

TECHNICAL REPORT
Appendices



Tybee Island

Wave Ecology & The Highway 80 Challenge

Prepared for Chatham County & The City of Tybee Island

May 2011



Appendices

Appendix A: Carrying Capacity Matrix

Appendix B: Wave Ecology Study Resulting Maps

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Appendix A

Indicator	Capacity Limit (Quantitative)	Capacity Limit (Qualitative)	Current Capacity (Peak Tourism)	Notes		
▼ Residential Population Demographics - P Factor						
Age Profile (2000 Census)	-NA- Population level in 2000 = 3,716	Carrying Capacity for population defined by a variety of factors related to economic affluence and the technologies around the built environment. Current annual population levels are within the current infrastructure capacity of the Island.	-NA-	Median Age 46.9		
				Under 5	102	3.0%
				5-9 years	127	3.7%
				10-14 years	144	4.2%
				15-19 years	146	4.3%
				20-24 years	133	3.9%
				25-34 years	353	10.4%
				35-44 years	557	16.4%
				45-54 years	696	20.5%
				55-59 years	260	7.7%
				60-64 years	247	7.3%
				64-74 years	355	10.5%
				75-84 years	199	5.9%
85 years and over	73	2.2%*				
Race (2000 Census)	-NA-	While race and carrying capacity are not directly linked, understanding the economic variables and cultural variables linked to a population race and ethnicity may be important in determining future services, private partnerships, etc.	-NA-	White 95.9%		
				African American 1.9%		
				American Indian 0.6%		
				Asian 0.9%		
				Other 0.1%		
				Two or More 0.7%*		
Household and Age (2000 Census)	-NA-	Carrying Capacity relates to household age in interesting ways. Linkages for emergency services, as well as the economic viability and sustainability of the housing industry gain a clearer picture when we know the age demographics of Tybee Island.	-NA-	Hholds w/ individ under 18 294 18.8%		
				Hholds w/ individ 65+ 388 24.7%*		
▼ Tourist Population Demographics - P Factor						

Indicator	Capacity Limit (Quantitative)	Capacity Limit (Qualitative)	Current Capacity (Peak Tourism)	Notes
Age Profile	-?-	-?-	-?-	Further data collection and research on the demographics of the tourist population will help define possible technological innovations that can expand the carrying capacity for Tybee Island during peak tourist times.
Tourist Product Type (ex. Eco-tourism)	-?-	-?-	-?-	Further data collection and research on the demographics of the tourist population will help define possible technological innovations that can expand the carrying capacity for Tybee Island during peak tourist times.
▼ Economic Profile - A Factor				
Class of Workers	-NA-	-NA-	-NA-	Private wage & salary workers 1,155 66% Gov. workers 349 20% Self-employed 245 14%
Occupations	-NA-	-NA-	-NA-	Employed Civilian Pop. 16 years and over Management / Professional 731 41.8% Service 360 20.6% Sales / Office 313 71.9% Farming / Fishing 0 0 Construction / Maintenance 198 11.3% Production / Transport Goods 147 8.4%
Economic Engines	-NA-	3 NAICS Code Sectors with 20+ employees numbers Retail Trade 59 Real Estate/Rental 23 Accommodation & Food Service 322***	-?- Understanding the impact of carrying capacity on these largest industries for the Island is significant and may assist in shaping policies that can mitigate issues resulting in decreased revenues	3 NAICS Code Sectors with 20+ employees Retail Trade = \$5,848,000/year \$786,000 payroll Real Estate/Rental = \$3,457,000/year \$501,000 payroll Accom. & Food Service = \$16,540,000/year \$4,791,000 payroll
Median Household Income	-NA-	-NA-	-NA-	49,741
Poverty Levels	-NA-	-NA-	-NA-	50 families 5.3% of population 332 Individuals 10% of population
Median Family Income	-NA-	-NA-	-NA-	58,462

Indicator	Capacity Limit (Quantitative)	Capacity Limit (Qualitative)	Current Capacity (Peak Tourism)	Notes
Monthly Mortgage Costs as a Percentage of Household Income in 1999	-NA-	Understanding the burden of the community housing market on citizens can create a clearer economic profile that may reveal future concerns related to affordability of an annual population.	-NA-	<div>Less than 15 percent</div> <div>15-19 percent</div> <div>20-24 percent</div> <div>25-29 percent</div> <div>30-34 percent</div> <div>35 + percent</div> <div>Not computed</div> <div>36.6%</div> <div>13.7%</div> <div>11.6%</div> <div>8.8%</div> <div>7.3%</div> <div>20.3%</div> <div>1.5%*</div>
Gross Rent as a Percentage of Household Income in 1999	-NA-	Understanding the burden of the community housing market on citizens can create a clearer economic profile that may reveal future concerns related to affordability of an annual population.	-NA-	<div>Less than 15 percent</div> <div>15-19 percent</div> <div>20-24 percent</div> <div>25-29 percent</div> <div>30-34 percent</div> <div>35 + percent</div> <div>Not computed</div> <div>22.1%</div> <div>13.2%</div> <div>6.1%</div> <div>7.2%</div> <div>8.7%</div> <div>29.9%</div> <div>12.8%*</div>
▼ Mobility - T Factor				
Highway 80 Corridor	12,000 vehicles per day per direction (Estimation based on similar roadways. Transportation study may assist in gaining clearer number.)	-NA-	-NA-	Based on available traffic count data 23 days between Jan 2010 and July 2010 the roadway capacity was exceeded. These occurred mainly on Friday, Saturday and Sunday. Hourly traffic counts for Labor Day weekend revealed that while the capacity was breached, no hourly rates exceeded roadway capacity.
Highway 80 Corridor Flooding (Roadway flooding affects transportation connectivity at 9.2ft MSLW.)**	09/24/09 - 10/24/10 = 27 Days above 9.0 feet 11 Days above 9.2 feet	-NA-	-NA-	Flooding occurred in eight out of the 13 months. Roadway capacity is completely severed at 10 feet. The Flooding Model can be accessed by clicking here .
Butler Avenue	-?-	-?-	-?-	Requires transportation infrastructure capacity study due to the many variables for the four-lane section (i.e. entrance / exit points, stop lights and other congestion technologies, pedestrian crosswalks, etc.)
Marina	7 Private marinas located along the full Highway 80 Tybee Island region. No day passes. 0 Public Marinas.	Marketing available services at these marinas, as well as forming partnerships may assist in providing alternative transportation modes and increase the tourist product provided by Tybee Island.	-NA-	Marina map can be located by clicking here .
Mass Transit (Bus Transport)	None currently to the Island or inter-Island.	-NA-	-NA-	CAT Proposed Shuttle Service can be accessed by clicking here .
Bicycle Corridor	Capacity for connectivity currently being explored in the Highway 80 Bridges Study by CORE MPO.	-NA-	-NA-	Extensive network on Tybee Island and on McQueen's Trail. Disconnection points at both the Lazaretto Creek and The Bull River Bridges. More information provided by clicking here .

Indicator	Capacity Limit (Quantitative)	Capacity Limit (Qualitative)	Current Capacity (Peak Tourism)	Notes
Annual Population Vehicle Availability (2000 U.S. Census)	0 car = 109 (6.9% of population) 1 car = 608 (38.5% of population) 2 car = 642 (40.6% of population) 3 + car = 221 (14% of population)*	-NA-	-NA-	Understanding the population demographics without vehicle access remains critical for an area such as Tybee Island with only one modality source.
Public Parking	2,121 Spaces Approx. 500 Spaces Business District			
Alternative Inter-Island Transport				Several forms currently exist and could be utilized formally through public/private partnership during peak times to alleviate automobile travel. Pedi-cab service on call from 10am-midnight full island service (Pirate Pedi-cab). Tybee Island Crab Cab taxi service.
▼ Solid Waste - T Factor				
Municipal Solid Waste	-?- 2010 = 4,386 Tons/year (projected in Tybee Island Solid Waste Plan) 2006 = 6.39lbs/day/person (GA 2006 Solid Waste Management Plan) (In Comparison: The average American throws away 4.39 lbs/day/person which is still viewed globally as a high number.)	-?-	-?-	Waste Pro private contract: solid waste shipped and landfilled beyond municipal borders. Waste Characterization of Material Disposed (2006 GA Solid Waste Management Plan...results for Chatham County) Paper 33% Plastic 18% Glass 4 % Metal 7% Organic 26% C&D 6 % Inorganic 6 % TOTAL: 100 %
Municipal Recycling	-?-	-?-	-?-	Waste Pro private contract: recycling shipped and processed beyond municipal borders. Gathering further data can help to reveal the capacity level and highlight policy options to manage the tourist seasonal peak needs.
Composting Yard Debris & Organic Matter	-?-	-?-	-?-	Monthly pick up through Waste Pro (third party manager) and taken to Green Space, Inc. in Ridgeland S.C. Yard waste dropped of at Public Works Facility is chipped into mulch and used in municipal projects, as well as available to the public.
▼ Water / Wastewater- T Factor				

Indicator	Capacity Limit (Quantitative)	Capacity Limit (Qualitative)	Current Capacity (Peak Tourism)	Notes
Drinking/Potable Water	-?- EPD Drinking Water Permit #025-0027 Avg. limit/year = 0.960MGD Avg. limit/month = 1.6MDG	-NA-	According to EPA estimations this services aprox. 10,000 persons.	State restrictions currently ban an increase on permit consumption due to salt water intrusion. Requires further research on current consumption levels.
Wastewater	-?- Tybee Island WPCP EPD Permit #GA0020061 Avg. limit/month = 1.0MGD	-NA-	According to EPA estimations this services aprox. 10,000 persons.	Requires further research on current discharge levels to determine if the allotted capacity is already being met.
▼ Fuel Sourcing - T Factor				
Electricity Supplier: Georgia Power / IP Savannah Mill (Coal supplied from Scott's Branch Mountain Kentucky)	-?-	-NA-	-?-	Requires further study to gain numbers from GA Power on total usage.
House Heating Fuel (2000 U.S. Census)	Utility gas 33 2.1% Bottled, tank, or LP gas 153 9.7% Electricity 1,358 85.9% Fuel oil, kerosene, etc. 22 2.4% Solar 0 0% No fuel used 14 0.9%*	-NA-	-NA-	Data released with the 2010 U.S. Census may provide a more current picture. Data may also be located through partnerships with Georgia Power.
▼ Food Supply - T Factor				
IGA	-?-	-?-	-?-	Understanding their food sales record over a period of one year will help gain a clearer picture on the rate of usage and the peak demand times. Online grocery order and home delivery available. Business is partnered with vacation property managers on Tybee Island.
Tybee Island Community Garden	-?-	-?-	-?-	Currently structured as a private community garden with plots available for a fee. No outside sales of produce (market) at this time. No animal husbandry.
▼ Housing - T Factor				
Housing Units	2,695 Total Units Owner Occupied 1,078 Units Renter Occupied 490 Units Vacant Housing / Rental 1,128 Units	-NA-	-NA-	According to the Tybee Island Comprehensive Plan (2008) the Island is close to reaching build-out capacity. Understanding the existing units in relationship to the future land use plan clearly denotes a carrying capacity for Tybee Island with relation to housing.

Indicator	Capacity Limit (Quantitative)	Capacity Limit (Qualitative)			Current Capacity (Peak Tourism)	Notes
Year Structure Built	-NA-	1999-2000	311	19.7%	-NA-	Upon release of the 2010 Census data a clearer picture on new construction and units may be revealed and may assist in understanding any area for future structural growth.
		1995-1998	461	29.2%		
		1990-1994	304	19.2%		
		1980-1989	247	15.6%		
		1970-1979	156	9.9%		
		1969 or earlier	101	6.4%*		
▼ Emergency Management / Public Safety						

* SOURCE: 2000 U.S. CENSUS

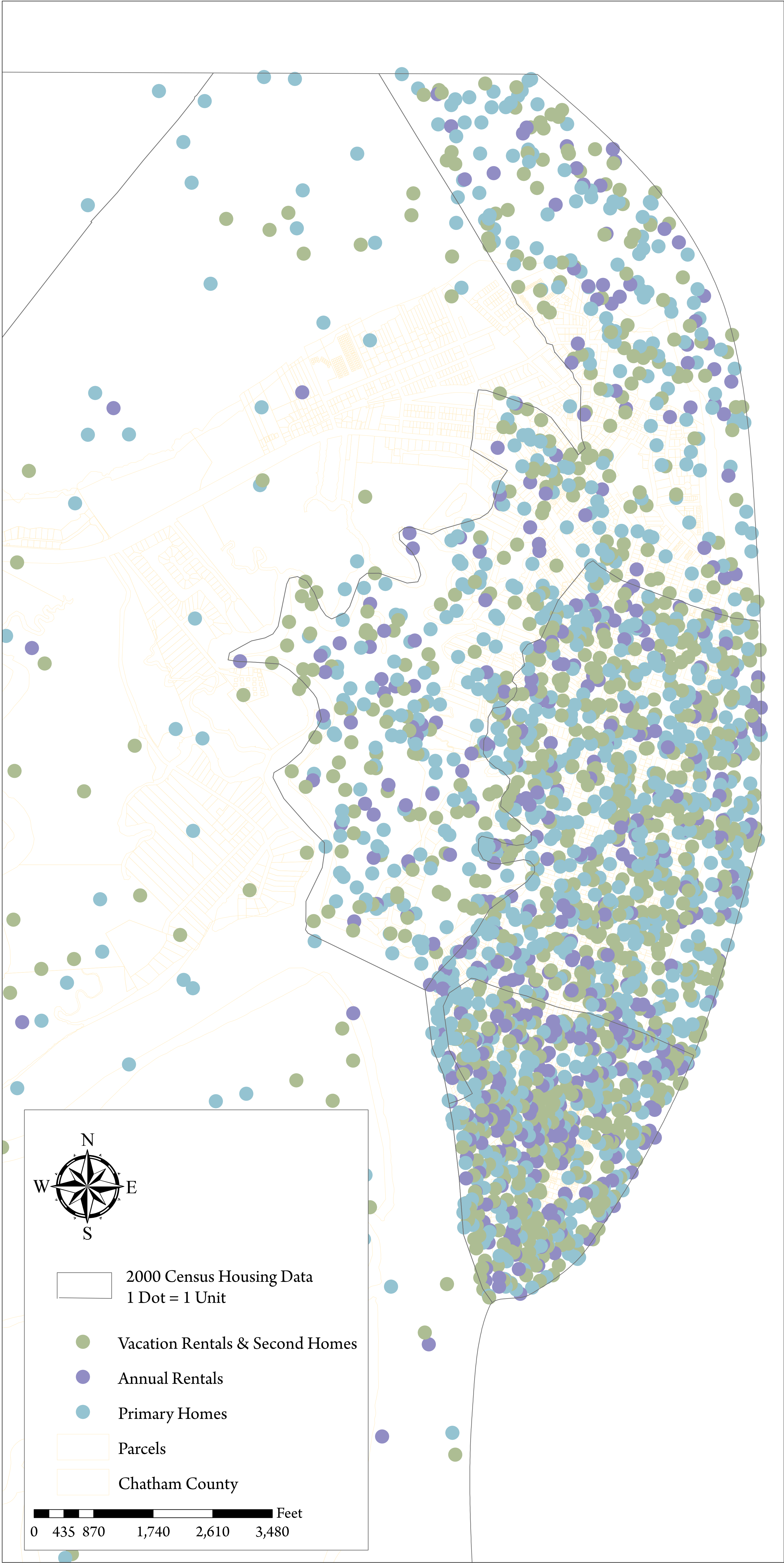
* * SOURCE: CHATHAM COUNTY COASTAL FLOODING MODEL

* **SOURCE: 2002 U.S. ECONOMIC CENSUS

Appendix B

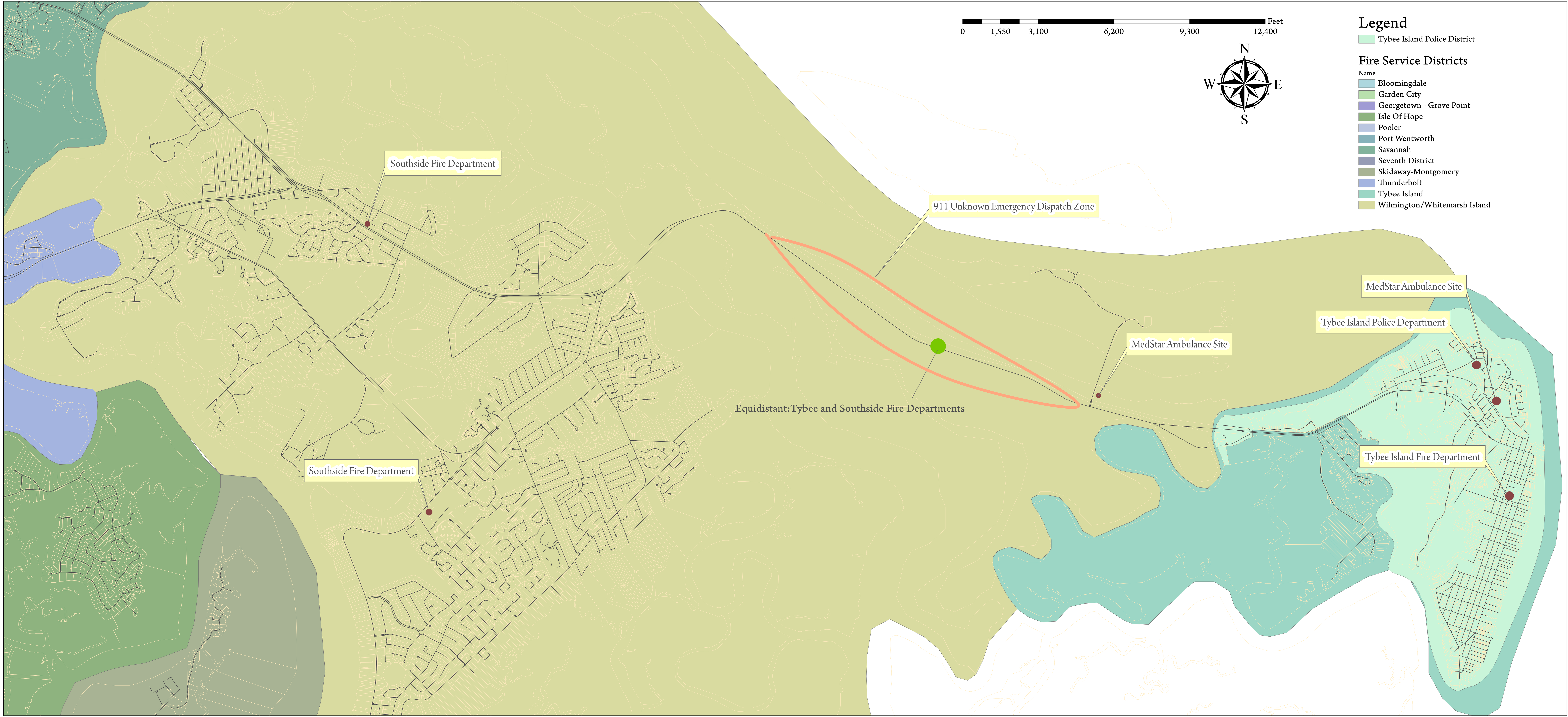
Wave Ecology: Route 80 & Tybee Island

Tybee Island Density: Residents & Visitors



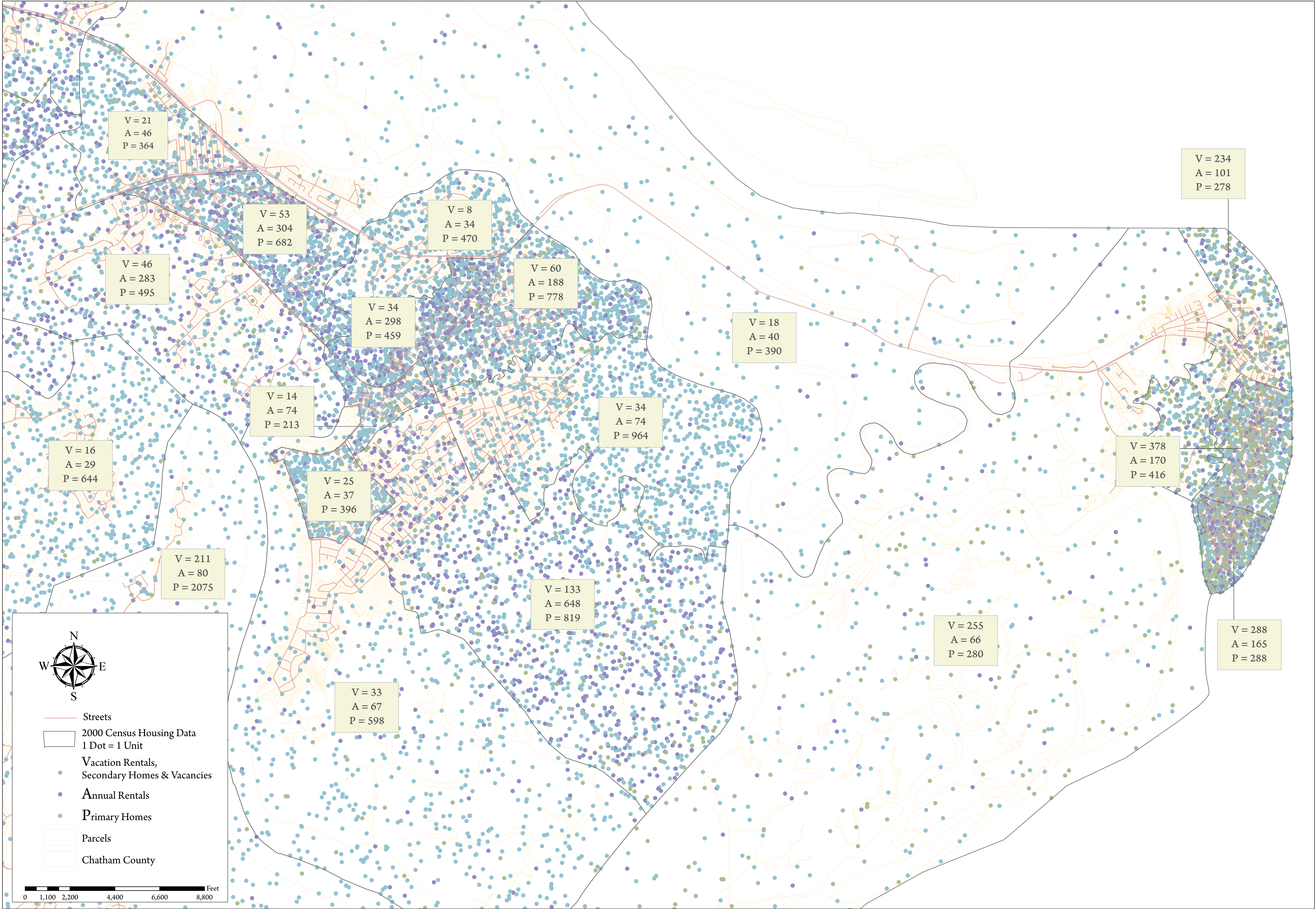
Wave Ecology: Route 80 & Tybee Island

Emergency Management Services



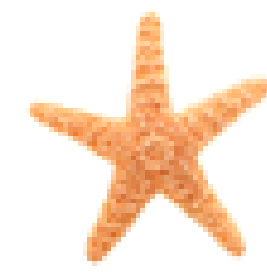
Wave Ecology: Route 80 & Tybee Island

Corridor Density: The Shift in Residential Demographics





Tybee Island Safe Site Locations



...because storms can approach quickly...

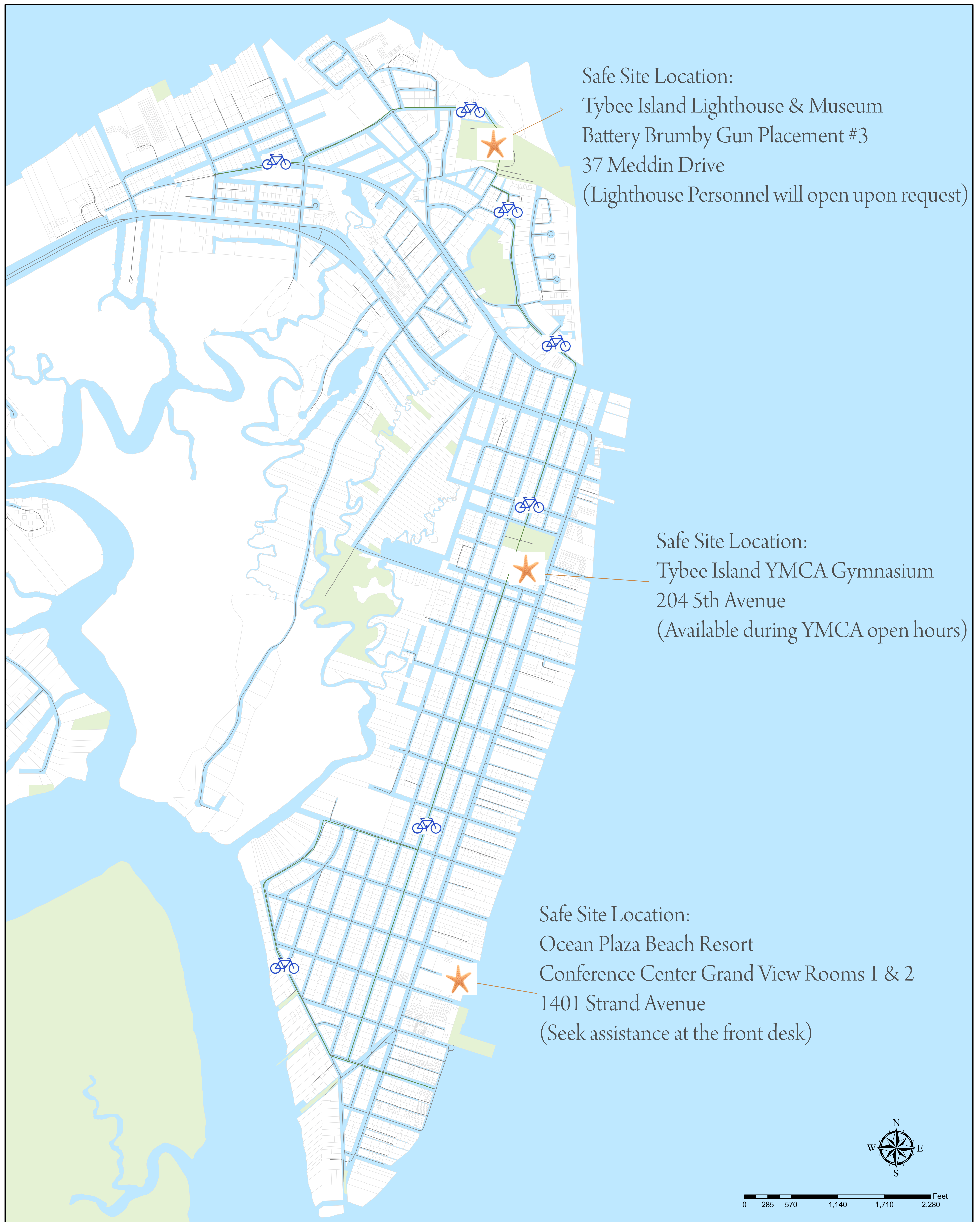
Storms may form quickly on Tybee Island. In the event you are caught with no place to seek shelter, the sites identified on this map will be available.

Please note:

These are not to be utilized for long periods of time.

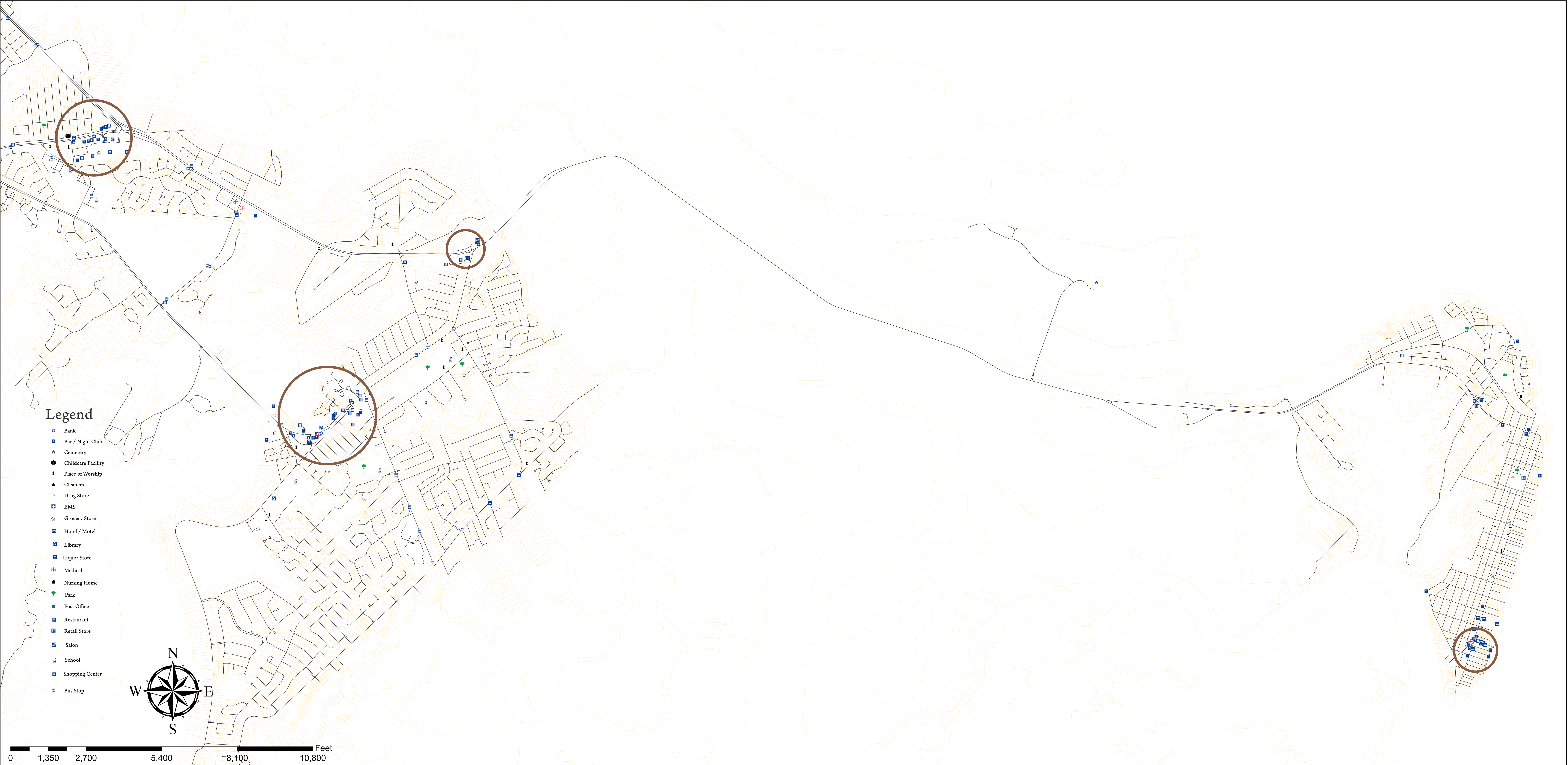
They will not be available in the event of a hurricane.

No food or water is provided.



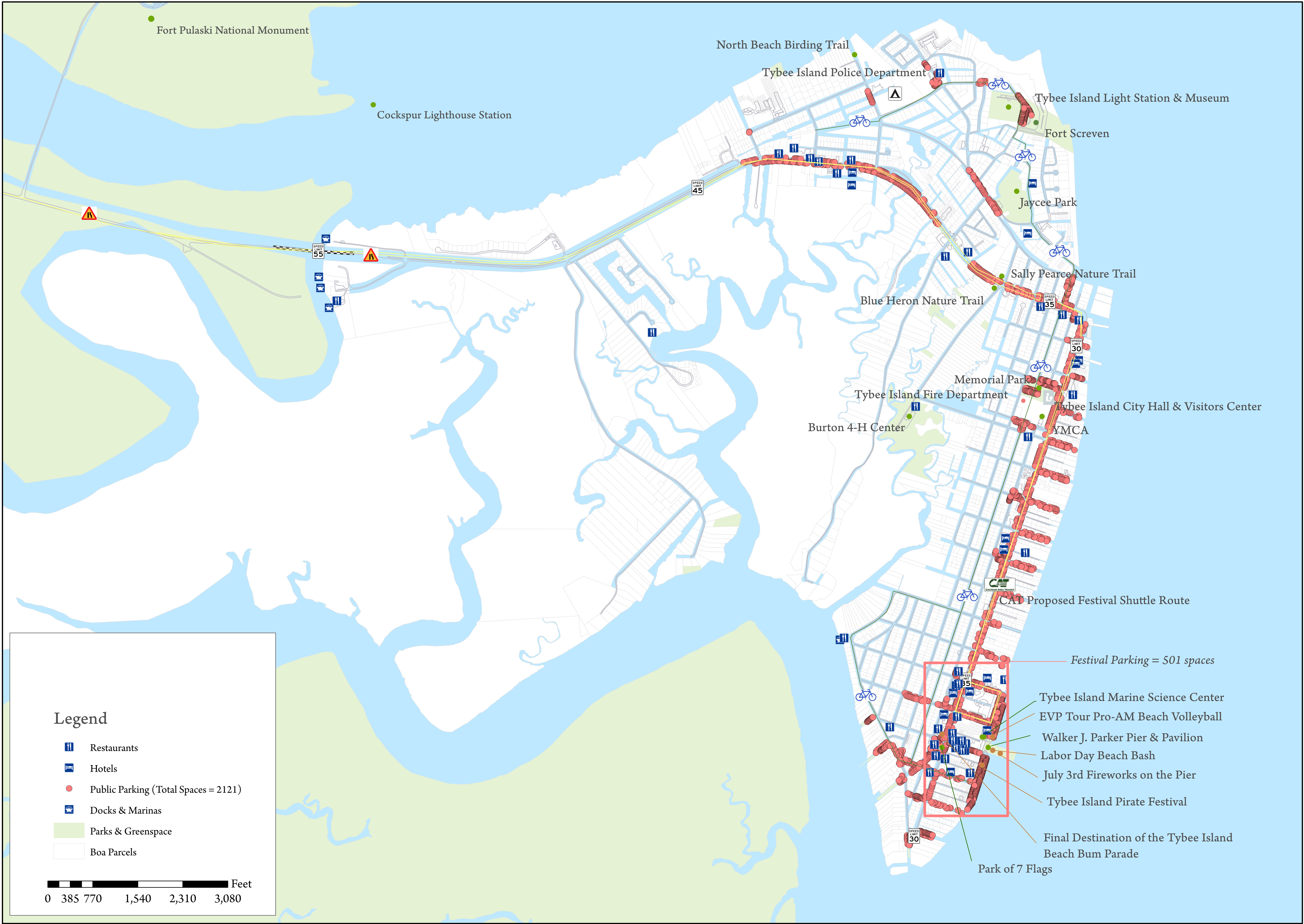
Wave Ecology: Route 80 & Tybee Island

Sense of Place: Urban Necessities & Services



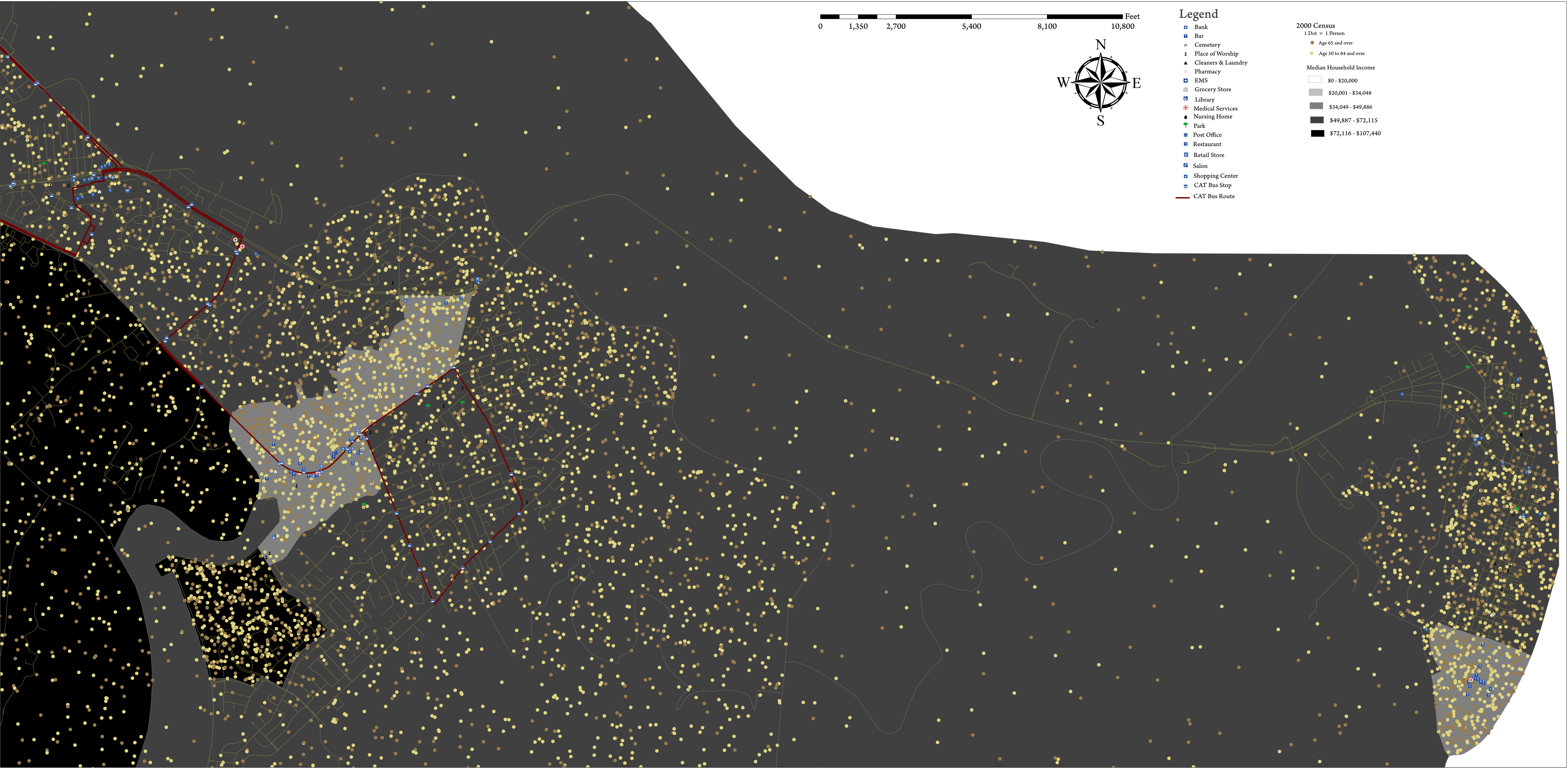
Wave Ecology: Route 80 & Tybee Island

Culture: Festivals, Destinations & Mobility



Wave Ecology: Route 80 & Tybee Island

Understanding the Aging Demographic & Available Services



Appendix C



Overall Wave Ecology Purpose: To utilize Urban Ecology principles of holistic analysis in revealing potential solutions to the Problems/Issues related to the Highway 80 corridor.

Issue 1: Traffic Congestion / Lack of access /
Mobility issues during special events and peak tourism season

Summary:

Data revealed during the Wave Ecology Study exposed the link between traffic congestion and tourism, whether through special events or the peak tourist season. While minimizing congestion issues is important, data also revealed that the current tourist product remains the main economic driver for the City of Tybee Island. Thus, to ensure sustainability for the City, solutions that mitigate congestion and access issues must also diversify and enhance the tourist product or encourage the growth of other economic sectors. Viewing data holistically revealed the potential for unique public/private partnerships to build new infrastructure and market existing infrastructure crucial in diversifying the tourist product from private automobile use.

The following Indicators on the document titled City of Tybee Island TCC Community Indicators should be referenced:

1. P Factor: Household and Age Indicator
2. A Factor: Economic Profile (Full Data Grouping)
3. T-Factor: Mobility (Full Data Grouping)

Maps/Data to Reference (www.thempc.org/transportation/WaveEcologyStudy.html):

1. People, Places & Services:
 - Density of Residents and Visitors with Households
 - Sense of Place: Urban Necessities and Services
 - Culture: Festivals, Destinations & Mobility
2. Traffic Patterns
 - 2010 Tybee Traffic Counts (January - July & Labor Day)
 - Highway 80 Capacity
 - Highway 80 and Tybee Island Traffic Incident Map
3. Waterways and Mobility
 - Marinas
 - Coastal Georgia and South Carolina Marinas Map
4. Disaster Potentials: Flooding and Sea Level Rise
 - Tybee Island Safe Site Locations



Overall Wave Ecology Purpose: To utilize Urban Ecology principles of holistic analysis in revealing potential solutions to the Problems/Issues related to the Highway 80 corridor.

Issues 2 & 3: Incident / Accident (Stalled Vehicles on Highway 80) and Narrow Bridges, Lack of Shoulders and Public Safety

Summary:

Data revealed during the Wave Ecology Study exposed the missing link of inter-agency coordination and long-term planning for emergency management along the Highway 80 corridor. Municipal jurisdictional boundaries differ from boundaries of emergency services, which have no formal written agreement related to the handling of stalled vehicles along the Highway 80 corridor. Emergency services may enter the corridor from both directions depending upon whether Tybee Island PD and Fire Department or Savannah - Chatham PD and Southside Fire Department. This may assist in potential solutions for managing stalled vehicles depending upon the blocked directional flow. Data also revealed that while several accidents, including a fatal accident has occurred on the bridges, the main accident area is located at the Highway 80 and Johnny Mercer intersection.

A variety of safety strategies to assist in minimizing the likelihood of traffic accidents are not in place. These include the reduction of speed limits before bridges (speed is increased just before Lazaretto Creek bridge on the exit from Tybee Island and reduced by after crossing on the entrance to Tybee Island). No ongoing safety signage provides warning to drivers, prior to crossing, of the need for added attention.

The following Indicators on the document titled City of Tybee Island TCC Community Indicators should be referenced:

1. T-Factor: Mobility (Full Data Grouping)

Maps/Data to Reference (www.thempc.org/transportation/WaveEcologyStudy.html):

1. People, Places & Services:
 - Density of Residents and Visitors with Households
 - Culture: Festivals, Destinations & Mobility
2. Traffic Patterns
 - 2010 Tybee Traffic Counts (January - July & Labor Day)
3. Traffic Conflicts and Emergency Facilities
 - Highway 80 Traffic Incident Data
 - Tybee Island Incident Report
 - Highway 80 Capacity
 - Highway 80 and Tybee Island Traffic Incident Map
 - Tybee Corridor Traffic Conflicts
 - Traffic Conflicts and Emergency Services
3. Waterways and Mobility
 - Marinas
 - Coastal Georgia and South Carolina Marinas Map
4. Disaster Potentials: Flooding and Sea Level Rise
 - Chatham County Storm Surge Map
 - Chatham County Shallow Coastal Flooding Model
 - Emergency Management Services



Overall Wave Ecology Purpose: To utilize Urban Ecology principles of holistic analysis in revealing potential solutions to the Problems/Issues related to the Highway 80 corridor.

Issue 4: Lack of Parking Space During Special Events

Summary:

Data revealed during the Wave Ecology Study exposed a total of 2,121 public parking spaces. These do not include special event private lots due to fluctuations and lack of dependency upon spaces. The Strand Historic Downtown Business District typically utilized for special events held approximately 500 spaces within a narrow, walkable parameter. However, it is important to note that this count includes an area commonly blocked off during event times, such as the Pirates Festival in order to accommodate event space. The other major parking areas located in the North Beach Neighborhood near the Tybee Island Lighthouse, Jacyee Park and the City Hall/Memorial Park offers potential for diversifying the tourist product to offer inter-island transport through a public/private partnership. As with inter-island transport, data also revealed potentials for public/private partnerships that may offer external island connection via both roadway and waterway.

The Study also revealed a heavy dependency upon tourism for economic sustainability. Diversifying the product offered, the times of year offered, and the infrastructure needed for each product may assist Tybee Island in alleviating stresses on current infrastructure, while still meeting the economic needs for the municipality. Internal sourcing and business development for tourist/festival needs, rather than relying upon external imported businesses to assist in expanding capacity may increase revenues and foster potential business growth for the community.

The following Indicators on the document titled City of Tybee Island TCC Community Indicators should be referenced:

1. P-Factor: Resident Population Demographics (Full Data Grouping)
2. A-Factor: Economic Profile (Full Data Grouping)
3. T-Factor: Mobility (Full Data Grouping)

Maps/Data to Reference (www.thempc.org/transportation/WaveEcologyStudy.html):

1. People, Places & Services:
 - Culture: Festivals, Destinations & Mobility
2. Traffic Patterns
 - 2010 Tybee Traffic Counts (January - July & Labor Day)
 - Highway 80 Capacity
3. Waterways and Mobility
 - Marinas
 - Coastal Georgia and South Carolina Marinas Map



Overall Wave Ecology Purpose: To utilize Urban Ecology principles of holistic analysis in revealing potential solutions to the Problems/Issues related to the Highway 80 corridor.

Issue 5: Emergency Situation and Evacuation

Summary:

In a community, the roles of various agencies and governments must be very succinct in their purpose, coordinating well to ensure the sustained life of the community. This proves critical in a situation such as Tybee Island with one ingress and one egress point governed by multiple jurisdictions. Data revealed during the Wave Ecology Study revealed boundaries for these jurisdictions with no existing emergency evacuation plan. Police and fire, emergency management, emergency dispatch, and municipal boundaries all occur at differing points along the Highway 80 corridor. Data also revealed the areas of greatest traffic conflicts along the corridor, speed limits that do not reflect the safety concerns for the bridge infrastructure, and available emergency services.

Tybee Island is located within an area of exposure to the coastal environment. Increased storm intensity and sea level rise are both factors of climate change that prove critical in planning for emergency situations, especially when considering roadway evacuation on a corridor that experiences regular flooding.

The following Indicators on the document titled City of Tybee Island TCC Community Indicators should be referenced:

1. P-Factor: Resident Population Demographics (Full Data Grouping)
2. T-Factor: Full Data Grouping

Maps/Data to Reference (www.thempc.org/transportation/WaveEcologyStudy.html):

1. People, Places & Services:
 - Density of Residents and Visitors with Households
 - Sense of Place: Urban Necessities & Services
 - Understanding Aging Demographics & Available Services
 - Culture: Festivals, Destinations & Mobility
2. Traffic Patterns
 - 2010 Tybee Traffic Counts (January - July & Labor Day)
 - Highway 80 Capacity
3. Traffic Conflicts and Emergency Facilities
 - Highway 80 Traffic Incident Data
 - Highway 80 and Tybee Island Traffic Incident Map
 - Traffic Conflicts and Emergency Services
4. Waterways and Mobility
 - Marinas
 - Coastal Georgia and South Carolina Marinas Map
5. Disaster Potentials: Flooding and Sea Level Rise (Full Data Group)

Appendix D

Matrix of Proposed Solutions to US 80 / Tybee Island Traffic Problems

Problems / Issues	Proposed Solutions		Effects		Comments
	Strategies	Category	Pros	Cons	
Traffic congestion and lack of access / mobility during special events and peak tourism season	Social media	- Short term	- Advanced warning; direction for better route finding	- Information not accessible to all	- Need special equipment (computer, etc.)
	Bus service / shuttle service	- Land based - Transit capacity improvements - Short term	- Reduce traffic congestion - Cost effective - Help to transport people to and from the island more efficiently - Increase overall transportation capacity of the existing infrastructure	- Family taking a lot of equipments will be unwilling to use bus - Need to provide incentives or perks to attract people - Need clear organization and advertising to market - Dedicated funding sources not available - Fear that the buses will bring more people than Tybee can handle	- What path is the most accessible to and from Tybee for buses or shuttles? - Where are the best locations for pick-ups and drop-offs? - Incorporate the idea into Tybee’s Comprehensive Plan and the contingency plan (to be developed)
	Toll road – using tolls to pay for improvements and manage traffic flow through pricing	- Land based - Highway capacity improvements - Long term	- Generate more revenues to deal with parking supply - Jump start US 80 widening and road improvements - Increase highway capacity and reduce traffic congestion	- Expensive to build - Need extensive public support - Benefits not shown in near future - No free route	- Toll feasibility study needed
	Better way-finding and signage	- Land based - Highway operational improvements - Short term	- Minimize confusion of tourists to avoid unnecessary roadway blockage - Cheaper to implement in a short period of time - Optimize the usage of the existing infrastructure	- Might not address long-term traffic increase	- Analysis needed regarding types of signs and locations to put them up
	Ferry boat service	- Water based - Transit capacity improvements - Long term	- Provide alternative transportation - Reduce reliance on roadway - Reduce traffic congestion - Potential tourist attraction by itself	- Need to improve and expand the existing infrastructure such as marinas - Might be expensive to implement if ferryboats are to be acquired	- Coordination work among various agencies needed (Coast Guard, CAT, Tybee, etc.) - Federal process is slow for securing funds
	Carpool / vanpool	- Land based - Highway capacity improvements - Short term	- Reduce traffic congestion - Cost effective - Increase overall transportation capacity of the existing infrastructure	- Level of congestion reduction might be limited since people are already carpooling during special events - Might need more incentives to people who do not carpool	- Public has free access to MPC’s Coastal Commuter ride-matching system for carpool formation. Events can be created as destinations in the system.
	Bike / pedestrian	- Land based - Multi-modal capacity improvements - Long term	- Reduce traffic congestion - Cost effective - Increase overall transportation capacity - Provide transportation alternatives - Health and environmental benefits - Attract new type of tourists and provide new activity for existing tourists	- Family taking a lot of equipments will be unwilling to use bicycles - Traditional funding sources not enough to provide bike/pedestrian improvements - Level of congestion reduction is uncertain	- Need to coordinate with the MPC’s Non-Motorized Plan, for specific recommendations along US 80 and with US 80 Bridges Study - Limited existing bikeways/pedestrian path spell danger, so connection between bikeways and improvements on bike/pedestrian accommodation is needed
	Reversible lanes	- Land based - Highway operational improvements - Short term	- Shut down a lane for buses will help to transport people to and from the island with more efficiency - Shut off period for peak festival movements to facilitate traffic - Increase existing capacity for short period of time	- Some people will still travel in the other direction - Need to widely publicize the plan ahead of time	- Detailed plans are needed to determine the best location and best time for implementing reversible lanes - Need enforcement
	Signal timing and Transportation System Management	- Land based - Highway operational improvements - Short term	- Reduce traffic congestion - Improve traffic flow - Optimize usage of existing infrastructure - Cheaper to implement	- Might not address long-term traffic increase - Might not be feasible if congestion is caused by large traffic flow	
	More island accommodations	- Land based - Land use related - Operational and capacity improvements - Long and short term	- Integrate transportation with land use - Reduce traffic congestion by disbursing attraction areas throughout the island	- Island capacity is limited.	- Tybee’s Comprehensive Plan might need to have some focus on this.
Incident / accident (stalled vehicles holding up traffic, etc.)	Social media	- Short term	- Advanced warning; direction for detour	- Information not accessible to all	- Need special equipment (computer, etc.)
	Signal timing and Transportation System Management; Surveillance and traffic control; Intelligent Transportation System (ITS)	- Land based - Highway operational improvements - Long term	- Identify specific chock points or bottlenecks to be addressed - Reduce traffic holdup time because of prompt response - Timely information dissemination to route traffic during incidents	- Cost effectiveness might be questionable	- Should be part of the traffic control center to be built in Chatham County - Emergency and public safety agencies need to coordinate and cooperate with each other intensively
Narrow bridges, lack of shoulders & public safety	Bridge reconstruction; widen road to four lanes	- Land based - Highway capacity improvements - Long term	- Address safety concerns - Provide alternative transportation if bike/pedestrian facilities are accommodated	- Expensive to build - Long time to build	- Need to coordinate with the MPC’s US 80 Bridges Replacement Study

Lack of parking space during special events	Social media	- Short Term	- Better information on parking availability	- Information not accessible to all	- Need special equipment (computer, etc.)
	Bike / pedestrian	- Land based - Multi-modal capacity improvements - Long term	- Reduce parking pressure on the island - Cost effective - Increase overall parking capacity - Health and environmental benefits	- Family taking a lot of equipments will be unwilling to use bicycles - Traditional funding sources not enough to provide bike/pedestrian improvements - Level of parking relief is uncertain	- Need to coordinate with the MPC's Non-Motorized Plan for specific recommendations along US 80 - Tie into Tybee's parking study
	Increase number of parking spaces	- Land based - Land use capacity improvements - Long term	- Increase accommodation on the island - Relieve parking shortage during special events - Potential revenue increase	- Not the best land use during off season - Encourage highway travel and discourage multi-modal development - Investment vs. return not certain at this time	- Tybee conducted a parking study
	Better signage	- Land based - Land use operational improvements - Short term	- Increase accommodation on the island by more efficient use of the existing infrastructure - Reduce traffic blockage due to unclear signs - Potential revenue increase	- Might not meet the needs when larger crowds come to the island - Limited success expected when attraction areas are concentrated	- Tybee conducted a parking study - Need to work with other alternatives to be successful
	Package ideas (incentives and pricing, etc.)	- Land based - Land use operational improvements - Short term	- Increase accommodation on the island by more efficient use of the existing infrastructure or additional hotel rooms and other accommodations - Potentially encourage multi-modal development	- Investment vs. return not certain at this time (to be tested)	- Tybee conducted a parking study - Need to work with other alternatives such as bus / shuttle services to be successful
	Private parking	- Land based - Land use capacity improvements - Short term	- Increase accommodation on the island - Relieve parking shortage during special events	- Revenue generated will not come to the government - Lack of organization might lead to traffic congestion when people exit the island during special events	- Tybee conducted a parking study - Tybee government needs to coordinate with private citizens to achieve best results
	Bus service / shuttle service plus remote parking	- Land based - Transit capacity improvements - Short term	- Relieve parking shortage during special events - Encourage multi-modal development - Reduce traffic congestion - Cost effective	- Expect limited success - Need to provide incentives or perks to attract people - Need clear organization and advertising to market - Dedicated funding sources not available	- Tybee conducted a parking study - Need a lot of coordination work between Tybee and transit providers - Pick-up and drop-off locations need to be decided
	Disburse tourist attractions along Tybee	- Land based - Land use improvements - Long term	- Change parking patterns so no one attraction area will be congested - Utilize under-used parking space in N of island - More comprehensive island development	- New areas must have equal or more attractions - Extensive marketing needed	- Tybee conducted a parking study - Need to be incorporated into the Comprehensive Plan for implementation
Emergency situation including emergency evacuation	Social media	- Short term	- Direction for more efficient evacuation	- Information not accessible to all	- Need special equipment (computer, etc.)
	Advance contracting for resources	- Long and short term	- Early and more fully preparation for evacuation - Minimize chances of ill-preparation and unexpected occasions	-	- Need a lot of coordination ahead of time - Need to resolve funding issues
	Identification of critical resources for best use; coordination among agencies; development of coordinated evacuation plans	- Long and short term	- Pooling all resources together to achieve best results - More efficient handling of emergency situations - Better delineation of agency responsibilities and tasks	- Turf battle expected - Joint planning is a major task	- Might need a facilitator to help organization of joint sessions - CEMA has a county-wide evacuation plan, but needs further cooperation from various agencies.
	Reversible lanes during hurricane and disaster evacuation	- Land based - Highway operational improvements - Short term	- Facilitate traffic flow in one direction - Increase existing capacity for short period of time	- Need to widely publicize the plan ahead of time	- Detailed plans are needed to determine the best time for implementing reversible lanes - Need enforcement
	Have one lane dedicated to emergency vehicles during holidays and special events	- Land based - Highway capacity improvements - Short term	- Temporary highway capacity increase - Reduce roadway blockage and congestion caused by an emergency	- Success yet to be proved	- Best section and time for lane dedication to be determined
	Helicopter emergency service	- Air based - Short term	- Transport people in-need more efficiently - Prove alternatives for emergency evacuation	- Expensive to implement	- Need major coordination work
	Provide an ambulance on the island with medical staff during festival or emergency situations.	- Land based - Short term	- Provide needed medical assistance during emergency - Save lives	- Expensive to implement - Waste resources if no emergency happens	- Need major coordination work with hospitals and medical or EMS agencies
	Ferry or boat evacuation	- Water based - Capacity improvements - Long term	- Provide alternatives for emergency evacuation	- The existing marinas do not have enough capacity to handle large-scale evacuation and expansion and improvements to them might be expensive.	- Need to coordinate with Coast Guard for usage of marinas.
	Surveillance and traffic control; Intelligent Transportation System (ITS)	- Land based - Highway operational improvements - Long term	- Identify specific choke points during emergency - Reduce traffic holdup time because of prompt response - Cell phone and message boards will help detour	- Message may not reach people who do not have the necessary device	- Should be part of the traffic control center to be built in Chatham County - Emergency and public safety agencies need to coordinate and cooperate with each other intensively

Appendix E

Wave Ecology/Highway 80 Committee Strategy Report
Based Upon Findings of the Wave Ecology Study and Committee Dialog
Note: Final Strategies for Phase I implementation have been highlighted in light green.

Problems / Issues	Proposed Solutions		Effects		Implementation		Timeframe	Cost	Method	Comments
Traffic Congestion & Lack of Access During Special Events & Peak Tourism Season Wanda Doyle <i>Sub-Com Leader</i>	Strategies	Category	Pros	Cons	Lead	Participant				
	Social media	- Short term	- Advanced warning; direction for better route finding	- Information not accessible to all	- Tybee Island	- Better Hometown Tybee - Tybee Island Tourism Council	- June 2011	X	- City of Tybee Island will continue utilizing existing staff and capacity to disseminate information through social media outlets during special events and peak tourism periods - City of Tybee Island, Better Hometown Tybee, and Tybee Island Tourism Council will market the advantages of parking along Butler between 2 nd and 14 th Street via Facebook and Twitter	- Currently implemented through City’s website, Tourism Council website, Facebook and Twitter.
	Bus service / shuttle service	- Land based - Transit capacity improvements - Short term	- Reduce traffic congestion - Cost effective - Help to transport people to and from the island more efficiently - Increase overall transportation capacity of the existing infrastructure	- Family taking a lot of equipments will be unwilling to use bus - Need to provide incentives or perks to attract people - Need clear organization and advertising to market - Dedicated funding sources not available - Fear that the buses will bring more people than Tybee can handle	- Tybee Island - Better Hometown Tybee	- Tybee Island Tourism Council - Coastal Regional Commission - Chatham Area Transit	- June 2011	X	- City of Tybee Island and Better Hometown Tybee will continue to work with the Coastal Regional Commission to bring a shuttle service from downtown Savannah to Tybee Island twice per day. - City of Tybee Island will update the Special Event Application to require a parking plan for organizers utilizing a parking lot and on=island shuttle service to accommodate the parking space loss. - City of Tybee Island and TITC will encourage event organizers to contact private landowners of large lots near any special event for use as parking, allowing for private partnerships to fulfill parking needs. - City of Tybee Island will continue exploring the CAT Special Event bus proposal with future event organizers.	- Items 1 and 2 have been completed.
	Toll road – using tolls to pay for improvements and manage traffic flow through pricing	- Land based - Highway capacity improvements - Long term	- Generate more revenue - Jump start US 80 widening - Increase highway capacity and reduce traffic congestion	- Expensive to build - Need extensive public support - Benefits not shown in near future - No free route	X	X	X	X	- A feasibility study must be conducted and funding appropriated. - Agencies to include Tybee Island, would move forward as appropriate under the findings of this study.	- Long term and cost prohibitive at this time. -
	Better way-finding and signage	- Land based - Highway operational improvements - Short term	- Minimize confusion of tourists to avoid unnecessary roadway blockage - Cheaper to implement - Optimize existing infrastructure use	- Might not address long-term traffic increase	Tybee Island	X	X	X	- Tybee Island has invested in parking signage, flyers, and banners and will continue to maintain these structures. - Tybee Island will phase in more effective “Pay to Park” signage.	- Being implemented and will continue as funding allows.
	Ferry boat service	- Water based - Transit capacity improvements - Long term	- Provide alternative transportation - Reduce traffic congestion - Potential tourist attraction	- Need to improve and expand the existing infrastructure such as marinas - Might be expensive to implement if ferryboats are to be acquired	- Chatham County	- DNR - CORE MPO - Tybee Island - Others - Coast Guard - CAT	X	X	- A feasibility study would need to be conducted to determine the best public/private partnership, the best marine route, the best dock locations, and potential funding partnerships. - Resulting plan of action would be developed based upon the findings of this study.	- Federal process is slow for securing funds. Cost prohibitive at this time.
	Carpool / vanpool	- Land based - Highway capacity improvements - Short term	- Reduce traffic congestion - Cost effective - Increase overall transportation capacity of the existing infrastructure	- Level of congestion reduction might be limited since people carpool during special events - Might need more incentives to people who do not carpool	- CORE MPO	- Tybee Island - Chatham County - Special Event Organizers	Ongoing	NA	- The Core MPO currently hosts the program www.coastalcommuters.org that promotes carpooling, mass transit, bicycling, and walking through on online ride-matching system and will continue this service. - Tybee Island or Special Event Organizers will utilize online means to promote carpooling to include the www.coastalcommuters.org website.	X

	Bike / pedestrian	<ul style="list-style-type: none"> - Land based - Multi-modal capacity improvements - Long term 	<ul style="list-style-type: none"> - Reduce traffic congestion - Cost effective - Increase overall transportation capacity - Provide transportation alternatives - Health and environmental benefits - Attract new type of tourists and provide new activity for existing tourists 	<ul style="list-style-type: none"> - Family taking a lot of equipments will be unwilling to use bicycles - Traditional funding sources not enough to provide bike/pedestrian improvements - Level of congestion reduction is uncertain 	X	X	X	X	X	<ul style="list-style-type: none"> - Need to coordinate with the MPC's Non-Motorized Plan, for specific recommendations along US 80 and with US 80 Bridges Study - Limited existing bikeways/pedestrian path spell danger, so connection between bikeways and improvements on bike/pedestrian accommodation is needed
	Reversible Lanes	<ul style="list-style-type: none"> - Land based - Highway operational improvements - Short term 	<ul style="list-style-type: none"> - Shut down a lane for buses will help to transport people to and from the island with more efficiency - Shut off period for peak festival movements to facilitate traffic - Increase existing capacity for short period of time 	<ul style="list-style-type: none"> - Some people will still travel in the other direction - Need to widely publicize the plan ahead of time 	X	X	X	X	X	<ul style="list-style-type: none"> - Determined to not be practicable under existing roadway structure. Possible implementation in emergency cases as determined by SCMPD and TIPD.
	Signal timing and Transportation System Management	<ul style="list-style-type: none"> - Land based - Highway operational improvements - Short term 	<ul style="list-style-type: none"> - Reduce traffic congestion - Improve traffic flow - Optimize usage of existing infrastructure - Cheaper to implement 	<ul style="list-style-type: none"> - Might not address long-term traffic increase - Might not be feasible if congestion is caused by large traffic flow 	- Tybee Island	- Chatham County - GDOT	TBD	TBD	City of Tybee Island will coordinate with other agencies to develop a plan of action.	X
	Reversible Lanes	X	X	X	X	X	X	X	X	<ul style="list-style-type: none"> - Determined to not be practicable under existing roadway structure. Possible implementation in emergency cases as determined by SCMPD and TIPD
	More island accommodations	<ul style="list-style-type: none"> - Land based - Land use related - Operational and capacity improvements - Long and short term 	<ul style="list-style-type: none"> - Integrate transportation with land use - Reduce traffic congestion by disbursing attraction areas throughout the island 	- Island capacity is limited.	- Tybee Island	X	TBD	TBD	City of Tybee Island will utilize GIS parking information to inform Special Event Organizers of parking areas. The City of Tybee Island, Better Hometown and Tourism Council will market advantages of parking along Butler between 2 nd and 14 th Streets via Facebook and Twitter.	<ul style="list-style-type: none"> - Additional legal parking spaces continue to be identified. However, restricted by zoning limitations and the variety of attractions within the corridor.
	Social media	<ul style="list-style-type: none"> - Short term 	<ul style="list-style-type: none"> - Advanced warning; direction for detour 	<ul style="list-style-type: none"> - Information not accessible to all 	- Tybee Island - Chatham County	- Tybee IT - CEMA	- Ongoing	TBD	<ul style="list-style-type: none"> - Tybee Island will create a process for sharing information related to events, emergencies, and transportation issues. CEMA is available as a resource for sharing information. 	<ul style="list-style-type: none"> - Currently in place with internal capacity in Tybee Island staff and through CEMA.
	Signal timing and Transportation System Management; Surveillance and traffic control; Intelligent Transportation System (ITS)	<ul style="list-style-type: none"> - Land based - Highway operational improvements - Long term 	<ul style="list-style-type: none"> - Identify specific chock points or bottlenecks to be addressed - Reduce traffic holdup time because of prompt response - Timely information dissemination to route traffic during incidents 	<ul style="list-style-type: none"> - Cost effectiveness might be questionable 	- SCMPD	- TIPD - TIFD - CEMA	- Ongoing	Varies	<ul style="list-style-type: none"> - The SCMPD (Precinct 5) will manage traffic lights along Highway 80 before and after events to ensure traffic flow in coordination with the TIPD. - During the event of an emergency, SCMPD (Precinct 5) will manage traffic lights in coordination with TIPD. - City of Tybee Island and Chatham County will place signs well in advance of bridges describing any situations pertinent to drivers. 	<ul style="list-style-type: none"> - Should be part of the traffic control center to be built in Chatham County - Currently being implemented and it is recommended that it be formalized and continued.

<p>Incident & Accident (stalled vehicles holding up traffic, etc.) / Narrow Bridges / Lack of Shoulders & Public Safety</p> <p>Paul Wolff <i>Sub-Com Leader</i></p>	Reduce speed limit along corridor to 45 mph	<ul style="list-style-type: none"> - Land based - Short term 	<ul style="list-style-type: none"> - Coordination with GDDOT - Need for speed enforcement once reduced 	<ul style="list-style-type: none"> - Enforcement - Reduced highway overall capacity numbers 	- GDOT	<ul style="list-style-type: none"> - Chatham County - Tybee Island 	TBD	TBD	- Tybee Island and Chatham County coordinate with GDOT.	X
	Increased Signage	<ul style="list-style-type: none"> - Land based - Short term 	<ul style="list-style-type: none"> - Added safety precaution for drivers - Address safety concerns 	- Permitting process could be difficult.	- GDOT	<ul style="list-style-type: none"> - Chatham County - Tybee Island 	TBD	TBD	- Tybee Island and Chatham County will coordinate with GDOT to install “Road Narrows” signs well in advance of bridges	X
	Bridge reconstruction; widen road to four lanes	<ul style="list-style-type: none"> - Land based - Highway capacity improvements - Long term 	<ul style="list-style-type: none"> - Address safety concerns - Provide alternative transportation if bike/pedestrian facilities are accommodated 	<ul style="list-style-type: none"> - Expensive to build - Long time to build 	X	X	X	X	X	- Need to coordinate with the MPC’s US 80 Bridges Replacement Study
	Develop an agreement of mutual aid to coordinate 911 calls and allow TIPD jurisdictional response	<ul style="list-style-type: none"> - Land based - Improve highway safety coordination - Short term - Agency coordination 	<ul style="list-style-type: none"> - Cross-agency coordination - Syncing of resources 	May increase demand on TIPD	<ul style="list-style-type: none"> - SCMPD - TIPD 	Southside EMS	NA	NA	SCMPD and TIPD will develop a mutual aid agreement with a process for forwarding 911 calls where TIPD can offer a quicker response time. This agreement will also allow TIPD jurisdictional coverage to monitor vehicle speed and perform necessary arrests.	X
	Coordinated plan for transporting emergency victims along the Hwy 80 corridor	<ul style="list-style-type: none"> - Land based - Improve safety - Agency Coordination - Short Term 	<ul style="list-style-type: none"> - Agency coordination - Syncing of resources - Increased public safety 	-	<ul style="list-style-type: none"> - SCMPD - TIPD 	<ul style="list-style-type: none"> -Southside EMS -TIFD -CEMA -Chatham County 	TBD	TBD	SCMPD and TIPD will develop a plan for transporting emergency victims along the corridor. This plan may include blocking eastbound traffic at Bull River and blocking all entrance traffic that threatens the contra-flow necessary during the emergency transport.	X
	Install wide shoulders on both sides of Highway 80 and install “smart strips” in the white highway marker.	<ul style="list-style-type: none"> - Land based - Mid Term 	<ul style="list-style-type: none"> - Increase alternative transportation opportunities - Increase safety 	<ul style="list-style-type: none"> - Locating budget funds - Coordination process 	<ul style="list-style-type: none"> - Tybee Island - Chatham County 	GDOT CORE MPO	TBD	TBD	Tybee Island will coordinate with DGOT and other agencies to work towards a shoulder-widening project that will allow safer shoulders along the Highway 80 corridor. This widening project shall include the installation of “smart strips” as a warning tool for vehicular traffic.	X
	Install “Share the Road” signs along the Highway 80 corridor to warn vehicles of possible cyclists and pedestrians.	<ul style="list-style-type: none"> - Land based - Short term 	<ul style="list-style-type: none"> - Increased alternative transportation - Increased safety 	<ul style="list-style-type: none"> - Locating budget funds - Coordination process 	- Tybee Island	GDOT Chatham County CORE MPO	TBD	TBD	Tybee Island will coordinate with GDOT and other agencies to install “Share the Road” signs along the Highway 80 corridor to warn vehicular traffic of possible cyclists and pedestrians.	X
	Ensure all TIFD/Emergency Response personnel receive life support training and certification.	<ul style="list-style-type: none"> - Land based - Short term 	<ul style="list-style-type: none"> - Increased public safety in the event of an emergency 	<ul style="list-style-type: none"> - Cost for training and supplies 	TIFD	Southside EMS	TBD	TBD	TIFD will train and certify personnel to ensure at least one emergency response staff per hourly shift is trained in life support medical services.	X
	Carpool and Vanpool System for special events and peak tourism periods.	<ul style="list-style-type: none"> - Land based - Highway capacity improvements - Short term 	<ul style="list-style-type: none"> - Reduce traffic congestion - Cost effective - Increase overall transportation capacity of the existing infrastructure 	<ul style="list-style-type: none"> - Level of congestion reduction might be limited since people are already carpooling during special events - Might need more incentives to people who do not carpool 	- CORE MPO	<ul style="list-style-type: none"> - Tybee Island - Chatham County - Special Event Organizers 	Ongoing	NA	<ul style="list-style-type: none"> - The Core MPO currently hosts the program www.coastalcommuters.org that promotes carpooling, mass transit, bicycling, and walking through on online ride-matching system and will continue this service. - Tybee Island or Special Event Organizers will utilize online means to promote carpooling to include the www.coastalcommuters.org website. 	X

<p>Lack of Parking Space During Special Events</p> <p>Bill Garbett <i>Sub-Com Leader</i></p>	Social media	- Short Term	- Better information on parking availability	- Information not accessible to all	- Tybee Island - Chatham County	- Tybee IT - CEMA	- Ongoing	TBD	- Tybee Island will create a process for sharing information related to events, emergencies, and transportation issues. CEMA is available as a resource for sharing information.	- Currently in place with internal capacity in Tybee Island staff and through CEMA.
	Install wide shoulders on both sides of Highway 80 and install “smart strips” in the white highway marker.	- Land based - Mid Term	- Increase alternative transportation opportunities - Increase safety	- Locating budget funds - Coordination process	- Tybee Island - Chatham County	GDOT CORE MPO	TBD	TBD	Tybee Island will coordinate with DGOT and other agencies to work towards a shoulder-widening project that will allow safer shoulders along the Highway 80 corridor. This widening project shall include the installation of “smart strips” as a warning tool for vehicular traffic.	X
	Increase number of parking spaces	- Land based - Land use capacity improvements - Long term	- Increase accommodation on the island - Relieve parking shortage during special events - Potential revenue increase	- Not the best land use during off season - Encourage highway travel and discourage multi-modal development - Investment vs. return not certain at this time	X	X	X	X	X	- Determined not to be practicable under the budget and land use constraints.
	Better way-finding and directional signage during special events	- Land based - Land use operational improvements - Short term	- Increase accommodation on the island by more efficient use of the existing infrastructure - Reduce traffic blockage due to unclear signs - Potential revenue increase	- Might not meet the needs when larger crowds come to the island - Limited success expected when attraction areas are concentrated	- Tybee Island - Better Hometown Tybee	- TBD	- Ongoing	- TBD	- Tybee Island will work with special event organizers to develop a signage plan for ease in traffic flow and in locating available parking.	- City currently works closely with event organizers to improve traffic flow.
	Package ideas (incentives and pricing, etc.)	- Land based - Land use operational improvements - Short term	- Increase accommodation on the island by more efficient use of the existing infrastructure or additional hotel rooms and other accommodations - Potentially encourage multi-modal development	- Investment vs. return not certain at this time (to be tested)	X	X	X	X	X	- Tybee conducted a parking study - Need to work with other alternatives such as bus / shuttle services to be successful
	Increase parking accommodations to include private parking lots	- Land based - Land use capacity improvements - Short term	- Increase accommodation on the island - Relieve parking shortage during special events	- Revenue generated will not come to the government - Lack of organization might lead to traffic congestion when people exit the island during special events	- Tybee Island	- Private citizens	- Ongoing	- NA	Tybee Island will inform Special Event Organizers of potential private parking areas and will continue to add legal parking spaces when identified. Tybee Island and TITC will encourage event organizers to contact private landowners of large lots near any special event for use as parking, allowing for private partnerships to fulfill parking needs.	X
	Inter-Island Bus service / shuttle service during special events	- Land based - Transit capacity improvements - Short term	- Relieve parking shortage during special events - Encourage multi-modal development - Reduce traffic congestion - Cost effective	- Expect limited success - Need to provide incentives or perks to attract people - Need clear organization and advertising to market - Dedicated funding sources not available	- Tybee Island - Better Hometown Tybee	- Tybee Island Tourism Council	TBD	TBD	- Tybee Island will update the Special Event Application to require a parking plan for organizers utilizing a parking lot and an on-island shuttle service to accommodate the parking space loss.	- Event application has recently been updated to meet these strategies.

	Disburse tourist attractions throughout Island during special events	<ul style="list-style-type: none"> - Land based - Land use improvements - Long term 	<ul style="list-style-type: none"> - Change parking patterns so no one attraction area will be congested - Utilize under-used parking space in N of island - More comprehensive island development 	<ul style="list-style-type: none"> - New areas must have equal or more attractions - Extensive marketing needed 	- Tybee Island	- Tybee Island Tourism Council	- Ongoing	- NA	Where applicable, Tybee Island will work with special event organizers to distribute event locations, preventing congestion and lack of parking in one centralized location.	X
Emergency Situation Including Emergency Evacuation Clayton Scott <i>Sub-Com Leader</i>	Social media	- Short term	- Advanced warning; direction for better route finding	- Information not accessible to all	- Tybee Island	<ul style="list-style-type: none"> - Better Hometown Tybee - Tybee Island Tourism Council 	June 2011	- NA	<ul style="list-style-type: none"> - City of Tybee Island will continue utilizing existing staff and capacity to disseminate information through social media outlets during special events and peak tourism periods - City of Tybee Island, Better Hometown Tybee, and Tybee Island Tourism Council will market the advantages of parking along Butler between 2nd and 14th Street via Facebook and Twitter 	- Currently implemented through City's website, Tourism Council website, Facebook and Twitter.
	Advance contracting for wrecker/towing resources	- Long and short term	<ul style="list-style-type: none"> - Early and more fully preparation for evacuation - Minimize chances of ill-preparation and unexpected occasions 	<ul style="list-style-type: none"> - Funding Issues - Prep coordination 	- TIPD	<ul style="list-style-type: none"> - Tybee Island - Chatham County 	TBD	TBD	- Tybee Island Police will coordinate with a private company to ensure service on the Tybee portion of Highway 80 and will coordinate with Chatham County and SCCMPD to ensure service along the inland portion of Highway 80.	X
	Identification of critical resources for best use; coordination among agencies; development of coordinated evacuation plans	- Long and short term	<ul style="list-style-type: none"> - Pooling all resources together to achieve best results - More efficient handling of emergency situations - Better delineation of agency responsibilities and tasks 	<ul style="list-style-type: none"> - Turf battle expected - Joint planning is a major task 	X	X	X	X	X	- Determined to not be practicable since continually changing. CEMA hosts the most accurate listing.
	Reversible lanes during hurricane and disaster evacuation	<ul style="list-style-type: none"> - Land based - Highway operational improvements - Short term 	<ul style="list-style-type: none"> - Facilitate traffic flow in one direction - Increase existing capacity for short period of time 	- Need to widely publicize the plan ahead of time	X	X	X	X	X	- Determined not to be practicable under the current roadway design.
	Have one lane dedicated to emergency vehicles during holidays and special events	<ul style="list-style-type: none"> - Land based - Highway capacity improvements - Short term 	<ul style="list-style-type: none"> - Temporary highway capacity increase - Reduce roadway blockage and congestion caused by an emergency 	- Success yet to be proved	X	X	X	X	X	- Determined not to be practicable under the current roadway design.
	Helicopter emergency service	<ul style="list-style-type: none"> - Air based - Short term 	<ul style="list-style-type: none"> - Transport people in-need more efficiently - Prove alternatives for emergency evacuation 	- Expensive to implement	X	X	X	X	X	- Currently Tybee Island coordinates with the U.S. Coast Guard for helicopter transport in emergency situations. However, this coordination is limited to the availability of the Coast Guard to provide these services. Their primary functions are for harbor safety and shipping transport thus method was determined not to be a consistent tool in meeting the issue.

	Provide an ambulance on the island with medical staff during festival or emergency situations.	<ul style="list-style-type: none"> - Land based - Short term 	<ul style="list-style-type: none"> - Provide needed medical assistance during emergency - Save lives 	<ul style="list-style-type: none"> - Expensive to implement - Waste resources if no emergency happens 	- Tybee Island	TBD	- Ongoing	- TBD	Tybee Island will coordinate with Southside Fire Department and area hospitals to ensure ambulance services.	- Need major coordination work with hospitals and medical or EMS agencies.
	Ferry or boat evacuation	<ul style="list-style-type: none"> - Water based - Capacity improvements - Long term 	- Provide alternatives for emergency evacuation	- The existing marinas do not have enough capacity to handle large-scale evacuation and expansion and improvements to them might be expensive.	X	X	X	X	X	- Determined to not be practicable under existing marina capacity and may not be needed due to the current time lapse between a given emergency and the evacuation time. If private businesses begin to offer ferry services to Tybee Island (building the necessary infrastructure) this method may be revisited.
	Surveillance and traffic control; Intelligent Transportation System (ITS)	<ul style="list-style-type: none"> - Land based - Highway operational improvements - Long term 	<ul style="list-style-type: none"> - Identify specific choke points during emergency - Reduce traffic holdup time because of prompt response - Cell phone and message boards will help detour 	- Message may not reach people who do not have the necessary device	- CEMA	<ul style="list-style-type: none"> - Tybee Island - Chatham County - CORE MPO 	- Mid Term	- TBD	Development of an inter-governmental agreement to include Tybee Island in the regional Traffic Control Center (TCC) being implemented through CEMA.	- CEMA is currently developing a regional Traffic Control Center (TCC) and may integrate an ITS system on Tybee Island and the Highway 80 corridor into this process.

Appendix F

Tybee US 80 Challenge

June 28, 2010 at Tybee City Hall

Meeting Summary

Russ Abolt, the Chatham County manager, called a meeting to order at 3:30 PM at the City of Tybee Island City Hall to discuss the traffic problems on US 80, leading to Tybee Island during festivals.

US 80 will not be able to be widened for some time; due to the time it takes for major project development process and the large costs to expand it to a four-lane divided roadway. Therefore, other strategies for relieving traffic congestion on US 80, especially during festivals on the island, are being considered. Chatham County seeks to assist Tybee Island in dealing with these “waves” of traffic and lack of access, that affect the experience for patrons of the festivals.

Nine major festivals take place on Tybee every year; Orange Crush, Beach Bum, Memorial Day, July 4th weekend, Labor Day, Pirate Fest, New Years Eve and Day, Mardi Gras Weekend, and the Irish Heritage Celebration. During these festivals moving traffic on and off of the island is a major problem. In addition to the inconvenience, these traffic issues need to be addressed because the lack of mobility has the potential to lead to life threatening situations, during emergencies. At many times congestion and traffic problems are not seen on the island. However, during the summer months and festivals, the island sees heavy congestion and traffic or “waves” of traffic.

Russ Abolt began the meeting by addressing the approach to the problem. He wants the idea of urban ecology, developed by Pat Shay, to be used in analyzing the problems of traffic congestion on Tybee. He is asking for this group to assist in this effort by identifying potential solutions to these mobility problems.

Tom Thomson, the Executive Director of the Metropolitan Planning Commission, has been asked by Russ Abolt to facilitate the group and coordinate the study efforts. He will be given the tasks of making sure all interested parties are included and are updated on the projects progress. Funding for the study will be included as an agenda item for the County Commission meeting on July 9, 2010. Bethany Jewel (Ethos) will be contracted by Chatham County to develop a study of Tybee Island, using SAGIS data.

The group shared several ideas to address the peak traffic events. Russ Abolt proposed the idea of busing people into festivals on Tybee Island. During St. Patrick’s Day, in Savannah, CAT bus buses people in from the Savannah Mall to downtown Savannah. People are able to park their cars at the mall, and have a ride to and from the parade area. This idea is cost effective because the equipment is already available by CAT bus. However, many questions will need to be answered for this to be developed and used on Tybee, for festivals. One question, what paths are

the most accessible to and from Tybee for buses? One idea was for the buses to turn left on 14th Street and re-enter US 80 (Butler Ave.) on 15th Street. This location is close to the pier and offers a good area to drop off patrons. Locations of pick-up and drop-off points were also discussed. Some ideas were the Johnny Mercer baseball field, the Wal-Mart on Wilmington Island, Ft. Pulaski, and the 4-H Camp. These locations would need to be further studied to make sure they would have enough space for cars to park. Clear organization and advertising would need to be present to make this idea work. It would be important to incorporate this idea into Tybee's Comprehensive Plan and for a contingency plan to be developed.

The traffic on US 80 needs to be studied. It was suggested to put in place traffic counters for the July 4th weekend. This data could be used to help all involved in this project to understand the mobility issues during festivals on the island. The Savannah Metropolitan Police Department has access to these devices and Leon Davenport, of Chatham County Engineering, has volunteered to help the City of Tybee with traffic count assistance.

Surveillance and the control of traffic was suggested as a way to reopen the traffic flow more quickly and aid in accident management. The three lane sections of US 80, in-between Lazaretto and the Bull River bridges, needs to be identified, as well as, the choke off points. Better way finding and signage could also help solve some of the congestion problems.

Other solutions could also be used to help with the mobility issues on the island. A toll road could be put in place to help the City of Tybee receive more revenue to deal with parking supply and possible jump-start widening US 80, in the future. A water ferry could also be put in place, one that would take people from the Savannah River, to Tybee Island. Shutting down a lane for buses could also help to shuttle people into the island in a more efficient and effective way. Or a shut off period for peak festival movements could be put in place. For example, US 80 could be managed as a reversible roadway; for example on July 3rd US 80 could shut down to only allow access to the island for a few hours in the morning, and reverse it in the evening.

This meetings goal was to bring together different agencies from both Chatham County and the City of Tybee, to begin brainstorming ideas that could help with the traffic problems on the island. This problem is one that needs an innovative solution.

Another meeting will be held on July 19, 2010 at 3:30 at the Tybee Island City Hall. At this meeting, Bethany Jewell will present information and data on the possible boundaries of the study. This information will be used to help develop a project that can be shared with the Tybee Island Public Safety Committee, at the meeting on July 28, 2010.

July 19, 2010
US 80 Challenge
3:30 Tybee Island City Hall
Meeting No. 2
Meeting Summary

Tom Thomson asked everyone to begin the meeting by introducing themselves, as well as, stating what they felt was the purpose of this group being brought together. In attendance was; Tom Thomson, Willis Lovett, Bob Bryson, Diane Schleider, Charles Obimgbe, Clayton Scott, C.L. Sasser, Russ Abolt, Jimmy Brown, Jonathan Lynn, Leon Davenport, Bethany Jewell, Christina Shealy, Joe Wilson, Paul Wolf, Chris Hutton, Rochelle Ferguson, Bill Greenwood, and Jason Buelterman. Patrick Shay and Robert Drewery were absent. Clayton Scott with CEMA stated that he wants this project to identify critical resources in Tybee that could be used in case of emergency. Many people stated that they see this group as an opportunity to pull resources together to come up with a solution to the traffic problems. Bob Bryson with the Tybee Island Police Department and Chief of Police Willie Lovett both felt that the purpose of this group was how to move massive amounts of people from and to Savannah and Tybee in a safe way, improving public safety. Tybee Island Fire Department also had the same purposes of improving public safety for the group. Paul Wolf asked that this group look at infrastructure issues. One issue the group in its entirety wants addressed is what to do with stalled vehicles, which hold up traffic for hours on the island. Leon Davenport stated that he believes we need to pull together all the options, as well as the assets we can use and prioritize them. CAT bus has also offered to be a part of the group and offer their services if they are needed. Russ Abolt addressed how this group has been formed to look at innovative solutions to the problem, solutions not including laying more asphalt.

Bethany Jewell then gave a short presentation and passed out handouts. Her presentation was entitled "Shaping Data Boundaries". She mainly opened up the table for discussion. To talk with those involved about what kind of data they would like to research. SAGIS will be used as a tool to research data on Tybee Island. Her study will look at ecological planning, which is looking at the environmental interplay in planning. It will look at both the human and the urban environment and attempt. As Pat Shay has named it the "wave ecology" of Tybee. For this study we are not just looking at solutions but assessing the data.

The floor was opened up for more discussion and questions. Many believe that we need to research the attraction of Tybee. For example, on Tybee it seems the majority of visitors go to the pier area, creating a mass amount of congestion on that side of the island. Maybe Tybee could do something to attract visitors to other parts of the island. One solution for this problem will be to change peoples parking patterns. However, it is very difficult to change peoples habits. Many asked if available technology that could be used to help with the traffic congestion could be studied. Also, the bottleneck on US 80 creates many traffic problems on the road. It was even brought up to only allow two lanes to be open on festival days. This would relieve the bottleneck problem and may also allow for a bus or emergency vehicle lane, on these festival days.

Charles Odimbge also gave a brief presentation on the possible ways CAT could help with the traffic problems on Tybee. In the presentation things such as costs and the amount of people that could be moved was presented. CAT bus could bus people into festivals at Tybee. However, many were concerned that some type of benefit would have to be reaped by riders for them to choose to ride the bus over driving there own cars. It was mentioned that maybe a pilot study could be put in place on a smaller festival day to see if this idea would work. It might be possible to put the use of the CAT bus in place for either Labor Day Weekend or Pirates Fest. Patrons could pay a fee and receive a wrist band. This wrist band would allow patrons to ride the bus to Tybee and back. It might even be beneficial for Tybee to consider roping off part of the beach and only allowing those with wrist bands access. It would be important for those paying for the ride to receive extra perks in order for this to be utilized enough to be effective.

Another meeting for the US 80 Challenge group will be held on August 23, 2010 at 3pm. The Tybee Public Safety Committee is also meeting on August 26 at 5pm. The Tybee Tourism Council meets on August 4 at 5pm.

August 23, 2010
3:00 pm
Tybee Island City Hall
US 80 Challenge Study
Meeting No. 3
Meeting Summary

The following people attended this meeting for the US 80 Challenge (Wave Ecology) study.

Name	Agency
Tom Thomson	MPC
Wykoda Wang	MPC
Bethany Jewell	Ethos
Willie Lovett	SCMPP
Bob Bryson	Tybee Island Police Department
C.L. Sasser	Tybee Island Fire
Diane Schleicher	City of Tybee
Jonathan Lynn	City of Tybee
Joe Wilson	City of Tybee
Paul Wolf	City of Tybee
Russ Abolt	Chatham County
Patrick Shay	Chatham County
Pat Farrell	Chatham County

The meeting agenda includes the following items.

Welcome & Introduction of New Attendees

Mr. Tom Thomson gave a general overview of the study and asked everyone to introduce themselves.

Housekeeping

a. Windows Live Link & New Processes

Ms. Wykoda Wang indicated that she is taking over the Windows Live web posting since Miss Christina Shealy is no longer working for MPC. She believes that those in attendance have received instructions from Miss Shealy about how to access the program. If anybody has problems accessing the posted information from Windows Live, he/she should contact Ms. Wang.

b. Sign-in Sheet

Mr. Thomson asked people in attendance to initial the sign-in sheet if their names are on the list and make necessary corrections to their contact information. If the attendant's name is not on the list, he/she should put his/her contact information to the blank sign-in sheet for future contact.

Wave Ecology Study Status Presentation & Next Steps

Ms. Bethany Jewell gave a presentation about the study. Her presentation included an overview of the project and the identified mapping outputs - History & Development, Density of Residents and Visitors, Festival Destinations & Mobility, Age Distribution, as well as Sensitive Populations and Resources.

She mentioned that there was transportation of steamboat ferry and railroad with great capacity between Savannah and Tybee before the automobile age. Tybee's attractions and resources were many and varied at that time including shelters, bathing house, Dixon Station, Lovel Station, Inlet Station, Tybee Town Hall, Tybee Pavilion, municipal pier, Railroad turnabout, etc. However, when the road became the sole transportation means, parking problems surfaced and it seems that Tybee's capacity to accommodate people decreased. She further presented data on the current residential situation (40% vacancy rate) and stated that there is a large portion of people in Tybee over 65 years of age. She also revealed a number of year-round residents without cars. This will be a significant problem in terms of mobility and emergency evacuation. Ms. Schleicher and Mr. Jonathan Lynn added that the median age of Tybee was 49 according to the last census and that a cross map for age by vehicle is needed from this study.

Ms. Jewell indicated that her research is only as good as the data she can access and asked for assistance in data collection. The next step would be for her to coordinate with the various agencies involved to get the needed data.

Ms. Wang asked whether Tybee is going to collect some data during the Labor Day weekend. She stated that the traffic count data that GDOT collected should not be used for this study since those traffic counts have been massaged to Annual Average Daily Traffic (AADT) and there is no way to figure out which day (and date) they were collected. Mr. Patrick Shay would like to know currently what data is available. He would like to see more traffic data collected during the holiday weekend. He suggested three locations need traffic counts for week days and weekends and two of them should be located at the bridges of Lazaretto Creek and Bull River. Chief Lovett mentioned that his department has some traffic counters available. Ms. Schleicher asked whether City or County have some kind of written protocol regarding this so that Tybee can dovetail with the City/County equipment. It was suggested that in order to do this, some contracts need to be signed ahead of time.

The committee also raised the question about getting some demographic data in terms of representation of visitors and their compositions. Ms. Schleicher mentioned that Tybee needs to find a way to estimate visitors during the Labor Day weekend.

Other data needs include accident history, emergency situations (bridge locations and conditions), hospital accessibility, and others. The emergency responding agencies of Tybee mentioned that they will get together with Ms. Jewell after the meeting to evaluate the current data situation and frame questions for further data collection.

It was agreed that Tybee needs to collect all kinds of information during the Labor Day weekend to support this study.

Discussion of Public Safety Committee Presentation on August 26th

The committee discussed what should be the expected outcome of this study and what should be presented to the Public Safety Committee. Mr. Russ Abolt indicated that with all the data collection and compilation, the purpose is to evaluate the existing conditions and come up with solutions to solve the traffic problems during holidays and emergency situations. We have Labor Day coming and this is still hurricane season. We need some good solutions. He further stated that the committee should avoid linear thoughts and the status quo. Instead, the committee should be creative in finding solutions. For example, Tybee should take advantage of the existing water assets. Other options mentioned include helicopter service or provision of an ambulance on the island with doctors in it during festive or emergency situations.

CAT Festival Shuttle Update

Ms. Schleicher updated the committee members about Tybee's decision regarding the CAT proposed shuttle service for the Labor Day weekend.

She indicated that Tybee really appreciated CAT's efforts to put down specific financial figures for the service. However, Tybee does not have the budget to implement the service this year but does not preclude future considerations.

In addition to the financial aspect, she stated that some Tybee tourism personnel were afraid that the CAT shuttle would bring more people than Tybee can handle.

She further indicated that the Pirate Festival might be a better time for testing the CAT shuttle service since the festival organizer has some dedicated funding source. Tybee will look into the possibly and piece everything together next year.

Next Meeting

The next meeting for the US 80 Challenge Study will be held on September 27, 2010.

September 27, 2010
3:00 pm
Tybee Island City Hall
US 80 Challenge Study
Meeting No. 4
Meeting Summary

The following people attended the meeting for the US 80 Challenge (Wave Ecology) Study on September 27, 2010.

Name	Agency
Tom Thomson	MPC
Wykoda Wang	MPC
Jane Love	MPC
Bethany Jewell	Ethos
Willie Lovett	SCMPD
Bob Bryson	Tybee Island Police Department
C.L. Sasser	Tybee Island Fire
Diane Schleicher	City of Tybee Island
Jonathan Lynn	City of Tybee Island
Joe Wilson	City of Tybee Island
Paul Wolff	City of Tybee Island
Jason Buelterman	City of Tybee Island
Wanda Doyle	City of Tybee Island
Jimmy Brown	City of Tybee Island
Bill Garbett	City of Tybee Island
Clayton Scott	CEMA
Russ Abolt	Chatham County

The meeting agenda includes the following items.

Self Introductions

Mr. Tom Thomson asked everyone to introduce themselves.

Housekeeping Items

a. Sign-in Sheet

Mr. Thomson asked people in attendance to initial the sign-in sheet if their names are on the list and make necessary corrections to their contact information. If the attendant's name is not on the list, he/she should put his/her contact information to the blank sign-in sheet for future contact.

b. New Website for the Wave Ecology Study

Mr. Thomson indicated that the Windows Live program for the Wave Ecology Study web posting has been replaced by a dedicated webpage on the MPO website. The address for the new site is <http://www.thempc.org/Transportation/WaveEcologyStudy.html>. All the materials related to this study are available for review by the committee members.

A question was raised about the study presentation file from the August meeting – it is too big to open. Ms. Wykoda Wang indicated that this is a very big file (more than 150 megabytes) and takes some time to open. If the file still does not open after a period of time, the user can stop the process and refresh the page to open it. Ms. Bethany Jewell indicated that she would resize the file and send the revised version to Ms. Wang for web posting.

Update on Other Related Study – US 80 Bridges Replacement Study

Ms. Jane Love briefed the committee on what happened at the stakeholder meeting and the public meeting for the US 80 Bridges Replacement Study. The project is not intended to re-do the GDOT's project of US 80 Widening, but instead focuses on the bridge replacements at Bull River and Lazaretto Creek, and other safety issues.

The public meeting was held in Tybee to get people's perspective on what the issues are. Ms. Love is still receiving comments from the attendants. Comments received so far show agreement that narrow bridges and lack of shoulders are major concerns. Congestion concerns were also cited, as well as pedestrian and bicycle access and turtle impacts. There were a couple break-out groups at the public meeting, and people naturally began to brainstorm solutions. The input and ideas will be helpful to the MPO staff members and consultants who will develop alternatives and concepts as well as other reports during the study.

A question was raised about whether Tybee would support the tolling idea. It was mentioned that the drawbridge on Islands Expressway at Wilmington River used to have a toll. The concept of tolling bridges can be explored.

Wave Ecology Study Review and Presentation of Findings

Ms. Jewell gave a presentation about the study and showed a series of paper maps and statistical charts for discussion. The maps are sorted into different categories as follows.

Sense of Place

Ms. Jewell is using census data to derive some demographic and social-economic information. The maps to demonstrate the sense of place include Density of Residents and Visitors with Households, Aging Population and Storm Risks, Income Level, Service Availability, etc.

The analyses show that 60% of the households on Tybee Island are occupied by residents. Though there is a majority of year-round population, there are also a lot of visitors or transients. There is also a large percentage of aging population. The median income on Tybee Island is

lower than that on Wilmington Island. Mr. Thomson stated that the quantification of income for retirees may be misleading in the Census Data. .

The available services on the island include banks, bars, hotels, post office as well as some medical hubs. However, there is a need for their connectivity to the mainland. Mr. Clayton Scott of CEMA indicated that critical resources such as EMS and doctor's offices should be added to the map.

Ms. Jewell showed some statistics about the destinations, parking availability and bike trails. There are 2,121 parking spaces of which 369 are metered. The figure of 2,121 does not include the private parking spaces. This statistic might help the committee members to have a sense of how many visitors Tybee can handle during various events.

Traffic Patterns

Ms. Jewell showed some charts to demonstrate the traffic patterns from January to July. It is apparent that the Saturday traffic counts peak in July. She is using 11,000 as the capacity line. There is a high tide of traffic on one Friday that needs to be explained. After examining the data points, the committee members decided that the "anomaly" is due to the big Tybee Holiday – Easter. Another "anomaly" identified high traffic counts in one week on Tuesday and Thursday. The committee members decided that this is due to the Beach Bump.

Ms. Jewell showed the charts with data collected during the July 4 holiday in 2010. She thinks the counts are too low since the highest tide occurred in the late afternoon with a count of 150. The committee members indicated that maybe people have already arrived in Tybee before late afternoon on July 3, but Ms. Jewell indicated that the data shows otherwise. So there might be some data collection errors.

Traffic Conflicts

Ms. Jewell showed an accident query tool to find out the patterns of the traffic conflicts. Though more data is still being programmed, the accident data already available shows that one location has the highest incident occurrence – US 80 at Johnny Mercer Blvd / Bull River. The committee members discussed the reason for the high accident rate at this location. One suggested that it might be because of the merge lane where two eastbound lanes become one. Another suggestion from the Tybee Police Department is that the reason for the high accident rate at that location is due to speeding in combination of the roadway configuration.

Waterways and Mobility

Ms. Jewell showed a map she created of marinas from the coast of Hilton Head, South Carolina to Brunswick, Georgia. This map is accessible to the public and the link will be posted to the project website. The marinas, with their conditions and capacities identified, will hopefully provide another option for mobility.

Disaster Potential

Ms. Jewell showed various scenarios of hurricane storm surge through a shallow-flooding model on US 80. The range is from a high tide of 9.2 feet MLLW to 11.5 feet MLLW. The scenarios show which sections of US 80 will be flooded during the storm surge. Two purposes emerge in this model. One is to demonstrate that it is not reasonable to rely only on roadways for evacuating people and other alternatives should be explored. The second is to clearly understand the areas that flood first for near-term solutions related to the roadway flooding.

Aging Population and Evacuation Path

Ms. Jewell stated that there is an aging population without vehicles on Tybee Island to consider for evacuation during disastrous times such as a hurricane. Mr. Clayton Scott of CEMA is not sure there are enough resources to achieve this goal since each evacuation gives a notice only 40 hours ahead of time. Teleride vans or ambulances must come early to transport these people off the island and are available only to persons who have volunteered to be listed on the Chatham County Health Department's Sensitive Population List. Many of them are very fragile, so even transporting them might endanger their health or life. Their means of transportation might not be adequate, thus putting these people at risk during the disastrous times.

Separate to this plan, Ms. Jewell asked Mr. Scott to speak of the Nursing Home residents on Tybee Island and the requirement for Nursing Homes to provide their own evacuation plans and strategies. Mr. Scott indicated that even though the County has an evacuation plan, the nursing home where many of the vulnerable Tybee Island population resides operates under the direction of the State of Georgia. Nursing homes are charged with developing and maintaining their own evacuation plans and providing the transportation necessary to evacuate their residents. The County does not have the authority to either regulate or enforce the State mandates.

The County has a detailed plan for the evacuation of Medical Special Needs residents that provides specialized vehicles and facilities to fulfill their unique needs and transport requirements. Information of this plan has been coordinated with and distributed by local hospitals and doctors to encourage special needs patient registration for evacuation; CEMA and the Department of Public Health actively oversee this program.

Safe Site Locations

Ms. Jewell shows three safe sites on Tybee Island in a map. The committee members from Tybee indicated that these three locations are for people who are caught up in a sudden storm when they are strolling on the beach. These sites are not shelters during hurricanes and there is no food or drink provided in them.

Emergency Management Services

Ms. Jewell showed a map of the Fire Districts, Police Districts, Med Star locations, and other emergency management services along the corridor. These would prove helpful for emergency management. Mr. Scott asked to also consider the services available through the U.S. Coast

Guard. Fire Chief, Skip Sasser, noted that this map was not the current fire district that he had been working on with SAGIS staff. Ms. Jewell noted this discrepancy and will seek the correct district layer from SAGIS.

Next Steps

Mr. Russ Abolt stated that now that we have a lot of data compiled, the next steps would be to identify what kind of means besides roadway travel on US 80 to evacuate people off Tybee Island during emergency situations. The data is here, and now it is up to the practitioners to decide how to use it.

Some committee members indicated that the existing marinas might not have the capacity to handle large-scale evacuation. Maybe we should coordinate with the Coast Guard since their station has a much larger capacity.

Mr. Thomson summarized that the next steps of the study include the following:

- Review all the maps and question them
- Review the summaries of previous meetings to identify what we have and what our needs are
- Identify additional questions and data needs
- Transit from data compilation to solution finding
- Conduct questionnaire / quiz (by Ms. Jewell) for solution searching
- Have a Brainstorm session or break-out session to finalize solutions

Next Meeting

The next meetings for the US 80 Challenge Study will be held on October 25, November 15 and January 24. Mr. Thomson requested that the committee members mark their calendars for these meetings.

October 25, 2010
3:00 pm
Tybee Island City Hall
US 80 Challenge Study
Meeting No. 5
Meeting Summary

The following people attended the meeting for the US 80 Challenge (Wave Ecology) Study on October 25, 2010.

Name	Agency
Tom Thomson	MPC
Wykoda Wang	MPC
Bethany Jewell	Ethos
Representative	SCMPD
Bob Bryson	Tybee Island Police Department
C.L. Sasser	Tybee Island Fire
Diane Schleicher	City of Tybee Island
Jonathan Lynn	City of Tybee Island
Joe Wilson	City of Tybee Island
Paul Wolff	City of Tybee Island
Wanda Doyle	City of Tybee Island
Jimmy Brown	City of Tybee Island
Bill Garbett	City of Tybee Island
Clayton Scott	CEMA
Russ Abolt	Chatham County

The meeting agenda includes the following items.

Self Introductions

Mr. Tom Thomson asked everyone to introduce themselves.

Housekeeping Items

a. Sign-in Sheet

Mr. Thomson reminded people in attendance to initial the sign-in sheet if their names are on the list. If the attendant's name is not on the list, he/she should put his/her contact information to the blank sign-in sheet for future contact.

Update on Wave Ecology Study

Ms. Bethany Jewell gave a presentation about the study. The presentation, “Opening the Door on Data”, linked the research conducted thus far under the ecological umbrella of a “carrying capacity” for Tybee Island.

When looking to solve community-wide issues with many complicated variables that lead to public safety and environmental stewardship, understanding the factors of an area’s carrying capacity can assist in revealing challenges and opportunities. Ms. Jewell explained that the carrying capacity (environmental impact) for most species involves only the variable of population and an understanding of the food and habitat availability of its surroundings. She explained that the human application has many other factors that must be considered. She introduced the equation:

$$I (\text{Carrying Capacity}) = P(\text{Population}) \times A(\text{Affluence}) \times T(\text{Technology})$$

Ms. Jewell shared with the committee that utilizing carrying capacity for the human application does not result in a set, defined population number, but rather reveals the many variables of the community that relate to one another and define the environmental impact or population capacity that an ecosystem can support.

Specifically, Tybee’s capacity includes the following:

- Population capacity – currently the annual (year-long) population is 3,800, the peak tourism population is 10,000, and the potential short-term capacity is 32,346 based on the July 3, 2010 data.
- Affluence capacity – Tybee citizens must rely on external sources through US 80 (the only available connection to/from island) to get commodities or services such as food, gas/fuel, medical/dental service, solid waste disposal, electricity, construction/building supplies as well as others. Tybee’s per-capita income based on the Census 2000 data is more than the national average. The on-island business consists mostly of retail trade, real estate (including rental), and accommodation and food services.
- Technology capacity:
 - Tybee’s water and sewage is limited to 10,000 persons per EPD restrictions;
 - Tybee has a current housing unit infrastructure to support 5,918 people (based on existing household average and exiting units per 2000 Census data);
 - Tybee’s land use allows only limited area expansion;
 - The major highway leading to Tybee (US 80) has a carrying capacity of 12,000 vehicles per day and is prone to flooding;
 - Tybee’s disposal of solid waste relies on off-island provisions; and
 - Tybee’s electricity supply relies on off-island resources.

Ms. Jewell concluded that the carrying capacity of a place is relative to many variables and can be exceeded by urban ecological standings. The opportunity to support a population beyond carrying capacity depends on implementation of new technologies, provision of multiple modes of connectivity or utilization of resources within the area, and inter-governmental/inter-agency coordination.

For Tybee Island, Ms. Jewell gave an example to demonstrate the need for inter-agency coordination - emergency management. She shared how the Highway 80 corridor police and fire jurisdictions do not link in a coordinated fashion and therefore require delayed response time, the inability for Tybee Island Police Department to assist in measures to help reduce traffic speed and thus the prevention of crash incidents, and the disconnection between the 911 dispatch locations and the police and fire jurisdiction. She also discussed the potentials for utilizing all available air, water, and land based resources in the event of an emergency if formal agreements existed. These areas offer stronger potentials for response time, prevention of emergency situations, and assurance to citizens and policy leaders of Tybee Island through inter-agency coordination. By utilizing this level of coordination, the carrying capacity can be increased through increased safety along the roadway corridor.

Ms. Jewell will be preparing a brief white paper to assist committee members reviewing the presentation slides.

Work Session for Solution Finding

Mr. Thomson facilitated a work session to identify issues, the categories of these issues/problems, and some possible solutions. He asked two questions – 1) what are we doing here; and 2) what are the categories of the problems/issues to be addressed? Ms. Jewell and Ms. Wykoda Wang used flip charts to write down the brainstorm notes. Since many of the responses are either similar in nature or complementing to each other, they are grouped and listed as below.

Emergency access and management needs

- Improve emergency assistance
- Improve overall emergency access
- Improve emergency access in terms of public safety – what are the solutions, especially getting off the island?
- Improve emergency management (especially getting off the island) - peak event impacts are already an existing issue.
- Improve evacuation strategies

Safety needs

- Improve public safety because it's top priority
- Provide advanced life support
- Improve safety leaving the island
- Improve public safety by understanding opportunities
 - Helicopter 20 minutes warm-up (response time)
 - Buses capable of advanced life support (able to go through flooded roads)

Parking needs

- Improve parking access
- Improve overall parking situation

Access, mobility and connections needs

- Tybee is a dead-end, so getting on and off the island is a problem.
- Provide convenient and safe ingress/egress
- Improve mobility once on island
- Eliminate roadblocks
- Figure out how to get a large crowd coming to the island in fewer vehicles safely

Capacity vs. Continuity of services

- Population exceeding services provided by police department, EMS and fire (2 officers per 1000) is a major problem.
- Water capacity on Tybee is limited.

Others

- Opposing groups on Tybee – wanting 4 lanes vs. not wanting growth
- Economic opportunity (what can draw people in off-peak, i.e. what are the off-peak shortage that can be filled)
- Future opportunities because of Tybee's uniqueness

Solutions

- Look for out-of-box solutions that are viable
 - Look for good solutions to get on and off the island beyond asphalt if funding becomes available
 - Look for ecological approach beyond asphalt knowing the finite capacity of Tybee and its ability to support
 - Look at safety first then manage to reduce vehicles by providing mass transit such as public transportation
 - Utilize existing resources such as Marinas
 - Provide multiple types of mobility
- Coordinate resources – for example US 80 is out of the jurisdictional authority of Tybee, yet it is critical to the population on the island
 - Would be more efficient for public safety if Tybee is managing the roadway
 - Where to best utilize police resources (could slow traffic)
- Coordinate with various agencies
 - For example conflict managing traffic flow – police departments coordinate with each other
- Maximize existing resources to accommodate Tybee's needs without exceeding capacity
- Reach consensus – e.g. people who want 4-laning US 80 (safety, capacity increase, congestion mitigation, etc.) vs. people who don't (4-laning bring more people, overselling Tybee, etc.) need to work together to find a common ground
- Take the data and turn it into relevant living source of data that Tybee can utilize
- Identify long- and short-term solutions and start to work on implementable ones - focus on one place to start (e.g. safety of people)
- Involve others to reach feasible solutions – e.g. business opportunity (bring in investors/private market to help solve problems)

- Learn from other communities who face similar problems and have experiences that we can borrow (e.g. Out Banks)

Next Steps

Mr. Russ Abolt stated that we need to focus on implementing feasible solutions. The Mayor of Tybee has sent a letter to County that not only identified a specific problem but also proposed a specific solution. We can start with that letter. Ms. Wang agreed to Mr. Abolt's suggestion and indicated that some solutions are long-term but others are mid-term or short-term. We need to start with what we can do now – the short-term solutions.

Mr. Thomson shared with the committee members a matrix that Ms. Wang produced which outlines some issues and problems, as well as proposed solutions including their pros and cons. We will focus on a brainstorm session at the next meeting to identify specific and implementable solutions so that we can start to solve the problems.

Next Meeting

The next meetings for the US 80 Challenge Study will be held on November 15 to avoid the Thanksgiving week.

November 15, 2010
3:00 pm
Tybee Island City Hall
US 80 Challenge Study
Meeting No. 6
Meeting Summary

The following people attended the meeting for the US 80 Challenge (or Wave Ecology) Study on November 15, 2010.

Name	Agency
Tom Thomson	MPC
Wykoda Wang	MPC
Bethany Jewell	Ethos
Scott Simpkins	SCMPD
Bob Bryson	Tybee Island Police Department
C.L. Sasser	Tybee Island Fire
Diane Schleicher	City of Tybee Island
Paul Wolff	City of Tybee Island
Wanda Doyle	City of Tybee Island
Jimmy Brown	City of Tybee Island
Clayton Scott	CEMA
Russ Abolt	Chatham County
Pat Farrell	Chatham County

Mr. Tom Thomson reminded the committee members that all the study materials have been posted to the Wave Ecology Study website. He further stated that this meeting would focus on transitioning from previous data compilation to solution finding. He would lead the committee to go through an exercise using Mayor Buelterman's letter as an example to demonstrate how to identify problems, how to coin specific strategies to tackle the problems, and how to come up with feasible solutions by weighing pros and cons of each strategy.

TCC Community Indicators

Mr. Thomson asked Ms. Bethany Jewell to give an introduction about the report titled TCC Community Indicators that she distributed at the meeting. Ms. Jewell stated that this report is a compilation of data she had presented over the months. The report summarized the White Paper she prepared into a concise table that may help with today's discussions. The question marks in the table demonstrate where further data is needed to understand the impacts of tourism on the infrastructure capacity of Tybee Island.

Mayor's Proposal

Mr. Thomson led the committee members through an exercise by studying Mayor Buelterman's letter in detail. The exercise started with identifying a specific problem stated in the letter. Four strategies were identified to solve the problem with discussion on their feasibility followed.

Problem Identified in the Letter: road block / bridge block during evacuation - we may need to distinguish road block from bridge block, but they are pulled together for the exercise. The reasons for the block might be drunken driving, traffic accidents, high traffic level or patterns, or road flooding.

Strategies to remove the road / bridge block:

1. Lessen the likelihood of a blocked road / bridge
 - We do not have to evacuate people at the same time. We need to conduct the evacuation at stages by evacuating different parts of Tybee Island in different time periods.
 - Maybe we need to close bars and have an alcohol test before people hit the road (might not be good for local business though).
 - Using convoys can lessen the likelihood of a blocked roadway since it reduces the number of cars at a certain time period.
 - We might need to apply traffic flow enforcement with mobile units to slow traffic, but the problem with this approach is that it is not likely to appropriately post officers.
 - Tybee Police Department has control of traffic signals during special events. However, the result from this measure is that traffic blocks have been pushed further on US 80 into City of Savannah. This example might provide some insight in lessening road / bridge block during evacuation.
 - Key West faces the same types of problems during evacuation. Maybe we need to see what Key West does for reference.
2. Position mobile units
 - This strategy might be a cause for road block rather than a solution because a driver's changing speed might lead to bumper-to-bumper accidents.
3. Use counter flow
 - There might be problems in implementing counter flow measures because a staff dispatched to direct the traffic cannot come back to the original position. The problem worsens when we are already short on staff during evacuation.
 - To ensure the feasibility of this strategy, we might need to enlist the assistance of mobile phones, flag measures (traditional way of handling counter flow) and Intelligent Transportation System (ITS) measures.
 - The implementation of this strategy needs traffic flow enforcement.
4. Position wreckers / equipment
 - This strategy has the advantage of advanced arrangement for smoother evacuation, but coordination among agencies for equipment and funding is needed.

Other issues mentioned in the letter: Mr. Thomson mentioned that the Mayor's letter requested a development of a plan that lays out standard operating procedures for the management of vehicular traffic on US 80 between Lazaretto and Bull River Bridges during hurricane evacuation. He asked whether there exists such a plan. Mr. Clayton Scott indicated that what the Mayor proposed in the letter – throw a wrecked vehicle into Bull River – is easier said than done. It is no good to develop a plan. The need lies in the preparation for equipment.

Discussion of Solution Matrix

The updated version of the solution matrix has been distributed.

Mr. Scott indicated that Helicopter service should not be listed as one of the strategies for emergency evacuation due to its infeasibility. Mr. Thomson responded that for now we are trying to identify all the possible strategies without excluding out-of-box solutions. The next step is to identify feasible solutions for implementation. Ms. Jewell added that we should not exclude helicopter services. She indicated that the data collected from the wave ecology study offers support for solutions that may appear out of the box, for example building the case for homeland security grants in the future.

Ms. Wang indicated that the distributed solution matrix is not the final product. It only serves as a starting point and is subject to revisions. She will email the Word document to all the committee members after the meeting so that everyone can make revisions.

Formation of Teams for Developing Short-Term Strategies for Implementation

Four teams have been formed to address the specific issues identified in the matrix. Mr. Thomson suggested that the team leaders coordinate with appropriate persons to serve on the team and each team should have Tybee representation. Both Mr. Russ Abolt and Mr. Thomson indicated that they can volunteer their staff members as resources to the teams in developing implementable solutions. The MPO's consultants who are conducting the US 80 Bridges Replacement Study can share with the teams their findings. Ms. Wang indicated that even though GDOT staff members have not been able to attend the US 80 Challenge Study meetings, the teams can still resort to GDOT for information. She will email the contact information of all the committee members after the meeting to facilitate communication between team members. Ms. Jewell also agreed to assist the teams as a resource for data and related analysis. Mr. Thomson requested that the working teams notify the MPO staff about their future meetings so that the MPO can assist in facilitating them.

The working group arrangements are shown below.

Team One:

- Leader: Wanda Doyle
- Issues to Address: Traffic congestion and lack of access / mobility during special events and peak tourism season
- Identified possible working partners: Tybee Tourism Council

Team Two:

- Leader: Paul Wolff
- Issues to Address:
 - Incident/Accident (stalled vehicles holding up traffic, etc.)
 - Narrow bridges, lack of shoulders and public safety

- Identified possible working partners: Tybee Mayor Jason Buelterman, MPO staff and consultants for US 80 Bridges Replacement

Team Three:

- Leader: Clayton Scott
- Issues to Address: Emergency situation including emergency evacuation
- Identified working partners: Bob Bryson, Jimmy Brown, Savannah-Chatham Metropolitan Police Department

Team Four:

- Leader: Bill Garbett (volunteered by Wanda Doyle)
- Issues to Address: Lack of parking space during special events
- Identified possible partners: Tybee Parking Committee

Next Steps

Mr. Thomson indicated that the US Challenge Study is nearing completion. Hopefully we will wrap up in early Spring 2011. At the January meeting, the various working teams will report back to the whole committee on how their group is doing and what they have come up with in terms of implementable solutions.

Next Meeting

The next meeting for the US 80 Challenge Study will be held on January 24, 2011.

January 31, 2011
3:00 pm
Tybee Island City Hall
US 80 Challenge Study
Meeting No. 7
Meeting Summary

The following people attended the meeting for the US 80 Challenge (Wave Ecology) Study on January 31, 2011.

Name	Agency
Tom Thomson	MPC
Wykoda Wang	MPC
Bethany Jewell	Ethos
Sgt. Anthony Gallo	SCMPD – Traffic
Capt. Ben Herron	Island Police Department
C.L. Sasser	Tybee Island Fire
Jonathan Hagan	Tybee Island Police Department
Joe Wilson	City of Tybee Island
Diane Schleicher	City of Tybee Island
Paul Wolff	City of Tybee Island
Wanda Doyle	City of Tybee Island
Jimmy Brown	City of Tybee Island
Jonathan Lynn	City of Tybee Island
Bill Garbett	City of Tybee Island
Chantel Morton	City of Tybee Island
Clayton Scott	CEMA
Russ Abolt	Chatham County

Mr. Tom Thomson asked everyone at the meeting to do a self introduction. He then reminded the attendees to initial the sign-in sheet or add their contact information if their names are not listed.

Status of Items

The status of previous work on the US 80 Challenge (Wave Ecology) Study was summarized.

- a. Ms. Bethany Jewell has finished the data compilation for this study. Ms. Wykoda Wang has developed a website for the study. All the data and analysis have been posted on the website at <http://www.thempc.org/Transportation/WaveEcologyStudy.html>. If anybody has any questions regarding the data, he/she should contact Ms. Jewell.
- b. Ms. Wang developed a draft solution matrix and had sent the Word document to the committee members for revisions. The revised matrix with comments and corrections should be sent back to Ms. Wang for incorporation and web-posting.
- c. At the November 2010 meeting, four (4) working teams have been formed to develop solutions to the identified problems. Mr. Thomson reminded the attendees of each team's composition and tasks.

- d. The Coastal Regional Commission (CRC) is proposing to run a coach/shuttle service between the City of Savannah and Tybee Island. Ms. Barbara Hurst of CRC is working with Mr. Sean Brandon of the City of Savannah to develop a brochure about this service. The shuttle service will start at the Savannah Civic Center. The pick-up/drop-off sites on Tybee Island are to be determined. Currently there are two alternate sites for consideration – the lighthouse and the south-end roundabout.

Work Session for Solution Finding

Three of the four working teams have met. Team Four, led by Mr. Paul Wolff, will meet at 4:00 pm on February 7 at the Tybee Island City Hall on incident/accident (stalled vehicles holding up traffic, etc.) and narrow bridges, lack of shoulders and public safety.

The three teams that have met each gave a report regarding their respective progress.

Team One:

- Leader: Wanda Doyle
- Presenter: Wanda Doyle and Chantel Morton
- Summary: The team met several times to discuss the feasibility of proposed solutions in the matrix for traffic congestion and lack of access/mobility during special events and peak tourism season. The topics covered included the types of socio-media to be used, possible bus service or shuttle service, possible carpool/vanpool service, feasibility of using tolls to pay for improvements and manage traffic flow through pricing, better way-finding and signage, feasibility of ferry boat service, feasibility of utilizing reversible lanes, the methodology to be used for signal timing and transportation system management, and the feasibility of more island accommodations.
- Discussions at the full committee meeting: 1) If ferry boat service is to be utilized, docking place should be identified. Maybe Tybee Island should issue a Request for Proposals (RFP) to have a study done on the feasibility of various locations; 2) For the reversible lanes, a plan should be developed in coordination with traffic engineers and be in place before its implementation; jurisdictional police forces should be coordinated and commitment from GDOT is required; 3) To provide bike/pedestrian accommodations, maybe a RFP needs to be issued to have a comprehensive evaluation; and 4) For the carpool/vanpool service, coordination with Sean Brandon of City of Savannah as well as with Chatham Area Transit (CAT) is needed.

Team Two:

- Leader: Clayton Scott
- Presenter: Jimmy Brown
- Summary: The team met on December 9, 2010 to discuss the feasibility of proposed solutions in the matrix for emergency evacuation and related scenarios. The topics discussed included types of social media to be utilized, advanced contracting for resources, identification of critical resources for best use, coordination among agencies and development of coordinated evacuation plans, feasibility of reversible lanes during hurricane and disaster evacuation, having one lane dedicated to emergency vehicles during holidays and special events, provision of an ambulance on the island with medical

staff during festivals or emergency situations, feasibility of ferry or boat evacuation, and the methodology to implement surveillance and traffic control as well as other intelligent transportation systems (ITS).

- Discussions at the full committee meeting: 1) To remove a wrecker on the Tybee road during evacuation, legal procedures need to be clarified and established in terms of who has authority to do what and which of the agreements (mutual aid or inter-governmental agreement) should be in place; 2) For helicopter emergency services, it should be clarified what Tybee's capacity is for advanced arrangements before transport; and 3) For the ITS system on Tybee to be incorporated as a part of the regional Traffic Control Center (TCC), details need to be worked out in terms of inter-governmental agreements.

Team Three:

- Leader: Bill Garbett
- Presenter: Bill Garbett and Chantel Morton
- Summary: The team met to discuss the feasibility of proposed solutions in the matrix for parking problems during special events. The topics covered included better way-finding and signage, bike and pedestrian accommodations, bus service/shuttle service plus remote parking, possible increase of number of parking spaces, feasibility of utilizing private parking, and provision of incentives and pricing for package ideas.
- Discussions at the full committee meeting: For package ideas regarding parking, the option for changing parking fee structure during special events should be explored; also using incentives to encourage filling-up of least-used parking spaces should be evaluated.

Discussions

Mr. Thomson led the committee through a discussion focused on two questions - what is the product expected from this study and what are the next steps.

- a. The committee expected to see a technical report summarizing the Wave Ecology / US 80 Challenge Study that includes a statement of problems, a discussion of the study efforts, and the identified long-, mid- and short-term implementation plans. The user-friendly technical report will serve as a reference point for upcoming projects or grant applications.
- b. The next step to continue this Wave Ecology Study is to start the outreach efforts for implementing the identified solutions and to frame the technical report. Mr. Thomson and his staff will meet with Ms. Jewell to outline the technical report. The working teams are to continue meeting and to formulate implementable solutions by ranking all the possible solutions from low to high in terms of feasibility and by identifying who will implement it, how to implement it and how much it will cost.

Next Meeting

The next meeting for the US 80 Challenge Study will be held on February 28, 2011.

February 28, 2011
3:00 pm
Tybee Island City Hall
US 80 Challenge Study
Meeting No. 8
Meeting Summary

The following people attended the meeting for the US 80 Challenge (Wave Ecology) Study on February 28, 2011.

Name	Agency
Tom Thomson	MPC
Wykoda Wang	MPC
Bethany Jewell	Ethos
Sgt. Anthony Gallo	SCMPD Traffic
Michael Izzo	SCMPD Precinct 5
Clayton Scott	CEMA
Russ Abolt	Chatham County
Joe Wilson	City of Tybee Island
Diane Schleicher	City of Tybee Island
Paul Wolff	City of Tybee Island
Wanda Doyle	City of Tybee Island
Jimmy Brown	City of Tybee Island
Bill Garbett	City of Tybee Island
Chantel Morton	City of Tybee Island
Bob Bryson	Tybee Island Police Department
C.L. Sasser	Tybee Island Fire Department

Mr. Tom Thomson asked everyone at the meeting to do a self introduction. He then reminded the attendees to initial the sign-in sheet or add their contact information if their names are not listed.

Work Session for Solution Finding

Mr. Thomson briefed the committee members on the progress of this study. We are now at the stage of recommending specific solutions. Our target is to narrow down all the proposed solutions to several items that can be implemented within the next six month to one year.

a. Updated reports from Teams on Developing Short-Term Strategies for Implementation

Mr. Thomson invited the four sub-committees to report on their work progress.

Team One:

- Leader: Wanda Doyle
- Issues to Address: Traffic congestion and lack of access / mobility during special events and peak tourism season

- Progress: Reported at the January Wave Ecology Study meeting. No further report at this time.

Team Two:

- Leader: Paul Wolff
- Issues to Address:
 - Incident/Accident (stalled vehicles holding up traffic, etc.)
 - Narrow bridges, lack of shoulders and public safety
- Progress: Mr. Wolff gave an overview of his committee's meeting held on February 7.
 - ❖ Attendants of meeting: staff members of SCMPD, CEMA, CORE MPO/MPC, Ethos, and the City of Tybee Island
 - ❖ Meeting Summary: The meeting focused on intermediate solutions (prior to widening road and/or bridges). The topics included 1) accident prevention – advanced warning that road narrows and reducing speed limit from 55 mph to 45 mph east of Bull River and West of Lazaretto Creek; 2) incident/accident handling – manual control of signals between Johnny Mercer and Islands Expressway and utilization of social media to alert public; 3) emergency response – ambulance dispatch with 911 call, blockage of eastbound traffic at Bull River and exits from Fort Pulaski and Lazaretto Creek boat ramp, and coordination of EMS with Tybee Island Police and Fire Departments, as well as MRS to reach and transport victims; 4) bike and pedestrian safety – improvement of shoulders on both sides of roads as well as putting rumble strips in white strips, and installation of “Share the Road” signs on US 80; and 5) congestion reduction – set up Rideshare account for special events.
- Discussions at the full committee meeting after presentation: 1) what about advanced life support for emergency response? What can be done on the scene to stabilize the victim before EMS arrives? We are not talking about an emergency center here, but the 1st responders should have some emergency training. 2) The Mayor's research confirmed that it is too cost prohibitive (insurance, liability, etc.) to build a center on the island.

Team Three:

- Leader: Clayton Scott
- Issues to Address: Emergency situation including emergency evacuation
- Progress: the sub-committee did some evaluation of the solution recommendations for feasibility. In addition to what has been reported at the January Wave Ecology Study meeting, the committee further discussed utilizing social media – CEMA has the capability and able staff members to implement this strategy. CEMA can establish a joint information center to serve as a single point of contact for all media actions through the following means – 1) contact media in advance, 2) use Rapid Connects for reverse 911, 3) Twitter, and 4) Facebook.
- Discussions at the full committee meeting after presentation: we need to update the solution matrix developed by the MPO staff to show what can be done and what cannot. For those strategies that can be done, we need to figure out how to implement them.

Team Four:

- Leader: Bill Garbett
- Issues to Address: Lack of parking space during special events

- Progress: the sub-committee is testing parking plans for special events.

b. Dry-run for testing cases on control-flow on Bull River Bridge

Mr. Russ Abolt stated that he tasked Sgt. Gallo at the last meeting to develop a dry-run test case on control-flow at the Bull River Bridge.

Some discussions about this scenario include the following:

- The bridge is too narrow and built without shoulders. Turning it into limited-access roadways would be too disastrous.
- The physical make-up of the bridge makes it impossible for staff members to come back to the original location.
- We are not talking about evacuation which has a 24-hour window for the dry-run. We are only talking about control-flow during special events.
- Should the traffic engineers test this scenario in traffic simulation models first?
- July 3 for the past several years has been smooth. It might not be a good candidate.
- Operations for three intersections - US 80 at Johnny Mercer Blvd, Bryan Wood Road and Quarterman Road – would need to be coordinated with Savannah and Chatham County Police Department in advance.
- We can experiment with closing the passing lanes by putting cones on the roadway or having signs flashing “Lane Closed”.
- We can also test a combination of the identified strategies for the dry-run.

It has been decided that we should have a dry-run on the control-flow scenario during one lower attended event to test whether it will work or not. If yes, we can then apply it to major events. Staff members of the City of Tybee Island are tasked to find a date or festival to conduct the dry-run between now and the next meeting, and then contact GDOT about implementing it. A possible choice might be Beach Bum or a projected high traffic weekend.

Outline for technical report on the study

The committee members indicated at the last meeting that they expect to see a technical report summarizing the Wave Ecology/US 80 Challenge Study that includes a statement of problems, a discussion of the study efforts, and the identified long-, mid- and short-term implementation plans. The user-friendly technical report will serve as a reference point for upcoming projects or grant applications.

Ms. Bethany Jewell is responsible for compiling the technical report. Ms. Jewell will distribute the outline for the technical report and the Excel file to all the committee members via email. Each sub-committee is to fill in the information related to their tasks and send the revised file back to Ms. Jewell.

Mr. Thomson indicated that Ms. Jewell will continue as a resource to committee members. Mr. Abolt suggested that the study report be brought to the Chatham Municipal Association.

Preview of US 80 Bridges Replacement Study

Mr. Thomson gave a preview of the US 80 Bridges Replacement Study that CORE MPO is conducting by showing slides from a PowerPoint presentation. The study proposed a wide menu of choices for bridge replacement and related improvements. The next step of the study is to do a fatal-flaw analysis.

Mr. Thomson currently has three questions about the study – 1) would barriers between lanes of opposite directions be necessary; 2) what will be the right-of-way impacts to the north of the roadway for each alternative; and 3) what will happen to the old bridges when the new ones are built? To Question 3, suggestions from the Wave Ecology Study committee members vary from constructing bike/pedestrian trails to fishing piers. However, no matter what will be the intended use, the local governments will be responsible for the bridge maintenance, which will have financial impacts.

Mr. Thomson reported that the next Stakeholder Meeting and Public Meeting for the US 80 Bridges Replacement Study will be held on March 8 at Tybee Island. He enlisted the committee members to help advertise for the meetings. Mr. Clayton volunteered to help the meeting notification through email distribution. Ms. Schleicher indicated that Tybee Island is helping by attaching the meeting notice to the utility bills.

Team Selection of top three actions to discuss at the next meeting

Mr. Thomson tasked each sub-committee to come up with top three (3) actions or packages from their proposed solutions. Then these choices will be presented to the full committee at the next meeting when top five (5) will be identified for implementation in the next six (6) to twelve (12) months.

Next Meeting

The next meeting for the US 80 Challenge Study will be held on April 18, 2011.

April 18, 2011
3:00 pm
Tybee Island City Hall
US 80 Challenge Study
Meeting No. 9
Meeting Summary

The following people attended the meeting for the US 80 Challenge (Wave Ecology) Study on April 18, 2011.

Name	Agency
Tom Thomson	MPC
Wykoda Wang	MPC
Bethany Jewell	Ethos
Sgt. Anthony Gallo	SCMPD Traffic
Ben Herron	SCMPD Precinct 5
Clayton Scott	CEMA
Russ Abolt	Chatham County
Joe Wilson	City of Tybee Island
Diane Schleicher	City of Tybee Island
Paul Wolff	City of Tybee Island
Wanda Doyle	City of Tybee Island
Jimmy Brown	City of Tybee Island
Bill Garbett	City of Tybee Island
Chantel Morton	City of Tybee Island
Bob Bryson	Tybee Island Police Department

Mr. Tom Thomson asked everyone at the meeting to do a self introduction. He then reminded the attendees to initial the sign-in sheet or add their contact information if their names are not listed.

Progress Reports and Actions

Mr. Thomson stated that we are targeting to wrap-up this study in May. We are now at the stage of recommending a shortlist of specific solutions for implementation. Our target for this April meeting is 1) for every sub-committee to propose top three short-term strategies from all of its proposed recommendations, and 2) for the full committee to narrow down all the proposed solutions to top five, which will be implemented within the next six months to one year.

a. Top Three Short-Term Strategies for Implementation from each team

Ms. Bethany Jewell distributed some handouts that summarize each committee's previous work including the focused topics/issues and proposed solutions/strategies. Mr. Thomson invited the four sub-committees to respectively select their top-three strategies from the list for implementation.

Team One:

- Leader: Wanda Doyle
- Issues to Address: Traffic congestion and lack of access / mobility during special events and peak tourism season

- Top Three Solutions:
 - Utilize social media to disseminate information to the public
 - Establish a bus or shuttle service during special events and peak tourism periods
 - Utilize signal timing and Intelligent Transportation Systems (ITS) during special events
- Discussions and Other Information:
 - The Coastal Regional Commission (CRC) started running a shuttle service from Savannah to Tybee Island in March. The daily shuttle leaves from the Savannah Visitor Center at 10:00 a.m. and transports passengers to Tybee's north and south ends. A second shuttle departs the island at 5:00 pm. Since its implementation, the shuttle service has been very successful with full loads on every trip.
 - There is a possibility that CRC shuttle service can be expanded to provide transportation to Tybee during special events and peak tourism periods.
 - The Chatham Area Transit Authority (CAT) had a proposal to provide shuttle/bus service to Tybee during special events. This might be another option.

Team Two:

- Leader: Paul Wolff
- Issues to Address:
 - Incident/Accident (stalled vehicles holding up traffic, etc.)
 - Narrow bridges, lack of shoulders and public safety
- Top Three Solutions:
 - Reduce the speed limit along the Highway 80 corridor to 45 mph
 - Install "Road Narrows" signs in advance of bridges as a safety precaution for drivers
 - Install "Share the Road" signs along the Highway 80 corridor and install "smart strips" in the white highway marker
- Discussions and Other Information:
 - Since US 80 is a state highway, changing the speed limit along it needs involvement from the Georgia Department of Transportation (GDOT). GDOT will have to look at the current traffic volumes and follow the state law to set speed limit.
 - Previous research has indicated that keeping the speed limit to 35 mph will increase capacity.
 - Because of the geography along US 80, setting a lower speed limit might be interpreted as an entrapment to drivers so that they have to pay a speeding fine. If this strategy is to be carried out, visual cues are needed so that drivers can slow down.
 - It might be easier to post slower speed limits for the bridges.

Team Three:

- Leader: Clayton Scott
- Issues to Address: Emergency situation including emergency evacuation
- Top Solutions:
 - Establish a Critical Resource List related specifically to the emergency situations on Tybee Island and Highway 80 corridor and develop into coordinated plan for responding to emergencies.
 - Establish advanced contracts with private business for required resource to include towing/wrecker companies.
- Discussions and Other Information:
 - Some of the proposed strategies from this sub-committee are already in place such as the establishment of a process for contacting the media to disseminate information to

the public, and having ambulance services with medical staff on the Island during festivals, emergency, and high capacity times.

Team Four:

- Leader: Bill Garbett
- Issues to Address: Lack of parking space during special events
- Top Three Solutions:
 - Establish a bus or shuttle service during special events
 - Increase the parking accommodations and infrastructure on Tybee Island to include the usage of private parking lots.
 - Utilize better way-finding and directional signage to ensure easier traffic flow during special events.
- Discussions and Other Information:
 - The utilization of private parking during special events might need some cajoling.

b. Selection of Top Five Short-term Strategies for Implementation from all the proposals

Mr. Thomson guided a voting process to identify the top-five short-term strategies using a flip chart. The pool of strategies comes from each sub-committee's top three recommendations. There are ten (10) recommendations in total to be voted on with the "Critical Resource List" being removed by Team Three. Each committee member can only vote five times in support of their choices. The following is a summary of the strategies and their votes.

Recommended Strategy	Votes	Implement in 6 months to 1 year
Utilize social media to disseminate information to the public	5	Yes
CRC fixed schedule shuttle service to Tybee	6	Yes
Utilize signal timing and ITS during special events	6	Yes
Reduce speed limit on US 80 to 45 mph	4	No
"Road Narrows" signs along US 80	10	Yes
"Share the Road" signs along US 80	10	Yes
Advanced contract for installing a wrecker for special events	2	No
Shuttle service/special event buses	6	Yes
Utilize private parking for special events	1	No
Utilize better way-finding during special events	4	No

The following recommended strategies with the most votes will be carried forward for implementation.

1. Install road signage to address special features related to safety concerns.

- Install "Road Narrows" signs in advance of bridges as a safety precaution for drivers.
- Install "Share the Road" signs along the Highway 80 corridor to warn vehicular traffic of possible cyclists and pedestrians.

2. Establish a bus or shuttle service during special events and inter-island options during peak tourism periods.

3. *Establish and maintain an ongoing bus/shuttle service through the Coastal Regional Commission.*
4. *Utilize of signal timing and Intelligent Transportation Systems (ITS) during special events.*
 - Update signal-timing boxes on traffic light systems at Johnny Mercer & Hwy 80.
 - Install ITS units during special events.
5. *Utilize social media to disseminate information to the public.*

c. Date and methodology to test dry-run on control-flow at the Bull River Bridge

Mr. Russ Abolt previously suggested developing a dry-run test case on control-flow at the Bull River Bridge. It was decided at the last meeting that we should try the dry-run during one lower attended event to test whether it will work or not. Staff members of the City of Tybee Island were tasked to find a date or festival to conduct the dry-run. So which date or event has been set up for the test? Ms. Diane Schleicher indicated that there seemed to be some resistance to the idea of a control-flow dry-run and a lot of committee members got cold feet on it. The date is still to be determined. Some suggestions include 1) test it on a cool Saturday or a Sunday afternoon before Memorial Day; 2) just do it on Bull River; and 3) try a legitimate experiment by professional staff to test techniques.

Mr. Abolt insisted that we try on implementing something if not control-flow. The law enforcement and police departments need to sit down before the next meeting and decide 1) what have been done in the past; 2) what have not been tested; and 3) what are we going to test. After deciding on a test scenario, we need to figure out 1) what exactly need to be done; 2) when to do it; and 3) how to do it. The idea is to learn from the implementation of some solutions, not necessarily control-flow.

d. Updates on the development of technical report

The final product from this Wave Ecology/US 80 Challenge Study will be a technical report summarizing the statement of problems, the study efforts, and the identified long-, mid- and short-term implementation plans. The user-friendly technical report will serve as a reference point for upcoming projects or grant applications.

Ms. Jewell is responsible for compiling the technical report. She distributed the outline for the technical report at the meeting and indicated that the report will be distributed to all committee members by May 10th for final review before adoption at the May 23rd meeting.

Mr. Abolt suggested that the final study report be brought to the Chatham County Municipal Association and other associations.

Next Meeting

The next and last meeting for the US 80 Challenge Study will be held on May 23, 2011.