TECHNICAL REPORT



Tybee Island Wave Ecology & The Highway 80 Challenge

Prepared for Chatham County & The City of Tybee Island

May 2011





Chatham County Board of Commissioners

City of Tybee Island Mayor & Council

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Table of Contents

Executive Summary	vi
I.0 Introduction & Overview	1
1.1 The Highway 80 Challenge: Thinking Beyond the Highway	1
I.I.I Wave Ecology & The Data Compilation	1
I.2.2 The Highway 80 Challenge Study Committee	2
2.0 Wave Ecology Study: Summary of Findings	3
2.1 Carrying Capacity – The Human Application	3
2.2 Carrying Capacity for the City of Tybee Island	4
2.2.1 Population, Affluence, and Technology Factors on Tybee Island	4
3.0 Solution Strategies – The Study and Committee Results	12
3.1.The CORE MPO Matrix of Challenges and Potential Solutions	13
3.2.1 Final Committee Strategy Report	14
4.0 Conclusion	17

Tables

Table I. Wave Ecology & The Highway 80 Challenge Committee Members Table 2. Wave Ecology & The Highway 80 Challenge Working Sub-Committees Table 3. Final Committee Strategy Report

Figures

Figure I. Carrying Capacity – The Human Application

Figure 2. Tybee Island Weekly Traffic Counts January – July 2010

Figure 3. Flooding & Highway 80

Appendices

- Appendix A: Carrying Capacity Matrix
- Appendix B: Wave Ecology Study Resulting Maps Appendix C: Wave Ecology Sub-Committee Data Summary Sheets
- Appendix D: CORE MPO Matrix of Challenges and Potential Solutions
- Appendix E: Wave Ecology & Highway 80 Committee Full Strategy Report
- Appendix F: Committee Meeting Summaries

Executive Summary

The Wave Ecology and Highway 80 Challenge Study was commissioned by Chatham County to assist the City of Tybee Island (and a committee of government and agency leaders) in defining localized solutions to issues surrounding the safety of citizens and visitors. Recognizing that often there is greater complexity to issues, and greater opportunity for solutions through a holistic study, the Chatham County Board of Commissioners adopted and appropriated funding in July of 2010. This appropriation began the process for a comprehensive study built upon principles of urban ecology and integrated the results into the solution finding process of a committee coordinated by the Coastal Region Metropolitan Planning Organization (CORE MPO). The integration of technology through the application of a website maintained by the CORE MPO, <u>www.thempc.org/Transportation/WaveEcologyStudy.html</u>, was instrumental in keeping the wealth of data and ideas organized.

Results included within this technical report reflect a variety of near-term strategies for addressing public safety concerns along the Highway 80 corridor. These solutions provide a mix of opportunities for agency collaboration, public/private partnerships, and public involvement through social media outlets. While a number of strategies were proposed during this process, the committee selected the following five near-term strategies to implement during Phase 1:

- 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" sings 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 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.

I.0 Introduction & Overview

1.1 The Highway 80 Challenge: Thinking Beyond the Highway

Solution finding processes for community planning often require thinking beyond the traditional boundaries of one planning sector. Federal organizations, such as the Department of Transportation, the Department of Housing and Urban Development, and the Environmental Protection Agency, recognize this under the terminology of "Sustainable Communities." This sustainability is derived from integrating planning processes for transportation, economic development, housing, and the environment into one holistic framework. This study, funded by Chatham County, sought to integrate this outside the box thinking with a solutions oriented committee to determine near-term strategies that may be integrated on a local level. The unique nature of this study assimilated an ongoing process of data collection and analysis through urban ecosystem planning with the volunteer time of key community leaders.

I.I.I Wave Ecology & The Data Compilation

Urban ecosystems are not well understood, but they are absolutely critical to the health, economy, and quality of life of people who live in urban areas.

- Charlie Lord, Former Executive Director of Urban Ecology Institute

The concept of wave ecology is rooted in a subfield of environmental studies titled urban ecology. This school of thought seeks to understand the natural systems of urban areas and the threats that face them. Knowing the relationships of the urban environment and the human impacts through pollution, over development, and other pressures assists community planners and policy makers in designing healthier, well-managed communities. The same is true for understanding the health and safety of citizens within a community. These factors may relate to emergency management needs, as well as general day to day operations. Many coastal communities across the world contend with tourism waves that stress the capacity of a community. The fluctuation of Tybee's variables or "waves" related to these population changes (peak tourism) and the natural climate (tidal changes, sea level rise) led to the naming of this study "wave ecology."

This study integrated raw data analysis with visual, user-friendly geo-spatial and technological tools to reveal the waves impacting Tybee Island. Through the integration of Geographic Information Systems (GIS) and a variety of modeling software, multiple arrays of data were presented to bring clarity to the question of "How many people can Tybee Island safely accommodate?"

Within this study the human application of carrying capacity is utilized to gain a consistent and clear image of the City of Tybee Island, it's citizen population, it's natural resource limitations, and it's existing infrastructure. By understanding where the environment, the economy and the social community overlap, innovative solutions on the health and sustainability for the island emerge.

1.2.2 The Highway 80 Challenge Study Committee

The unique nature of this project began with the formation of a diverse volunteer committee comprised of government leaders, agencies, and organizations throughout Chatham County and the coastal region. This committee reviewed and assessed data resulting from the "Wave Ecology Study" as it emerged. Insight was given and the growth of the study was able to be flexible to the backgrounds of committee members. Summaries from committee meetings are included in Appendix F. A listing of committee members is included in Table 1.0.

Committee Member	Represented Agency/Organization	Title/Role
Russ Abolt	Chatham County	County Manager
Jimmy Brown	City of Tybee Island	Tybee Emergency Management Coordinator
Robert Bryson	Tybee Island Police Department	Police Chief
Jason Buelterman	City of Tybee Island	Mayor
Leon Davenport	Chatham County	County Engineer
Wanda Doyle	City of Tybee Island	Council Member
Robert W. Drewry	Chatham County	Director Public Works & Park Services
Pat Farrell	Chatham County Board of Commissioners	County Commissioner
Rochelle Ferguson	Low Country Regional Transportation Authority	Executive Director
Anthony Gallo	Savannah - Chatham Metro Police Department	Sergeant of Police
William Garbett	City of Tybee Island	Council Member
Bill Greenwood	Dafuskie Island Council	Council Member
Jonathan Hagan	Tybee Island Police Department	Captain of Police
Ben Herron	Savannah - Chatham Metro Police Department	Captain of Police
Chris Hutton	Low Country Regional Transportation Authority	Board Member
Ethan Imhoff	City of Tybee Island	Director of Planning
Michael Izzo	Savannah - Chatham Metro Police Department	Traffic Division
Bethany Jewell	Chatham County	Personal Contract – Wave Ecology Study
William Lovett	Savannah – Chatham Metro Police Department	Chief of Police
Chantel Morton	City of Tybee Island	Better Hometown Coordinator
Chad Reese	Chatham Area Transit	Executive Director
C.L. Sasser	Tybee Island Fire Department	Fire Chief
Brad Saxon	Georgia Dept. of Transportation	District 5
Diane Schleicher	City of Tybee Island	City Manager
Clayton Scott	Chatham Emergency Management Agency	Director
Teresa Scott	Georgia Dept. of Transportation	District 5
Patrick Shay	Chatham County Board of Commissioners	County Commissioner
Tom Thomson	Coastal Region MPO & Chatham – Savannah Metropolitan Planning Commission	Executive Director
Wykoda Wang	Coastal Region MPO	Transportation Planner
Joe Wilson	City of Tybee Island	Director of Public Works
Paul Wolff	City of Tybee Island	Council Member

Table I. Wave Ecology & The Highway 80 Challenge Committee Members

2.0 Wave Ecology Study: Summary of Findings

Framing for the Wave Ecology Study was defined under the term of "carrying capacity." This term, utilized in the 2008 Tybee Island Master Plan (a component of the Tybee Island Comprehensive Plan), allows a variety of variables to be analyzed to determine the health and long-term vitality of a community. Understanding the human application for carrying capacity was chosen as a key principle to assist committee members in developing economically feasible, near-term solutions to the challenges of highway safety and community health for Tybee Island.

2.1 Carrying Capacity – The Human Application

Carrying capacity is often utilized by ecologist to examine the maximum population of species that can be sustained in their given environment. The human application of carrying capacity began in the 1960s and gave rise to the equation I=PAT. This equation reveals that the carrying capacity for humans is not only related to population size, but to many levels of consumption, which are in turn impacted by the technologies and economies involved in the production of those consumer goods as outlined in Figure 1. Variables within this equation have the opportunity to be impacted or reduced through regulatory and policy choices related to the current and future use of Tybee Island. These offer solutions beyond costly infrastructure investments, centering instead on growth management and a diversified tourist product.¹





¹ Coccossis, Harry and Alexandra Mexa. 2004. *The Challenge of Tourism Carrying Capacity Assessment*.

2.2 Carrying Capacity for the City of Tybee Island

Carrying capacity is not a scientific concept or formula of obtaining a number, beyond which development should cease. The eventual limits must be considered as guidance. Carrying capacity develops with time and the growth of tourism and can be affected by management techniques and controls.

-Alexis Saveriades, 2000, "Establishing the social tourism carrying capacity for the tourist resorts of the east coast of the Republic of Cyprus."

Within this study, carrying capacity will not reveal a definitive number. Instead this study should be regarded more as a management tool to assist in understanding the framework around Tybee Island and the policy choices that may impact that framework. The I=PAT formula illustrates the importance of many factors in the health of a community and reveals opportunities for policy and planning decisions that can increase the health, vibrancy and sustainability of Tybee Island. Further data on the carrying capacity for Tybee Island can be found in the Carrying Capacity Matrix located in Appendix A.

2.2.1 Population, Affluence, and Technology Factors on Tybee Island

P - Factor (Population)

The population factor for tourist communities is a fluctuating variable. Unlike stable bedroom communities that are primarily comprised of year-round residents, peak seasons and daily weather patterns create an unpredictable population wave with crests and valleys. These waves greatly impact the other variables of technology and affluence that help to comprise the human carrying capacity.

According to the 2000 Census, the City of Tybee Island had a resident population of 3,392. While this number represents the municipality, a portion of the island not included within the municipal boundary increased the population to 3,713. The percentage of household residents per each Census block on Tybee Island ranges between 58% and 68% of the total housing units available on the Island, revealing the significant tourist rental trade. These numbers are important for policy makers and private industries when choosing how to smartly balance the footprint of the population on the ecosystem. However, as discussed above, a legacy of tourism alters these numbers dramatically. Planning for infrastructure needs based on 3,000 is much different than a high peak demand time where potential visitors can be much greater. It is important to note that recent releases of the 2010 Census data show a small decline in these population numbers.

According to numbers from the Tybee Island Tourism Council, tourist population numbers average 10,000 persons during the months of June, July, and August. These estimations are gathered from rental units and their vacancy ratings. Missing, is the link of daytime tourists or "day-trippers" from neighboring areas. Data revealed through traffic counts during this study showed large weekend populations occurring from April through August for the year 2010 as depicted in Figure 2.



Figure 2. Tybee Island Weekly Traffic Counts January - July 2010

As noted in Figure 2, the peak of July 3rd brought 16,173 vehicles onto Tybee Island. Making assumptions from this data, beyond understanding the number of vehicles, would be erroneous. However, after extensive discussion with the City of Tybee Island Police Department, it was determined to utilize their simple hypothesis method to understand the potential population fluctuations for Tybee Island. Utilizing a very basic assumption of two persons per vehicle, one could hypothesize over 30,000 persons on the island. While the accuracy of this number is questionable without conducting a survey, it offers a picture of the large flux (3,000 to 30,000) policy makers on Tybee Island must consider when choosing policies related to emergency management, general safety, and basic infrastructure needs such as water supply and treatment.

Certainly a more extensive study should be conducted if policy makers seek to understand this variable with large impacts on the island. Further data that could assist in gaining a clear picture of population include surveys of persons per vehicle coordinated with detailed hourly traffic counts during peak seasons that include directional flow both onto and off of the island, as well as correlating it with data from the hotel and motel industry.

A - Factor (Affluence)

As defined by the I=PAT equation, the carrying capacity for people is not only related to population size, but must include the many levels of consumption for that community. This can include a variety of variables from economic spending power to the actual consumption trends of a population.

Services and Commodities

While many of the daily human needs for citizens may be met on Tybee Island, they all rely on one modality source external to the municipal boundaries of the City. Services such as food, fuel, medical personnel and consumption commodities do exist within the City's boundaries, but in order to have a daily presence they must travel the Highway 80 corridor. While less of a concern for inland municipalities with multiple connection points to neighboring services, this unique situation presents concerns on the sustainability of Tybee Island. Maps located in Appendix B illustrate the fragile nature of the current quality of life citizens and tourists depend on via the Highway 80 corridor.

Variables related to the affluence of a society travel beyond the locations of stores and commodities. They must include income levels, employment opportunities, and a clear understanding of which economic sectors drive the affluence of the community. As a resort destination, Tybee Island has three NAICS code sectors employing over 20 people according to the 2002 Economic Census. These include the retail trade sector (59 employees), real estate/rental sector (23 employees) and the accommodation and food service sector (322 employees). While linked to the tourism market, these economic engines also rely on a specific tourist product and goods imported via the Highway 80 corridor. Further assessments on the ratio of annual residents employed in these sectors will reveal greater detail on the economic picture.

The Power of Per Capita

According to the 2000 Census, the per capita income for annual residents on Tybee Island (\$32,406) lies above the national average (\$21,587) and nearly double the City of Savannah average (\$16,921). Purchasing power cannot be concluded based simply on the per capita income for a region, yet it remains important to note this affluence factor. Based on this same Census data, the median for monthly mortgage payments for owner-occupied housing on Tybee Island was \$1,261. When viewing this data as a percentage of total household income the two largest percentages are opposing. Mortgage payments for 36.6% of citizens is less than 15% of their total household income, while mortgage payments for 20.3% of citizens is 35% or more of their income. This data may indicate a variety of factors related to real estate values and suggests potential economic home-ownership retention issues for the over 20% of citizens paying 35% or more of their monthly income on a mortgage. A close examination of the recently released 2010 Census data may offering greater insight into changes related to the housing market downturn that occurred between 2008-2010.

The influx of a tourist population, and the clear indicators of tourism as the main economic engine for Tybee Island reveal that affluence factors may fluctuate in the same manner as population variables since

the affluence of a society is directly linked to the population demographics of that society.

T - Factor (Technology)

As noted earlier, applying carrying capacity to many American communities may almost be deemed pointless. In many ways municipalities are structured in a global society far beyond the capacity of one community. For Tybee Island this is certainly true. The infrastructure (technology factor) of energy sourcing, medical services, solid waste disposal, economic engines, emergency response, and consumer goods for the expected quality-of-life are all currently being imported or exported. While this community pattern occurs in many areas, there is one stark difference. The City of Tybee Island must rely upon two bridges and one six-mile roadway for connectivity, rather than the flexibility of multiple roadway connectors, train, shipping, and airline infrastructure of most areas.

Taking a closer look at what infrastructure is available to the community, and what infrastructure has future development potential, may assist in understanding this question of carrying capacity. Each T-Factor sub-category described below is supported by a variety of maps and data available at Appendix B.

Water & Sewerage

One of the most fundamental infrastructure factors for a community is the development of their water supply and treatment. Tybee Island, like most of the coastal South Carolina, Georgia, and Florida region relies on groundwater from the Upper Floridan aquifer system.

Prior to the population growth and industrial development of the 20th century, the aquifer systems of Georgia, including the Upper Floridan aquifer, were fed by recharge areas from an east-southeast direction, extending in a broad arc from Valdosta to Waynesboro. This groundwater system eventually discharged offshore. After World War II well systems were implemented to pump this pristine water supply for development needs. By the 1970s urban centers around Hilton Head Island, Savannah, Brunswick, Jesup, Riceboro, St. Marys, and Jacksonville were pumping at large rates that formed cones of depression in the potentiometric surface. As a result, the water flow direction changed, bringing oceanic or salt water into the aquifer system.

This concern over water supply and the intrusion of saltwater into the Upper Floridan aquifer led to the development and adoption of the Georgia Water & Wastewater Plan for Managing Salt Water Intrusion in 2006. Within this plan the City of Tybee Island (Chatham County) is located in a *Sub-Region 1 Red Zone,* which adopted a no net increase goal for extraction from the Upper Floridan aquifer.

As of January 2011, Tybee Island's water withdrawal permit allots for a daily withdrawal of no more than 914,000 GPD (gallons per day) not to exceed an annual average of 0.96 MGD (million gallons per day) related to concerns over continued saltwater intrusion. According to EPA estimations, 914,000 GPD services just under 10,000 persons. While not a direct concern when considering the residential population, the introduction of a tourist population stresses this permit limit.

Housing

According to the 2008 Tybee Island Comprehensive Plan, the City of Tybee Island has closely reached it's build-out potential. While density changes from single-family residential to multi-family can increase the population size and opportunity for carrying capacity related to housing, the availability of undeveloped land is limited, as noted in the 2008 Existing Land Use Map from the Tybee Island Master Plan. According to the 2000 Census, there were 2,859 housing units on Tybee Island. Only 41.75 percent of these units are owner occupied, with 40.35 percent of the units vacant or utilized as short-term rentals. Thus, the large economic engine of tourism emerges once again. Making a simple population extraction based upon the current household size and existing housing units (includes owner occupied and second/rental homes), a housing capacity of 5,918 persons emerges.

Mobility

The history of mobility onto Tybee Island reveals many modes and methods that frequently overlap to meet the service needs of citizens and visitors. The current mobility infrastructures for the Island are discussed below.

Island Access

Roadway/Auto:

Determining the roadway capacity requires a number of variables related to the specific corridor under examination. Issues such as travel speed, ingress and egress points onto the roadway, as well as lane shifts and turns are all calculated to provide a vehicle capacity number. Conducting such a study for the Highway 80 corridor is not a direct scope for this report. However, defining a relatively accurate variable is critical in gaining clarity on the carrying capacity for Highway 80. After consultation with traffic engineers, the Highway Capacity Manual v.2000 and several studies on similar roadways, a capacity level of 12,000 vehicles per day per direction was chosen.²

According to traffic count data maintained by the City of Tybee Island, approximately 11 percent of the time (23 days) between January and July 2010 the highway exceeded its capacity. Friday, Saturday, and Sunday comprise the majority of these days.

However, it remains important to note that roadway capacity on a daily basis, may result in a much different performance when assessed at an hourly rate. For example, traffic counts over the Labor Day Weekend (September 3rd-6th) revealed that the highway capacity was exceeded, based on the assumption of 12,000 vehicles per day. Analyzing fifteen minute intervals on the hourly Volume/Capacity Ratio (v/c) revealed that while the daily capacity was breeched, at no one set time did

² Numbers given are for estimation purposes. Exact highway capacity would need further calculation and traffic count data collected from two-lane portion of the roadway. Traffic count data presented represents the four lane capacity area where two lane capacity of the Lazaretto Creek bridge turns into four lane. Since few ingress and egress points are located between the two-lane to four-lane conversion, the data may sill be utilized for estimation purposes.

the v/c ratio reveal maximum capacity. This result indicates that while a daily examination of the corridor exposes a stressed roadway during times of peak tourism, the actual flow capacity for Tybee Island may not be breeched. Utilizing detailed traffic counts that assess time intervals over an extended period of months may help bring clarity to understanding the annual capacity.

Roadway/Bike:

Bicycle access was noted as an important mobility option in the 2008 Tybee Island Master Plan. Existing infrastructure on the McQueen's Island Bike Trail offers the opportunities for recreational, as well as commute cycling uses. However, two disconnect points exist within this infrastructure at the Lazaretto Creek Bridge and the Bull River Bridge, where cyclists must share travel lanes with automotive traffic.

Both Highway 80 and the McQueen's Island Bike Trail remain threatened by high tides and sea level rise. According to the Chatham County Shallow Coastal Flooding Model roadway capacity is impacted at 9.2 feet MSLW and completely impassible by automobile at 10 feet MSLW. A brief movie of the model depicting these impacts of tidal rise on the roadway can be accessed by visiting <u>www.thempc.org/Transportation/WaveEcologyStudy.html</u>. Figure 3 outlines the frequency at which the Highway 80 corridor was impacted due to tidal levels over the past year. Repeat flooding on a roadway often reduces the lifespan of the infrastructure.

Figure 3. Flooding & Highway 80



Note that all infrastructure for mobility onto the island currently requires private ownership of an automobile or boat. In 2010, the City of Tybee Island launched a partnership with the Coastal Regional Commission to provide twice-daily public transportation from downtown Savannah to Tybee Island.

<u>Marinas:</u>

Communities, such as Tybee Island, have the potential for multiple modes of transport beyond land. Fostering this mode of transport from a recreational base to commuter base requires an evaluation of the infrastructure in existence, as well as an evaluation of the larger connectivity points to bus or shuttle routes. A detailed study for the coastal Georgia/South Carolina region was conducted with results compiled into an interactive Google map with public access. This map may be found by visiting <u>www.thempc.org/Transportation/WaveEcologyStudy.html</u>. Currently two marinas offering dock space are located on Tybee Island near the Lazaretto Creek Bridge.³

When assessing waterways for mobility rather than simply recreation, fuel sourcing, repair services, and connectivity to alternative transport (bus, van shuttle, pedestrian, bike, etc.) must be considered. Looking closely at the existing infrastructure offers many potential public / private partnerships to enhance this form of mobility for Tybee Island.

Inter-Island Access/Activity Hubs

Land use patterns for the City of Tybee Island expose areas with concentrated activity resulting from the tourism industry. The current tourist products for Tybee Island link to historical areas, such as the Tybee Island Lighthouse, the oceanfront, and the Strand Downtown Historic Business District. Festivals and activities are typically located in these areas, with the majority of events being held in the Strand Downtown Historic Business District, as depicted in maps located in Appendix B.

Parking and inter-island mobility has been an issue in the past for the City of Tybee Island. With a current public parking space limit of 2,121 and a vehicle count exceeding 12,000 daily during peak tourist times, the capacity for Tybee Island to maintain the level of tourism sought with current infrastructure is strained. Many communities faced with this issue are seeking to diversify their tourist product by integrating mobility both onto the island, as well as inter-island into their tourism economy

Solid Waste

The City of Tybee Island relies on areas external to their boundaries for handling municipal waste. Both solid waste and recycling are all handled through a private contract with Waste Pro. These items are transferred via the Highway 80 corridor. As noted earlier, the sensitivity of the roadway to flooding may offer the opportunity to engage public policy and emergency management in a backup plan to assist in the management of waste in the instance that the connectivity is severed for a period of time.

Electricity Supply

When considering the carrying capacity for an area related to the current quality of life, electricity consumption becomes a key element. Currently, for both the municipal and community use, the vast majority of electricity is supplied external to the area. Georgia Power provides grid electricity to Tybee Island through the International Paper Savannah Mill and Plant Kraft. These facilities receive coal supplied from Scott's Branch Mountain in Kentucky.

³ Data compiled from Dozier's Waterway Guide Atlantic ICW 2010.

Currently municipal strategies are being enacted by the City of Tybee Island to promote localized, alternative energy sourcing through loan financing programs. These programs will assist in restructuring the energy supply.

Further Data

Further data not presented within this summary is located at the study website: <u>http://www.thempc.org/Transportation/WaveEcologyStudy.html</u>.

3.0 Solution Strategies – The Study and Committee Results

The solutions-finding process of the committee utilized the wealth of information gathered from the Wave Ecology Study, Carrying Capacity Matrix, and the CORE MPO Matrix of Challenges and Potential Solutions. Based upon key issues outlined within the CORE MPO Matrix, committee members divided into four sub-committees to develop action items implementable at the local level. Data from the Wave Ecology Study was then tailored for each group of issues. This information was instrumental in linking the data revealed during the study to the issues at hand. The sub-committee leaders, issues, and brief summaries of the Wave Ecology data findings related to each issue are identified in Table 2. Full data summary sheets are available at Appendix C.

Table 7	Wave Ecology	Data Findings &	The Highway	80 (Thallenge	Working Sub-Committees
Table Z.			. The fingitivay		V OINING SUD COMMITTEECS

Sub-Committee	Issues to Address	Committee Leader			
1	Traffic Congestion/Lack of	Wanda Doyle			
	Access/Mobility Issues During Special				
	Events and Peak Tourism				
Data exposed the	missing link of diversity in the tourist prod	luct currently causing congestion issues			
for the Highway 80 corridor. There is great potential for unique public/private partnerships that may					
build new infrastructure for Tybee and mitigate some of the access issues during peak travel times.					
These include opportunities for alternative transportation, such as bike sharing systems with hubs					
located at key event/activity centers on the Island, utilization of existing dock slip space through					
public/private or event sponsored partnerships for commuting to the island promoted through local					
organizations such as the Tybee Island Tourism Council, and possible private partnerships that					
provide incentives for tourists utilizing alternative transportation methods in crossing the Highway					
80 corridor onto Tybee Island (reduced hotel lodging or dining rates, etc).					

2	Incident/Accident (Stalled Vehicles on	Paul Wolff
	Highway 80) / Narrow Bridges Lack of	
	Shoulders / Public Safety	

Data exposed the missing link of inter-agency coordination and long-term planning for emergency management services along the Highway 80 corridor. Data also revealed the potential for a variety of safety strategies to assist in minimizing the likelihood of traffic accidents not currently in place. These include the reduction of speed limits before bridges on bridges, primarily the Lazaretto Creek bridge. In addition, the usage of safety signage prior to crossing a bridge could warn drivers for the need of added attention.

Sub-Committee	Issues to Address	Committee Leader
3	Lack of Parking Space During Special	William Garbett
	Events	

Data exposed a total of 2,121 public parking spaces. These do not include the special event private lots that may be available. The Strand Historic Downtown Business District typically utilized for special events holds 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 in order to accommodate event space. Other major parking areas located in the North Beach Neighborhood near the Tybee Island Lighthouse, Jacyee Park, and the City Hall/Memorial Park offer potential for diversifying the tourist product through inter-island transport. 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 need for each product may reduce some parking infrastructure stresses. Internal sourcing and business development for tourist/festival needs, rather than externally imported businesses may increase revenues and foster potential business growth for the community.

4	Emergency Situation and Evacuation	Clayton Scott		
In a community,	the roles of various agencies and govern	ments must be very succinct in their		
purpose, coordina	ating well to ensure the sustained life of the	he community. This proves critical in		
situations such a	s Tybee Island with only one entrance a	and exit point governed by multiple		
jurisdictions. At the onset of this study data revealed great need in inter-agency coordination with				
police, fire, emergency management, emergency dispatch, and municipal boundaries all occurring at				
differing points.	Throughout the course of these working a	groups, coordination and planning has		
taken place in pr	eparation for future emergency situations.	In addition to agency roles, data also		
revealed areas w	here speed limits do not reflect the safety	concerns for the bridge infrastructure.		
Increased storm i	ntensity and sea level rise are both factors	of climate change that prove critical in		
planning for emer	gency situations along this corridor that expe	eriences regular tidal flooding.		

3.1. The CORE MPO Matrix of Challenges and Potential Solutions

The original matrix developed by the CORE MPO summarized a variety of concerns that had been raised over the course of committee meetings. As stated earlier, this Matrix was utilized to evaluate pros and cons in conjunction with the Wave Ecology data. This Matrix is included at Appendix D.

3.2 Final Results: Strategies for Near-Term Solutions

The following table outlines the variety of strategies, agencies involved, timeframe, estimated cost, and the implementation methods recommended by the committees. During the April 18, 2011 meeting, subcommittee leaders identified three priority strategies chosen by their sub-committees. These strategies were then voted upon by the full committee to identify five near-term strategies to implement during a phase one implementation.

3.2.1 Final Committee Strategy Report

The Final Committee Strategy Report, outlined in Table 3 below, establishes the priority strategies identified by each of the four sub-committees. During the course of evaluation and voting some strategies were combined, reducing the overall total of priority strategies for each sub-committee. Table 3 includes data on the strategy, key agencies towards implementation, timeframe, cost, and implementation method. The five near-term strategies selected to implement during Phase 1 are highlighted in green within the table. All potential strategies developed by the sub-committees are located in Appendix E.

1

Sub-Committee I Lead	er: Wanda Doyle	e – Traffic Conges	stion / Lack of	f Access	/ Mobility Issues During Special Ever	its and Peak Tourism
Proposed Solution/Strategy	Lead Agency	Participant	Timeframe	Cost	Implementation Method	Committee Comments
1. Utilize social media to disseminate information to the public.	-City of Tybee Island	-City of Tybee Island	May 2011	NA	 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. 	Continue use of current tools including the City's website, the City's Tourism Council website (TITC), Facebook, and Twitter.
2. Establish a bus or shuttle service during special events and peak tourism periods for travel from the mainland to the Island.	-City of Tybee Island -Better Hometown Tybee -Tybee Island Tourism Council	-Coastal Regional Commission -Chatham Area Transit	May 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 continue exploring the CAT Special Event bus proposal with future event organizers. 	Item 1 has recently been completed and results will continue to be tracked.
3. Utilization of signal timing and Intelligent Transportation Systems (ITS) during special events.	-City of Tybee Island	-Tybee Island Police -SCCMPD	Near Term	TBD	1) The full implementation method is yet to be determined.	Х
Sub-Committee Leader	2: Paul Wolff –	Accidents (Stalled	d Vehicles on	Highway	80) / Narrow Bridges / Lack of Shou	Ilders / Public Safety
Proposed Solution/Strategy	Lead Agency	Participant	Timeframe	Cost	Implementation Method	Committee Comments
4. Reduce the speed limit along the Highway 80 corridor to 45 mph.	-GDOT	-City of Tybee Island -Chatham County	Near Term	\$1,000 - \$2,000 per sign	 The City of Tybee Island and Chatham County will coordinate with GDOT to reduce the speed limit to 45 mph east of Bull River and west of Lazaretto Creek to reflect safety concerns on roadway. GDOT will work in coordination with City of Tybee Island and Chatham County to install new speed limit signs. 	X
5. Install road signage to address special features related to safety concerns: <i>a) Install</i> <i>"Road Narrows" signs</i> <i>in advance of bridges as</i> <i>a safety precaution for</i> <i>drivers. b) Install</i> <i>"Share the Road" sings</i> <i>along the Highway 80</i> <i>corridor to warn</i> <i>vehicular traffic of</i> <i>possible cyclists and</i> <i>pedestrians.</i>	-City of Tybee Island -Chatham County	-GDOT -CORE MPO	Near Term	TBD	1) The City of Tybee Island and Chatham County will coordinate with GDOT to install road signage to address special features related to safety concerns.	X

Sub-Committee Leader 3: Clayton Scott – Emergency Situations Including Emergency Evacuation						
Proposed Solution/Strategy	Lead Agency	Participant	Timeframe	Cost	Implementation Method	Committee Comments
6. Establish advanced contracts with a wrecker /towing service company prior to peak events that will remain onsite in the event of a traffic emergency.	Tybee Island Police	-City of Tybee Island -Chatham County	Near Term	TBD	 Tybee Island Police will coordinate with a private company to ensure service on the Tybee portion of Highway 80. Tybee Island Police will coordinate with Chatham County and SCCMPD to ensure service along the inland portion of Highway 80. 	Х
	Sub-Committee	e Leader 4: Willia	m Garbett – La	ack of P	arking Space During Special Events	
Proposed Solution/Strategy	Lead Agency	Participant	Timeframe	Cost	Implementation Method	Committee Comments
7. Establish inter-island bus or shuttle service to maximize available parking during special events.	-City of Tybee Island -Better Hometown Tybee	-Tybee Island Tourism Council	May 2011	TBD	1) City of 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.	The special event application has recently been updated.
8. Increase parking accommodations and infrastructure on Tybee Island to include the usage of private parking lots.	-City of Tybee Island	X	Ongoing	TBD	 City of Tybee Island will inform Special Event Organizers of potential private parking areas. City of Tybee Island will continue to add legal parking spaces and identify future spaces. 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. 	Х
9. Utilize better way- finding and directional signage to ensure easier traffic flow during special events.	-City of Tybee Island -Better Hometown Tybee	X	Ongoing	TBD	1) City of Tybee Island will review the existing sign ordinance for needed modifications and work with special event organizers to develop a signage plan for ease in traffic flow.	X

*Rows highlighted in green reflect the five chosen near-term strategies selected for implementation during Phase 1.

4.0 Conclusion

Extensive committee dialog facilitated by CORE MPO staff resulted in the development of five near-term strategies for implementation during Phase I. These are briefly defined below.

- 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" sings 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 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.

The resulting five strategies outlined above, as well as others outlined in this Technical Report, will need continued cross-agency collaboration for implementation. Prior to the development of this report, several strategies emerged through agency partnerships resulting from this committee dialog. These partnerships will continue in the future. The documents included herein are to be considered as living, malleable documents to assist the City of Tybee Island, committee members, as well as other local planning councils and committees in ensuring the health and safety of all citizens and the environmental wellbeing of Tybee Island.