEVEL OF SERVICE (LOS)

Level of Service Capacity (Vehicles Per day)

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 ₁₃

GDOT Traffic Counts on Jekyll Island Causeway			
	2014	2015	2016
AADT	4,020	4,150	4,270
% Increase		3.1%	2.8%

The causeway was designed to accommodate 18,000 to 21,000 vehicles daily.

GDOT Traffic Counts on Jekyll Island Roundabout			
	2014	2015	2016
AADT	2,650	2,790	2,900
% Increase		3.8%	5.0%

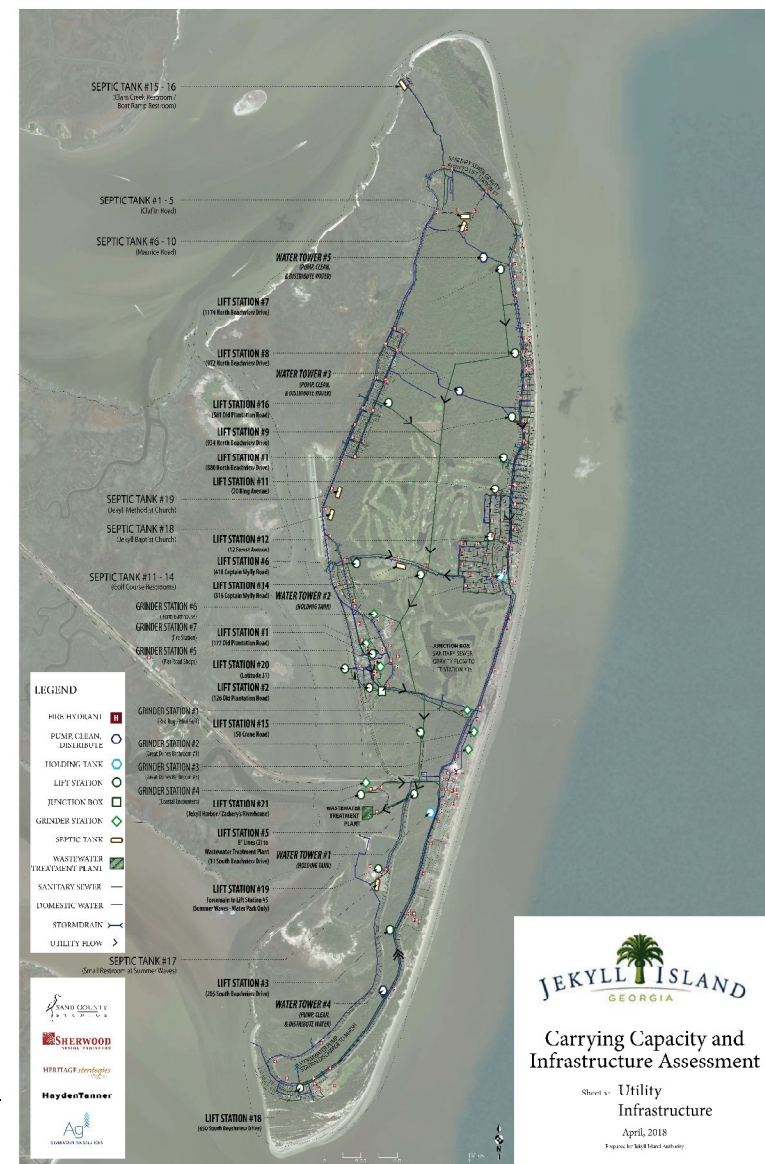
GDOT considers the roundabout fully functionality if the AADT is < 25,000.

GDOT Traffic Counts on Jekyll Island in front of Great Dunes Park			
	2014	2015	2016
AADT	3,180	3,330	3,500
% Increase		4.9%	5.0%

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 Wyllly Rd.
 - Permitted Usage = 2,150,000 gal./day



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



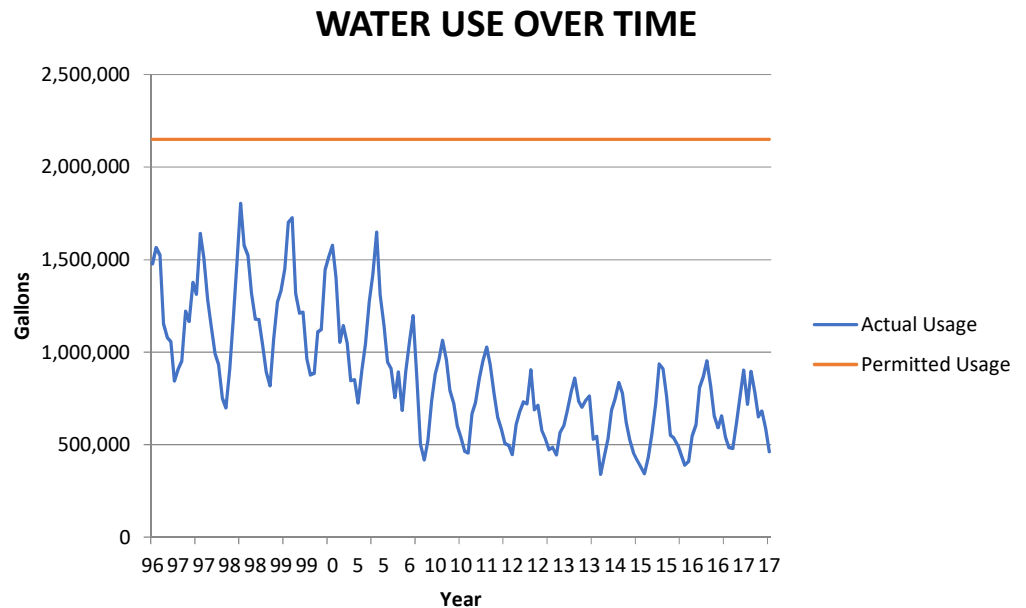
INFRASTRUCTURE - SEWER

- 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



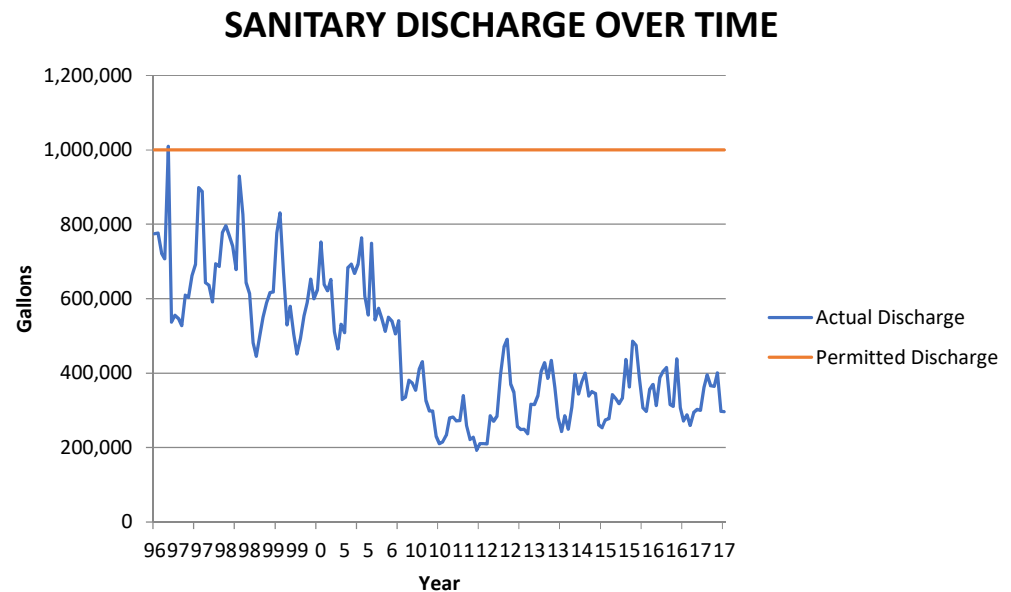
INFRASTRUCTURE – WATER CAPACITY

- 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.

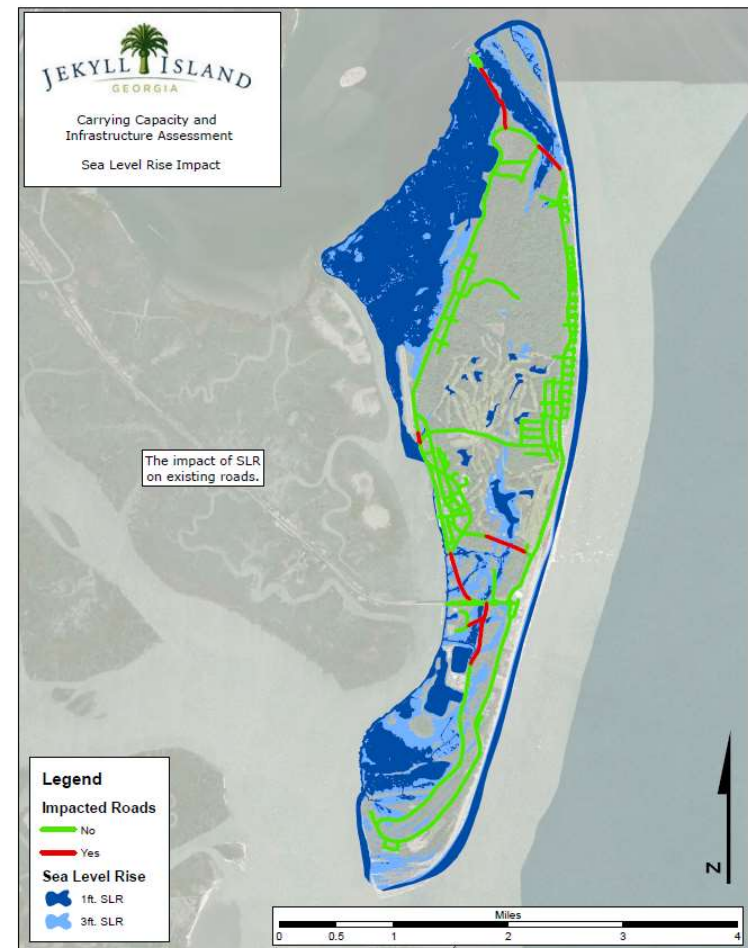


INFRASTRUCTURE – SEWER CAPACITY

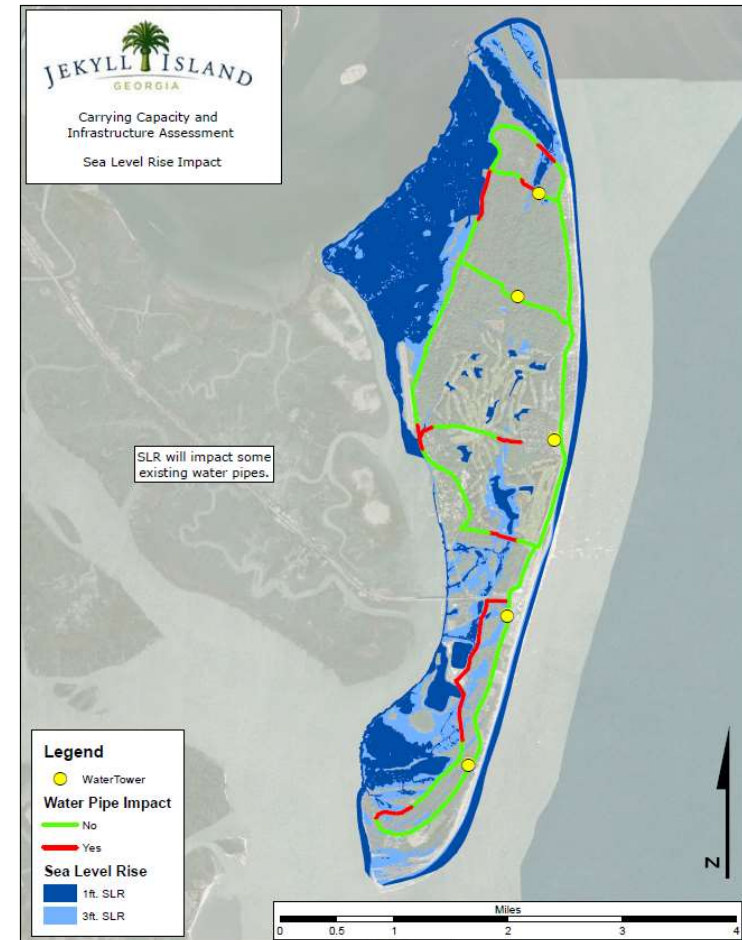
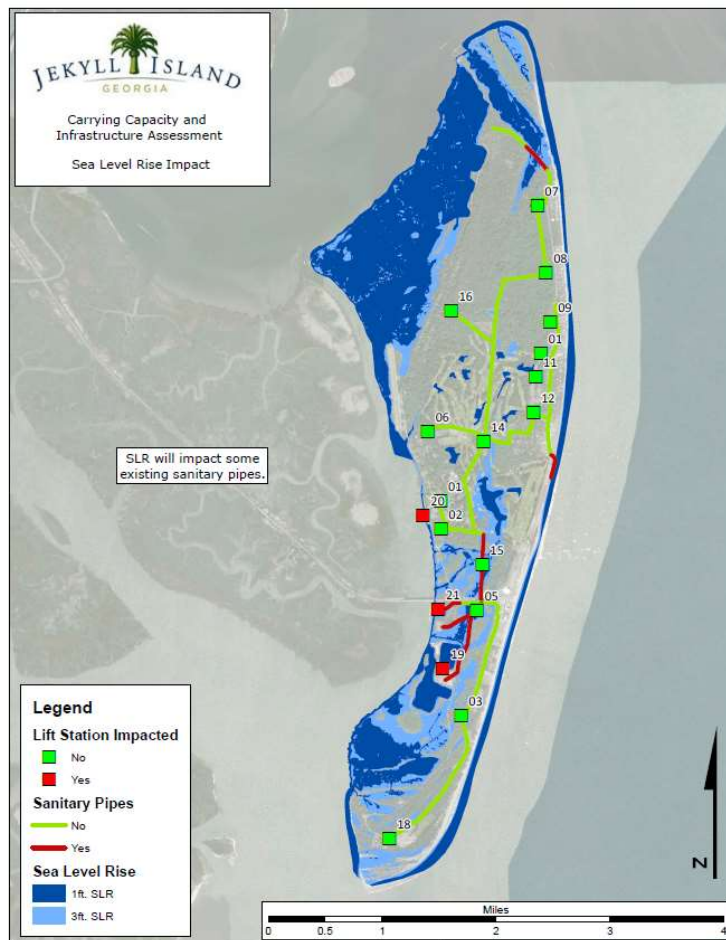
- Permitted Discharge is 1,000,000 gallons per day per Georgia EPD
- Actual sewer discharge from 1996 thru 2017 has been graphed
- Increases in treatment plant size would be required once flows reached 80% of permitted amount. Based on historic discharges the current treatment plant/sanitary system has 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.



SEA LEVEL IMPACTS

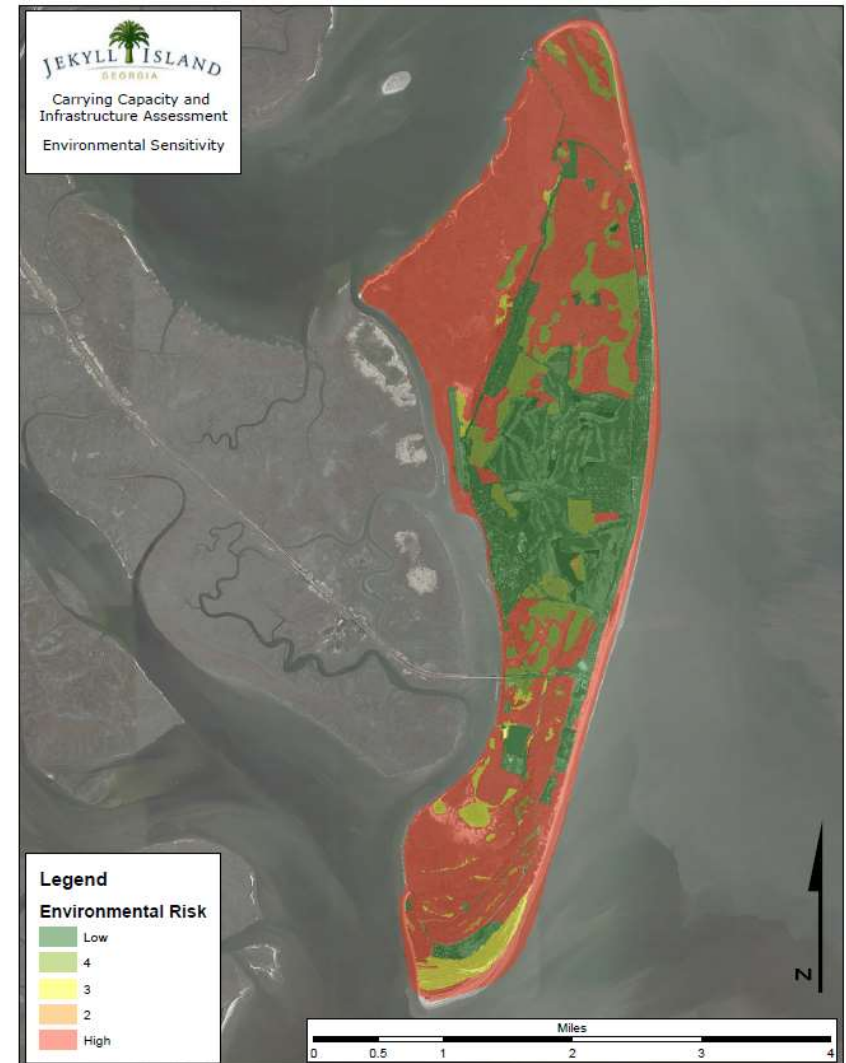


SEA LEVEL IMPACTS

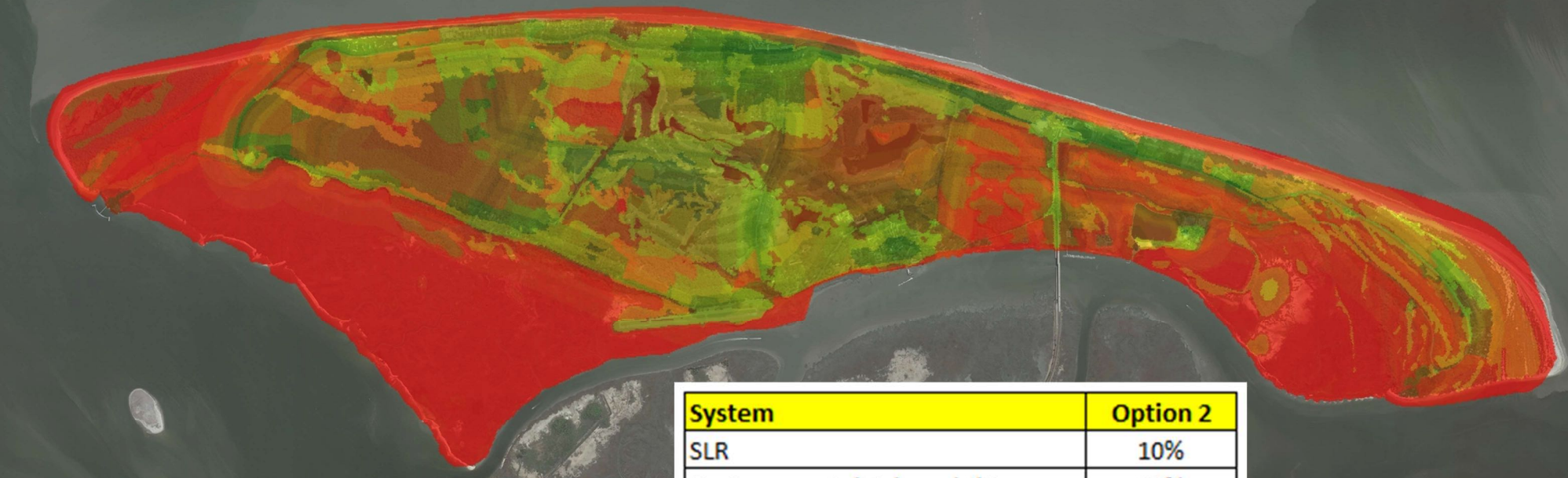


ENVIRONMENTAL VULNERABILITY

ENVIRONMENTAL COMMUNITIES			
	Level of Vulnerability	Level of Resource Protection	Visitor Capacity
MARITIME HAMMOCKS	Medium	Low to Medium	Low
PINE FORESTS	Medium	Medium	Low to Medium
FORESTED WETLANDS	Very High	Very Low	Very Low
BACKDUNE/DUNE SWALE VEGETATION	Medium to High	Low	Low
SALT MARSH ISLANDS ECOTONES	Medium to High	Low to Medium	Low
DUNES	Very High	Very Low	Very Low
FRESHWATER HERBACEOUS WETLANDS	Very High	Very Low	Very Low
TIDAL MARSHES	Very High	Very Low	Very Low
BEACH	Medium	Low	Very Low, Low, Medium
URBAN/DEVELOPED	Low	High	High



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%

SHORT-TERM PRIORITIES

SHORT-TERM TASKS (within 3 years)

- **Parking.**
 - During peak season and on high impact days, parking can be challenging.
 - Need to manage increase in visitation.
 - Parking should be limited to designated areas.
- **Data Collection.**
 - Collection of supplemental data from the updated gate system.
- **Expand Selected Facilities.**
 - Expand campground to include additional sites, alternative options for accommodations (i.e. “glamping”, yurts).
 - Seasonal/variable-pricing strategy are important.
- **Emphasis on Natural Character of the Island.**
- **Operations and Funding.**
 - Small modifications in combination could increase revenues and enhance operations.
- **Management Strategies.**
 - Continue to consider how to address capacity issues, develop strategies for new regulations, voluntary and/or mandated enforcement, parking opportunities and possible restrictions, shuttles, and alternative modes of transportation.

MEDIUM-TERM PRIORITIES

MEDIUM-TERM TASKS

- **Infrastructure Maintenance & Improvements.**
 - Maintain existing infrastructure.
 - Implement enhanced maintenance and improvements based on priority areas.
 - Additional development on the island should be limited.
- **Alternative Transportation.**
 - Explore alternatives for how to accommodate number of vehicles on the Island.
 - There may be a need to limit vehicles.
- **Off-season Activities.**
- **Increase Revenue and Decreasing Impact.**
 - Promote enterprises with a small footprint and large economic gain.
- **Sustainable Infrastructure.**
 - Continue shift to sustainable practices such as re-using and treating wastewater, reducing the overall water footprint, and improving water efficiency.
 - Ensure waste management and overall impact to the environment remains a priority.
- **Implement Additional Monitoring.**
 - Define and implement monitoring strategies.
- **Re-Evaluate Capacity.**