SMALL AREA STUDY
EAST MERRITT ISLAND
BREVARD COUNTY, FLORIDA

Photo Credit: Vince Lamb

Brevard County
Planning & Zoning Office
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East Merritt Island
Small Area Study
Draft Review

EXECUTIVE SUMMARY

The East Merritt Island Small Area Study (SAS) was initiated at the direction of the Board of County Commissioners in response to community requests due to the number of applications for higher density/intensity rezonings in the East Merritt Island area. Its purpose was to take an in-depth look at the area, its infrastructure, and the community's vision and develop a study that would be a tool for planning and growth management.

For the purposes of managing the study, East Merritt Island had been split into two areas, north and south, each with their own committee. The Board of County Commissioners appointed residents to serve on one of two study area committees. This was due to the north and south areas having distinct communities and different planning considerations. The dividing line for the two study areas was SR 520, an arterial roadway. Public participation included a series of publicized workshops at Kiwanis Island Park located on SR 520.

An analysis of the land uses has shown that there are large areas of existing single family residential subdivisions that have an adopted Future Land Use of a much greater density. Although rezonings would be required to achieve the densities that are currently adopted on the Future Land Use Map, the study lends support toward revisiting adopted densities so that they align with development patterns in the area. Otherwise, the Future Land Use Map could requests for encourage redevelopment that may not be compatible with the surrounding land-use patterns and be in conflict with the single-family residential nature of the community. Additionally, some administrative rezoning and land use changes were identified for the Planning and Zoning staff to initiate.

The existing infrastructure of the area was found to be adequate for existing development. Modeling of impacts that could occur from the build-out of vacant parcels was performed. Additional modeling was undertaken to show the effects of the redevelopment of the area using the maximum density allowances under the current Future Land Use Map. Both of these models showed impacts to desired service levels of the infrastructure, particularly transportation and evacuation times during storm events. Some of these impacts would cause the infrastructure to exceed the adopted level of service standards.

The North Area and South Area Citizen Committees for the East Merritt Island Small Area Study adopted these recommendations:

- Recommendation 1: Brevard County should initiate Comprehensive Plan amendments to the Future Land Use Map to reduce residential densities on developed

residential properties in the study areas to reflect established residential densities on developed parcels. The recommended densities should be based on the lowest residential land use designation established in the Future Land Use Element of the Comprehensive Plan that would be required in order to achieve consistency with established residential development patterns and the existing zoning classification(s).

- Recommendation 2: Brevard County should initiate Comprehensive Plan amendments to the Future Land Use Map to reduce residential densities on undeveloped properties in the study areas that have zoning other than GU to ensure that future development on said vacant properties will be consistent with their current zoning classification and be compatible with established residential densities on adjacent properties.

- Recommendation 3: No additional Neighborhood Commercial FLUM designations should be permitted in the South study area.

- Recommendation 4: No additional Community Commercial FLUM designations should be permitted outside of the Merritt Island Redevelopment Area.

- Recommendation 5: South Banana River Drive should not be reconstructed to increase roadway capacity because currently adopted design standards for collector roadways are likely to result in adverse impacts to the aesthetic character of the surrounding neighborhood.

- Recommendation 6: Brevard County should perform a preliminary engineering analysis of the actual capacity of South Banana River Drive based on existing conditions. In the event that the preliminary engineering analysis indicates that South Banana River Drive has a lower capacity than reflected in the Concurrency Management database, the County should retain a qualified traffic engineer to determine the capacity of South Banana River Drive based on actual conditions. The conclusions of the analysis should be adopted for use in the County's Concurrency Management System.

- Recommendation 7: Brevard County should construct any missing sections to the existing bicycle/pedestrian transportation system within the study areas subject to funding availability.

- Recommendation 8: The Board of County Commissioners should implement the study recommendations through the Comprehensive Plan amendment process during the spring amendment cycle of 2009.

These right-sizing amendments are reflected in the Prospective Future Land Use Maps at the end of this study.

STUDY AREA AND BOUNDARIES

The East Merritt Island study area is bounded by the Barge Canal to the north of SR 528; to the southern most point of the peninsula; east by the Banana River and west by Sykes Creek and Newfound Harbor.

The East Merritt Island Study Area is divided into north and south for the purposes of collecting data and calculating impacts. This is due to these areas being divided by a major arterial roadway (SR520) as well as having distinct characteristics and community issues.

INTRODUCTION

Purpose of the Study:

The Small Area Study (SAS) is a planning and growth management tool. It is used to take an in-depth look at a particular area that has certain characteristics that distinguishes the area as a "community". These may be physical boundaries such as a river or a lake, a planned development of subdivisions or neighborhoods, or even an area that is affected in common by changes around them.

This assessment includes not only growth and development issues for East Merritt Island, such as land use and zoning, but also addresses what the community envisions as its future. The study will examine different community aspects such as changing population demographics, public school demand, utility usage, and other factors that all contribute to the community environment. After completion, the Small Area Study will be utilized to develop recommendations for consideration by the Local Planning Agency and the Board of County Commissioners. These recommendations may include amendments to the Future Land Use Map, Comprehensive Plan and other planning issues.

Origin of the East Merritt Island Small Area Study:

The East Merritt Island SAS was initiated by the Brevard County Board of County Commissioners on April 6, 2006 in response to development pressures as evidenced by an increase in rezoning applications. The expectation is that through public participation and staff assistance, a SAS would be completed to address concerns over future growth pressures and identify other planning issues such as redevelopment in existing residential areas.

The membership of the study committee represents a cross-section of the community. The study itself was divided into north and south areas due to the differing nature of issues for each geographic area.

Community Background:

Residents are drawn to its waterfront environment with excellent boating and fishing opportunities. Its close proximity to beaches adds to its desirable location for residential housing. All of these amenities are in the immediate vicinity as well as the area's largest employer, Kennedy Space Center. Additionally, East Merritt Island is conveniently located to the mainstay of community businesses and services for the Central Brevard Area.

The northern area contains a number of subdivisions that were constructed with man-made canals adjacent to the rear yards of the houses to allow for boating access. The majority of these subdivisions and canals were constructed in the 1960's and include many areas of filled coastal lands.

In more recent years the northern area received its last subdivision approval in 1996. The Island Crossings Subdivision consists of three phases and lies just south of SR528. Between 2000 and 2007 only seventy (70) new residences have been constructed in the north area.

After 1960 the area south of SR520 has followed a similar path of development to the north area. Several subdivisions were constructed in the 1960's including Harbor Colony and Harborview Cove; and 1970's including Villas at Newfound Harbor among others. More recent development includes Harbor Pines approved in 1988 and Summers Creek Phase II approved in 2004. Recent development also includes individual custom made homes along the waterfront. A total of 161 new homes have been constructed between 2000 and 2007.

Sams Homestead Archeological Dig Site – North Merritt Island

Historic Aspects:

The east Merritt Island area, along with Cape Canaveral and Cocoa Beach was home to one of the fiercest Indian tribes of Central Florida, the Ais. Unlike the neighboring tribes, the Ais were never conquered by the Spanish. The ship's logs of Spanish galleons reveal that a number of ships that ran aground in the Cape Canaveral area whose crews were then overcome by the Ai's. Robert Marx, author of Shipwrecks in Florida Waters: A Billion Dollar Graveyard, noted entries in the Spanish records including; "1551 – wrecked near Ais; ship of Farfan sank near Ais; 1556 – the Indians of the King of Ais have taken more than a million pesos in gold and silver and much jewelry near Cape Canaveral."

Shipwrecks litter the Florida Coastline, Including Brevard County

After the departure of the Spanish Empire, the area of East Merritt Island did not undergo major settlement until the early 1900's. The first Post Office was opened in 1887 at Horti Point. The southern portion of East Merritt Island became more accessible with the construction of the Rogers Route, connecting the northern Cocoa bridge (SR520) south to a bridge from the southern portion of today's Banana River Drive (Horti Point) to the current Minuteman Causeway. The route was opened in 1923 and subsequently brought new development along its meandering route which is the current Banana River Drive.

Merritt Island Cocoa Beach Toll Bridge 1924

During the late 50's and early 60's the space race provided the impetus for residential development in the north study area. The pace of growth slowed as readily developable land became more scarce and Kennedy Space Center went through two major layoff periods, one during the early 1970's and the second in the late 1980's through early 1990's. Since 2000 there have only been seventy (70) new residences built in the north area, demonstrating the built-out nature of the north area. The south area has seen its' latest new subdivision in 2004, Summers Creek. The majority of the new construction consists of custom built houses and the Summers Creek Subdivision.

In 1992, as the nation celebrates its 500th anniversary of the discovery of America, replicas of Christopher Columbus's ships sail past the Space Shuttle Endeavor on Pad 39B. Photo Credit: NASA/KSC

Character of the Community

The north study area community is generally perceived as an isolated suburb of greater Merritt Island with a small-town feel. While accessed by two feeder roads from the south, it is truly a community built around the single two-lane N. Banana River Drive (NBRD) with subdivisions of mostly single-family homes on both the east and west sides. These subdivisions are mostly from the '60s and '70s with the exception of Island Crossings and River Walk to the north end. There is also a scattering of newer homes among the older subdivisions and two small manufactured home parks near the south end. These subdivisions provide a cross-section of renters, young couples in first-time homes, working families, professionals and retirees. An apartment and small condominium complexes are also located at the south end and further contribute to the diversity of the community. The Ulumay Wildlife Sanctuary also contributes to the isolated feel as it provides a large wilderness area that separates East MI from West MI.

The sidewalks on NBRD continue to serve as walking and jogging routes for the full length and children still walk or ride bicycles to and from the elementary schools. Two community churches serve as places of worship and support community meetings such as Cub Scout Pack 397 and the East Merritt Island Homeowner's Association (EMIHOA). EMIHOA has been a significant contributor to the preservation of the isolated suburb feel of the north study area. Audubon Elementary serves the north study area almost exclusively, as Stevenson Elementary is a School of the Arts. In that role, Audubon Elementary is also a focal point of community involvement for school functions, and athletic activities in the ball fields to the rear. Ulumay Wildlife Sanctuary is also accessed from Audubon Elementary and Sykes Creek Parkway providing fishing, bird watching, canoeing, kayaking, walking and bicycling.

NBRD has been maintained as a narrow road with no shoulders at the continuing wish of the community. Improvements have been limited to addressing safety issues, storm water drainage and very localized congestion, such as the entrance to Audubon Elementary and the Triangle. Neighborhood Commercial development has been limited to the Triangle area and the southern end of NBRD at SR520 for many years. This development is made up of small businesses and organizations that provide services primarily to local residents with SR520 traffic rarely using them. Services include convenience stores, a pharmacy with Post Office, auto repair, beauty salon, laundromat, etc. Kelly Park to the north, serves the greater Merritt Island community due its close proximity to SR528 and updated facilities, but still provides picnic and playground facilities used heavily by the north study area community. The commercial development along SR520 and north of SR528 do not contribute to the character of the community.

The Character for south of 520 is defined by the existing land and road use. The geographical constraints of this community surrounded by the river has molded this neighborhood's identity to differ from most other neighborhoods.

Two main roads on and off this peninsula house a wide variety of lot sizes, floor plans of each residential and commercial unit and a diversity of income households. A constant

factor that supports the eclectic occupants are along the two roads (South Banana River Drive and Newfound Harbour Drive). The community along South Banana River Drive recognize the historical value the road adds to the overall character; any widening of this road would be detrimental to the character of the community as a whole. The community off of New Found Harbour Drive supports a majority of the established subdivisions in the area. Other lots still are large with a variety of old Florida architecture next to modern design. Change of ownership has shown to demo the older homes in order to build riverfront homes.

Another characterization is seen in the vegetation allowing natural habitat. In the length of the peninsula, the vegetation builds up the character and maintains the old Florida charm as this community progresses.

This area has seen Brevard growth over the past 100 years. The surrounding shores of the older homesteads housed the working families throughout the years. The staunch landowners made their stronghold in Angel City and Hortipoint. Many in the local fishing industry and with Kennedy Space Center. Leftover wood from the Kennedy Space Center build was brought to Angel City to become fishing shacks for an early well known fish camp. The present day Girl Scout Camp property holds the historical Tamarind Lodge, a hunting and fishing lodge that brought in many recreational sportsmen and women, even Theodore Roosevelt.

With the diversity that exists today with the variety of unit, from community commercial to single family, the individuality in ownership is quite apparent. The eclectic nature of this peninsula is driven by the wish to keep the identifying character as a whole. Maintaining and preserving the unique lifestyle, community heritage and quiet enjoyment creates a sense of place that is most important to its residents.

Ecological and Environmental Factors

East Merritt Island is a unique community where urban development inter-twines and interfaces with extraordinary sensitive and valuable ecological resources. With nearly 75 miles of shoreline and only 5.6 square miles of land area, the community is inseparable from its adjoining waterways and marsh systems. Furthermore, the waterways interweave into the community through more than 46 miles of canal frontage making daily life of the community indistinguishable from its waterways. Consequently, the health and sustainability of these waterways and the associated dependent aquatic natural resources is critical to the community's quality of life.

Green Tree frog resting on Pickerel weed
Photo by: Raleigh Berry, Brevard County NRMO

The Environment:

Ecotones – description of surrounding ecosystems

The major natural communities within the East Merritt Island Small Area Study are either aquatic or dependent upon the waterways. These include Coastal Temperate Hammock, Salt Marshes, Mangrove Swamp, and Hydric Hammock. The upland natural communities include Mesic Slash Pine, Upland, Mixed Forest, and Xeric Hammock. Most of these areas are on private undeveloped property either along the fringe of the urban areas or otherwise linked to the urban fringe. The Banana River Aquatic Preserve to the east, and Sykes Creek (including Ulumay Sanctuary) to the west, still sustain delicate marshes, mangrove dominated marshes or swamps, marine grass beds, drift algae, oyster bars, tidal flats, and spoil islands.

During the 1950's and 60's many of the existing marshes were impounded or ditched for mosquito control purposes. Impounded salt marshes are very susceptible to degradation due to restricted water movement. Furthermore, pollutants that enter into these impoundments often remain there for extended periods of time. These influences create a need to proactively manage these critically sensitive areas.

Water foul feeding in the Banana River shallows
Photo by: Chris Koeppel, Brevard County NRMO

Even with the historically intense development on East Merritt Island, the remaining natural marsh and swamp systems have been resilient. These systems rely heavily upon the limited yet essential transition zones buffering the urban boundary. Similarly, the waterways rely upon the connection to the adjoining marsh and swamp systems

to sustain their unique and diverse ecological and economically productivity. This interconnectivity between the community and the ecology creates a unique sense of place seldom found within the urban environment.

Geology/Hydrogeology

Coastal Florida has a complex geologic history with repeated periods of deposition, when the Florida Plateau was submerged, and erosion, when the seas receded. East Merritt Island is part of Florida's geomorphic zone known as the east-coast barrier system. This barrier island and tidal inlet system is the longest in the U.S with Cape Canaveral (and subsequently East Merritt Island) positioned approximately in the center. Merritt Island is considered a back barrier island to this current system and thought to be part of a relict cape. The natural topography of this system is marked by a sequence of ridges and swales reflecting relict beach and dune systems. Topographic relief is slight in the study area with elevation ranging from sea level to about 10 ft.

The sediments in the study area consist primarily of unconsolidated quartz sands with expressions of sandy coquina rock and shell bed structures. These unconsolidated sediments serve as the water reservoir for surficial aquifer. The surficial aquifer is primarily recharged by the sand ridges and higher areas of sandy sediments which capture and filter rain and other waters that percolate into the aquifer. Once the surficial aquifer is recharged, the groundwater base flow is discharged to the adjacent marsh systems, ditches and waterways. This surficial aquifer groundwater is also withdrawn from shallow wells for lawn irrigation.

The geology and the development within the study area play a significant part in the quality and quantity of water available to the surrounding aquatic systems. Increased impervious areas and channelized drainage systems result in a short circuiting of the natural recharge and filtration of the groundwater. The study area exhibits many urbanized areas where the recharge has been limited and the natural filtration bypassed do to untreated stormwater systems. This scenario results in reduced volumes of surficial groundwater and significantly lower quality of the water discharged into the surrounding marshes, canals and waterways.

Banana River Aquatic Preserve

The Banana River Aquatic Preserve was established June 3, 1970 by the Governor and Cabinet by resolution. The Banana River is a long, narrow, shallow estuary that is bordered on the east by a barrier island and on the west by Merritt Island. The preserve includes Newfound Harbour which extends north along the western shoreline of the study area until it coincides with Sykes Creek. This water body has extraordinary recreational opportunities and abundant wildlife. Typical wildlife sightings within the Aquatic Preserve might include

Manatee Cow and Calf
Stock photo: FWCC

bottlenose dolphin, manatees, white pelicans, red fish and many other native species. The northern Banana River is the most important spring habitat for the east coast population of manatees (2001, Florida Manatee Recovery Plan). Large numbers of manatees use the Banana River almost year-round. The Banana River also supports the largest pelican rookery on the Atlantic Coast, as well as a significant population of alligators, and diamondback terrapin turtles. Favored by recreational fisherman, the shallow seagrass and mangrove based ecosystem supports large game fish. Other public uses include boating, fishing, sail boarding, kayaking, duck hunting and bird watching (http://www.dep.state.fl.us/coastal/sites/banana/info.htm).

Sykes Creek and Ulumay Wildlife Sanctuary

Sykes Creek is the main tributary within the Banana River Aquatic Preserve and outflows into Newfound Harbour. This waterway sustains the unique area known as Ulumay Wildlife Sanctuary. Ulumay is a significant natural resource recognized internationally among Audubon's birdwatchers. The 436.53-acre bird sanctuary is under the Management of Brevard County Parks and Recreation, dedicated to the County in 1970 by the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. Historically documented as a village of the Ais Indians who disappeared around 1720, it is a natural lagoon and bird rookery linked with canals created for mosquito control and surrounded by a man-made dike. A trail on the dike provides access to the waterways for fishermen, birdwatchers, and paddlers. A bird watching tower offers a scenic overlook of the lagoon. Projecting into Sykes Creek at the southwest corner of the park is a fishing pier commonly known as the Old Humpbacked Troll Bridge. Typical wildlife sightings within the Ulumay include eagles, manatees, dolphins and birds such as, Roseate Spoonbill, Wood Stork, Belted Kingfisher, Least Tern, Black Skimmer, American White Pelican, and Brown Pelican. East Merritt Island is an important area to migratory species like ducks, rails, sparrows, and warblers because of Ulumay and other water bodies. In 1992, a port authority mitigation project funded the restoration of the impounded Sanctuary by installing 36 flap-gate culverts reconnecting the wetlands to Sykes Creek. The shorelines, marshes, and impounds of East Merritt Island once again serve as essential nursery areas for fish species such as snook, redfish, trout, and mullet.

Roseate Spoonbills foraging in the flats
Photo by: Chris Koeppel, Brevard County NRMO

Ulumay Historic & Avian Interest (Excerpts from Parks and Recreation Website)

Take a walk along the dike of the lagoon, and at various times throughout the year you could spot a wood stork, white or brown pelican, snowy egret or belted kingfisher, white, tri-color or blue heron, anhinga, or blue wing teal and cinnamon teal ducks. And yes, be cautious of the occasional alligator!

The sanctuary property was dedicated to the Board of County Commissioners recreational and parks purposes. The portion of the protected area designated as park lands encompasses Kiwanis Island Park and totals 487.91 acres. However, the 457-acre Ulumay Wildlife Sanctuary portion is the diked wetland north of Audubon Road, bounded on the west by Sykes Creek and on the east by Banana River Drive housing developments. The official entrance is at the juncture of Sykes Creek Boulevard and Audubon Road. Fishermen recognize the entrance as access to the old humpbacked "Troll" bridge. A trail leads from the parking site to a birdwatching tower, with a canoe launch site at the Mosquito Control access road. Once inside, urban Merritt Island recedes, and the terrain becomes reminiscent of more primitive times. The earliest know written record of this area was made by Alvaro Mexia in 1605. While on a mapping expedition, this young soldier from the St. Augustine garrison came to the area to meet the Ais chief. He drew a rough map of the Mosquito Lagoon and Indian River with Ais language place names of Surruque, Urribia, Urruya, Suyagueche, Potopotoya, Ulumay, Saboboche, Savochequeya, Pentoaya and the Baya Grande de Ays. (Rouse 1951, 1981)

Only the name Ulumay has survived as the name of the Ulumay Wildlife Refuge on Merritt Island (named by naturalist and local historian Johnnie Johnson). Quoting from Irving Rouse's survey of Indian River Archaeology, Mexia's diary says, "Here is the town of Ulumay, the first one of the province of the Ais. In back and adjacent to this town there are many camps." The Ais Indians remained in the area until their disappearance between 1715 and 1720. The shell mounds which were all that was left of these villages were used in the construction of early Merritt Island roads long before their archaeological significance was recognized. Recognition finally came on December 7, 1993, when the Brevard County Historic Commission presented a plaque to the Board of County Commissioners dedicating Ulumay Wildlife Sanctuary as a Historic Landmark.
The late Johnny Johnson, a long time member of the Brevard Historic Commission, helped record what little was left of these Ais sites while heading a trailblazing effort along the dike in the 1960s. Today, several miles of walking trail are maintained by a joint effort including Brevard Mosquito Control, Brevard County Parks and Recreation, Brevard County Marine Resources and volunteers. Brevard County Parks and Recreation Department maintains the fishing pier and birdwatching tower, while Mosquito Control manages the salt march mosquito.

Considered probably Brevard County's biggest mosquito producing property, the County began managing the mosquito at Ulumay in the 1950's through diking and water control efforts. In the early sixties, a series of horizontal canals were cut to aid mosquito control efforts. Since that time, adventurous paddlers have taken advantage of the linked waterways in canoes and kayaks. In 1992, a Port Authority mitigation project brought restoration to the wetlands. This project required installation of thirty-six culverts through the dikes to reconnect the wetlands to the lagoon system. The installation was done by the Army Corps of Engineers and is associated with the Florida Game and Fresh Water Fish Commission's mission to restore the wood stork rookery.

The rookery, otherwise know as a nesting area, was destroyed by the 1985 freeze. The culverts allow juvenile fish to be pumped into the wetlands creating a "fish nursery", which in turn invites the wood stork to rebuild the Ulumay rookery. The biannual pumping cycle is managed by the Brevard County Mosquito Control. The culverts are closed in January 1, at which time water is pumped in and then allowed to go down naturally until about mid-March when the culverts are opened again. This cycle is repeated in October. Most of the canals disappear during the flooded seasons, creating a paddler's dream.

Barge Canal

The Merritt Island Barge Canal, constructed from June 6, 1950 to January 15, 1952, provides an east-to-west link between the Banana River Lagoon and Indian River Lagoon across Merritt Island and serves as the northern limit of the study area. The canal is 12 feet deep and has entrances to other waterways including Sykes Creek as well as various marinas and water dependent businesses. The canal was originally constructed to facilitate the transport of materials from the port into the Indian River Lagoon. Until the 1960's, when the first bridge was built, the barge canal cut off North Merritt Island from the southern half.

Pleasure craft and other small boat traffic use Canaveral Barge Canal to reach the Banana River because it is considered a safe haven for small craft. The canal links Port Canaveral along the Atlantic Ocean to the Intracoastal Waterway (ICW) running down the center of the Indian River Lagoon. This Atlantic Ocean - ICW connection, through the Port Canaveral Inlet, is the only unrestricted height access to the ICW from the Atlantic Ocean between St. Augustine Inlet and Ft. Pierce Inlet.

Kayakers co-existing with powerboats on the Barge Canal –Stock Photo

The Pollution Concern

Stormwater Background and Retrofit Projects

Prior to 1978, rainfall runoff was allowed to flow freely flooding low areas and discharging into the Lagoon. As part of the implementation of Merritt Island's growth management plan, local regulations were changed in 1978 to assure that all subdivisions and commercial sites developed within Brevard County treat stormwater runoff to reduce pollutants carried to surface waters and to store runoff volumes to reduce flooding of downstream properties. However, much of East Merritt Island was developed prior to this time and had little or no stormwater treatment facilities. To prevent flooding in these areas and address stormwater-related pollution problems, additional measures were required. In September 1990, Brevard County adopted an ordinance that created a Stormwater Utility, providing a dedicated source of funding to address these concerns. The program has numerous projects planned for the next several years that will help

alleviate flooding issues in identified areas and provide treatment to stormwater before it reaches the Indian River Lagoon or St. Johns River. In 2007, the Stormwater Program became part of the Brevard County Natural Resources Management Office, as a principle part of the Watershed Management Program. The Watershed Management Program is responsible for the implementation of the Stormwater Utility, Total Maximum Daily Load requirements and the County's National Pollution Discharge Elimination System Permit.

Cleaning out sediment and debris from the storm drain
Photo by: Greg Jones, Brevard County NRMO

TMDL's

The Clean Water Act required EPA to establish Total Daily Maximum Loads (TMDL's) for various pollutants which has been delegated to the states. States must determine how much pollution a water body can handle and still meet designated use (fishing, swimming, etc.). Currently, states are focusing on polluted runoff from stormwater, septic tanks, agricultural lands and residential/urban developed areas.

Some of the pollution loadings reduction efforts will become a part of the County's Stormwater National Pollutant Discharge Elimination System (NPDES) program while others may become part of a State Basin Management Action Plan (BMAP) implemented by the Florida Department of Environmental Protection.

Because this is such a large program, basins or watersheds requiring a TMDL are divided into 5 groups with a staggered rotating schedule provided for 5 phases in the development process for each group. The Banana River, Sykes Creek and Newfound Harbor TMDL's are being finalized this year. TMDL's for Newfound Harbor and the Banana River are proposed for listed impairments including Dissolved Oxygen and Nutrients. Additionally, a Mercury TMDL is scheduled to be developed by 2011. Nitrogen will be required to be reduced by 63% and Phosphorus by 67%. In order to meet the Newfound Harbour and Banana River required pollutant reductions, nutrients from Sykes Creek and Newfound Harbor will also need to be reduced. Sykes Creek and the Barge Canal are also listed as impaired for Mercury.

The next step will be the development of the Basin Management Action Plan (BMAP) which will delineate how these reductions will be accomplished. The BMAP is scheduled to start in the fall of 2008 and will be developed with FDEP and all potential contributors and local governments within the basin. Reductions of this magnitude will require a significant commitment of resources, and increased stormwater treatment

retrofit project construction. Some of the additional efforts necessary to reduce pollutant loads will likely include:

- expanded business and public education efforts,
- programs promoting low impact development and re-development,
- potential development of new local regulations,
- increased enforcement to more adequately address illegal discharges,
- reduction of residential and commercial fertilizer use, and
- reduction of discharges from construction sites.

Because much of East Merritt Island's development occurred before there were stormwater requirements, many areas do not receive any form of treatment to reduce pollutants prior to discharge to the lagoon. The land available to allow construction of treatment systems is also limited and increasingly more expensive. The County has therefore installed numerous small projects such as baffle boxes and street inlet devices to help remove some of the pollutant loadings by collecting sediment, grass and leaves. These baffle boxes are the first step toward meeting the required load reductions.

Installing a Baffle Box to reduce sediment and nutrients entering the Lagoon
Photo by: Greg Jones, Brevard County NRMO

Good Citizen Stewardship: Non-point Pollution Source Reduction

Non-point pollution is a major contributor to the overall pollution of the water bodies in East Merritt Island. Non-point pollutants are those that can not be attributed to a single source such as a waste water treatment plant. Examples of non-point pollution include oils and fluids from cars and trucks, sediments, fertilizers, herbicides and pesticides runoff, and pet wastes that are not properly disposed.

Addressing non-point pollution in East Merritt Island will require a partnership between the homeowners, business owners and the County. The homeowners and business owners have the opportunity to minimize contamination of waterways by implementing several best practices to include:

- ***Preventing lawn clippings from being blown into the street or being dumped down the storm drain***. Once it rains, those leaves and grass clippings and yard waste are washed into adjacent water bodies. The nutrients contained in the waste can cause algae blooms that decrease the amount of light and oxygen in the water and sometimes result in fish kills and declines in seagrass beds.
- ***Closely monitoring and managing fertilizer and pesticide application.*** If pesticide or fertilizer application is required, the best fertilizers for use in Florida contain at least 30 percent slow-release nitrogen. The three numbers on the front of the bag should be selected for the type of plant you are fertilizing. The numbers represent the fertilizer's nitrogen (first number), phosphorus (second number) and potassium (third number) contents. High nitrogen fertilizers on a plant that does not need it is a waste of money and will eventually be washed into waterways by stormwater where it will fertilize algal blooms. Homeowners and

business owners should use environmentally friendly alternatives to pesticides, including insecticidal soaps and horticultural oils which both can be made easily at home.

- ***Maximizing Mulching.*** Mulching is another method of reducing stormwater runoff in yards. Because mulch is porous, it allows rainwater to seep into the ground but forms a firm ground cover that filters pollutants and holds soil in its place. Homeowners can get free mulch at the county landfills in Cocoa, Titusville and Melbourne. It is recommended that the homeowner call first to ensure availability. The phone numbers are 633-1888 for the Cocoa and Titusville landfills and 255-4365 for the Sarno Road complex in Melbourne.
- ***Conserving Water***. Periodically check to make sure sprinklers are not watering the streets and driveways instead of the plants. Rain and irrigation water that fall on paved areas wash pollutants into the storm drains.
- ***Re-using Rain Water*** Homeowners and business owners should redirect downspouts of rain gutters away from paved surfaces such as driveways and into landscaped areas. Rain barrels are an excellent choice to collect rain water for re-use.

Colorful Rain barrel in collecting downspout run-off
Photo by: Diane Doughty, Homeowner

The Solution

East Merritt Island is a unique place with unique challenges and opportunities. Effective management of the existing developed areas, sound conservation strategies for the remaining natural environment, and proactive partnerships for pollution prevention are key to sustaining and improving its character and sense of place. Specifically, East Merritt Island expresses a rare co-dependency between and co-location of urban development and the surrounding natural resources. The viability of this relationship necessitates a community that plans, partners and participates in the solutions to maintain the ecological, economic and recreation balance.

Juvenile Green Heron
Stock photo

DATA BASICS

Land Area:

The northern portion of the East Merritt Island SAS is approximately 4,731 acres under County jurisdiction. Of this acreage a majority is designated as public or private conservation or recreational land uses, thereby limiting residential development potential. The next largest category of land uses is residential, followed by a small area of community and neighborhood commercial land use supporting the residents. The primary commercial core is located along SR 520. The existing Planned Industrial Park and Development of Regional Impact land uses are both north of SR 528. Directly south of SR528 are the commercial and recreational land uses which combined with the interstate rights of way further buffer the residential areas to the south.

Table 1.
North Area Future Land Use Map Designations

Adopted Future Land Use	Acres
Community Commercial – CC	126
Neighborhood Commercial – NC	19
Planned Industrial Park – PLNIP	187
Development of Regional Impact - DRI	23
Private Conservation – PRIVCONS	749
Public-Conservation – PUBCONS	1,353
PUB – Public	60
Recreation – REC	1,168
Residential 4 – RES 4	35
Residential 6 – RES 6	568
Residential 15 – RES 15	442
Total under County Jurisdiction	4,731

Source: Brevard County Planning & Zoning Office

The southern portion of the East Merritt Island SAS consists of approximately 941 acres. The commercial corridor along the southside of SR520 and along Banana River Drive closely mirrors the extent of commercial property on northside of SR520.

With one exception, all of the commercial land uses are along to SR520 or adjacent to other commercial properties on SR520 and in close proximity to accessing SR520 without having to drive through residential areas.

The one exception to this is an existing multi-family property which has an adopted Commercial Future Land Use has a residential zoning along Banana River Drive.

Table 2.
South Area Land Uses

Adopted Future Land Use	Acres
Community Commercial – CC	36
Neighborhood Commercial – NC	87
Public Conservation – PUBCONS	12
Residential 4 – RES 4	177
Residential 6 – RES 6	142
Residential 15 – RES 15	487
Total under County Jurisdiction	941

Source: Brevard County Planning & Zoning Office

More than half of the study area has a Future Land Use Map designation Residential 15. However, this designation is not indicative of the existing land use pattern within that designation, which is single family detached residential (SFR) dwellings with typical densities ranging from 3.5 to 4.5 units per acre. Most of the land area designated as Residential 6 has been developed as SFR dwellings at approximately 4 units per acre. The potential effects of the higher density land use designations with the existing land use pattern and character of the area will be discussed in the following Scenarios for Managing Growth section.

The remaining land uses of Residential 4 and Public Conservation both appear to be consistent with the existing land uses.

Population:

The north and south study areas are entirely located within three census data tracts, tracts 691 and 692 encompassing the north area and tract 693 the south area.

As shown in Table 3 below, population growth in the area has been extremely limited or has declined. The growth that has occurred is at a rate of just below 1% cumulative annually over the both the north and south study areas.

Table 3.
Historical Population Trends

Study Area	Census Tract #	1990 Pop.	2000 Pop.	% Change
Brevard County	All	399,330	476,230	+19.25
North Area	691	4,276	4,931	+15.3%
North Area	692	2,730	2,702	(1.0%)
North Area Totals		7,006	7,633	+8.9%
South Area	693	2,665	2,933	+10.0%
EMI Totals		9,671	10,566	+9.2%

Source: U.S. Census Bureau

Age Trends:

Population trends for both areas reflect the changes national demographics. Our median age is rising, and the longevity of our senior population continues to increase. With these changes, different community issues must be examined.

Both the north and south study areas show a continued increase in the number of residents over the age of 65. If the rate of increase experienced from 1990 through 2000 continues, almost 25% of the total population on East Merritt Island will be over 65 years of age by 2010.

The number of school-aged children continues to rise in the north study area. There are two public schools in north Merritt Island, Audubon and Stevenson Elementary Schools. Both schools show available capacity with a utilization of 84% and 75% respectively in the Existing School Utilization 2007 - 2008 report.

Table 4.
School Aged Children and Retirees

Description	1990	2000	2025 Projections	% Change 1990 – 2000
Brevard County				
Total Pop.	399,330	476,230	692,500	+19.2%
Under 18	92,131	95,246		+3.3%
Over 65	66,382	94,769		+42.7%
North Area				
Total Pop.	(100%) 7,006	(100%) 7,633	8,223	+8.9%
Under 18	(20.4%) 1,432	(21.0%) 1,605		+12.0%
Over 65	(16.0%) 1,122	(19.1%) 1,465		+30.5%
South Area				
Total Pop.	(100%) 2,665	(100%) 2,933	3,197	+10.0%
Under 18	(20.6%) 549	(19.8%) 581		+5.8%
Over 65	(14.7%) 392	(18.6%) 548		+39.7%

Source: U.S. Census Bureau

Home Ownership:

One measurement of a community's stability is the amount of housing that is owner occupied. This generally implies a strong vested interest in the community and residents take pride in their property which is outwardly reflected in upkeep and maintenance of the neighborhoods.

Nonetheless, a rental component is an essential aspect of a vital housing market. There are many reasons why individuals need or desire to rent, such as younger couples saving for a first home, individuals without children or working professionals with a preference for a management company to be responsible for building and outdoor maintenance. The demand for rental housing does not diminish when limited apartments are available. Instead, the market reacts by landlords purchasing single family homes and then leasing them as rental units. For this reason, a component of well managed rental communities rather than individually managed single family housing rental units is desirable.

Table 5.
Housing Units and Owner-Occupied/Rental Ratios

Occupancy Type	1990	2000	% Change
Brevard County			
Total Housing Units	185,150	222,072	+19.94%
Occupied Housing	161,365	198,195	+22.82%
Owner	111,742	147,923	
Renter	49,623	50,272	
North Area			
Total Housing Units	2,973	3,308	+11.2%
Occupied Housing	2,837	3,163	+16.4%
Owner	(78.8%) 2,235	(81.5%) 2,577	
Renter	(21.2%) 602	(18.5%) 586	
South Area			
Total Housing Units	1,192	1,355	+13.6%
Occupied Housing	1,080	1,251	+15.8%
Owner	(81.5%) 880	(87.1%)1,075	
Renter	(18.5%) 200	(12.9%) 176	

Source: U.S. Census Bureau

As shown in Table 5, above, there has been an increase in the percentage of owner occupied dwellings for both the north and the south areas. Upon closer inspection, however, although there was a slight decrease in the number of the renter occupied housing units, the number of renters living in the area has not decreased substantially. The actual increase in the owner occupied percentages is due to new housing being constructed which are subsequently owner occupied. With the greater total number of

dwelling units in the area, the ratio of renter/owner occupied dwellings decreases, even the number of actual dwellings being rented has declined only slightly.

Rental Housing in the Study Area

The difference in total housing units versus occupied housing units is small, and can be accounted for by temporary vacancies at the time of the census and second homes that are not the permanent residences of the owners.


Custom built homes are located along the water's edge throughout the study area

Housing Types

As shown in Table 6 below, in 2000 the north area was predominately single family residential housing (87%) with some multi-family and mobile home parks along the southern boundaries of the north area. The location of the multi-family housing with quick access to SR520 and the nearby major shopping centers diverts many trips from using Banana River Drive.

In the south area, the 2000 housing data show a 5% increase in the total number of housing units which amounts to a total of 59 new units. There were 105 additional single family detached units, 8 additional single family detached units and 2 additional multifamily units. This was offset by a reduction of 88 mobile homes which appears to indicate that the south area experienced redevelopment pressures during the 1990's. It is interesting to note that there are now 32 residences in Boats, Recreational Vehicles or Vans. It is not known whether the 1990 census accurately captured these transient types of housing units.

Table 6.
Housing Types

Housing Type	1990	2000
Brevard County		
Single Family Detached	105,995	135,412
Single Family Attached	9,342	15,088
Multi-Family	47,158	46,289
Mobile Home/Trailer	21,363	24,092
Countywide Totals	183,858	1,199
North Area		
Single Family Detached	2,461	2,754
Single Family Attached	5	22
Multi-Family	367	291
Mobile Home/Trailer	140	96
North Area Totals	2,973	3,163
South Area		
Single Family Detached	904	1,009
Single Family Attached	7	15
Multi-Family	42	44
Mobile Home/Trailer	239	151
Boat, RV, Van	0	32
South Area Totals	1,192	1,251

Source: U.S. Census Bureau

INFRASTRUCTURE AND SERVICE DEMAND ANALYSIS

Transportation Network & Build-out:

For both the North and South study areas the existing Average Daily Trips (ADT) on the roadways were compounded with the number of trips that could be generated from the development of vacant property. The density for the development of this vacant property was based upon the adopted Future Land Use (FLU) for the property. The resulting traffic generation projection is based upon the maximum development allowance scenario for these vacant parcels. In actuality, a number of constraints could restrict the final density for any project on these parcels. By using the maximum density allowed by the FLU, the greatest impact possible is demonstrated.

North Area

The north area transportation network includes two collector roadways and numerous local streets. Traffic is carried north to SR528, south to SR520, and west along Sykes Creek Parkway. The north area is divided into three road segments for the purposes of traffic generation and trip distribution. These segments are listed on Table 7 along with the existing Average Daily Trips (ADT) and the potential ADT in a total build-out scenario of the vacant buildable property under current FLU designations. The data demonstrate the cumulative impact of these trips on the affected roadway segments.

Table 7.
Build-out Scenario for North Area Road Segments

North Study Area Transportation Facility Road Segments								
Segment	**Max Volume**	**Current ADT**	**Potential ADT**	**Current Volume**	**Potential Volume**	**Current LOS**	**Adopted LOS**	**Potential LOS**
035B	15,600	7,401	11,853	47.44%	75.98%	D	E	E
035A	15,600	12,248	19,886	78.51%	127.47%	D	E	F
345C	15,600	10,394	14,424	66.63%	92.46%	C	E	E
Segment	**Segment Description**							
035B	North Banana River Drive from SR520 north to Sykes Creek Parkway							
035A	North Banana River Drive from Sykes Creek Parkway north to SR528							
345C	Sykes Creek Parkway from Banana River Drive west							

Source: Brevard County

As shown in Table 7, above, the North Banana River Drive road segment (035A) could exceed the allowable Level of Service (LOS) in a total build-out scenario. The other segments would both be impacted by an increase of 60% (035B) and 39% (345C) respectively.

Constricted Roadway Segments over canals

South Area

The south area transportation network includes two collector roadways and numerous local streets. Traffic is carried north to SR520 on South Banana River Drive and Newfound Harbor Drive. The south area is divided into two road segments for the purposes of traffic generation and trip distribution. These segments are listed on Table 8. along with the existing Average Daily Trips (ADT) and the potential ADT in a total build-out scenario of all vacant buildable property under adopted FLU designations. The table demonstrates these trips cumulatively for impacts on the roadways.

Table 8.
Build-out Scenario for South Area Road Segments

South Study Area Transportation Facility Road Segments								
Segment	**Max Volume**	**Current ADT**	**Potential ADT**	**Current Volume**	**Potential Volume**	**Current LOS**	**Adopted LOS**	**Potential LOS**
036	15,600	2,487	4,991	15.94%	31.99%	A	E	B
221	15,600	7,341	10,699	47.06%	68.58%	C	E	D
Segment	**Segment Description**							
036	South Banana River Drive from SR520 south to termination							
221	Newfound Harbor Drive from SR520 south to termination							

Source: Brevard County

As shown in Table 8 above, neither road segment would fail in a total build-out scenario. However, the amount of average daily trips would impact the LOS by one category for each respective segment. In the case of Segment 036, South Banana River Drive, the trip count could increase 100%, or double, in a total build-out scenario. The Newfound Harbor Drive segment could increase 46% in a similar build-out.

Transportation Network and Redevelopment

In the Transportation Network section above, the existing traffic generation and the impacts associated with build-out of the vacant acreage under the adopted Future Land Uses are evaluated. A second and different modeling examines what happens to the transportation network when the existing developed properties are redeveloped under their adopted Future Land Use.

For example, this approach evaluates traffic impacts if the platted lots in an existing single family home subdivision were assembled and redeveloped under its higher density. The single family homes could be replaced by townhouses or apartments. The tables below demonstrate the cumulative effects on study area properties being redeveloped under the highest density as allowed by the adopted FLU. From these calculations, the value of "right-sizing" future land uses on developed property can be determined. With the adoption of a Future Land Use, rezoning options would be limited to those that are more in character with surrounding land uses.

A new look for a commercial plaza

North Area

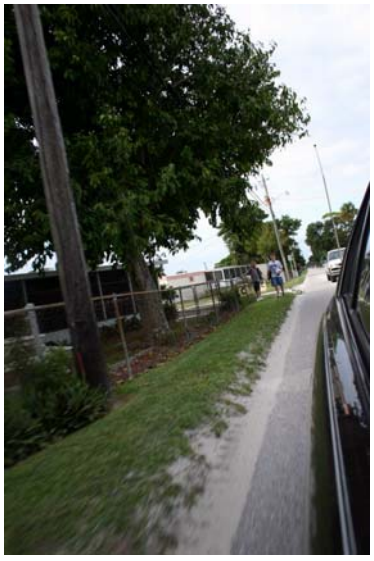
The redevelopment scenario for the North Area evaluated below assumes that all Residential 15 Future Land Use will be redeveloped at its maximum allowable density. This includes both vacant RES 15 parcels and developed RES 15 parcels that would be redeveloped.

Table 9.
Redevelopment Scenario for North Area Road Segments

North Study Area Transportation Facility Road Segments								
Segment	**Max Volume**	**Current ADT**	**Potential ADT**	**Current Volume**	**Potential Volume**	**Current LOS**	**Adopted LOS**	**Potential LOS**
035B	15,600	7,401	15,743	47.44%	100.92%	D	E	F
035A	15,600	12,248	25,589	78.51%	164.03%	D	E	F
345C	15,600	10,394	17,622	66.63%	112.96%	C	E	F
Segment	**Segment Description**							
035B	North Banana River Drive from SR520 north to Sykes Creek Parkway							
035A	North Banana River Drive from Sykes Creek Parkway north to SR528							
345C	Sykes Creek Parkway from Banana River Drive west							

Source: Brevard County Planning & Zoning Office

As shown in Table 9. above, the redevelopment of the existing Residential 15 acreage would cause the Level of Service of the roadway to exceed allowable levels. The adopted LOS for all three road segments is "E" and the addition of these trips would cause the LOS to drop to "F". By the roadways degrading to "F" the LOS would be exceeding the adopted allowable LOS.



Pedestrians walking on the shoulder

South Area

In the table below, South Area segments are listed along with the existing Average Daily Trips (ADT) and the potential ADT under a redevelopment scenario that allows development per the Residential 15 FLU designations. The table summarizes the roadway impacts under this redevelopment scenario.

Table 10.
Redevelopment Scenario for South Area Road Segments

South Study Area Transportation Facility Road Segments								
Segment	**Max Volume**	**Current ADT**	**Potential ADT**	**Current Volume**	**Potential Volume**	**Current LOS**	**Adopted LOS**	**Potential LOS**
036	15,600	2,487	9,477	15.94%	60.75%	A	E	C
221	15,600	7,341	14,194	47.06%	90.99%	C	E	E
Segment	**Segment Description**							
036	South Banana River Drive from SR520 south to termination							
221	Newfound Harbor Drive from SR520 south to termination							

Source: Brevard County

The potential number of new trips for both road segments decreases the Level of Service by two categories. The nearly 300% increase in trips on South Banana River Drive (Segment 036) would cause a significant degradation in the driving conditions. Newfound Harbor Drive (Segment 221) would experience similar conditions with the number of trips on the roadway almost doubling.

When a roadway exceeds its level of service, any future development approvals such as site plans, rezonings, and subdivision approvals, are restricted due to concurrency considerations. With the results of this modeling, the justification for selectively right-sizing adopted land uses within the study area is evident. Proposed solutions will be discussed under Scenarios for Managing Growth later in this report.

Public Schools:

East Merritt Island school children are served by two elementary schools, one middle school, one combined junior/senior high school, and one high school. The 2000 Census shows us the number of school-aged children in the North and South areas by age group.

In the North area the Under 18 population has remained consistent with the total population of the study area. The Under 18 student population is approximately the same percentage of the total population in 2000 as it was in 1990 (20.4% vs. 21.0%). The number of children split between the two age groups of Under 5 and 5 – 17 is also constant. It does not show the Under 5 population growing up and not being replaced.

Table 11.
School-aged Children Population

Description	**1990**	**2000**	***2025 Projections**	**% Change 1990 – 2000**
Brevard County				
Total Pop.	399,330	476,230	692,500	+19.2%
Under 18	92,131	95,246		
5 – 17				
Under 5				
North Area				
Total Pop.	(100%) 7,006	(100%) 7,633	8,223	+8.9%
Under 18	(20.4%) 1,432	(21.0%) 1,605		+12.0%
5 – 17	1,093	1,237		
Under 5	339	368		
South Area				
Total Pop.	(100%) 2,665	(100%) 2,933	3,197	+10.0%
Under 18	(20.6%) 549	(19.8%) 581		+5.8%
5 – 17	148	453		
Under 5	401	128		

Source: U.S. Census *Source: Brevard County MPO

The South area numbers reflect that from 1990 to 2000 the number of Under 5 residents decreased by 273 while the 5 – 17 population increased by 305. With a net difference of only 32 children this could represent that those children "lost" in the Under 5 category moved up to the 5 – 17 age category with only 32 new children moving into the study area.

The capacity of the receiving public schools is shown in Table 12. These data demonstrate the availability of school capacity for elementary and middle school students and the increased demand at the high school levels.

Table 12.
School Information and Capacity FY 2007 - 2008

School	Type	Grades	10/15/07 Membership	Perm. Capacity Utilization
Audubon	Elementary	K – 6	635	84%
Stevenson*	Elementary	K – 6	427	75%
Edgewood*	Junior/Senior	7 – 10	946	99%
Jefferson	Middle	7 – 8	699	85%
Merritt Island H.S.	High	9 – 12	1,569	114%

Source: School Board of Brevard County

* Schools of Choice

The generation of additional school aged children is shown in Table 13. The student generation rates are based upon the generation tables in the Interlocal Agreement between the Brevard County School Board and the Board of County Commissioners and the local municipalities. The student generation is based upon housing types and depicts the total additional students based upon a build-out of vacant property and a redevelopment scenario under the adopted Future Land Uses.

Table 13.
School Aged Children Generation

School Type	Build-out	Redevelopment
North Area		
Elementary	437	(-32)
Middle	116	(-2)
High	165	(-7)
Total	718	(-41)
South Area		
Elementary	290	(-103)
Middle	87	(-23)
High	174	(-47)
Total	551	(-173)

In all cases of redevelopment where the existing single family residential homes were redeveloped as low rise condominiums the number of school aged children decreased. This is due to the condominiums having a lower student generation rate.

Public Wastewater (Sewer) Service:

The public wastewater service is provided by Brevard County Utility Services Department. The Sykes Creek Plant serves the East Merritt Island area and has a maximum capacity of 6 millions of gallons a day (mgd). The plant is currently operating at 3.5 mgd. Although the Sykes Creek Plant has the existing capacity to serve future development in the study area, in a total build-out scenario the existing 6" sewer lines in the southern study area would need to be upgraded to 12" lines and upgrades to some pump stations and force mains would also be required.

Table 14.
Wastewater Generation

Description	**# of Units**	**Avg. GPD**	**Generation Total**
North Area			
Current Usage	2,625	213	559,125
Potential Generation			
Single Family	113	201	22,713
Multi-Family	2,179	103	224,437
Commercial	*58	922	53,476
Total Treatment Demand Potential			859,751
South Area			
Current Usage	656	213	139,728
Potential Generation			
Single Family	182	201	36,582
Multi-Family	1,270	103	130,810
Commercial	*52	922	47,944
Total Treatment Demand Potential			355,064
	Current Usage	Additional Potential Usage	Change
North Area	559,125	300,626	+85.98
South Area	139,728	215,336	+154.11

Source: Brevard County Utilities Services Dept.

* The average commercial unit size is assumed at 1,000 sq. ft. of principal structure or storefront in a plaza.

Public Water Service:

The public water service is provided by the City of Cocoa Utilities. The City Engineering Division has confirmed that they have existing capacity to meet the future build-out of East Merritt Island.

Table 15.
Water Generation

Description	# of Units	Avg. GPD	Generation Total
North Area			
Current Usage	2,625	265	695,625
Potential Generation			
Single Family	113	265	29,945
Multi-Family	2,179	265	577,435
Commercial	*58	265	15,370
Total Demand Potential			1,181,875
South Area			
Current Usage	656	265	173,840
Potential Generation			
Single Family	182	265	48,230
Multi-Family	1,270	265	336,550
Commercial	*52	265	13,780
Total Demand Potential			538,288
	Current Usage	Additional Potential Usage	Change
North Area	695,625	1,181,875	+69%
South Area	173,840	538,288	+209%

Source: City of Cocoa Utilities Dept.

* The average commercial unit size is assumed at 1,000 sq. ft. of principal structure or storefront in a plaza.

Kelly Park East Waterway Access

Parks and Recreation:

The Brevard County Parks and Recreation Central Parks Operations maintain the park facilities in the East Merritt Island area. The North study area includes Kelly Park West and Kelly Park East as well as soccer facilities at Stevenson Elementary School through a Joint Use Agreement with the School Board. The South study area includes Harbor Point Park located on the Banana River.

The North area parks are heavily patronized by local residents. Popular activities include youth soccer, boating, tennis and picnicking at Kelly Park West and East. The facilities at Stevenson Elementary school are used for the youth soccer program.

Kayaking in Sykes Creek *Photo Credit: Vince Lamb*

Harbor Point Park in the South study area is a neighborhood park primarily for the use of local residents within walking distance.

Although there are currently no plans for additional land acquisitions, the Parks and Recreation Department recently constructed capital improvements to the parks including tennis courts and a maintenance facility at Kelly Park West.

Public participation opportunities are provided by the Parks and Recreation Advisory Board along with various user groups and Recreational Partners such as the Central Brevard Soccer League. Valuable input from these groups helps form future plans such as the expansion of the soccer programs at Stevenson Elementary.

Soccer Leagues are Recreational Partners to provide sporting activities for kids

Fire Rescue Engine fully engaged at a house fire

Fire Rescue

Brevard County Fire Rescue (BCFR) is the largest fire and emergency medical services (EMS) provider in the County. The department operates 28 ambulances, staffed with firefighter-paramedics, providing advanced life support (ALS) pre-hospital emergency care. For fire suppression, BCFR operates 21 fire engines countywide, all with ALS paramedic capability.

The East Merritt Island study area is served by BCFR Engine 42; the fire station is located at 840 N. Banana River Dr. Within the study area, Rescues 43 and 41 are the two primary ambulances to transport emergency medical patients to area hospitals. Both rescue units are housed in fire stations located on Merritt Island.

Table 16.
Engine 42 Calls for Service

Types of Call	**Date Range 1/1/07 – 12/31/07**
Total Medical Calls	1,143
Total Fire Calls	263
Activated Fire Alarms	112
Brush Fires	2
Electrical Fires	14
HAZMAT	8
Miscellaneous Fires	24
Structure Fires	92
Vehicle Fires	11
Average Response Time	0:04.38
Total Time On Call	0:18:51
Average Time Out	0:01:45
Average Total Time on Scene	0:14:26

Source: Brevard County Fire Rescue

The Brevard County Comprehensive Plan sets the Level of Service for Fire Protection and Emergency Medical as a 6 minute average response time. The 4:38 minute average response time of Engine 42 compares favorably to the adopted level of service. Any increase in population density may affect Fire Rescue demand for service.

Fire Rescue after a commercial fire

In addition to the services previously described, BCFR also provides the following services throughout the County:

Special Operations Team (SOT) – BCFR's Special Operations Team responds to hazardous materials emergencies and emergencies that requiring specialized technical rescue skills (structural collapse, cave-ins, elevated rescue, heavy vehicle extrications). BCFR's hazardous materials team is one of 27 regional haz-mat units in the state and is subject to deployment to emergency events outside the county.

Fire Prevention - BCFR's Fire Prevention Bureau is staffed with 10 Fire Inspectors who conduct fire inspections on existing buildings, review plans for new construction and perform on-site inspections of buildings under construction. The Fire Prevention Bureau assists the State Fire Marshal's with arson investigation on fires that are of a suspicious origin. Fire Inspectors also provide public education on general fire safety and the use portable fire extinguishers.

911 Dispatch – BCFR operates the only dedicated Fire and EMS 911 Dispatch Center in the County. Dispatchers are Emergency Medical Dispatcher (EMD) certified to provide life saving instructions to citizens who call 911.

Ocean Rescue – BCFR operates 13 seasonal lifeguard towers on the County's beaches. The towers are located in both municipal and unincorporated areas. BCFR lifeguards are trained to the standards established by the United States Lifeguard Association (USLA). Information regarding ocean conditions at the beach is available to the public at (321) 637-5777; the information is updated daily.

Fire Fighter and Fire Lieutenant at a structural fire

Merritt Island Airport

The Merritt Island Airport is not located on East Merritt Island but to the west across Newfound Harbor. The airport has some effect on development due to flight tracks illustrated in Figure S-17. Public airports nationwide have come under scrutiny and sometimes closure due to increased public pressure of airplane generated noise. Often the airport was constructed prior to the residential housing.

The limiting of residential development to prevent noise conflicts with airports is within a radius of ½ the length of the longest runway of the facility. The longest runway at Merritt Island Airport is 3,601 feet, making East Merritt Island outside this radius. However, any increase in residential density should take into account possible future conflicts between the development and the airport.

Law Enforcement

The East Merritt Island area law enforcement services are provided by the Brevard County Sheriff's Office East Precinct. The precinct is stationed at 2775 North Courtney Parkway and includes the study area as well as the rest of Merritt Island.

Three patrol zones comprises the study area, the north area includes Zones 31 and 32 and the south area is Zone 33. A quick snapshot of the 2005, 2006, and 2007 calls for service are shown in Table 17. For simplicity, the table below the two North area zones (Zones 31 and 32), have been combined to encompass the same boundaries as the North study area.

Table 17.
North Area Calls for Service

North Study Area – Zones 31 and 32			
Type of Call	**2005**	**2006**	**2007**
Assault Battery	34	41	35
Burglary Business	4	4	6
Burglary Res.	16	20	25
Burglary Vehicle	28	51	46
Drunk Driver	66	66	69
Reckless Driving	312	55	356
Robbery	0	5	3
Sexual Battery	9	2	10
Shooting In Area	14	11	9
Stolen Property	62	71	54
Stolen Vehicle	12	12	17
Traffic Enforcement	93	101	124
Traffic Stop	1,807	1,967	1,965

Source: Brevard County Sheriff's Office

These do not represent all of the calls for service, but many of the categories that directly affect the residents of the area. The residents' complaints about speeding vehicles and traffic violations are also reflected in the number of citations and traffic stops performed by the sheriff's office in the area.

Currently the precinct employs 1.6 deputies per 1,000 residents. The Sheriff's Department is trying to achieve 2.0 deputies per 1,000 residents as their standard level of service as per the Comprehensive Plan's Capital Improvements Element. The addition of approximately 3,700 new homes (10,000 new residents) in a total build-out scenario would create the need of twenty additional officers.

Table 18.
South Area Calls for Service

South Study Area – Zone 33			
Type of Call	**2005**	**2006**	**2007**
Assault Battery	14	16	24
Burglary Business	2	4	6
Burglary Res.	14	12	19
Burglary Vehicle	15	14	16
Drunk Driver	11	12	14
Reckless Driving	49	55	45
Robbery	0	0	1
Sexual Battery	8	1	2
Shooting In Area	6	4	20
Stolen Property	28	16	30
Stolen Vehicle	9	6	3
Traffic Enforcement	37	25	27
Traffic Stop	476	368	455

Source: Brevard County Sheriff's Office

A comparison of the study area crime rate per capita and Brevard County as a whole.

Table 19.
Per Capita Crime Comparison

Study Area vs. County-wide per 1,000 residents					
Area	Population	Robbery	Assault	Burglary	Motor Vehicle Theft
Brevard County	552,109	1.28	5.14	8.56	2.46
East Merritt Island	11,305	.36	5.36	10.72	1.81

Source: Brevard County Sheriff's Dept./Florida Dept. of Law Enforcement

In addition to Uniform Patrol duties, the East Precinct has a General Crimes Investigative Unit; provides School Resource Officers to nine Public Schools; has Desk Officer services that include fingerprinting for permitting and backgrounds, and supplies Crime Prevention services such as Neighborhood Watch, Business Watch, and Project Lifesaver (GPS tracking of Alzheimer and medical patients).

Sheriff Parker and the PAL kids

Emergency Management

The Brevard County Emergency Management Department is responsible for the coordination of emergency operations and maintaining the Comprehensive Emergency Management Plan which addresses disasters including hurricanes and their storm surges.

Hurricanes

Hurricanes are the most likely natural disaster to affect Brevard County. Damage from hurricanes takes two primary forms, wind damage and flooding from the storm surge. Of the two, the storm surge is the most dangerous resulting in the majority of deaths associated with hurricanes. Storm surge is the water pushed toward the shore by the force of the hurricane winds. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level 15 feet or more. In addition, wind driven waves ride on top of the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with the normal high tides. Because much of the County's coastline lie less than 10 feet above mean sea level, the danger from storm tides is tremendous.

One of the most crucial aspects of emergency management is the calculation of a hurricane's storm surge and its effect on people, evacuation routes, and property. One tool used to evaluate the threat from storm surge is the SLOSH model. Emergency managers use this data from SLOSH to determine which areas must be evacuated for storm surge. Storm surge also affects rivers and inland lakes, potentially increasing the area that must be evacuated.

During the least intense Category One event the storm surge still affects the coastal residences. Because of the area's vulnerability all of East Merritt Island study area is included in the evacuation zone for a storm of any category (1 – 5).

Evacuation Routes

The northern portion of the study area has three roadways to the west to evacuate the East Merritt Island area. One of these routes, Sykes Creek Parkway, travels for a limited distance before merging reducing the western evacuation routes to two. The southern portion of the study area has only one western evacuation route, SR 520 which also acts as an evacuation route for the north area.

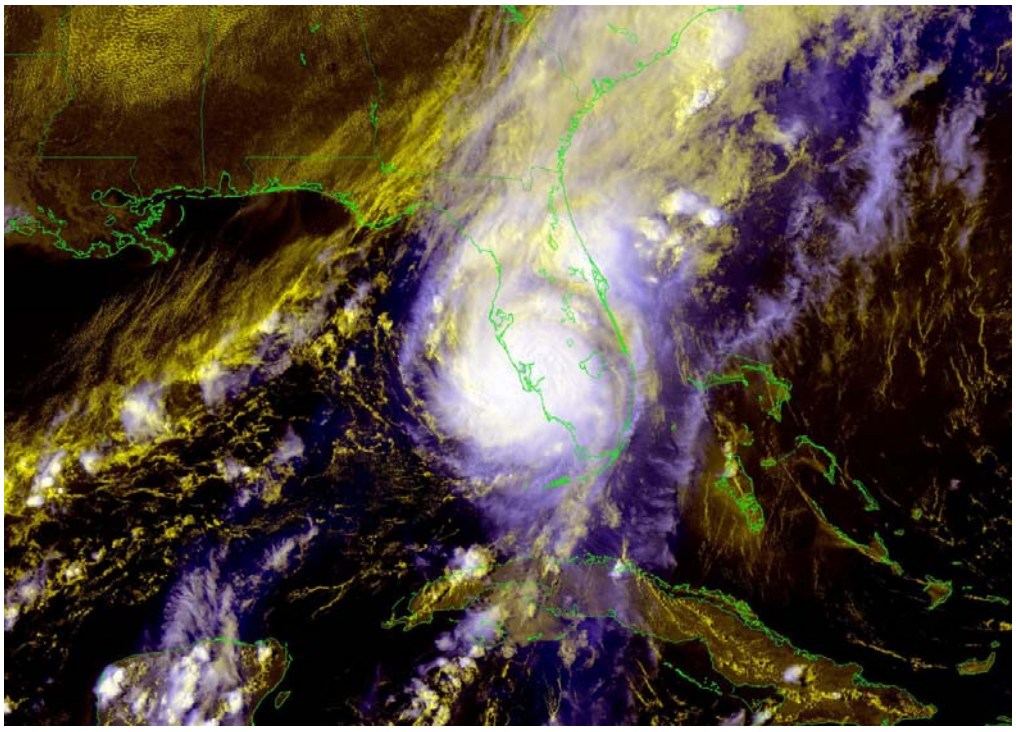
The limited transportation routes increase the time necessary for residents to evacuate prior to a storm event. Any additional increase in residential density may further degrade

the evacuation times for the area. A recent change in state law also now requires local governments to adopt and maintain a Level of Service for evacuation times.

Coastal High Hazard Area

In the past, Brevard County has undertaken and adopted substantial reductions in density within the unincorporated portions of the Coastal High Hazard Area (CHHA). This effort proved to be invaluable when the County successfully evacuated the barrier islands during the hurricanes of 2004. Up until 2006, the Coastal High Hazard Area was defined as the Category 1 Hurricane Evacuation Zone under state law and affected approximately 55,000 acres in the County. State laws also emphasized reducing residential densities and reducing capital expenditures within the CHHA except for improving evacuation routes.

In 2006, the State Legislature amended Chapter 163.3178, Florida Statutes, to change the definition of the Coastal High Hazard Area. The new definition is the area affected by the storm surge from a Category 1 hurricane and has resulted in substantially less area designated as the CHHA (25,745 acres) within Brevard County. All local governments have to amend their comprehensive plans to comply with this new CHHA definition. The following maps show the old and new Coastal High Hazard Areas for Brevard County. The pre and post maps are located in the attached map series.



Hurricane Charley strikes Florida in 2004

LAND-USE FACTORS

General Pattern of Land Use:

The north area is predominately single family residential. The residential housing follows a general pattern of platted subdivision development. Commercial land uses are limited to being in close proximity of the arterial roadways or at collector roadway intersections (the triangle area).

The south area has a more diverse pattern of residential development. Although predominately single family residential in character, there are pockets of multi-family and commercial development. Given the medium density residential land use designation on many of the vacant parcels, this may encourage additional enclaves of multi-family development.

Future Land Use and Zoning:

Each parcel of land in Brevard County has two separate designations assigned, a Future Land Use category and a Zoning District. The Future Land Use is a broad designation that may include several different intensities of development in the form of Zoning Districts within it. For example, the Community Commercial Future Land Use category includes BU-1, BU-2 zoning while the Neighborhood Commercial land use designation allows BU-1 and RP Zoning.

Map Inconsistencies:

The Comprehensive Plan and the Land Development Regulations specify which zoning classifications are consistent with each Future Land Use designation, included as Appendix A. This is commonly referred to as a Consistency Matrix.

Future Land Uses and Zoning Districts that are not consistent and do not meet the regulations of the consistency matrix and other relevant policies or codes do occasionally occur. In many cases this was the result of limited mapping capabilities prior to the advent of GIS. Current GIS technology will assist in the identification of inconsistencies.

These administrative actions are provided for in Policy 15.1 of the Future Land Use Element of the Comprehensive Plan. Through the implementation of this SAS, these inconsistencies have been evaluated and addressed as appropriate.

Future Land Use Map Right-Sizing

Previous sections modeled what could happen if properties were redeveloped to the maximum potential of their adopted land uses. To ensure that the integrity of existing neighborhoods are maintained, the small area study allows the County Commission to

reexamine the adopted Future Land Use map for consistency with the community's vision. For example, a single family residential neighborhood such as Piney Woods is built at a density of four dwelling units per acre. The adopted Future Land Use map, however, designates this area for Residential 15 which allows for fifteen dwelling units per acre.

When the Future Land Use is changed to match the existing land use pattern we refer to it as "right-sizing." In the Piney Woods example, right-sizing would result in a change to the FLU designation from RES 15 to RES 4. As a result the existing single family lots would be conforming but a higher density residential project could not be attained without further amendments to the Comprehensive Plan.

The Future Land Use Right-Sizing Map in this study demonstrates the existing single family land uses in a Residential 15 FLU area by utilizing aerial photography and recorded plats with the Residential 15 FLU area boundaries super-imposed. From this we can see those areas which could be considered for right-sizing.

Land Use Recommendations for Larger Tracts

North Area

Parcel Group A

Parcel Group A was formerly two parcels consisting of 50.29 and 37.45 acres respectively. These parcels have been subdivided into smaller parcels and some have been sold as single family residential home sites. Environmental issues may limit development yield on these properties.

The adopted FLU is Residential - 15 and the zoning designation is RU 1 – 11. Based upon the underlying zoning and surrounding land use designations, this area is recommended for Residential 4 designation.

Parcel Group B

This area consists of parcels originally platted in the 1920's as a series of 20' X 100' lots. The area is approximately 16 acres in total. The lots have a Future Land Use of Residential-15 and a zoning of GU. Due to the platting pre-dating the 1958 adoption of the Zoning Code, this subdivision is non-conforming. Access issues must be addressed in order for this plat to be developed.

It is recommended that the Future Land Use be reduced from Residential -15 to Residential-6 given the non-conforming status of the platted lots. This designation would also be consistent with the surrounding area.

Parcel Group C

This area consists of a number of vacant parcels totaling 26 acres under single ownership along the riverfront including one parcel with the property owner's home. The adopted FLU is Residential - 15 and the zoning is GU. The recommendation is to reduce FLU designation to Residential-1.

Under the adopted Future Land Use, a rezoning application could be filed which would allow development that would be inconsistent with the character of the surrounding area. The proposed FLUM amendment would lower the maximum density to Residential – 1. The recommendation for Residential 1 is based upon the properties limited access to roadways and its riverfront location adjacent to the environmentally sensitive Banana River.

Parcel Group D

Along the western border of the north Merritt Island subdivision developments are several parcels of vacant land separating the subdivisions from large vacant wetland tracts under public ownership. These parcels have an adopted FLU of Residential-15 and a zoning designation of RU 1- 11. It is recommended that the FLU designation be changed to Residential 4 to conform with the underlying zoning

This reduction in residential density will provide a transition between the more densely developed subdivisions to the east and the environmentally sensitive lands to the west.

Parcel Group E

These parcels were removed from the Study Area by direction of the Brevard County Board of County Commissioners on 10/14/08.

Parcel F. Boyd/DiChristopher EELs Purchase parcels

The recent purchase of two large tracts from private owners allows for the Future Land Use to be amended to Public Conservation. Currently the property are designated Future Land Use of Private Conservation but will be changed to Public Conservation to reflect the change in ownership.

South Area

Parcel G. Marina Village Condominium

This multi-family residential project is built on a former commercial marina site. The existing Future Land Use is Community Commercial with a RU 2-15 zoning. In that the FLU allows residential density in Community Commercial FLU designations, the site was redeveloped for residential use. The surrounding land uses are residential in nature and the property is an enclave of commercial future land use. The recommendation to change the FLU to Residential - 15 would be consistent with the existing residential development.

The marina is operating as a residential/recreation marina as an accessory use to the condominiums. The proposed future land use amendment would not affect the operation of the marina as an accessory use.

Parcel H. River Palms Mobile Home Park

The River Palms mobile home park encompassing 15.45 acres has an adopted FLU of RES-15 and a zoning designation of RU 1-9. The park itself is a non-conforming grandfathered use. It is recommended that the FLU be changed to Residential – 6, which would be consistent with the existing RU 1-9 zoning on the properties while also being compatible with surrounding land uses.

Land Use Amendment Conclusions

Future Land Use Map designations for many properties within the East Merritt Island Small Area Study permit densities in excess of existing development patterns. Many of the large vacant tracts scattered throughout the study area also have adopted land uses designations that allow greater densities than the existing development that surrounds them. These circumstances may allow for development of vacant properties or redevelopment of existing single family residential subdivisions at higher densities than currently exist in the study area.

The study area's peninsular nature and proximity to the coast increase susceptibility to storm events. Therefore, evacuation demands must be considered when evaluating residential densities. Although the area has experienced an annual growth rate of 1% for the past ten years, an increase in residential density would increase the number of dwellings exposed to storm surge in this evacuation zone.

In conclusion, land use compatibility, infrastructure limitations and coastal high hazard concerns support the rationale for right sizing the Future Land Use Map.

COMMUNITY INPUT AND DISCUSSION

Background:

The East Merritt Island community has been active in their participation in public hearings for the Board of County Commissioner's and the different advisory boards when an issue of local interest has arisen.

With the formation of the East Merritt Island study committee, residents made recommendations through the Small Area Study process. The recommendations are included in the study along with other public comment to be presented to the Board of County Commissioners for adoption.

Community Assessment Methods for this Small Area Study:

The assessment of the East Merritt Island community began with the collection of the baseline data to determine public infrastructure and level of service capabilities. The data collection included meeting with the various service providers, including several Brevard County agencies. This data was utilized to produce build-out and redevelopment models for the area. The study area was divided into north and south areas to facilitate assessments more attuned to the particular area needs.

The data and models were presented to north and south area committees composed of residents of the study area appointed by the Board of County Commissioners to provide a cross section of the community.

Over a series of publicly noticed committee meetings, public input was sought to provide depth to the study sections and gain insight to the community's vision. The final draft of the small area study was presented to the committees jointly to reach a consensus for recommendation to the Board of County Commissioners.

Results of Community Input – General:

In general the public input demonstrated the desire of the community to preserve its current lifestyle. The committee members of both the north and south areas stressed quality of life issues as a priority.

Results of Community Input – Land Use:

The community expressed its desire to maintain the status quo, or the current character of development in the study area. Previous project requests by developers had met with opposition during public hearings. As a result of the community input, the study included

the recommendation of "right-sizing" some areas where the adopted Future Land Use exceeded the actual density that the land was developed at.

Results of Community Input – Other Factors:

Other major factors brought forward by the citizen committees for consideration was limitations of the transportation network to meet new development.

NEXT STEPS IN IMPLEMENTING THE SMALL AREA STUDY AND ITS RECOMMENDATIONS

The SAS's recommendations will be presented to the Local Planning Agency in a public hearing. Following public discussion the LPA will make a recommendation to the Board of County Commissioners regarding the SAS's analysis. The Board of County Commissioners will also accept public comment during its deliberations on the SAS. Once the Board accepts the study, staff will be directed to implement recommendations of the study in the formal Comprehensive Plan amendments. Implementation is anticipated to begin in the Spring of 2009 and continue for approximately one year.

A large part of implementation will involve amendments to right-size the Future Land Map and elimination of zoning inconsistencies.

RECOMMENDATIONS OF THE EAST MERRITT ISLAND SMALL AREA STUDY

The North Area and South Area Citizen Committees for the East Merritt Island Small Area Study adopted these recommendations:

- Recommendation 1: Brevard County should initiate Comprehensive Plan amendments to the Future Land Use Map to reduce residential densities on developed residential properties in the study areas to reflect established residential densities on developed parcels. The recommended densities should be based on the lowest residential land use designation established in the Future Land Use Element of the Comprehensive Plan that would be required in order to achieve consistency with established residential development patterns and the existing zoning classification(s).

- Recommendation 2: Brevard County should initiate Comprehensive Plan amendments to the Future Land Use Map to reduce residential densities on undeveloped properties in the study areas that have zoning other than GU to ensure that future development on said vacant properties will be consistent with their current zoning classification and be compatible with established residential densities on adjacent properties.

- Recommendation 3: No additional Neighborhood Commercial FLUM designations should be permitted in the South study area.

- Recommendation 4: No additional Community Commercial FLUM designations should be permitted outside of the Merritt Island Redevelopment Area.

- Recommendation 5: South Banana River Drive should not be reconstructed to increase roadway capacity because currently adopted design standards for collector roadways are likely to result in adverse impacts to the aesthetic character of the surrounding neighborhood.

- Recommendation 6: Brevard County should perform a preliminary engineering analysis of the actual capacity of South Banana River Drive based on existing conditions. In the event that the preliminary engineering analysis indicates that South Banana River Drive has a lower capacity than reflected in the Concurrency Management database, the County should retain a qualified traffic engineer to determine the capacity of South Banana River Drive based on actual conditions. The conclusions of the analysis should be adopted for use in the County's Concurrency Management System.

- Recommendation 7: Brevard County should construct any missing sections to the existing bicycle/pedestrian transportation system within the study areas subject to funding availability.

- Recommendation 8: The Board of County Commissioners should implement the study recommendations through the Comprehensive Plan amendment process during the spring amendment cycle of 2009.

These right-sizing amendments are reflected in the Prospective Future Land Use Maps at the end of this study.

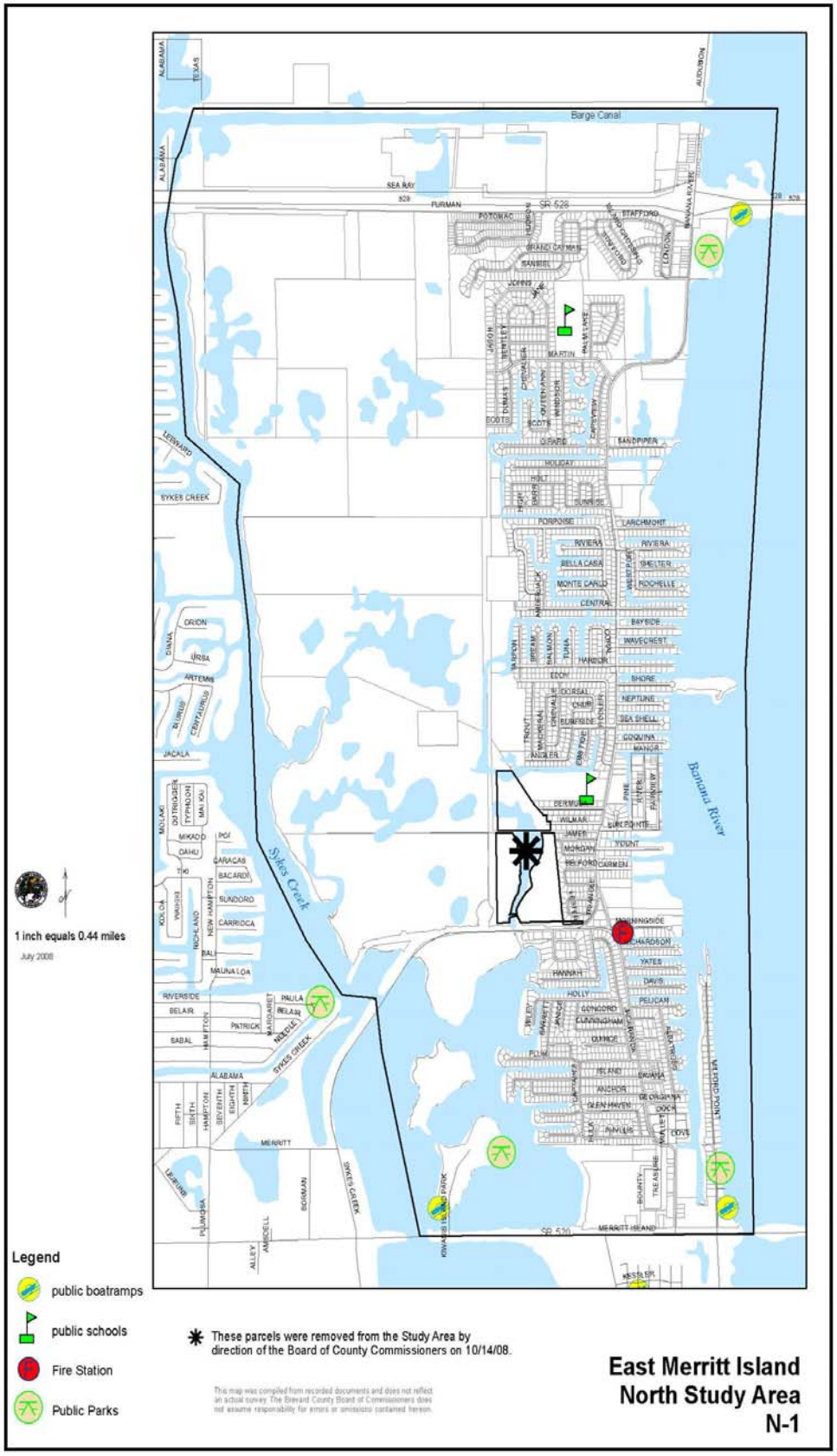
Map Index
North Area

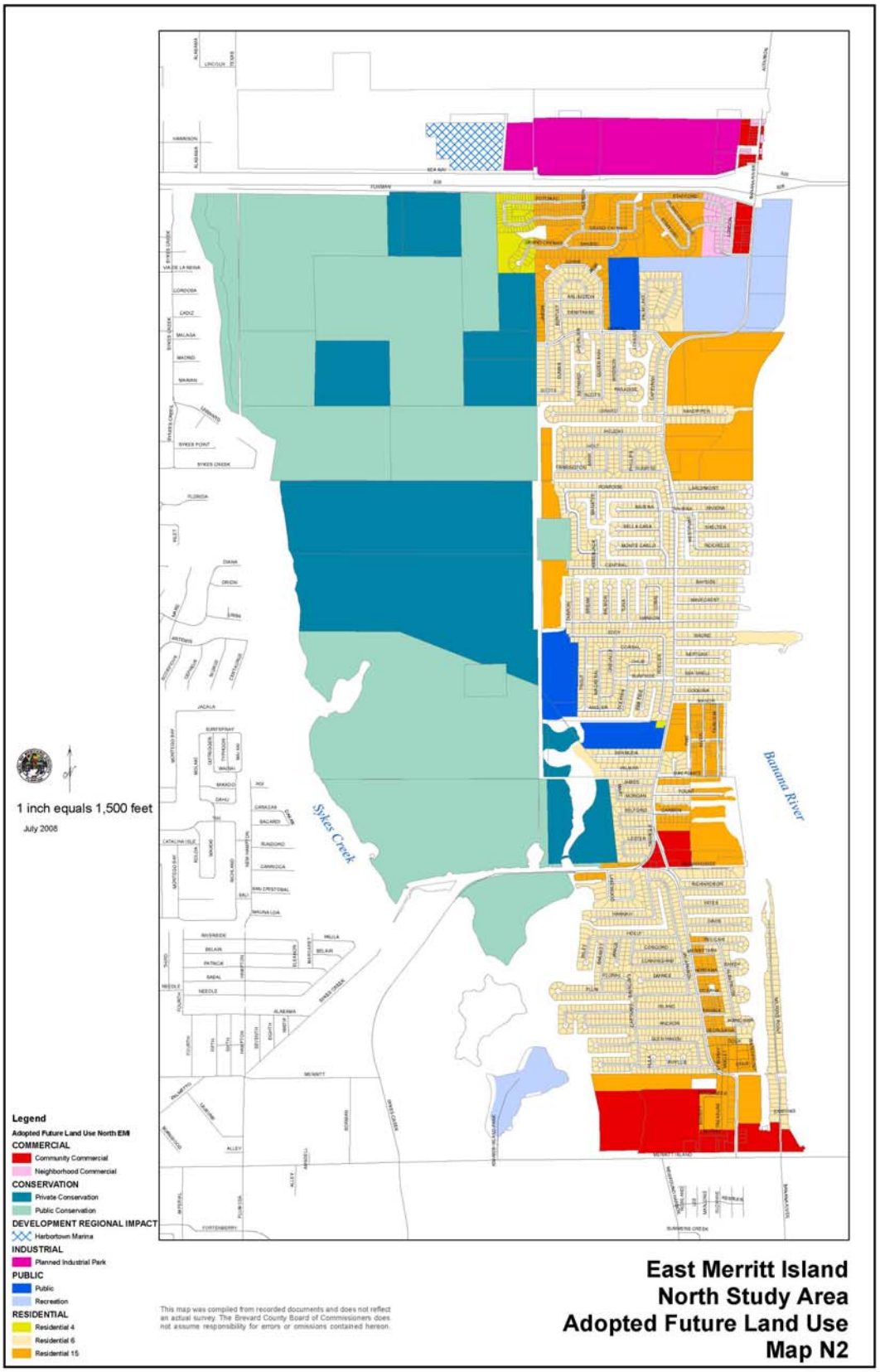
Map Index
South Area

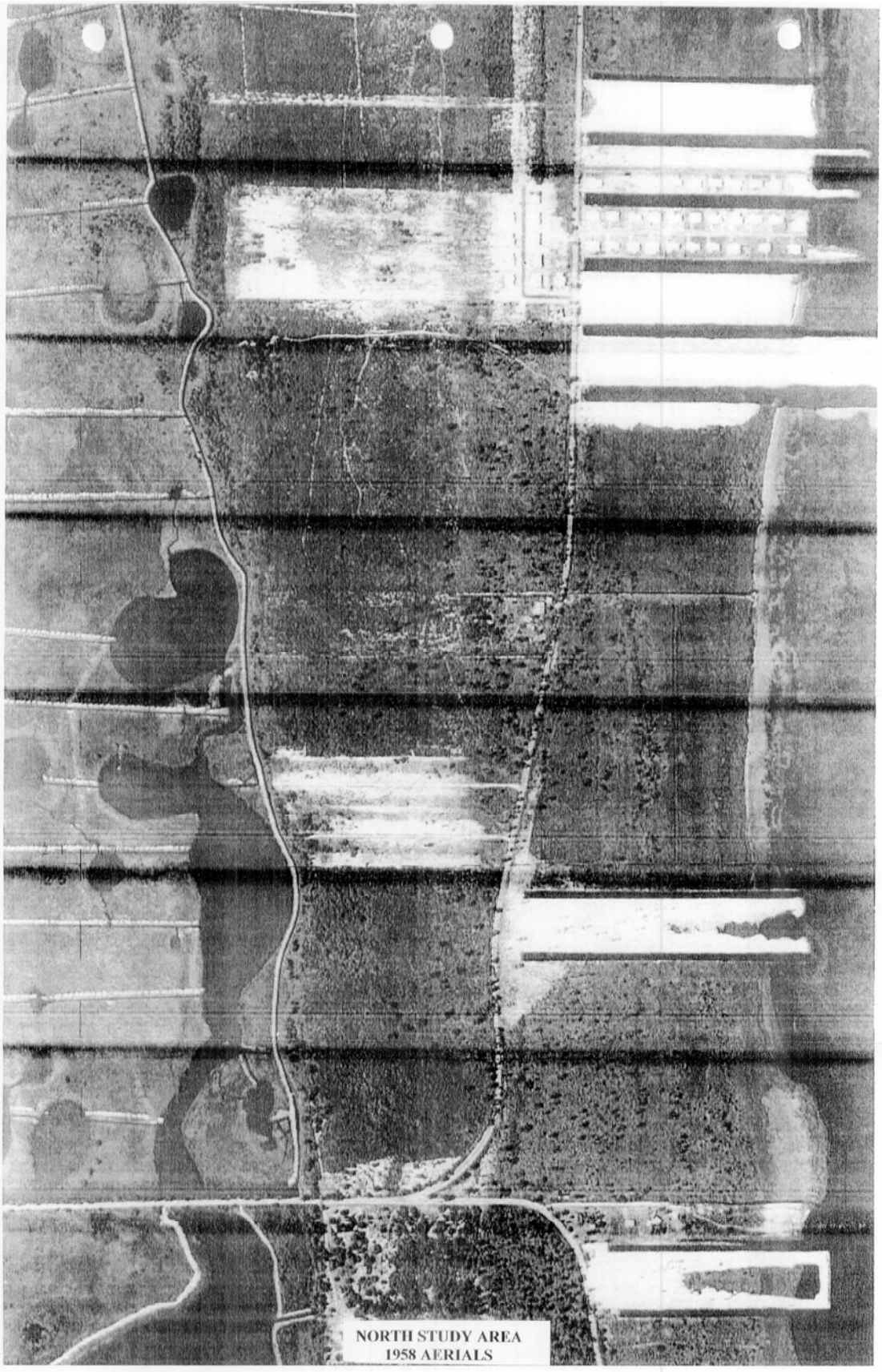
Table Index

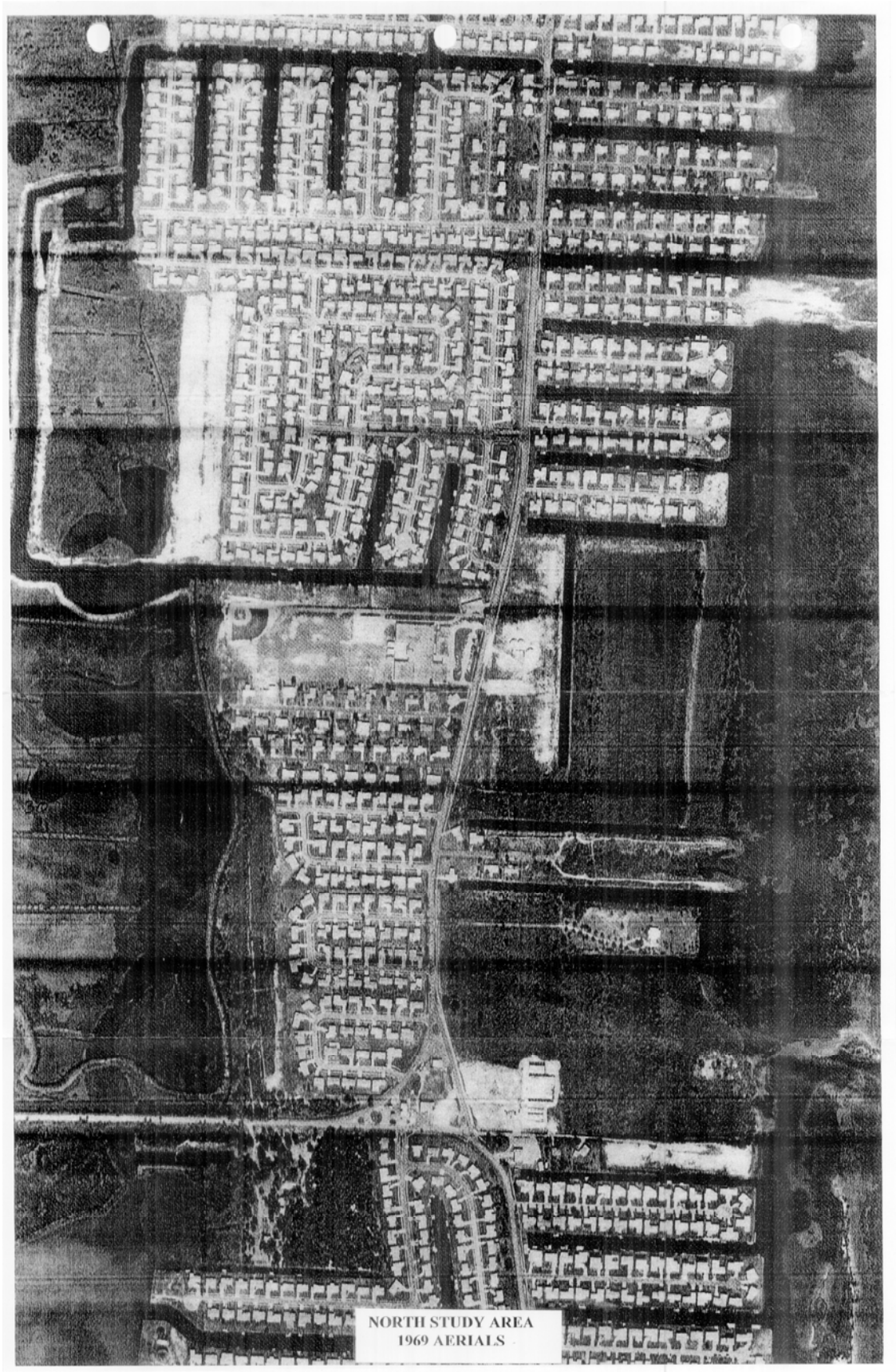
Appendices Index

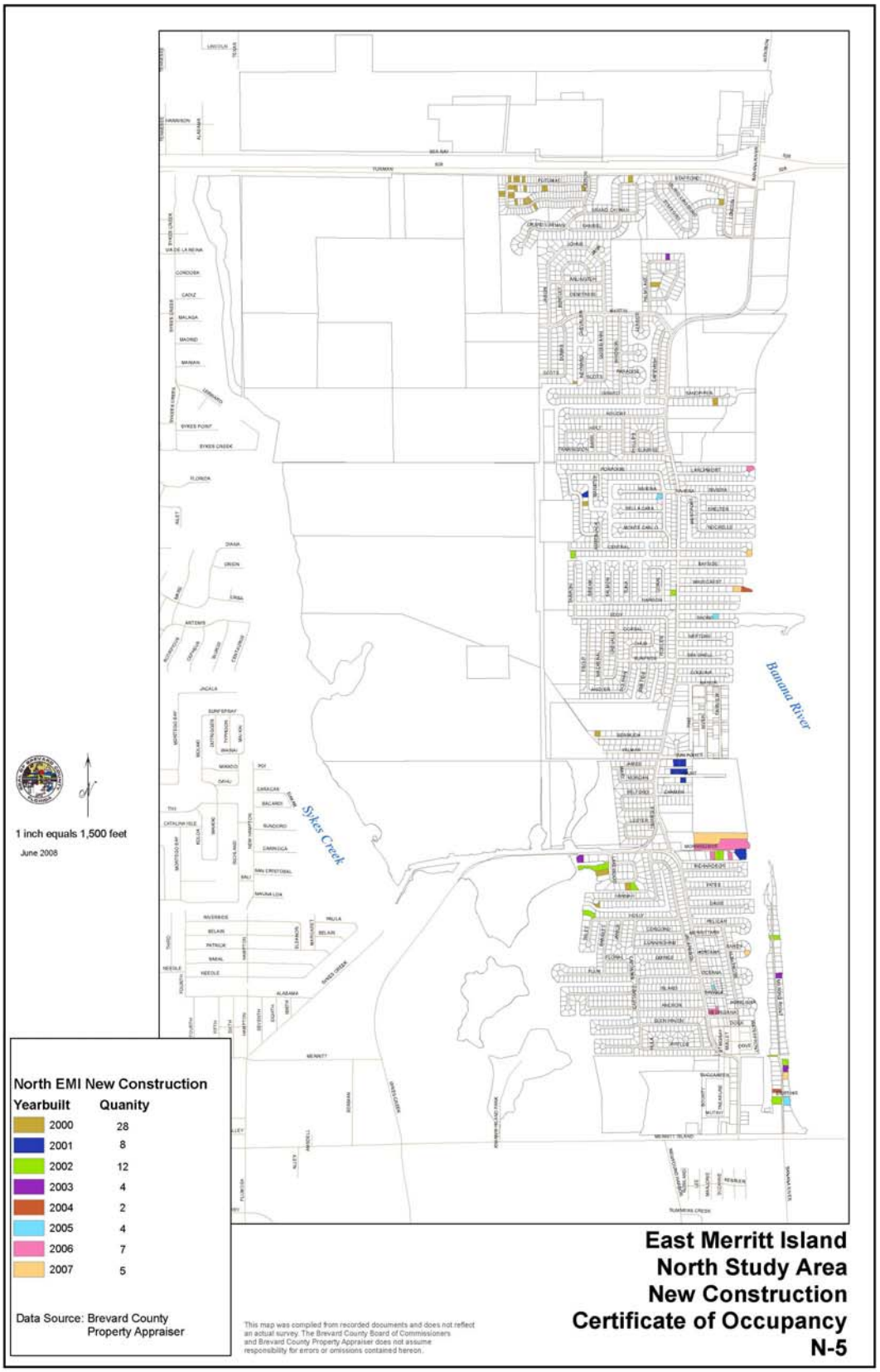
NORTH AREA MAPS

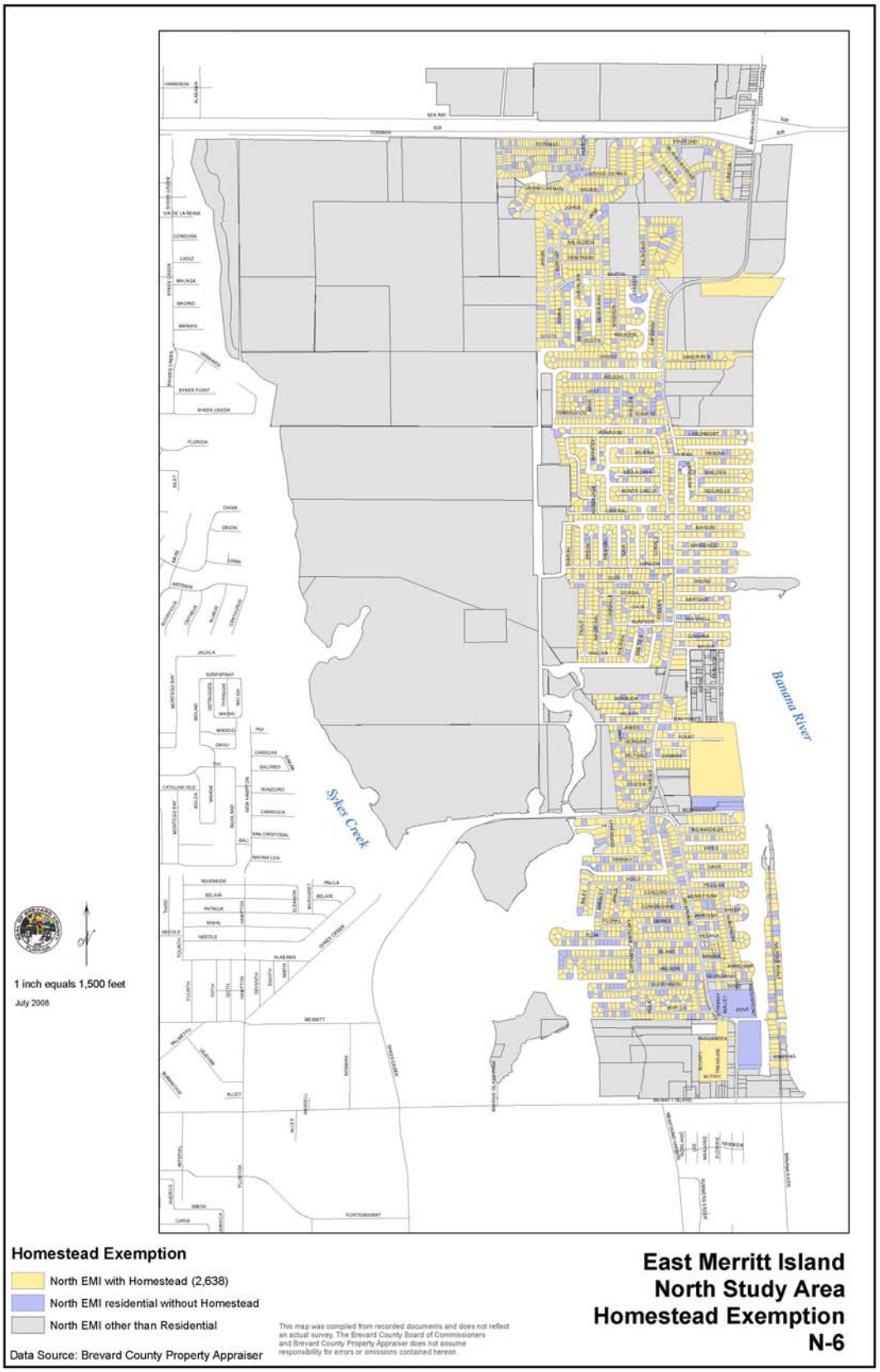

Barge Canal
SR 528
FURMAN
SEA RAY
Sykes Creek
Banana River
SR 520
MERRITT ISLAND
1 inch equals 0.44 miles
July 2008
Legend
public boatramps
public schools
Fire Station
Public Parks
These parcels were removed from the Study Area by direction of the Board of County Commissioners on 10/14/08.
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
North Study Area
N-1

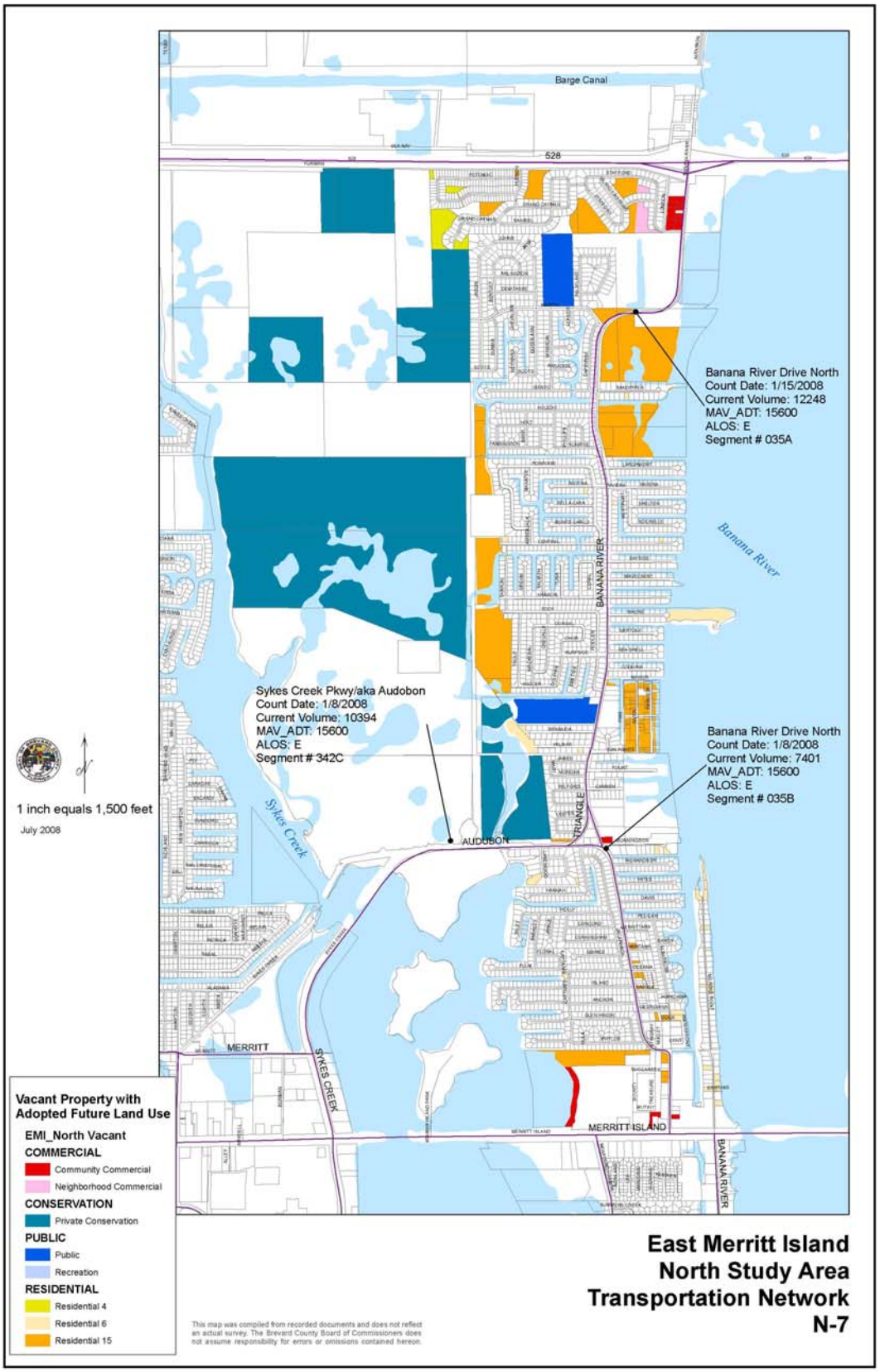

1 inch equals 1,500 feet
July 2008
Sykes Creek
Banana River
Legend
Adopted Future Land Use North EMI
COMMERCIAL
Community Commercial
Neighborhood Commercial
CONSERVATION
Private Conservation
Public Conservation
DEVELOPMENT REGIONAL IMPACT
Harbortown Marina
INDUSTRIAL
Planned Industrial Park
PUBLIC
Public
Recreation
RESIDENTIAL
Residential 4
Residential 6
Residential 15
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
North Study Area
Adopted Future Land Use
Map N2

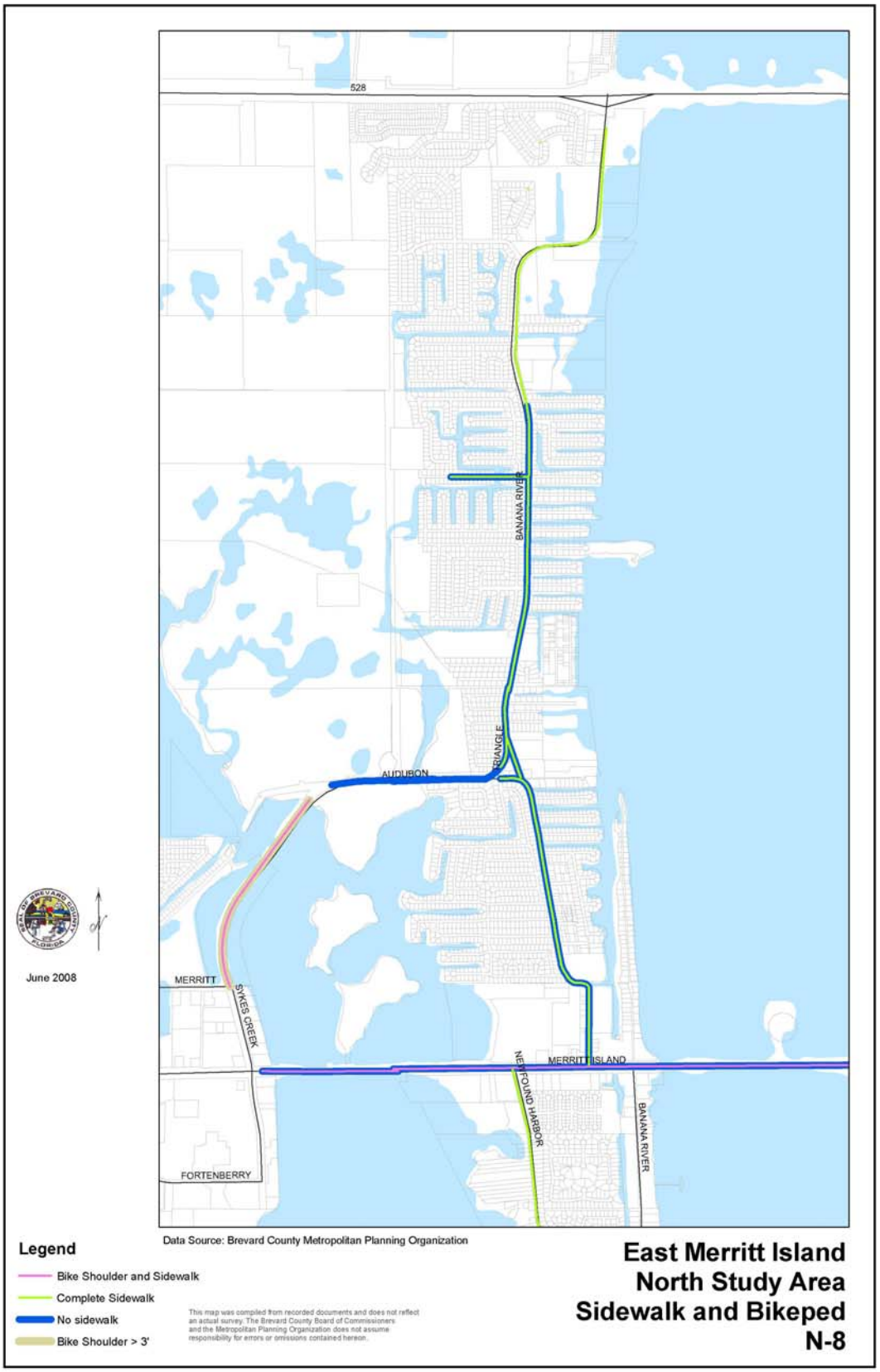

NORTH STUDY AREA
1958 AERIALS

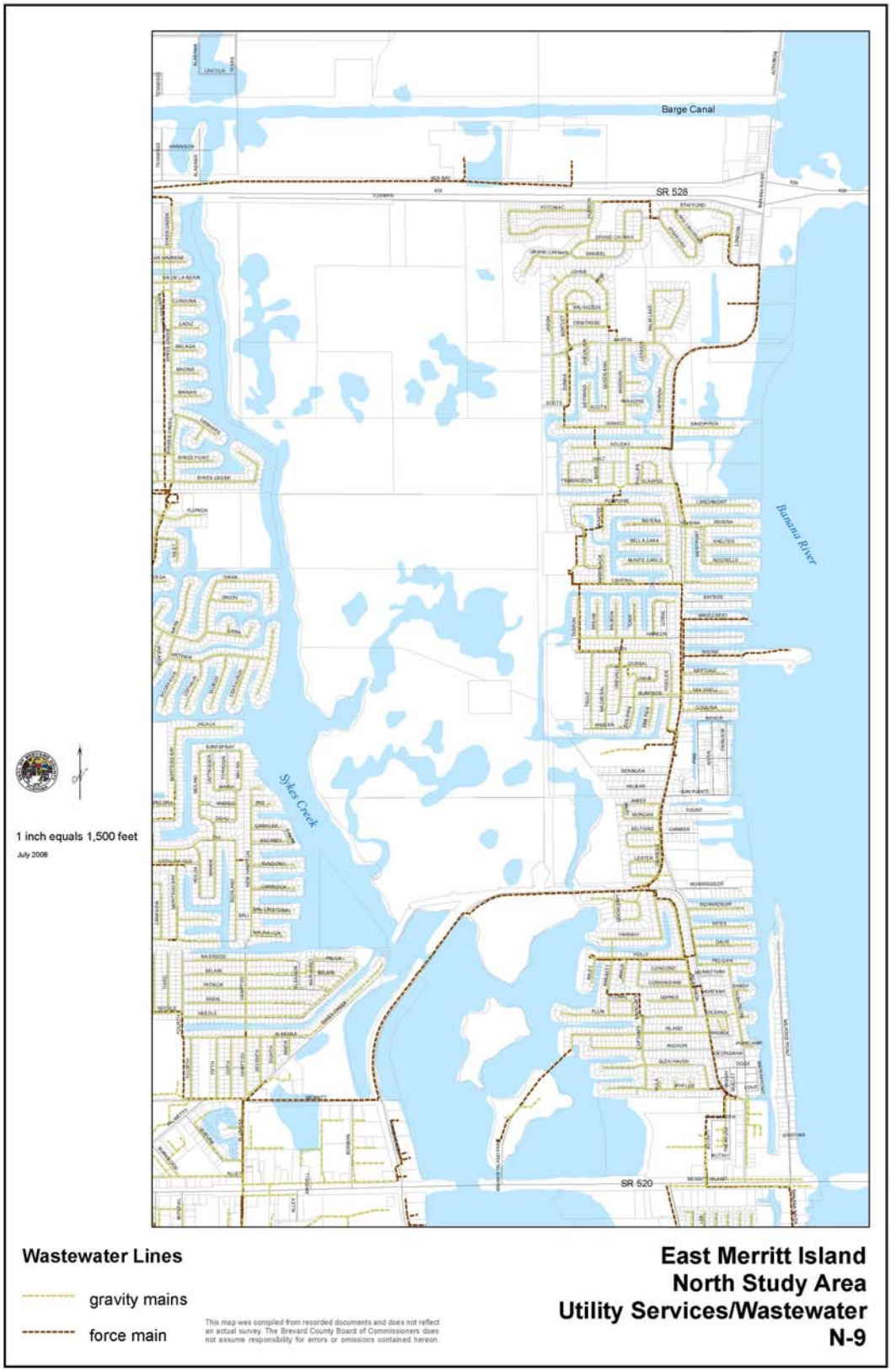

NORTH STUDY AREA
1969 AERIALS

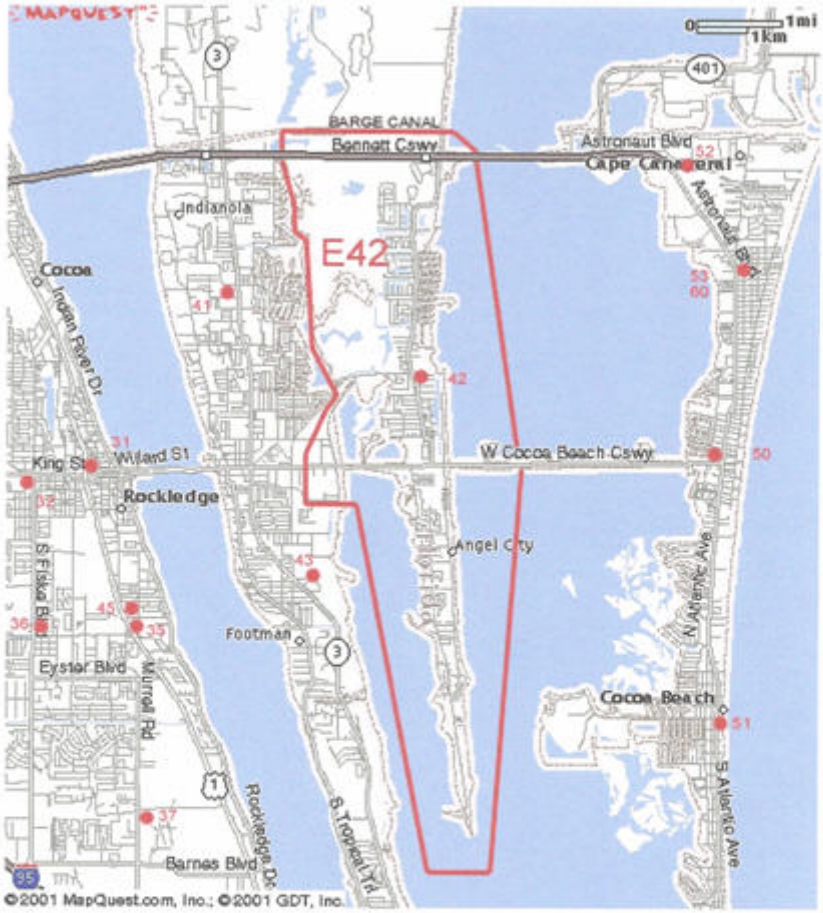

Sykes Creek
Banana River
1 inch equals 1,500 feet
June 2008
North EMI New Construction
Yearbuilt Quanity
2000 28
2001 8
2002 12
2003 4
2004 2
2005 4
2006 7
2007 5
Data Source: Brevard County Property Appraiser
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners and Brevard County Property Appraiser does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
North Study Area
New Construction
Certificate of Occupancy
N-5


Sykes Creek
Banana River
1 inch equals 1,500 feet
July 2008
Homestead Exemption
North EMI with Homestead (2,638)
North EMI residential without Homestead
North EMI other than Residential
Data Source: Brevard County Property Appraiser
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners and Brevard County Property Appraiser does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
North Study Area
Homestead Exemption
N-6


Barge Canal
528
Banana River Drive North
Count Date: 1/15/2008
Current Volume: 12248
MAV_ADT: 15600
ALOS: E
Segment # 035A
Banana River
BANANA RIVER
Sykes Creek Pkwy/aka Audobon
Count Date: 1/8/2008
Current Volume: 10394
MAV_ADT: 15600
ALOS: E
Segment # 342C
Banana River Drive North
Count Date: 1/8/2008
Current Volume: 7401
MAV_ADT: 15600
ALOS: E
Segment # 035B
TRIANGLE
AUDUBON
Sykes Creek
MERRITT
SYKES CREEK
MERRITT ISLAND
BANANA RIVER
1 inch equals 1,500 feet
July 2008
Vacant Property with Adopted Future Land Use
EMI_North Vacant
COMMERCIAL
Community Commercial
Neighborhood Commercial
CONSERVATION
Private Conservation
PUBLIC
Public
Recreation
RESIDENTIAL
Residential 4
Residential 6
Residential 15
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
North Study Area
Transportation Network
N-7

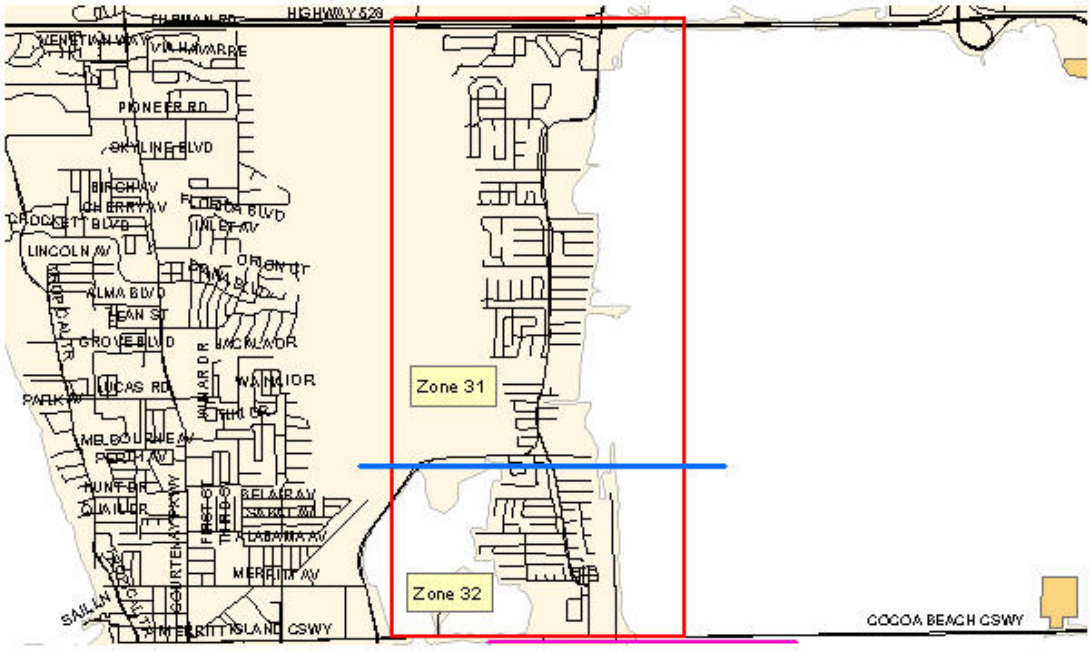

528
BANANA RIVER
TRIANGLE
AUDUBON
MERRITT
SYKES CREEK
MERRITT ISLAND
NEWFOUND HARBOR
BANANA RIVER
FORTENBERRY
June 2008
Data Source: Brevard County Metropolitan Planning Organization
Legend
Bike Shoulder and Sidewalk
Complete Sidewalk
No sidewalk
Bike Shoulder > 3'
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners and the Metropolitan Planning Organization does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
North Study Area
Sidewalk and Bikeped
N-8


Barge Canal
SR 528
SR 520
Sykes Creek
Banana River
1 inch equals 1,500 feet
July 2008
Wastewater Lines
gravity mains
force main
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
North Study Area
Utility Services/Wastewater
N-9

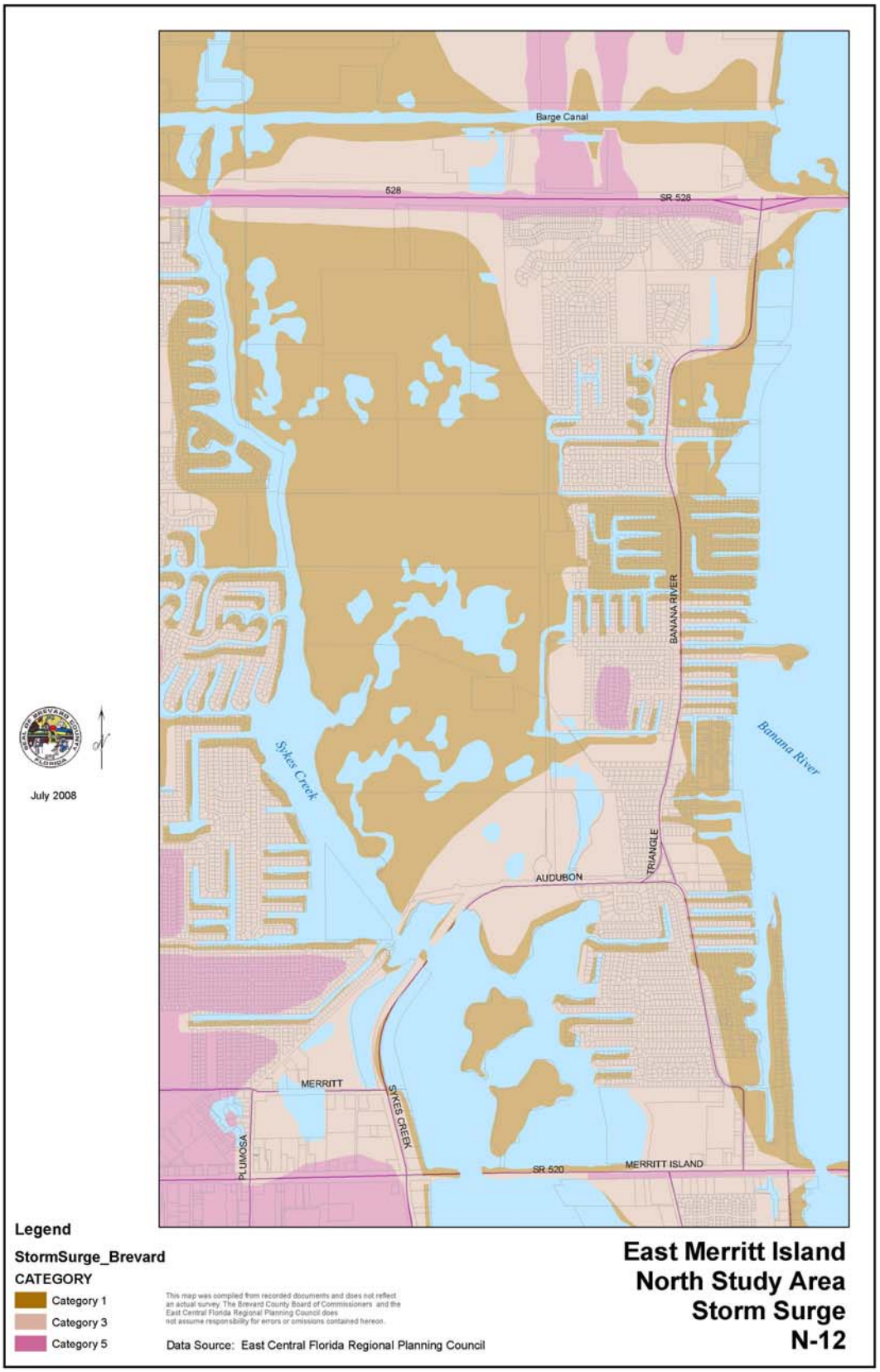


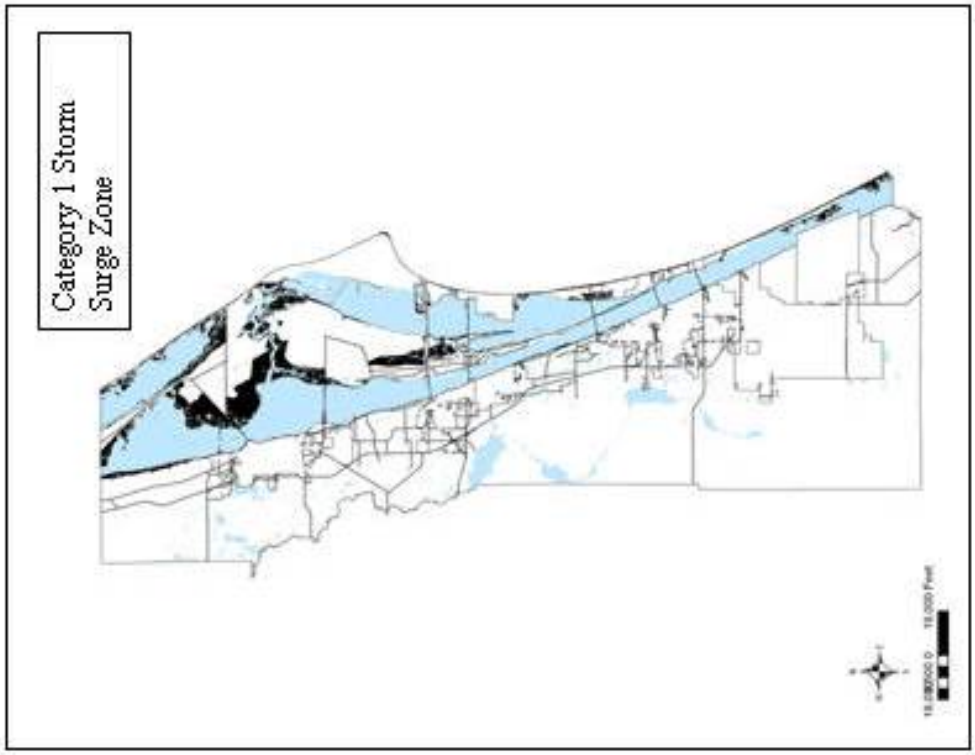
E42 SEPTEMBER 20, 2005
N -BARGE CANAL
S -BANANA RIVER/NEWFOUND HARBOR
-W OF SYKES CREEK/NEWFOUND HARBOR TO FORTENBERRY RD
E -BANANA RIVER
-ON SR 528 TO N BANANA RIVER DR
-ON SR 520 TO COCOA BEACH CITY LIMITS
W -ON SR 520, FORTENBERRY RD, AND MERRITT AVE TO JUST W OF BORMAN DR, TO INCLUDE HARBOR DEL RIO SUBDIVISION.
-ON SR 528 W-BND TO N COURTENAY PKWY
-SYKES CREEK/NEWFOUND HARBOR

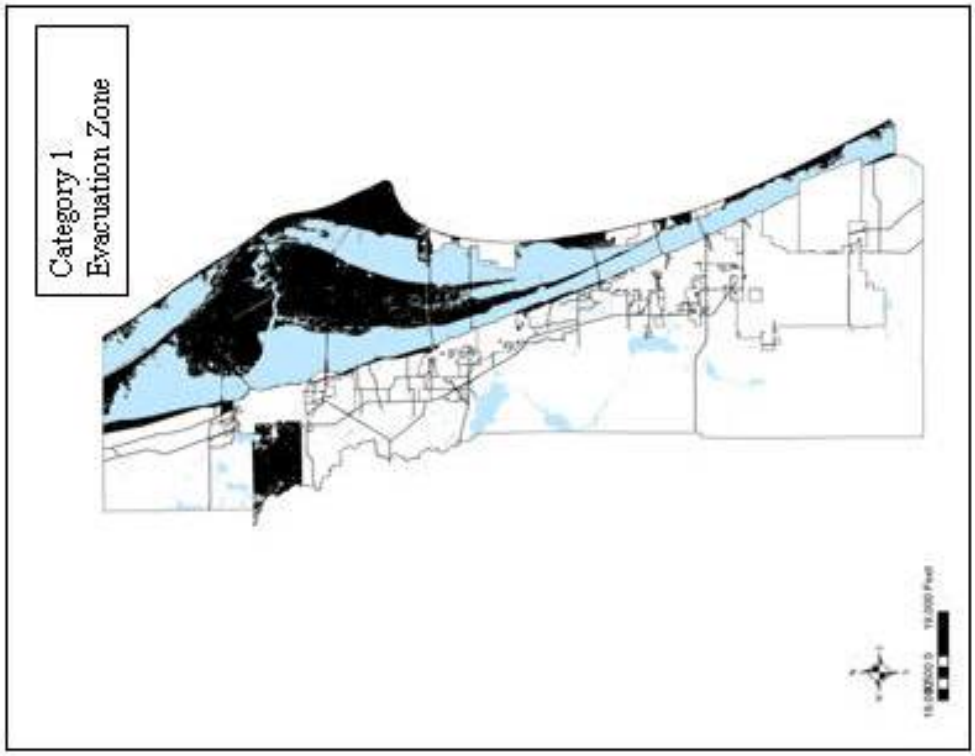
N-10

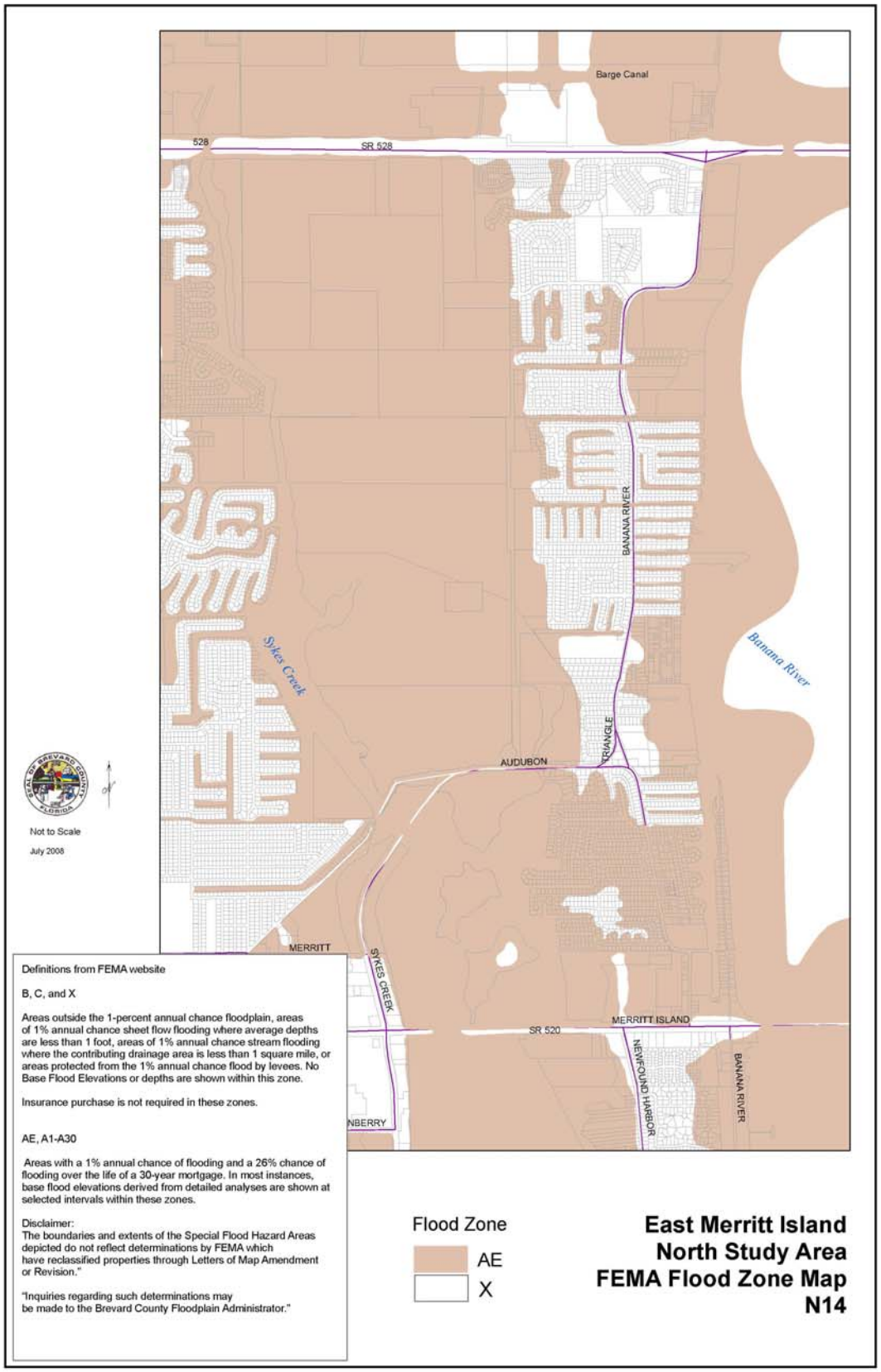

HIGHWAY 528
PIONEER RD
SKYLINE BLVD
LINCOLN AV
ALMA BLVD
GROVE BLVD
LUCAS RD
MELBOURNE AV
HUNT DR
MERRITT AV
Zone 31
Zone 32
COCOA BEACH CSWY

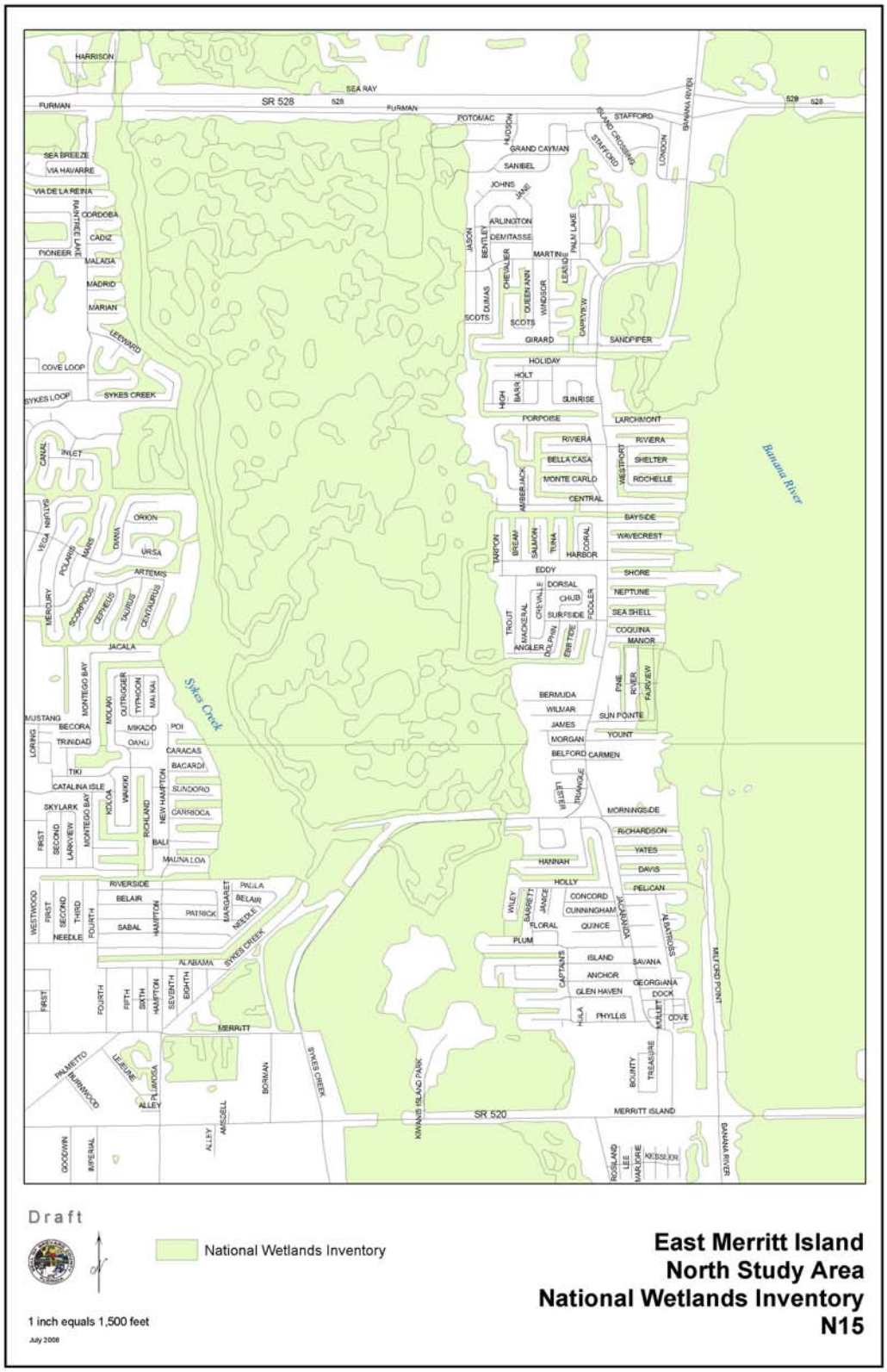
N- 11

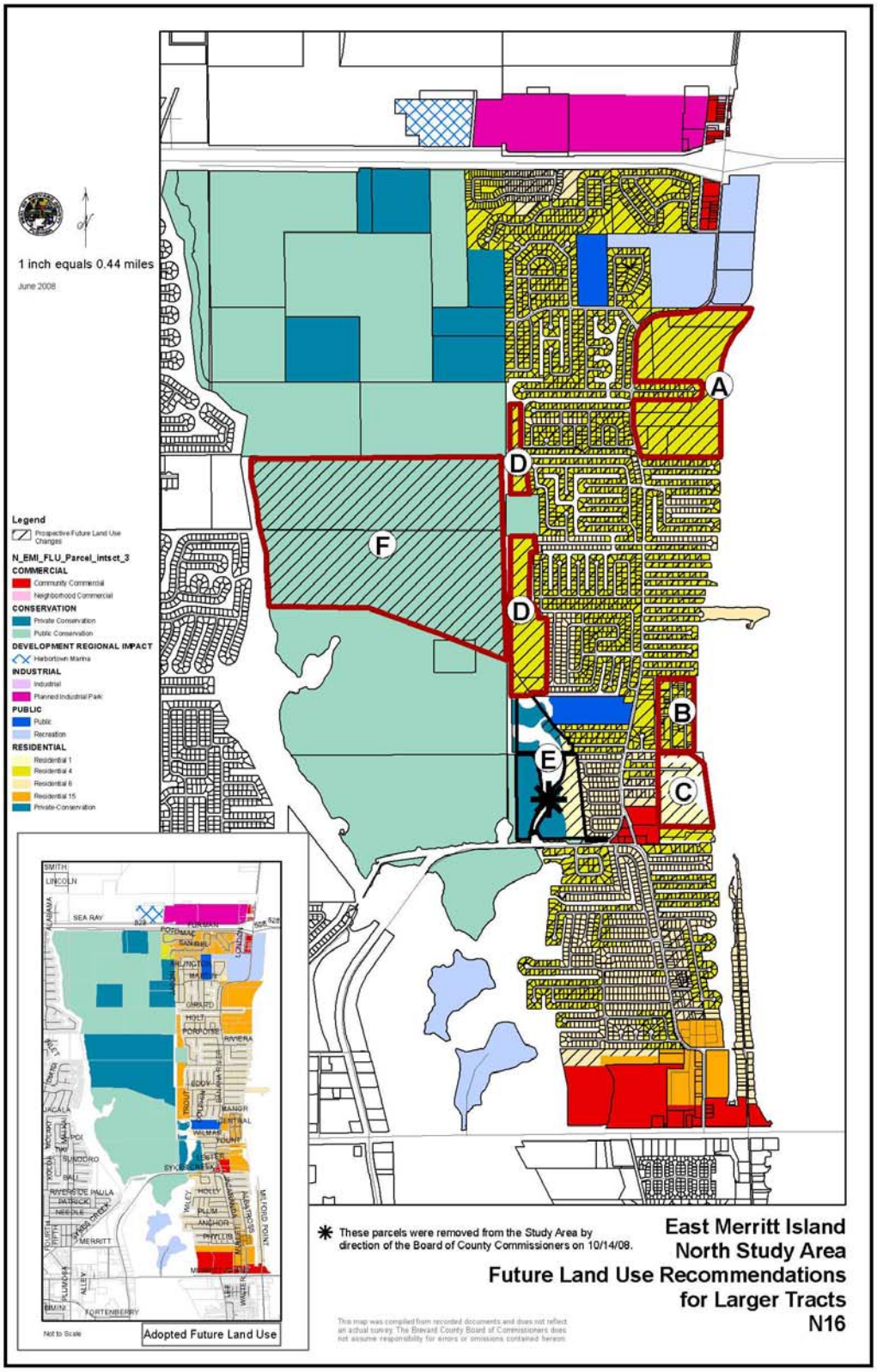

Barge Canal
528
SR 528
BANANA RIVER
Banana River
Sykes Creek
TRIANGLE
AUDUBON
MERRITT
SYKES CREEK
PLUMOSA
SR 520
MERRITT ISLAND
July 2008
Legend
StormSurge_Brevard
CATEGORY
Category 1
Category 3
Category 5
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners and the East Central Florida Regional Planning Council does not assume responsibility for errors or omissions contained hereon.
Data Source: East Central Florida Regional Planning Council
East Merritt Island
North Study Area
Storm Surge
N-12

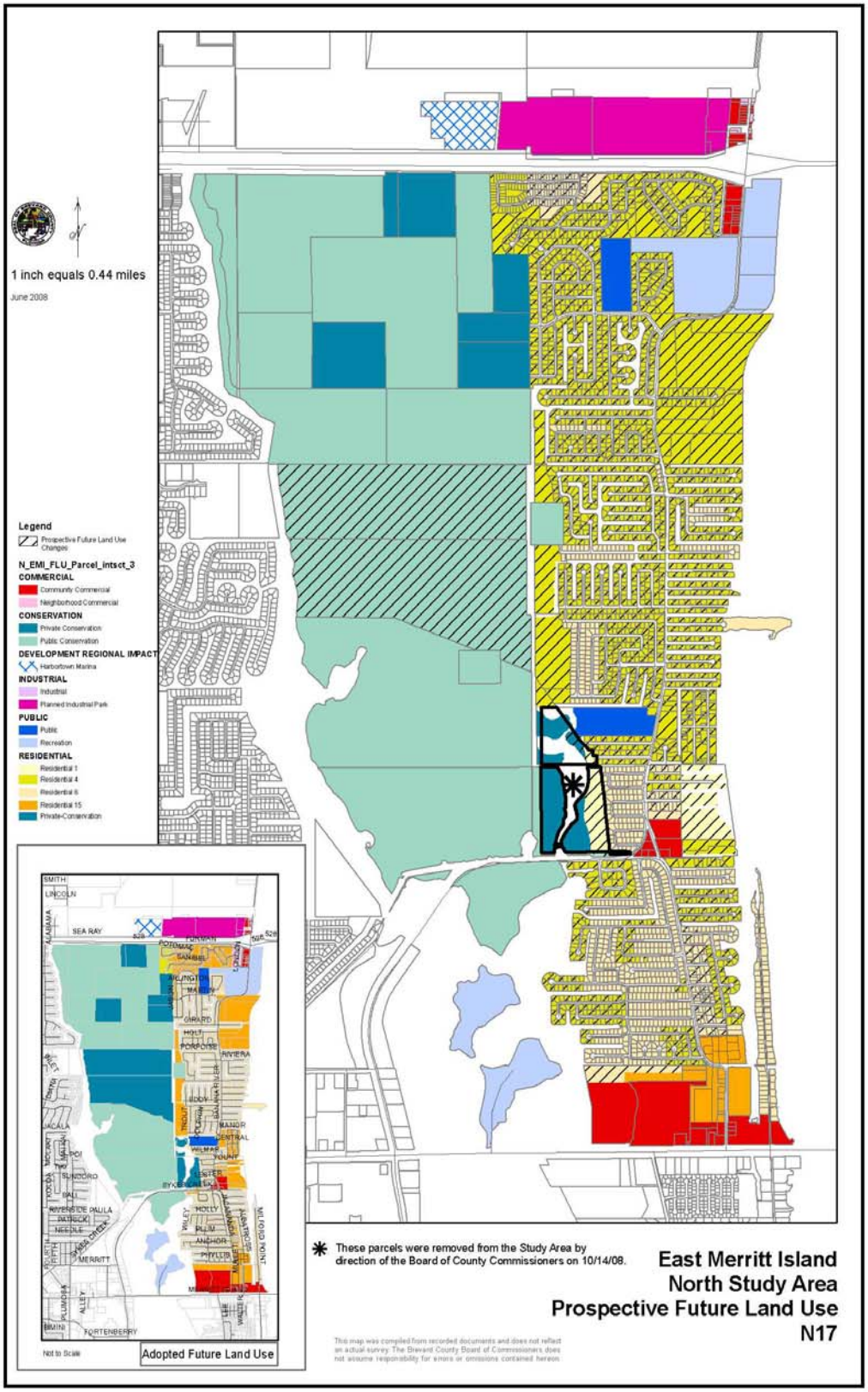

Category 1 Storm
Surge Zone


Category 1
Evacuation Zone

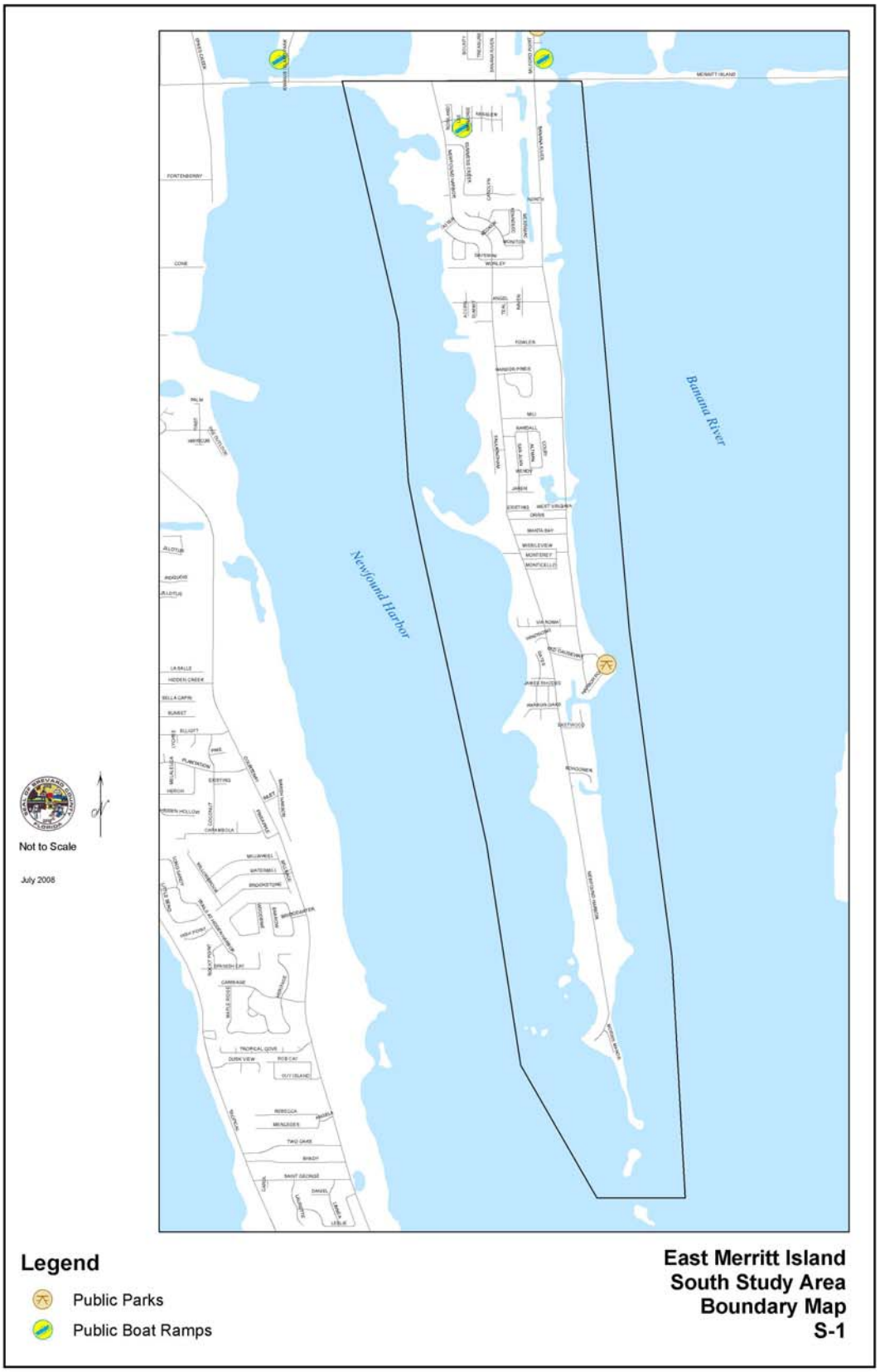

Barge Canal
528
SR 528
BANANA RIVER
Sykes Creek
Banana River
TRIANGLE
AUDUBON
MERRITT
SYKES CREEK
SR 520
MERRITT ISLAND
NEWFOUND HARBOR
BANANA RIVER
NBERRY
Not to Scale
July 2008
Definitions from FEMA website
B, C, and X
Areas outside the 1-percent annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone.
Insurance purchase is not required in these zones.
AE, A1-A30
Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. In most instances, base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
Disclaimer:
The boundaries and extents of the Special Flood Hazard Areas depicted do not reflect determinations by FEMA which have reclassified properties through Letters of Map Amendment or Revision."
"Inquiries regarding such determinations may be made to the Brevard County Floodplain Administrator."
Flood Zone
AE
X
East Merritt Island
North Study Area
FEMA Flood Zone Map
N14

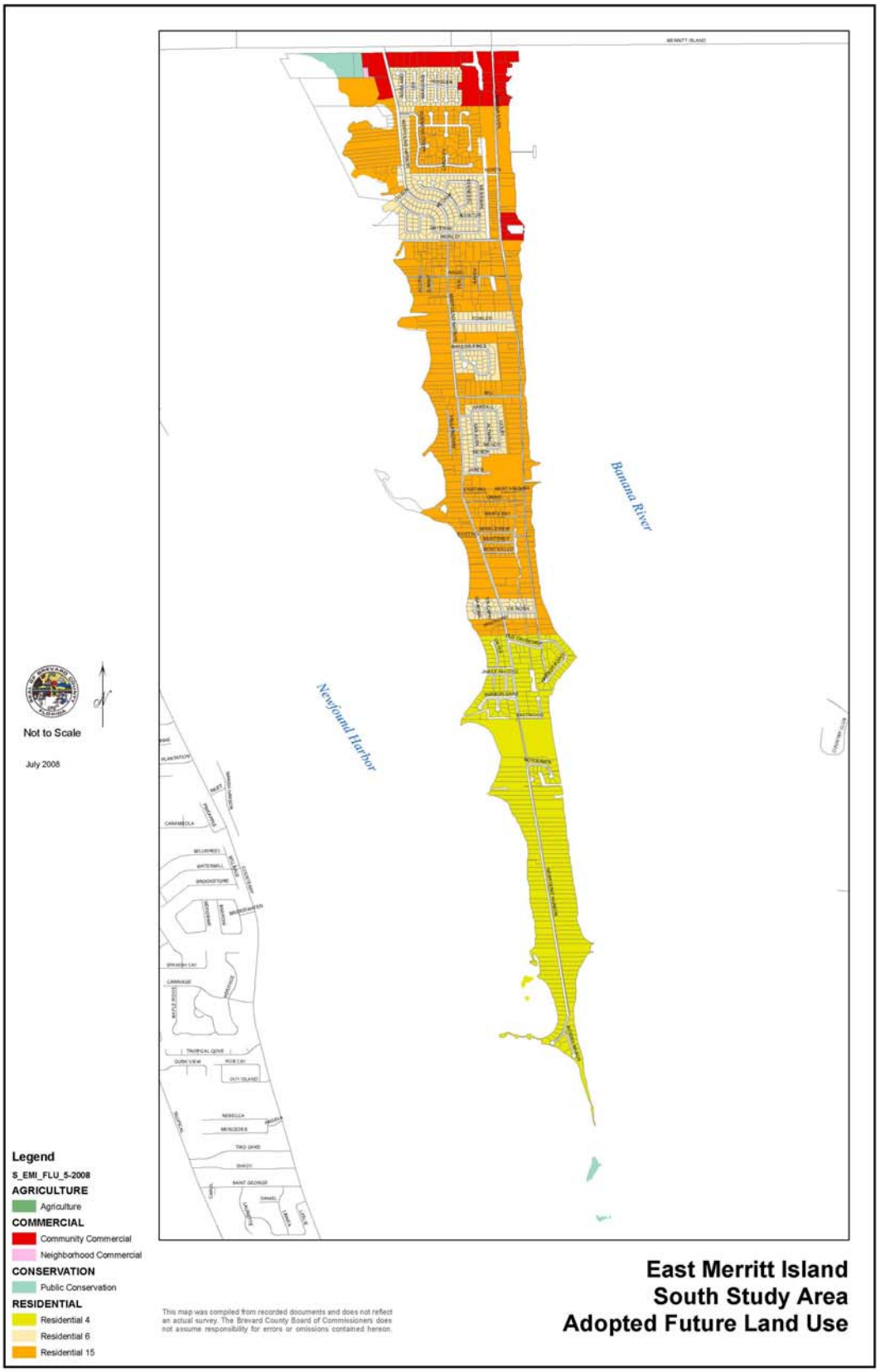

Draft
National Wetlands Inventory
East Merritt Island
North Study Area
National Wetlands Inventory
N15
1 inch equals 1,500 feet
July 2008
SR 528
SR 520
Sykes Creek
Banana River
MERRITT ISLAND


1 inch equals 0.44 miles
June 2008
Legend
Prospective Future Land Use Changes
N_EMI_FLU_Parcel_intsct_3
COMMERCIAL
Community Commercial
Neighborhood Commercial
CONSERVATION
Private Conservation
Public Conservation
DEVELOPMENT REGIONAL IMPACT
Harbortown Marina
INDUSTRIAL
Industrial
Planned Industrial Park
PUBLIC
Public
Recreation
RESIDENTIAL
Residential 1
Residential 4
Residential 6
Residential 15
Private-Conservation
A
B
C
D
D
E
F
* These parcels were removed from the Study Area by direction of the Board of County Commissioners on 10/14/08.
East Merritt Island
North Study Area
Future Land Use Recommendations
for Larger Tracts
N16
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
Not to Scale
Adopted Future Land Use

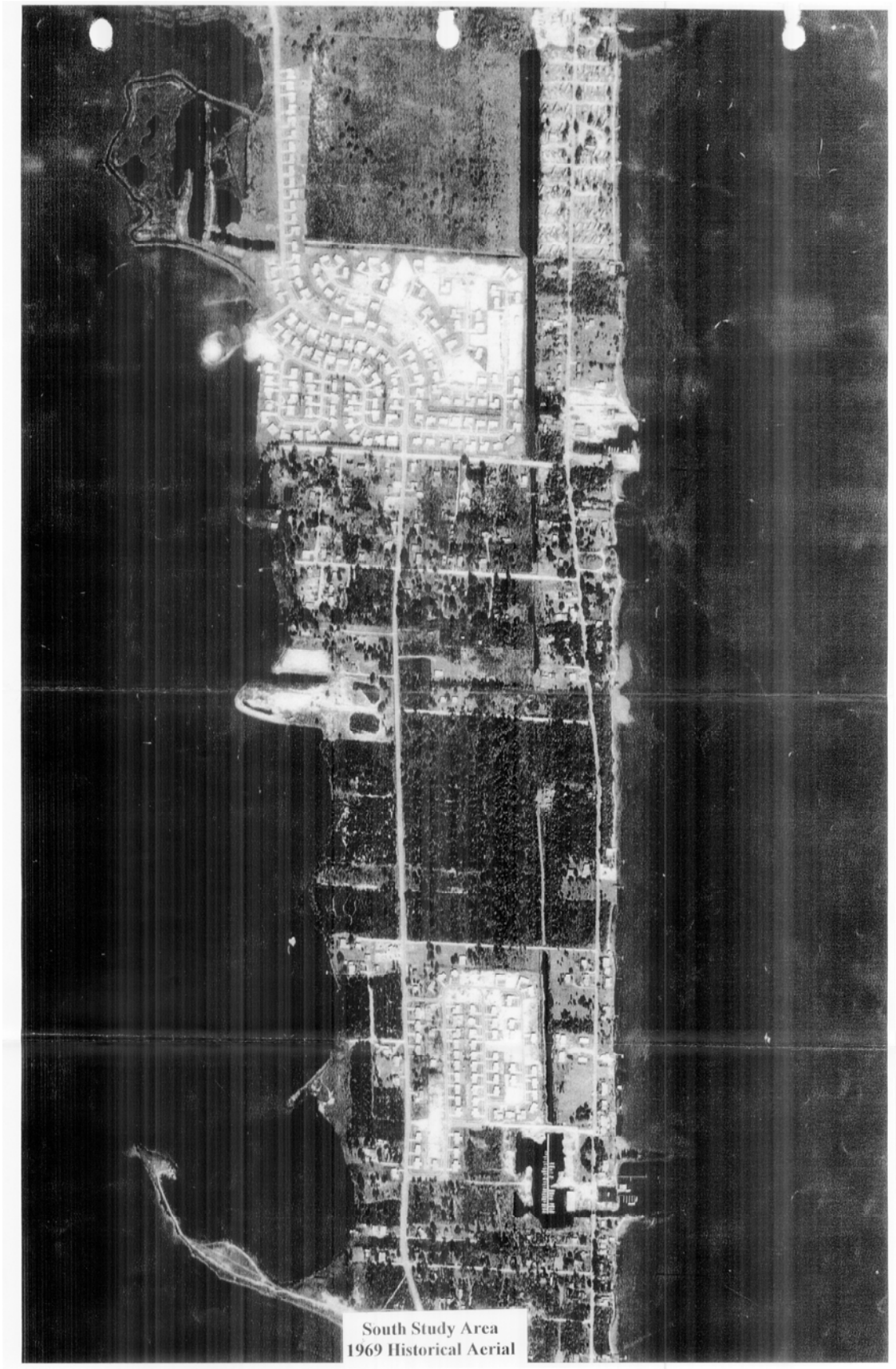

1 inch equals 0.44 miles
June 2008
Legend
Prospective Future Land Use Changes
N_EMI_FLU_Parcel_intsct_3
COMMERCIAL
Community Commercial
Neighborhood Commercial
CONSERVATION
Private Conservation
Public Conservation
DEVELOPMENT REGIONAL IMPACT
Harbortown Marina
INDUSTRIAL
Industrial
Planned Industrial Park
PUBLIC
Public
Recreation
RESIDENTIAL
Residential 1
Residential 4
Residential 6
Residential 15
Private-Conservation
Not to Scale
Adopted Future Land Use
* These parcels were removed from the Study Area by direction of the Board of County Commissioners on 10/14/08.
East Merritt Island
North Study Area
Prospective Future Land Use
N17
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.

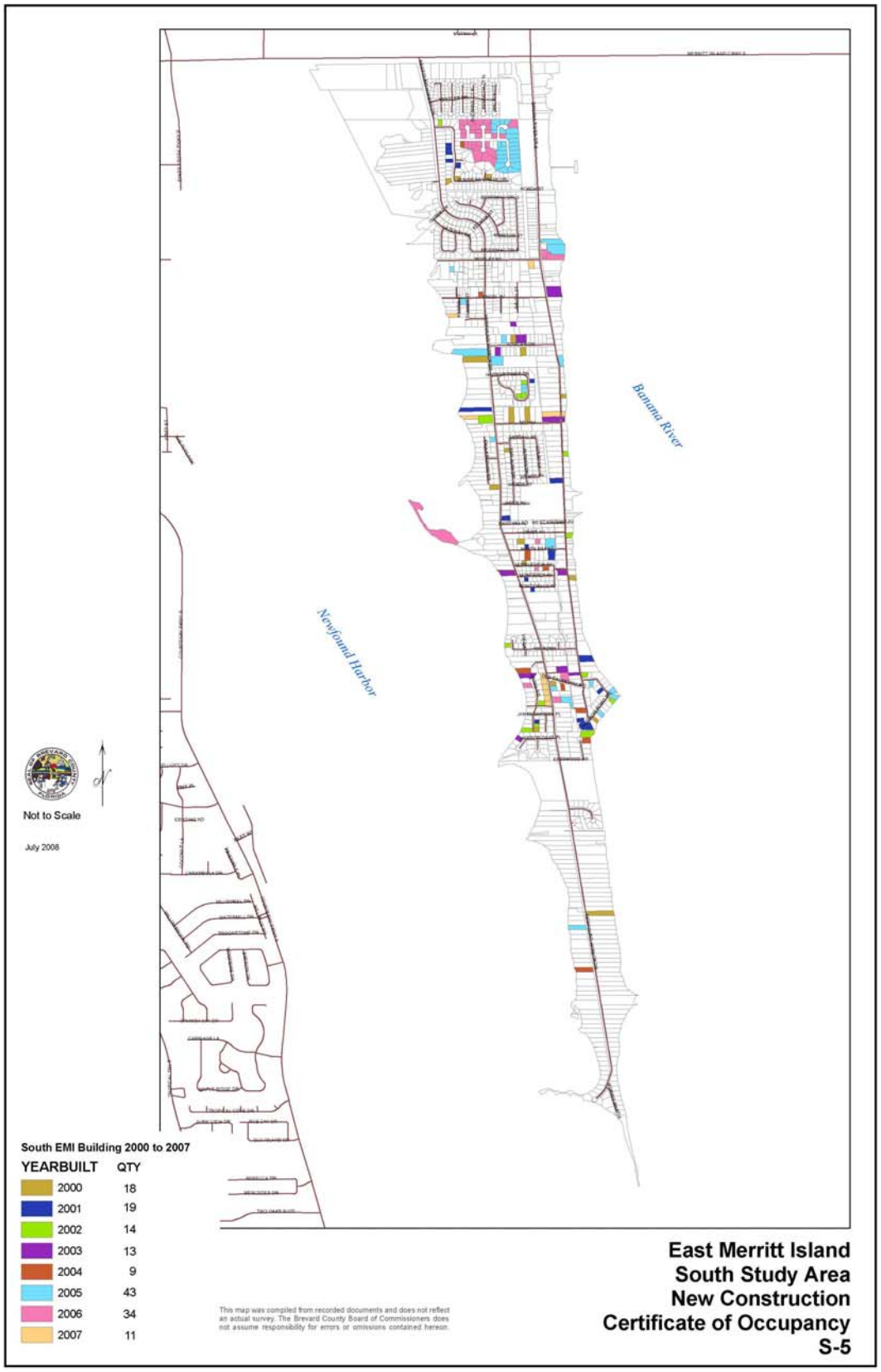
SOUTH AREA MAPS

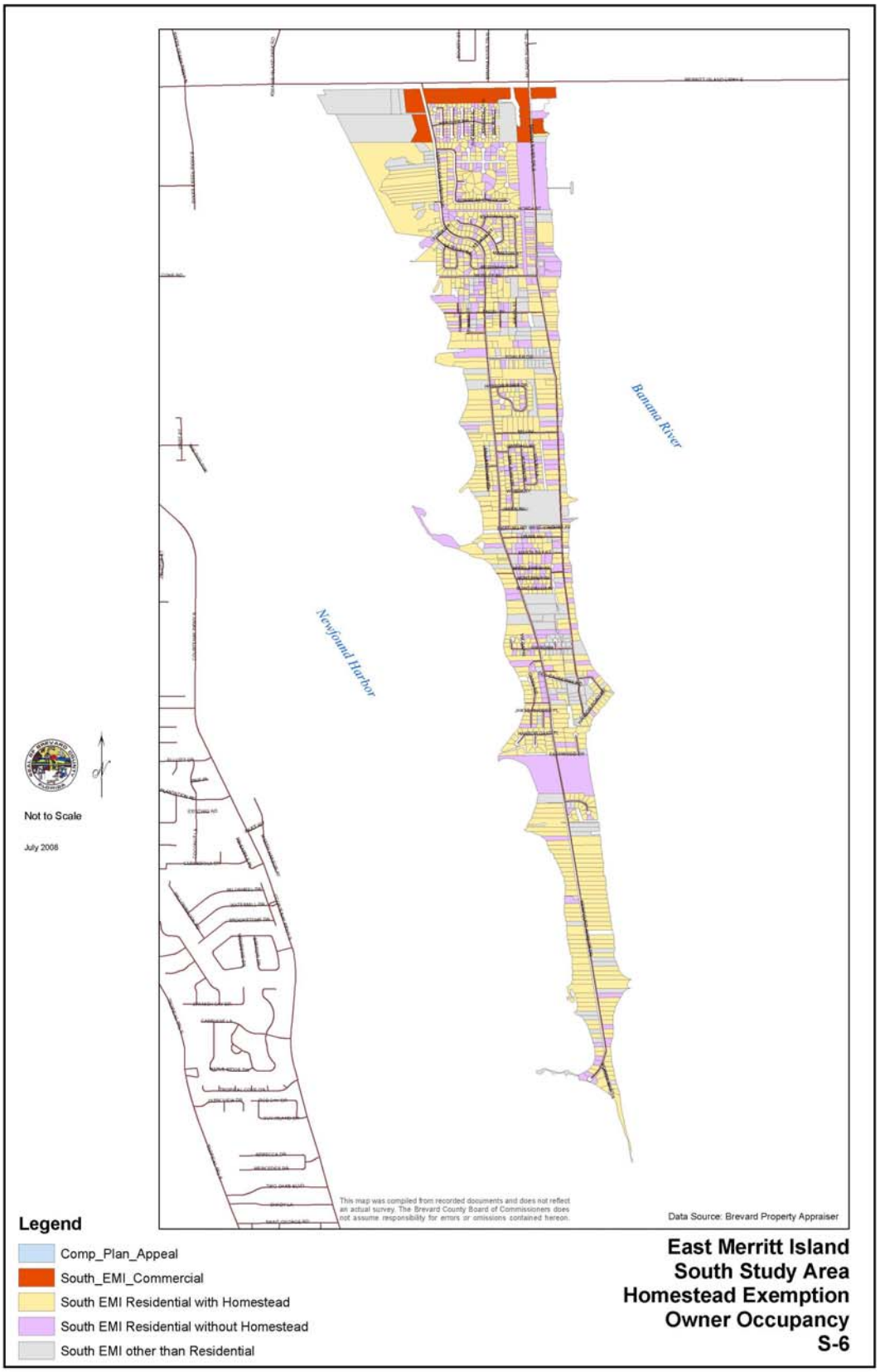

Banana River
Newfound Harbor
Not to Scale
July 2008
Legend
Public Parks
Public Boat Ramps
East Merritt Island
South Study Area
Boundary Map
S-1

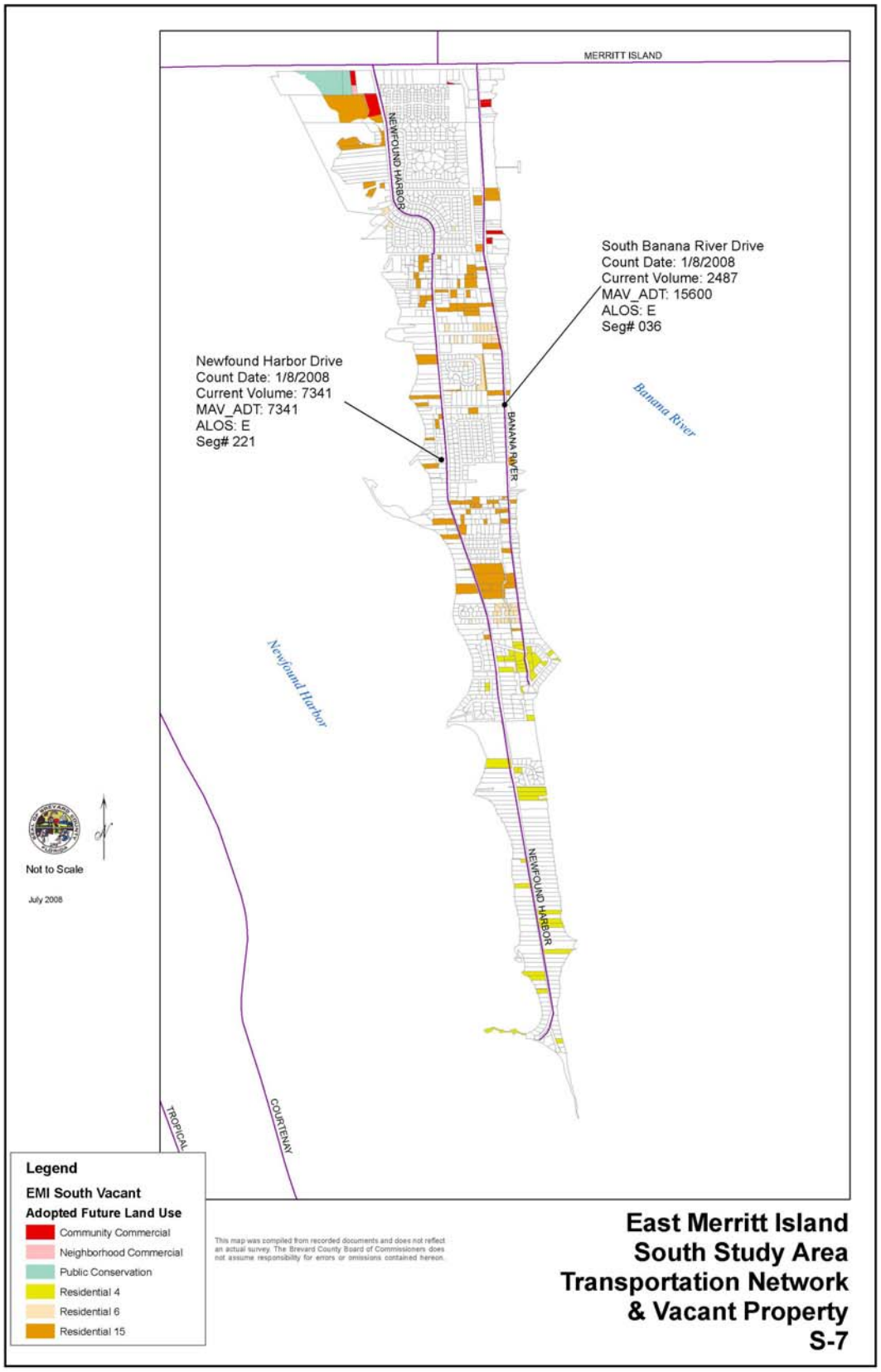

Banana River
Newfound Harbor
Not to Scale
July 2008
Legend
S_EMI_FLU_5-2008
AGRICULTURE
Agriculture
COMMERCIAL
Community Commercial
Neighborhood Commercial
CONSERVATION
Public Conservation
RESIDENTIAL
Residential 4
Residential 6
Residential 15
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
South Study Area
Adopted Future Land Use

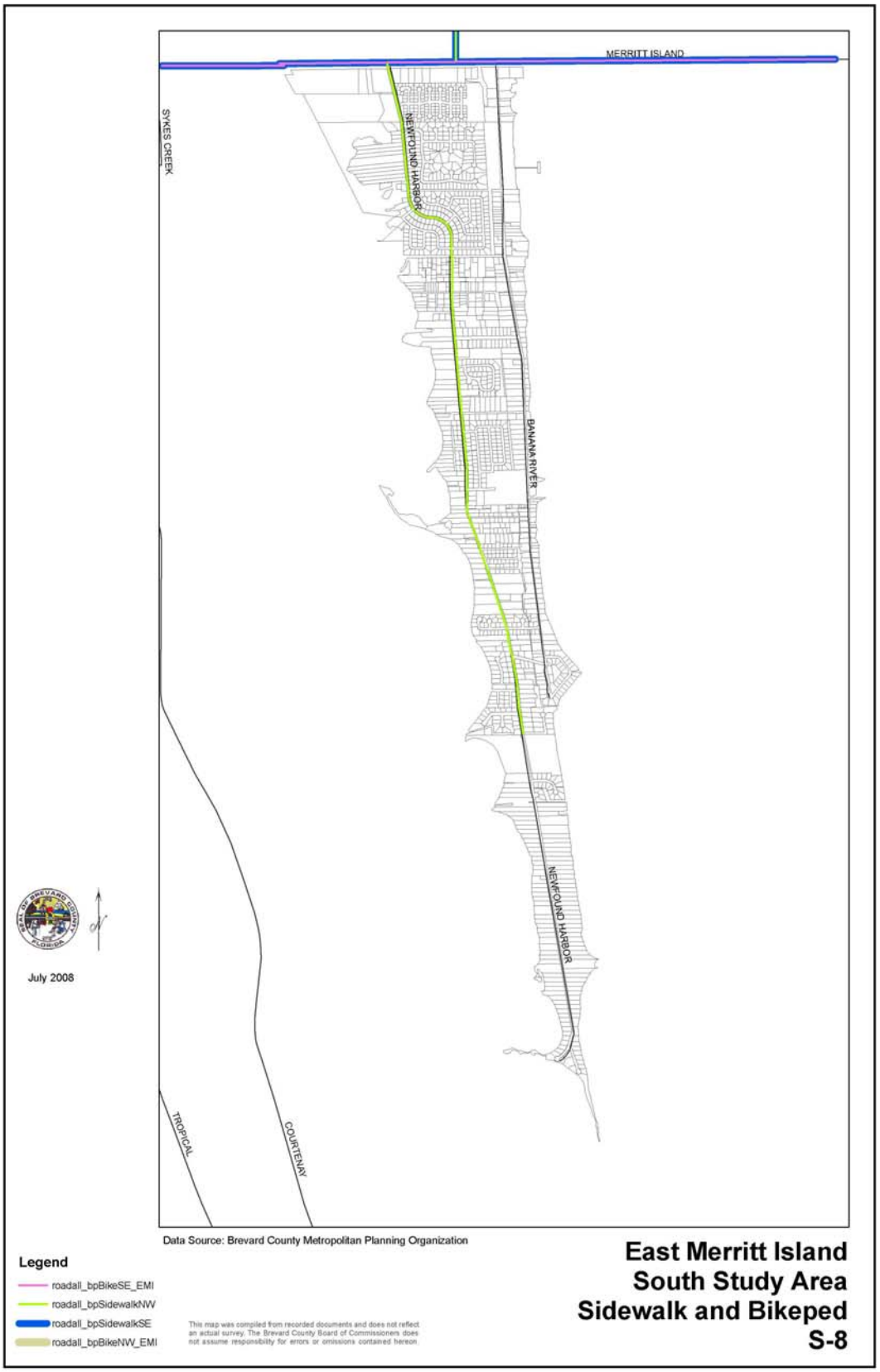
South Study Area
1958 Historical Aerial

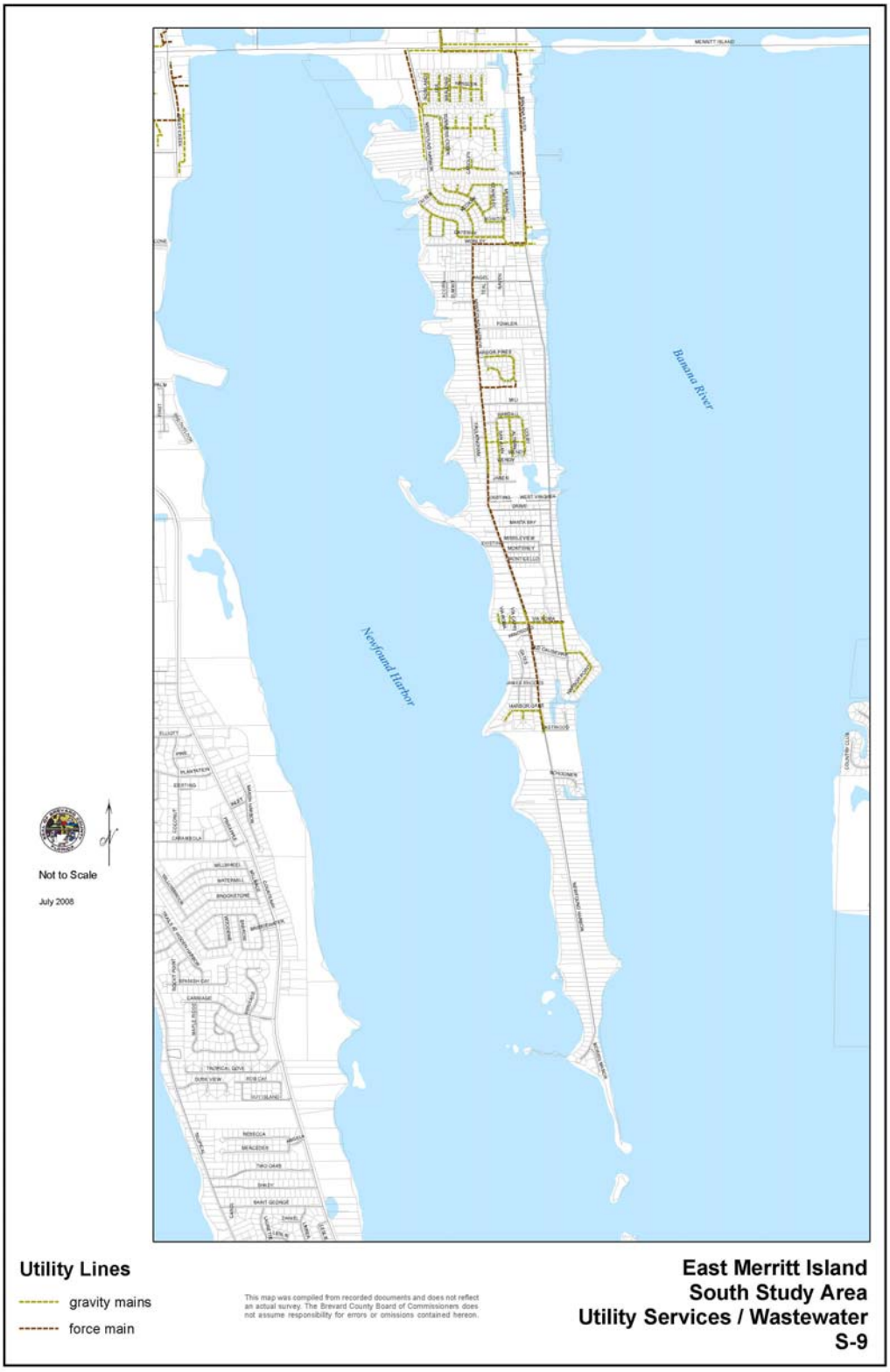

South Study Area
1969 Historical Aerial

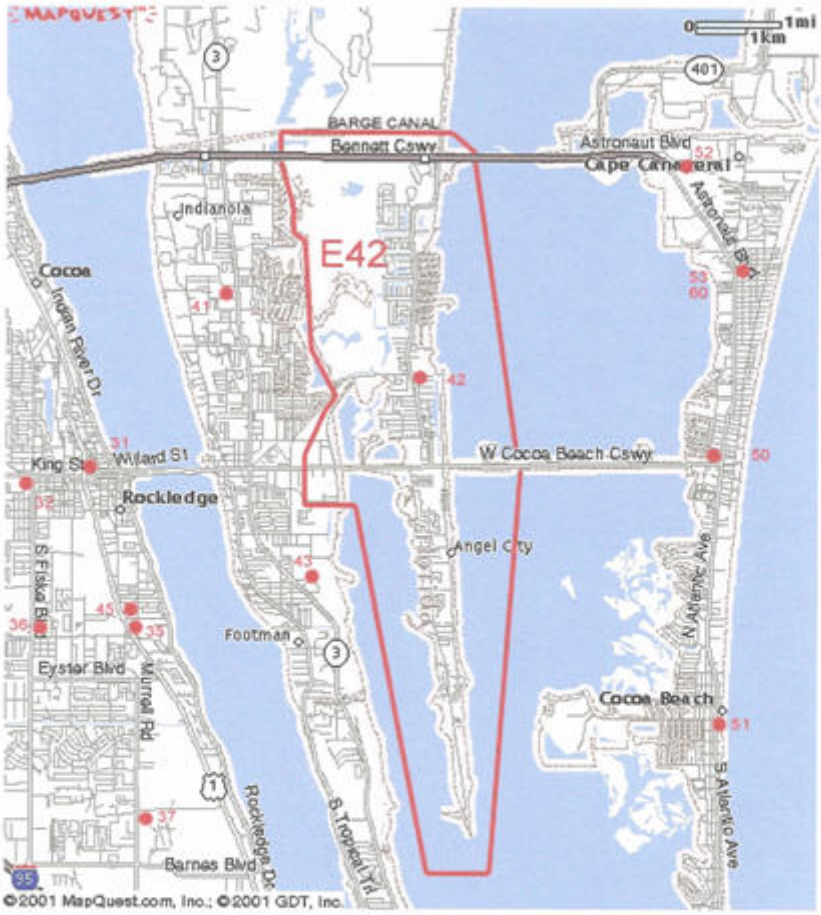

Banana River
Newfound Harbor
Not to Scale
July 2008
South EMI Building 2000 to 2007
YEARBUILT QTY
2000 18
2001 19
2002 14
2003 13
2004 9
2005 43
2006 34
2007 11
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
South Study Area
New Construction
Certificate of Occupancy
S-5


Banana River
Newfound Harbor
Not to Scale
July 2008
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
Data Source: Brevard Property Appraiser
Legend
Comp_Plan_Appeal
South_EMI_Commercial
South EMI Residential with Homestead
South EMI Residential without Homestead
South EMI other than Residential
East Merritt Island
South Study Area
Homestead Exemption
Owner Occupancy
S-6


MERRITT ISLAND
NEWFOUND HARBOR
South Banana River Drive
Count Date: 1/8/2008
Current Volume: 2487
MAV_ADT: 15600
ALOS: E
Seg# 036
Newfound Harbor Drive
Count Date: 1/8/2008
Current Volume: 7341
MAV_ADT: 7341
ALOS: E
Seg# 221
Banana River
BANANA RIVER
Newfound Harbor
NEWFOUND HARBOR
TROPICAL
COURTENAY
Not to Scale
July 2008
Legend
EMI South Vacant
Adopted Future Land Use
Community Commercial
Neighborhood Commercial
Public Conservation
Residential 4
Residential 6
Residential 15
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
South Study Area
Transportation Network
& Vacant Property
S-7

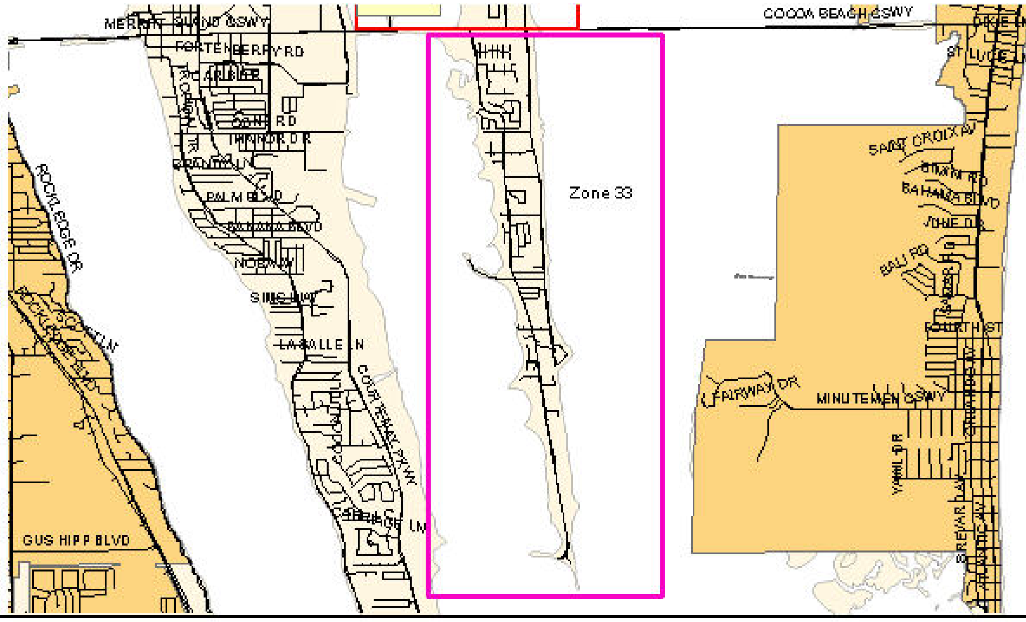

MERRITT ISLAND
SYKES CREEK
NEWFOUND HARBOR
BANANA RIVER
NEWFOUND HARBOR
TROPICAL
COURTENAY
July 2008
Data Source: Brevard County Metropolitan Planning Organization
Legend
roadall_bpBikeSE_EMI
roadall_bpSidewalkNW
roadall_bpSidewalkSE
roadall_bpBikeNW_EMI
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
South Study Area
Sidewalk and Bikeped
S-8


Banana River
Newfound Harbor
Not to Scale
July 2008
Utility Lines
gravity mains
force main
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
East Merritt Island
South Study Area
Utility Services / Wastewater
S-9



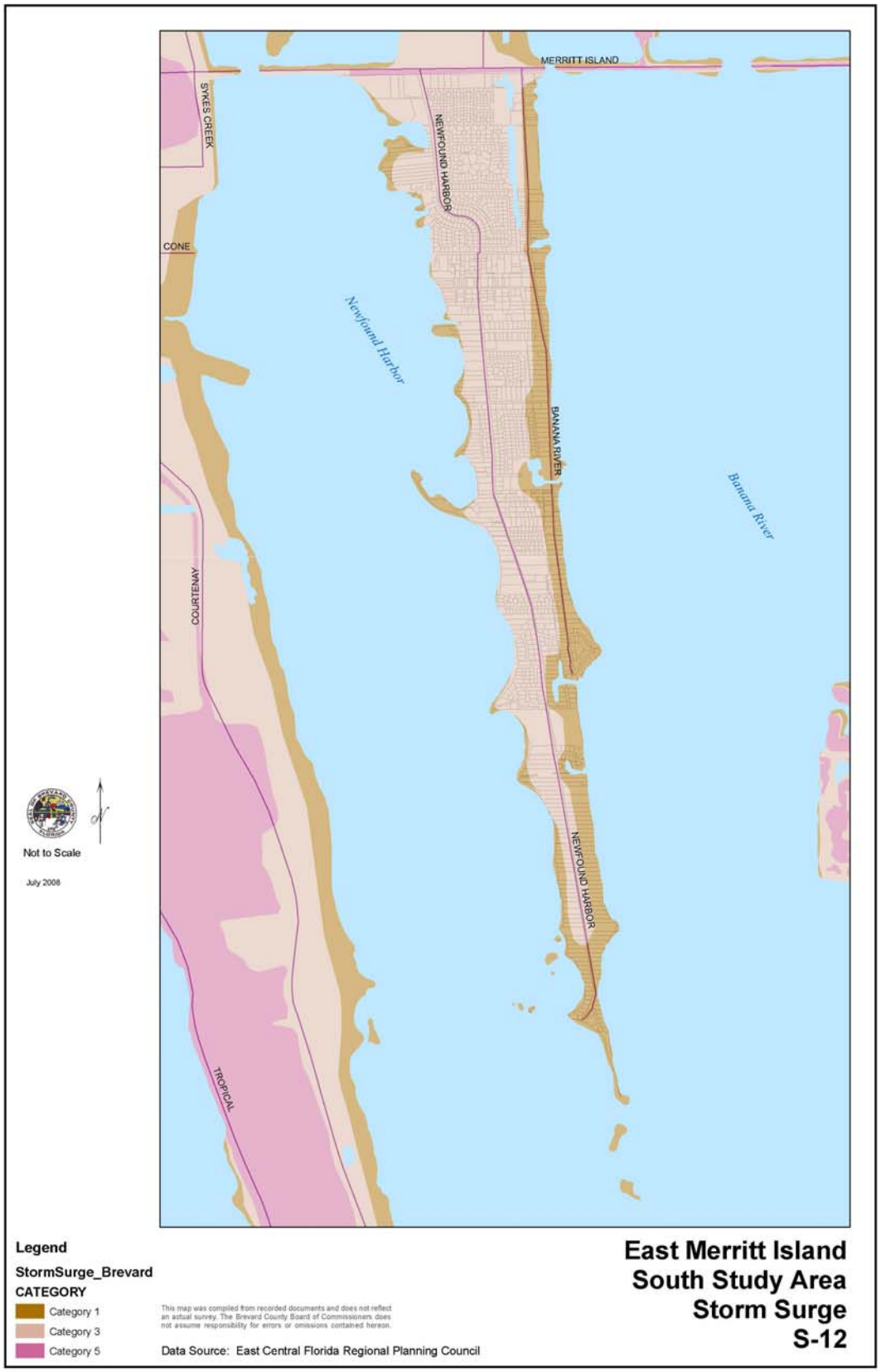
E42 SEPTEMBER 20, 2005
N -BARGE CANAL
S -BANANA RIVER/NEWFOUND HARBOR
-W OF SYKES CREEK/NEWFOUND HARBOR TO FORTENBERRY RD
E -BANANA RIVER
-ON SR 528 TO N BANANA RIVER DR
-ON SR 520 TO COCOA BEACH CITY LIMITS
W -ON SR 520, FORTENBERRY RD, AND MERRITT AVE TO JUST W OF BORMAN DR, TO INCLUDE HARBOR DEL RIO SUBDIVISION.
-ON SR 528 W-BND TO N COURTENAY PKWY
-SYKES CREEK/NEWFOUND HARBOR

S-10



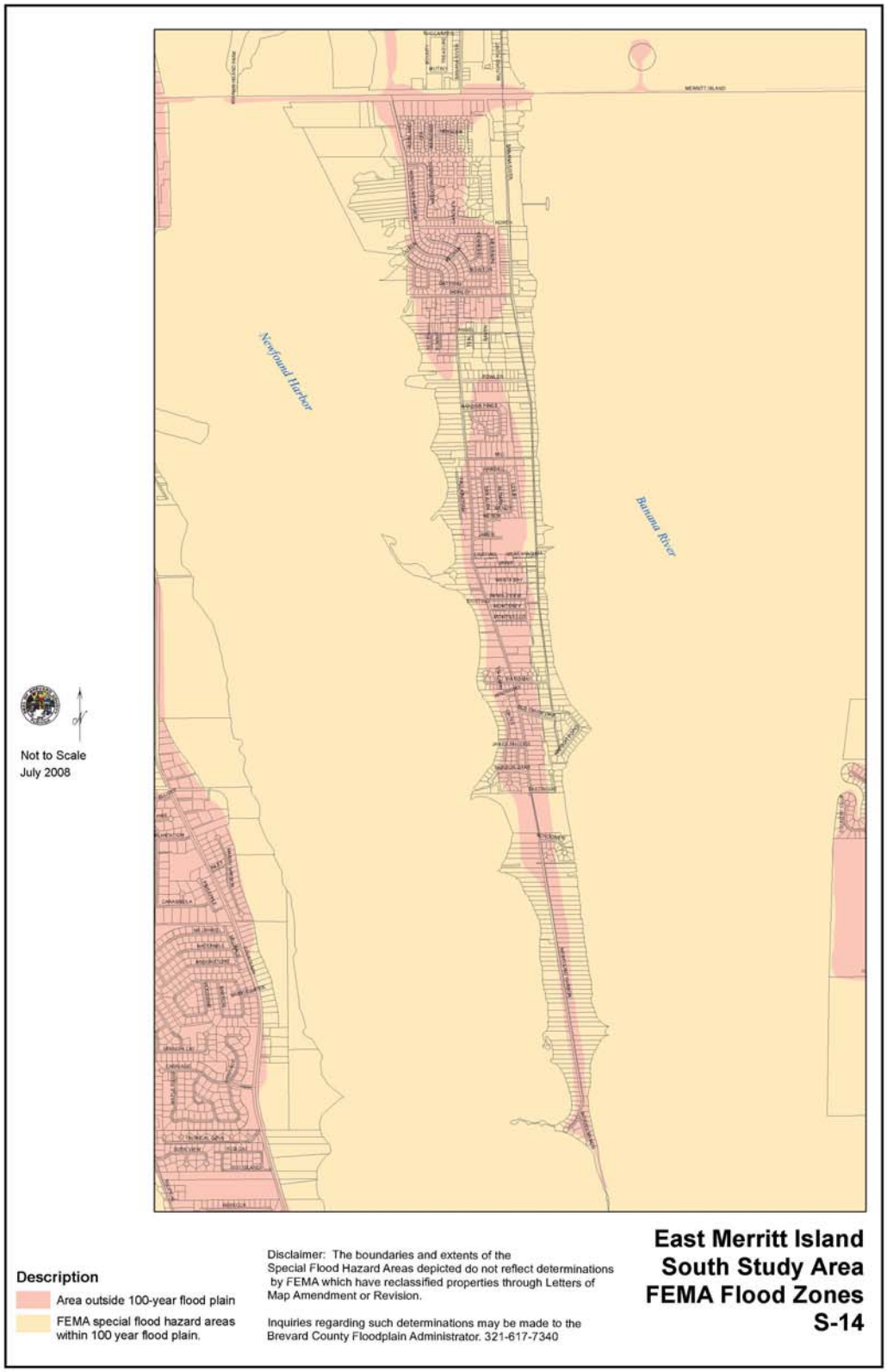
COCOA BEACH CSWY
FORTENBERRY RD
Zone 33
PALM BLVD
BANANA BLVD
LASALLE LN
COURTENAY PKWY
GUS HIPP BLVD
ROCKLEDGE DR
SAINT CROIX AV
BAHAMA BLVD
BALI RD
FAIRWAY DR
MINUTEMEN CSWY
FOURTH ST

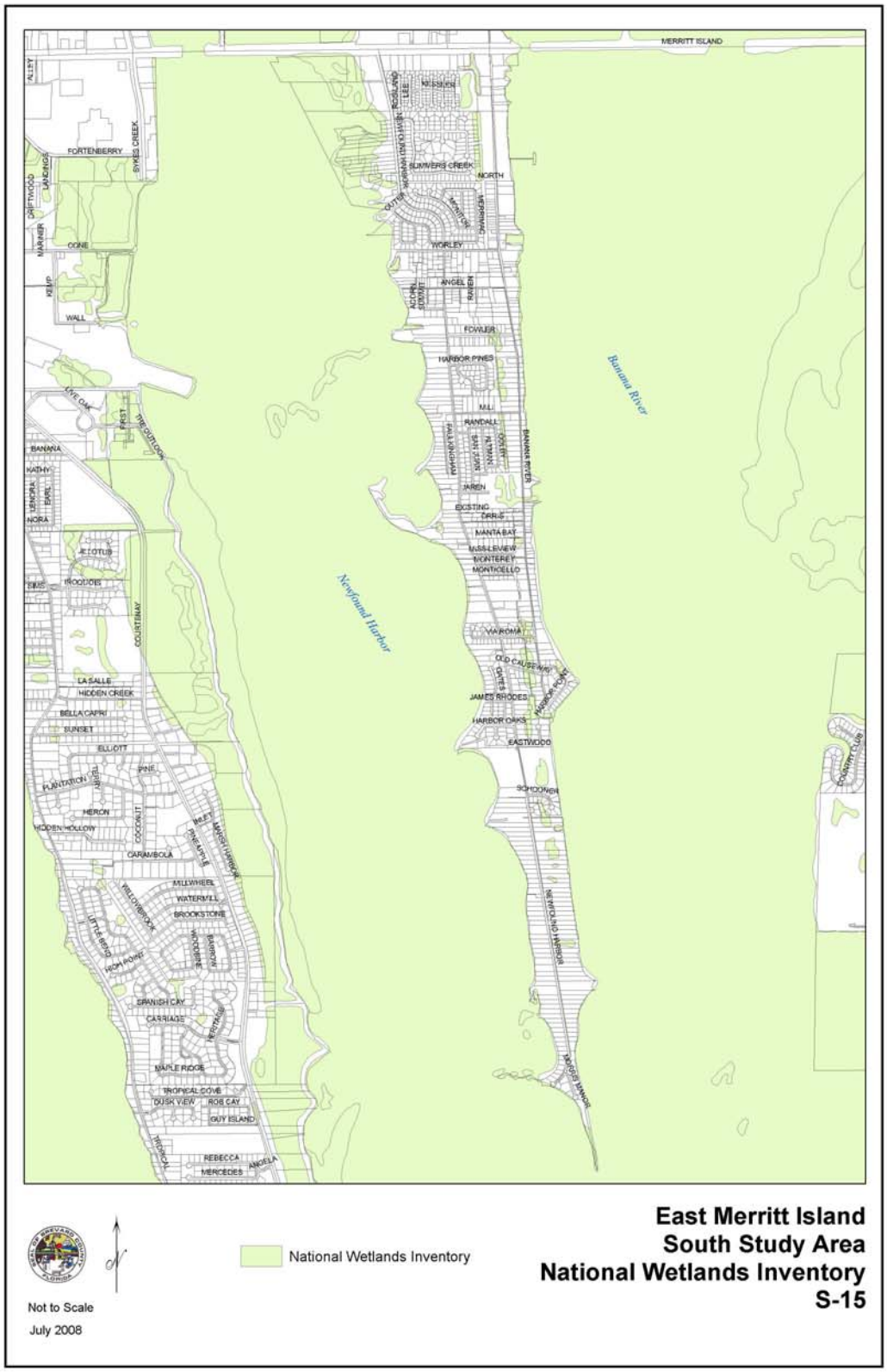
S-11

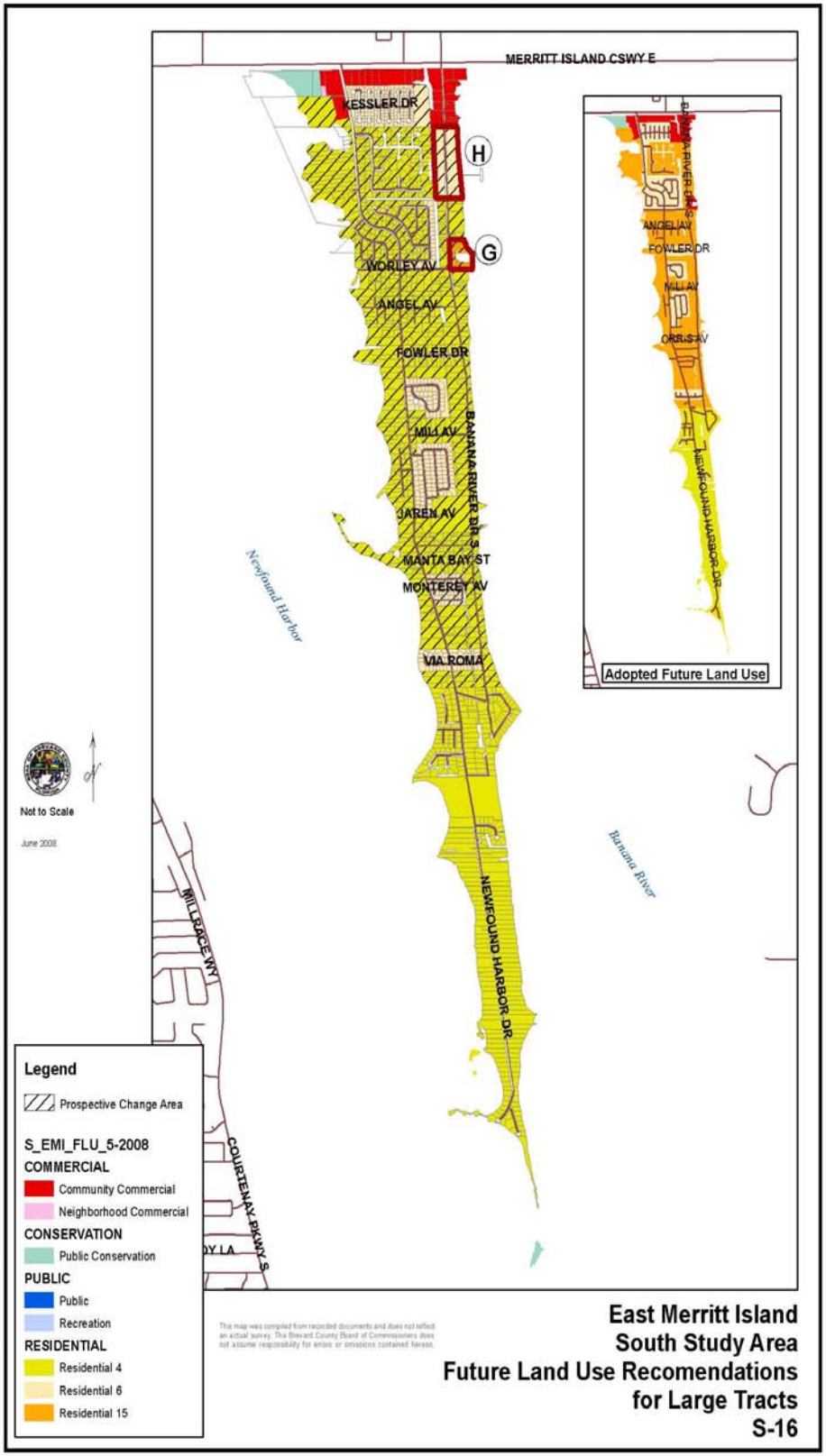

MERRITT ISLAND
SYKES CREEK
NEWFOUND HARBOR
CONE
Newfound Harbor
BANANA RIVER
Banana River
COURTENAY
NEWFOUND HARBOR
TROPICAL
Not to Scale
July 2008
Legend
StormSurge_Brevard
CATEGORY
Category 1
Category 3
Category 5
This map was compiled from recorded documents and does not reflect an actual survey. The Brevard County Board of Commissioners does not assume responsibility for errors or omissions contained hereon.
Data Source: East Central Florida Regional Planning Council
East Merritt Island
South Study Area
Storm Surge
S-12

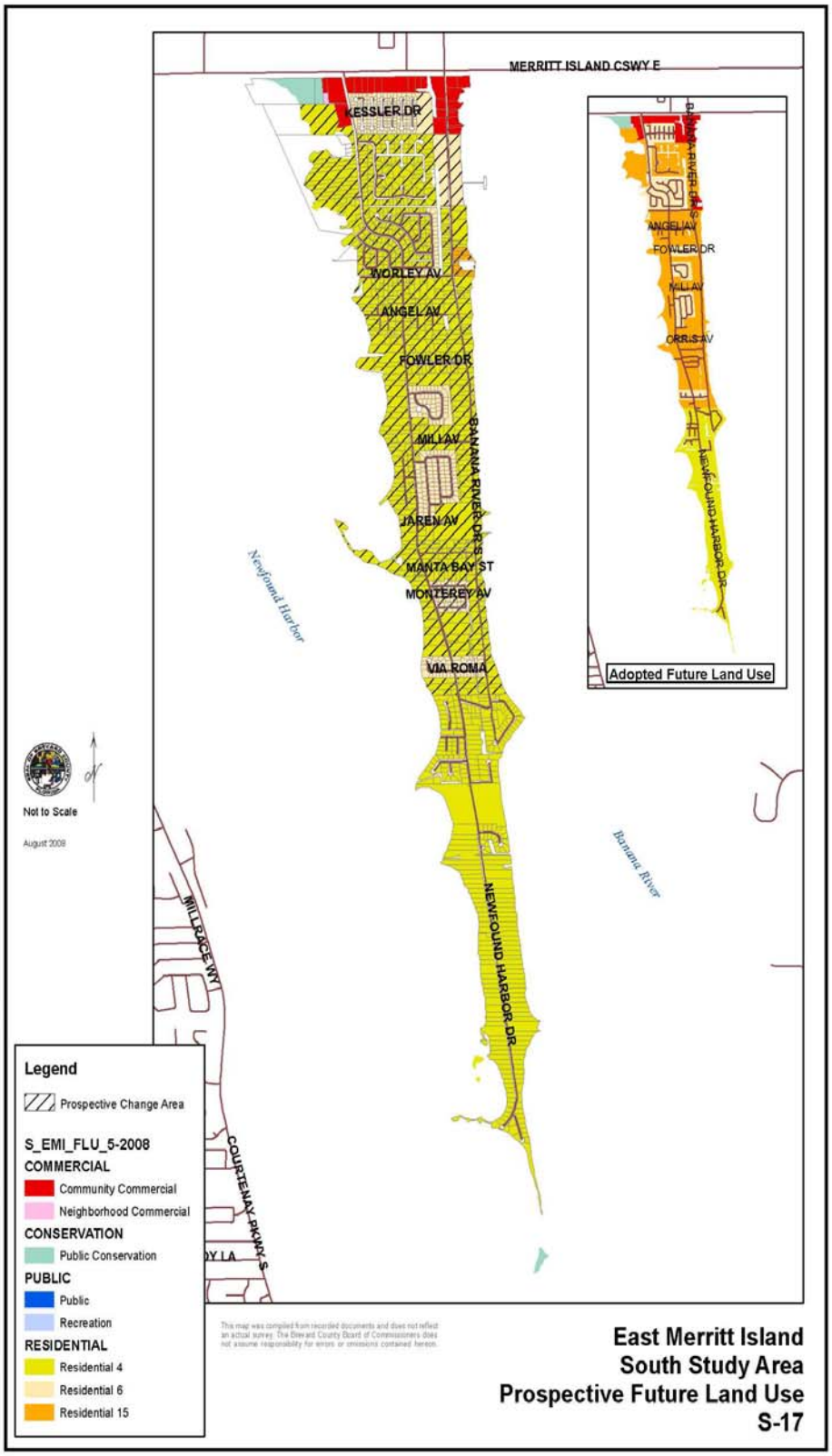
Category 1 Storm
Surge Zone

Category 1
Evacuation Zone

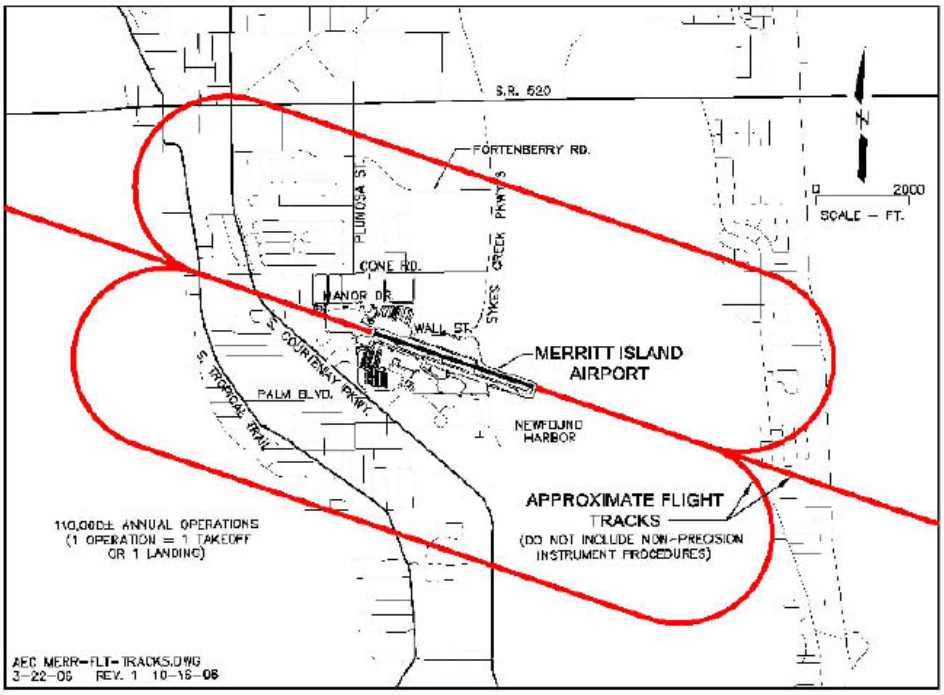

Newfound Harbor
Banana River
Not to Scale
July 2008
Description
Area outside 100-year flood plain
FEMA special flood hazard areas within 100 year flood plain.
Disclaimer: The boundaries and extents of the Special Flood Hazard Areas depicted do not reflect determinations by FEMA which have reclassified properties through Letters of Map Amendment or Revision.
Inquiries regarding such determinations may be made to the Brevard County Floodplain Administrator. 321-617-7340
East Merritt Island
South Study Area
FEMA Flood Zones
S-14


MERRITT ISLAND
Banana River
Newfound Harbor
National Wetlands Inventory
East Merritt Island
South Study Area
National Wetlands Inventory
S-15
Not to Scale
July 2008


MERRITT ISLAND CSWY E
KESSLER DR
H
G
WORLEY AV
ANGEL AV
FOWLER DR
MILL AV
JAREN AV
MANTA BAY ST
MONTEREY AV
VIA ROMA
BANANA RIVER DR S
NEWFOUND HARBOR DR
Newfound Harbor
Banana River
MILLRACE WY
COURTENAY PKWY S
Adopted Future Land Use
Not to Scale
June 2008
Legend
Prospective Change Area
S_EMI_FLU_5-2008
COMMERCIAL
Community Commercial
Neighborhood Commercial
CONSERVATION
Public Conservation
PUBLIC
Public
Recreation
RESIDENTIAL
Residential 4
Residential 6
Residential 15
East Merritt Island
South Study Area
Future Land Use Recomendations
for Large Tracts
S-16


MERRITT ISLAND CSWY E
KESSLER DR
WORLEY AV
ANGEL AV
FOWLER DR
MILL AV
JAREN AV
MANTA BAY ST
MONTEREY AV
VIA ROMA
BANANA RIVER DR S
NEWFOUND HARBOR DR
MILLRACE WY
COURTENAY PKWY S
Newfound Harbor
Banana River
Adopted Future Land Use
Not to Scale
August 2008
Legend
Prospective Change Area
S_EMI_FLU_5-2008
COMMERCIAL
Community Commercial
Neighborhood Commercial
CONSERVATION
Public Conservation
PUBLIC
Public
Recreation
RESIDENTIAL
Residential 4
Residential 6
Residential 15
East Merritt Island
South Study Area
Prospective Future Land Use
S-17

S-18


S.R. 520
FORTENBERRY RD.
PLUMOSA ST.
SYKES CREEK PKWY S
CONE RD.
MANOR DR.
WALL ST.
S. COURTENAY PKWY.
S. TROPICAL TRAIL
PALM BLVD.
MERRITT ISLAND AIRPORT
NEWFOUND HARBOR
N
0 2000
SCALE – FT.
APPROXIMATE FLIGHT TRACKS
(DO NOT INCLUDE NON-PRECISION INSTRUMENT PROCEDURES)
110,000± ANNUAL OPERATIONS
(1 OPERATION = 1 TAKEOFF OR 1 LANDING)
AEC MERR-FLT-TRACKS.DWG
3-22-06 REV. 1 10-16-06

APPENDICES

Yellow Gold

from

The Heart of
The Indian River Country

FLORIDA

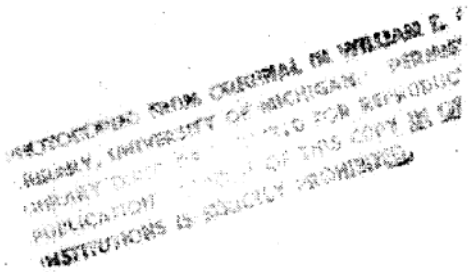
A STORY

Of the Citrus Industry in Florida and of the famous Oranges and Grapefruit of the Indian River Country in Brevard County.

FOREWORD

This story is dedicated to the Indian River Country and the pioneers in the Citrus Industry of Florida. They literally "hewed" their way through the original forests, clearing the land and setting out those early orange groves of seedling trees, that later were used in producing the many varieties of citrus now marketed throughout the world. A steady flow of Golden Fruit from Florida via train, boat and truck November through May.

THE AUTHOR.



Brevard County, Florida Is Half of The Indian River Country

Seventy-two miles of Atlantic Ocean frontage every mile of which lends to surf bathing with an average temperature of 72 degrees the year round. The Indian River parallels the ocean front, at no point more than three miles inland.

Brevard County was established in 1855 long before the Civil War days and originally extended much farther south and from which was created two other large counties. Brevard County still has 1,000 square miles of territory.

Brevard County is the yardstick from which many of the famous Blue Ribbon Indian River brands of Citrus were created and production adjusted, and from which is shipped millions of boxes annually. The original Dummet Groves unit still bear and are nearly one hundred years old.

The county seat at Titusville except for Mims is the most northern point of contact. To the south lie Indian River City, Sharpes, City Point, Cocoa, Rockledge, Eau Gallie, Melbourne, Palm Bay and Micco, smart up-to-date municipalities where tourists, for the last fifty years, have spent the winter months in comfort and enjoyment.

PHOTOCOPIED FROM ORIGINAL IN WILLIAM L. CL
LIBRARY, UNIVERSITY OF MIAMI. PER MISSIO

THE INDIAN RIVER COUNTRY

Figuratively speaking the Indian River Country was carved out of the very earliest period of American settlement. Ponce de Leon named Cape Canaveral, meaning, a cape of currents. This cape juts out into the Atlantic Ocean just east of Cocoa and Titusville, Florida, and is a sharp point shown on all maps. On this point of land in 1853 was built the lighthouse, oldest on the south Atlantic coast. Using the lighthouse as a measuring point for eighty miles south and seventy miles north with an average width of twenty-five miles along the Indian River and to the west one hundred miles on the St. Johns River, embracing 2,800 square miles, the authentic Indian River Country is as large as some of the principalities of Europe. A land of rich soil and sub-tropical climate, traversed in parallel lines by five modern means of transportation, the F. E. C. Ry., U. S. Highway No. 1, Inland Waterways New York to Miami, coastwise ocean traffic, and for the 150 miles served by the Pan-American Airways. This transportation is not duplicated anywhere in the world.

A land whose climate is governed by the Gulf Stream just off shore paralleling 150 miles of ocean bathing and driving beaches, the Riviera of America.

The Indian River Country is best known for its celebrated oranges, tangerines and grapefruit, each year some 8,000 cars being shipped to the markets of the world, where it commands a premium price. Fish, crab meat, shrimp, and vegetables are shipped in carload lots the year round.

The Indian River Country is a mecca for tourists as all East Coast traffic to and from New York, Miami and Key West passes through it, with natural advantages not found otherwise in America. Where the sun shines better than 210 days a year and for twenty years has not reached above 97 degrees, the average being 72 degrees, with the result the Indian River section of Florida is world-famed.

Titusville

(County seat of Brevard)

The friendly city, where southbound visitors and tourists first sight the world famous Indian River. County seat of Brevard County, and home of the Indian River orange. Rich, productive soil and on the upward trend. Excellent fresh and salt water fishing, from a distance of half a mile from the city's center to ten miles west of the St. Johns River. Becoming noted as a retreat for northern visitors. Excellent schools, churches, civic and other organized groups.

Indian River City

Just south of Titusville, and adjoining the junction of U. S. No. 1 with Highway No. 22, the main central route from the Atlantic to the Gulf of Mexico, passing through Orlando 38 miles to the west. Indian River City is also Florida Motor Lines dining point and junction for the West Coast.

North Brevard County

Lying betwen the Atlantic Ocean and the St. Johns River, traversed by the Florida East Coast Railway and the U. S. Highway No. 1 from Jacksonville to Miami. A gateway to the Indian River section, and one of the East Coast's most noted fishing paradises. Home of famous Turnbull Hammocks, and the thousands of acres of the finest varieties of the Indian River orange, tangerine and grapefruit. Towns include Mims, Scottsmoor, and Shiloh.

Orange Grove 100 years old, North Brevard

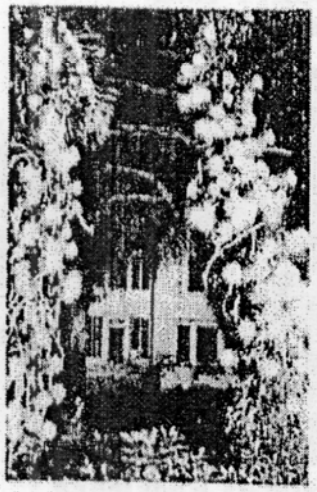
Rockledge

Rockledge in the heart of the famous Indian River citrus belt, is one of the oldest and prettiest tourist centers in Florida. Half way between Jacksonville and Miami, Rockledge is so named because of the rocky cliffs that jutt out over the mile wide stretch of level inland sea that is called the Indian River. Across the river is Merritt Island. Portions of Rockledge are built upon some of the highest ground on the East Coast and some of her pretty homes overlook the Island to the beach and the sea to the eastward, and to the west the headwaters and lakes of the St. Johns.

Fine homes and groves under seldom clouded skies. Constant sunshine in Rockledge is unsurpassed by sunshine records in any of the more highly publicized sections of the state, as may be seen by the records kept for 57 years at the U. S. Weather Bureau Station just across the river at Georgiana.

Sunshine is the essence of life. Seventy per cent of the population of the United States live in a region totaling from 30% to 60% of yearly sunshine. Florida is blessed with a yearly average of 80 to 90% sunshine.

The same data will attest that periods of twenty years passed with temperatures no lower than 26 degrees in winter nor higher than 97 in the summer. Winters whose icy blasts lose their sting as they cross the balmy waters of the lakes and the river. Summers whose heat is tempered by the cool southeast trade winds that blow across the southern seas.



Night-Blooming Cereus . . .

Cocoa adjoins Rockledge on the north and ships more private orders than any Indian River fruit express station and much of that famous fruit is grown in groves adjacent to Rockledge. As far back as 1878 Indian River oranges were hauled three miles to the St. Johns River landing, from there by boat to Jacksonville and points north, since when Rockledge has ever kept her early reputation.

PHOTOCOPIED FROM ORIGINAL IN WILLIAM L. CLEMENTS

Cocoa

A modern up-to-date East Coast City with a population of around 3,000, situated directly on the Indian River midway between Jacksonville and Miami, also on the Intracoastal Waterway and a popular docking place for pleasure craft cruising in Florida waters. The dock immediately joins the business district. Of particular interest is the further fact of its location on Indian River Drive, acclaimed by those who have seen it, a scenic drive second to none in the State. It has an abundant supply of pure, clear, soft water from nearby spring lakes; grade and high schools fully accredited by the state and regional accrediting agencies; churches of all principal denominations; an outstanding community newspaper; a strong well-managed national bank; a thoroughly modern picture theatre; good hotels, restaurants and shops; progressive merchants and professional men and women; civic and fraternal organizations, including the Tourist Club, Woman's Club, Garden Club, Music Club, Parent-Teacher Association, Rotary, Kiwanis, Masons, Elks and American Legion.

Cocoa is a progressive city. Now nearing the final stages of construction is the half-million dollar causeway linking Cocoa with Merritt Island. A new $70,000 postoffice will be serving residents of the community within a few months. Cocoa boasts of one of the finest new docks on the Inland Waterways.

A Private Yacht Basin at Cocoa

Eau Gallie

Eau Gallie (pop. 1500) with its well-kept streets and beautiful water-front homes, offers a variety of attractions to Florida visitors seeking pleasant and congenial surroundings amid tropical beauty.

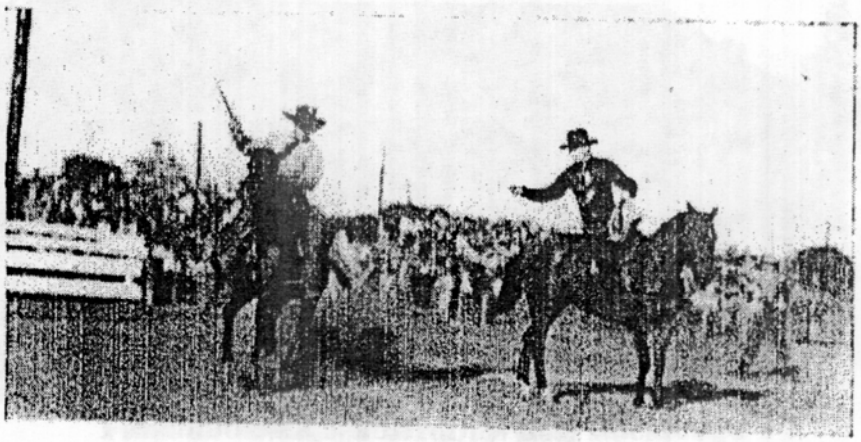
Yachtsmen find at Eau Gallie the finest landlocked harbor in Florida so that over 400 yachts make Eau Gallie a port of call each season. The Eau Gallie Yacht Club, one of the oldest clubs in the State, extends a cordial welcome to visiting yachtsmen, and is an important center for social gatherings all through the Winter season.

Fishermen at Eau Gallie have the choice of fishing in either of four rivers, in the ocean, or at nearby Lake Washington, and in either fresh or salt water.

Popular motor trips near Eau Gallie include the famous scenic drive through the orange groves of Merritt Island; the rich cattle country of the St. Johns River valley to the west, where some of the largest ranches in Florida are now established, and to the bird rookeries at Lake Washington where in the nesting season over 25,000 tropical birds may be observed at close range. The National Audubon Society protects these rookeries and here are seen rare tropical birds unknown in other parts of the world.

Championship tennis courts, playgrounds for the children, extensive parks, with a fine pier into Indian River and good schools, together with unexcelled accommodations in hotels, cottages, and private homes make Eau Gallie a desirable place in which to spend a vacation or make a Winter home.

Eau Gallie invites you.



Annual Rodeo at Eau Gallie

Melbourne

Melbourne is located on the east bank of the Indian River and is the center of the famous Indian River Orange District. Its expansive beach, with two casinos and swimming pools with the usual recreational facilities, makes Melbourne outstanding from a tourist standpoint.

Melbourne is a year-round resort. The proximity of the Gulf Stream and the prevailing trade winds make the climate mild in Winter and cool in Summer.

Civic spirit manifests itself through well organized Kiwanis, Rotary, Woman's Club, and many other groups.

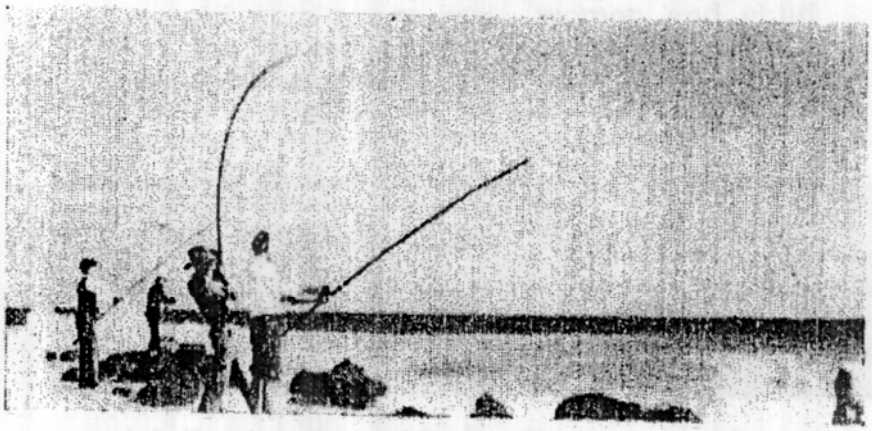
Golf, tennis, shuffleboards and many other types of amusement for the visitor. Melbourne might well be called "The City of Homes and Gardens" surrounded by tropical plants and palms. The average home has its own orange and grapefruit trees.

Churches, of practically every denomination, schools bearing the highest of ratings.

There are few places which can equal Melbourne for good fishing. Nowhere can be found the variety of fishing that is available here. Melbourne furnishes both salt and fresh water, deep sea, lakes and river fishing. Sebastian Inlet which is nationally known as a "fisherman's paradise" is located at this point.

Melbourne Beach located opposite Melbourne on the Indian River on the west, Atlantic Ocean on the east. Swimming pools and casino; also Woman's Club, tennis and other amusements to entertain the visitor, surrounded by beautiful homes and cottages makes Melbourne Beach a desireable location to spend the vacation or for permanent residence.

For information address Chamber of Commerce.



Jetty Fishing at Sebastian Inlet

Merritt Island and Canaveral Peninsula

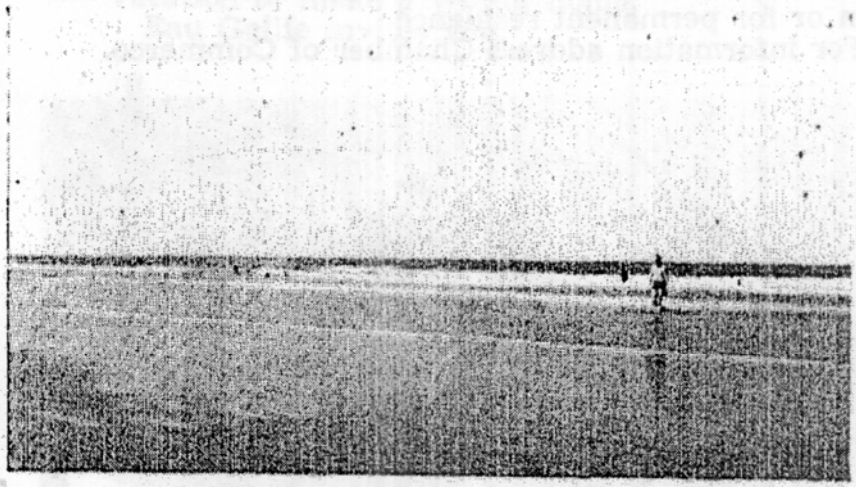
To the east of the Indian River and bordering on the Banana River lies the Merritt Island and Canaveral Peninsula section of Brevard County, extending approximately 50 miles north and south and fronting on the Indian River and on the Atlantic Ocean for its entire length.

This section can be reached from U. S. No. 1 at Cocoa, Titusville, Eau Gallie and Melbourne.

The Indian River Orange was originally developed here.

Here you will find the thriving communities of Merritt Island, Indianola, Courtenay, Audubon, Orsino, Wilson, Allenhurst, Shiloh, Cocoa Beach, Artesia, Canaveral Harbor, Georgiana, Lotus and Tropic.

Nowhere else in Florida can be found the combination of conditions, making for happy and prosperous living, that abound in this section—Delightful Climate, Scenic Beauty, an abundant soil producing tropical and subtropical fruits and vegetables — large and picturesque citrus groves—a veritable paradise for salt-water hook and line fishing and shrimping, enjoyable for the sportsman and a source of profit for the commercial fisherman and shrimper.



Cocoa Beach — No Beach Offers Greater Safety

The Citrus Family

THE commonly known varieties of the Citrus family are divided into major and minor classifications. The first includes Oranges, Grapefruit, Lemons and Tangerines, the minor are Satsumas (orange), Limes, Kumquats and Tangelos.

Location and Historical Background

Oranges are grown in Florida, California, Spain, Egypt, Islands of Italy and South Africa.

Grapefruit is grown in Florida, Texas, Arizona, Brazil, South Africa and Porto Rico. Nowhere in the world but in Central Florida are all grown at the same time with the different varieties of each and within the radius of a hundred-mile circle.

Orlando, the center of the state, is also the center of this Florida Citrus Culture, while Cocoa, Brevard County, Florida, is the center of the famous Indian River brands of the East Coast.

Tradition

The American Orange really started in Florida from seed brought from Spain by way of the West Indies. In Florida at present there are more than 340,000 acres of growing Citrus. Twenty-seven million trees, old and new, with a minimum production of thirty-five million boxes annually, which may not be comprehended thus computed, but when one realizes that this amount of fruit, if equally distributed, would give every man, woman and child in the United States a dozen and a half oranges, ten grapefruit, with a double handful of tangerines on the side, it really means a tremendous industry for one state.

It is also a matter of interest that the annual consumption of citrus has reached thirty-five pounds per person, compared with seven pounds that were consumed thirty-five years ago and seems incredible, an increase of 500 percent.

Florida oranges were first raised on seedling trees that grew tall and spiral and

PHOTOCOPIED FROM ORIGINAL IN WILLIAM L. CLEMENTS

now they are almost entirely a budded or "grafted" tree, somewhat low, short stem and round top, with eighty trees and less to the acre.

An orange tree should yield after five years from one to three boxes, later eight boxes; the grapefruit tree from one to six boxes and on up to fifteen boxes at maturity; many trees reach the age of fifty years. So many young groves are now set out that the present number of boxes produced does not compare favorably with the number of trees set out. Another interesting estimate of the production of Florida Citrus — visualize if you may, nine hundred trains, each train a mile long of one hundred cars, or one solid train 900 miles long, raised each normal year in Florida. Gross citrus shipments are computed in carload lots, whether by boat or truck. A car unit thus quoted is four hundred boxes, a maximum car is four hundred and forty boxes. So much for production.

Citrus Technique

At present, since seedlings are used no more, the root stock has no relation as to variety the tree produces. The graft or bud branch inserted is the variety wished and the age of stock so budded averages eighteen months at budding. In the west and middle sections of Florida most root stock is a rough lemon, it matures better in ridge soil. On the eastern shore or Indian River section, with a milder climate, the sour orange or wild orange is used, this being the original native orange stock, naturally produces (proven by test), the higher quality of orange, bringing approximately one dollar per box more on the northern markets.

Oranges are of several varieties, early to late, December to May (using Florida as an example). Satsuma, Hamlin, Parson Brown, Navel, Pineapple, Temple, Leu Gim Gong, Valencia, each coming into production in order named. Science is constantly creating new varieties.

The United States produces the largest

PHOTOCOPIED FROM ORIGINAL IN WILLIAM L. CLEMENTS LIBRARY, UNIVERSITY OF MICHIGAN. PERMISSION DIRECTED

quantity of oranges in the world, and four-fifths of the grapefruit, one-half of which is raised in Florida.

The Tangerine, of several varieties, is ripe in mid-winter months. A new delicious fruit propagated within the last twenty years is the Tangelo, a cross in the budding (grafting) of the common tangerine with the pomelo (grapefruit), creating a delicious citrus fruit not commonly known, "Tangelo" Tangerine-Pomelo, combining the two words — Tangelo.

Grapefruit varieties are the Duncan, Triumph, Common Marsh Seedless, and Foster (Pink Grapefruit) the latter now raised in quantities. There are several minor varieties in fancy brands with no steady market, as have the above mentioned brands.

The story of the Grapefruit (Pomelo) is interesting. It is propagated from the Shaddock, named after the man who first attempted to bring them to Florida from the West Indies. He was shipwrecked, the ungainly pumpkin-shaped, coarse, bitter fruit came ashore, many seeded naturally, some were planted as a curiosity. The fruit was abnormal in size, many two feet in circumference, the meat coarse and pink. Horticulturists started experimenting, to the end that in fifty years we have what is commonly known as Grapefruit, whose real name is Pomelo, the name grapefruit being substituted later because the fruit grows in clusters similar to grapes, sometimes in the Indian River country over thirty to a cluster or branch. The grapefruit trees grow to enormous size—one tree in the well-known Sunset Grove on Merritt Island, across the Indian River from Cocoa, Florida, has over two thousand fruit at one time and twenty people can assemble under this tree and not a person would be able to reach a fruit. Another tree on this same Island produced thirty-seven boxes of fruit (size eighty to the box) in one season.

Industrial Side

Citrus Culture is not a poor man's game, a well-known axiom "it takes money to

make money" holds true in Citrus culture. The smallest paying unit minimum is ten acres, from that up to one thousand acres constitute a grove. One hundred acres is a large producing grove.

Packing plants and groves are separately considered. Several or many groves may use one packing plant jointly, generally built on a sidetrack with a capacity of from four to fifteen cars a day. All graded citrus passes through these packing plants; highly specialized automatic machinery handles the orange or grapefruit from the time it is dumped into the great washing and scrubbing vats until it is dried, polished and packed by employees, wearing white cotton gloves. In this process over half an hour elapses, and when it comes out and is shipped, sold and finally unwrapped by you, it is absolutely a sanitary product beyond any question of doubt. A visit to any packing plant in Florida will be the proof of this statement.

The cultivation is highly specialized; fertilizer of certain ingredients, cover crops in the groves to retain ground moisture, spraying to reduce insect life all hold for a great industry whose output should be more universally used. Remember an orange has half the vitamins of an ordinary meal.

Citrus Consumption

Those who cannot handle the sugar content of the orange may have direct recourse to the grapefruit without sugar content and highly recommended by all physicians during epidemics where the common cold is the starting point.

The pure unadulterated orange juice has not reached the perfect canning stage as yet. Grapefruit has been successfully canned only for out-of-season uses, or for parts of the world where it is not practical to ship fresh fruit.

One successful canned drink is a combination of orange and grapefruit juice called "Pomorang," e left off, to be used off season and chilled in ice box. Do not add

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ice directly to a citrus juice drink, this is an unwritten law where juice is used instead of eating from the hand.

Citrus Marketing

The forty million boxes of Citrus fruit raised in Florida are marketed through the great auction markets of New York and Chicago, Boston, Philadelphia, Pittsburgh, Detroit, Cleveland and Cincinnati, and jobbers in every fair-sized town throughout the United States, together with many thousands of boxes expressed to private consumers. This latter is known as a mail order business. New York clears the major shipments of fruit to foreign ports, England using the bulk, though Florida Citrus fruit consumption is fast spreading to continental Europe. To reach these markets, three avenues are used: First, by rail in solid trains through Jacksonville, breaking into smaller units at Waycross, Ga., and the Potomac yards near Washington, D. C. In many cases these trains are mostly iced cars and are rerouted direct to inland cities, under direction of the Sales Departments of the different shipping organizations.

Water transportation is through Tampa, Fort Pierce and Jacksonville, all of which goes directly to the seaport centers of the northeast Atlantic Coast. The old unit of three hundred boxes to a car is still used in estimating a shipment by boat; in train lots four hundred boxes constitute a minimum car.

Truck transportation is comparatively new and now under control of central units and the Interstate Commerce Commission, succeeding a rather free-for-all method in operation prior to 1936. The major portion of truck movements in the past has been bulk fruit unpacked and unclassified and which fruit in former years was practically a loss. Under the Interstate Commerce, all classes of Citrus may be and are moved by truck, dividing the responsibility with rail and water. One of the interesting branches of the citrus industry is the private order or mail order shipments, particularly the

Indian River brands. From Cocoa, Brevard County, Florida, alone in 1939, over sixty thousand packages were moved by express to private consumers ordering by mail one or more boxes at a time. A very satisfactory method of distribution. This is an increase of 100% in three years. In most cases the shippers are the real growers of this fruit.

In Conclusion

Ninety-five percent of the Florida oranges are used east of the Mississippi where 80% of the consuming public of this country shops. Remember, your portion of Citrus is thirty-five pounds a year; see that you get it. Plenty of oranges and grapefruit means plenty of days of good health for you.

USE INDIAN RIVER ORANGES

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Yellow Gold

from

The Heart of
The Indian River Country

FLORIDA

THE INDIAN RIVER

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1940

HISTORICAL NARRATIVE

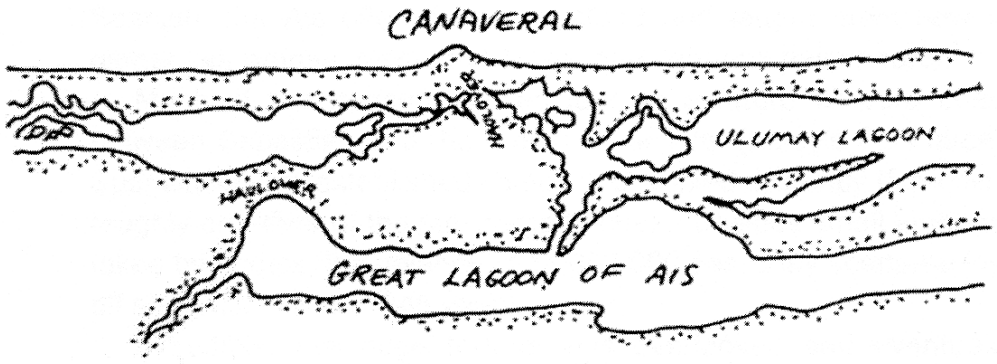
EARLY HISTORY OF EAST MERRITT ISLAND (SOUTH) &
RECOLLECTIONS OF THE 60s
by Janet Bryant

HISTORY

1845 - Florida became a state
1855 - Brevard County established
1887 - P.O. at Horti established
1900 - Hunting Lodge built at Horti Point
1917 - Cocoa-Merritt Island Bridge completed
1923 - Bridge across Merritt Island to Cocoa Beach completed
1927 - Work started on concrete causeway from Cocoa to Merritt Island
1927 - P.O. at Angel City established
1941 - 520 bridge built. Bridge from Horti to Cocoa Beach demolished

Banana River

The early maps of the 1800s call The Banana River, The East Channel of the Indian River. Prior to that it was called Ulamay Lagoon by the Ais Indians. In the 1840s, Captain Burnham, the Keeper of the Canaveral Lighthouse, while exploring the Eastern Channel, renamed it the Banana River. It is believed that he saw banana trees growing at the river's northern end. He also discovered and named Newfound Harbor. By 1897 W.J. Nesbitt's Banana River steamboat was carrying mail to communities located along the river.



1605 Map by Alvaro Mexia

Horti Point

In the late 1800s Horti was one of several settlements on central Merritt Island. Other towns at that time included Courtenay, Indianlola, Merritt, and Footman. Footman was located on the Indian River directly across from Rockledge. Horti was almost directly east of Footman on the tip of the peninsula between Newfound Harbor and the Banana River.

EARLY HISTORY OF EAST MERRITT ISLAND (SOUTH) &
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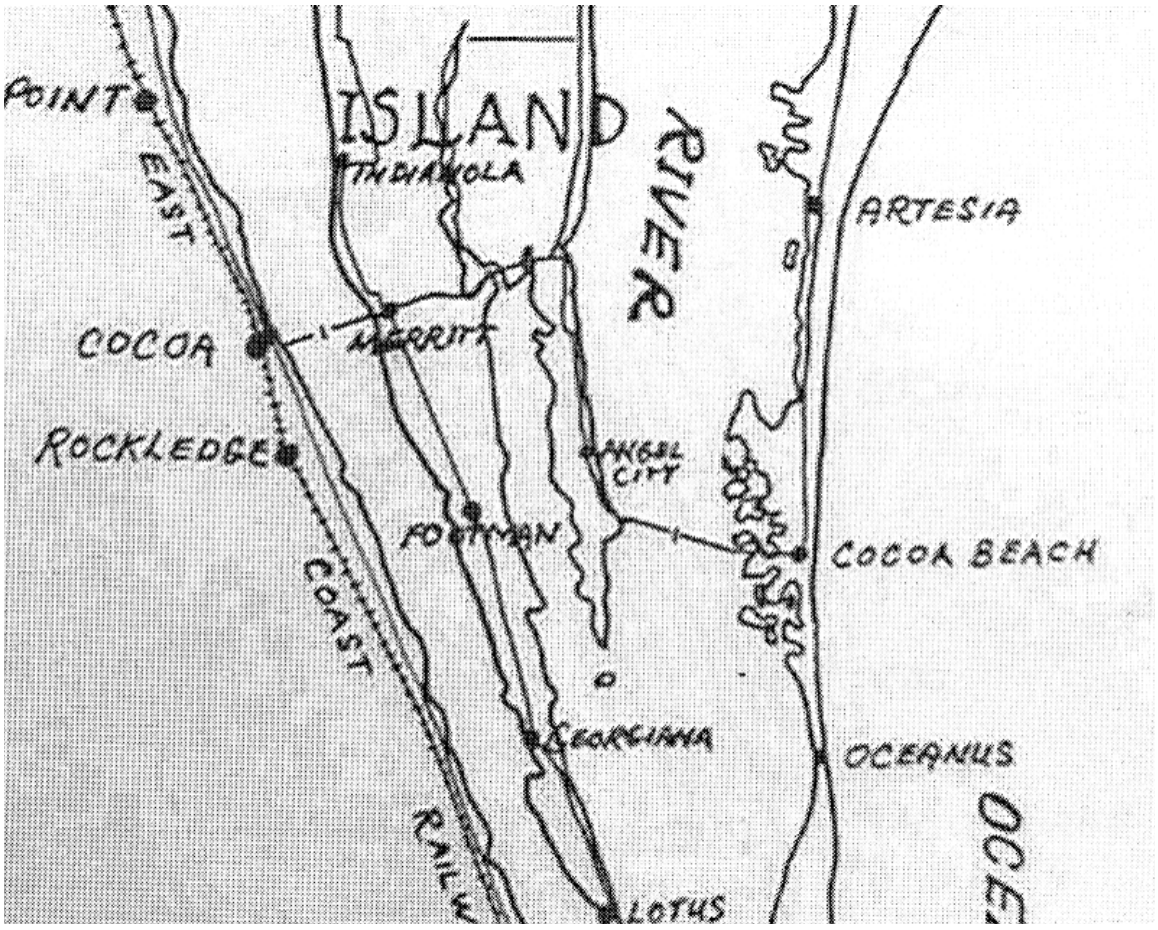
Horti became a post office in 1887. A map of 1890 (by George Cram Engravers) shows the town of Horti as well as Courtenay and Merritt. Maps of 1904 still include the settlement of Horti. At the turn of the century a large elaborate hunting lodge was built at Horti Point. It was used by the Thousand Island Duck Club. The club members would stay at the clubhouse and hunt mainly across the river in the Thousand Islands. When it was sold in the late 1920's to Mrs. Holderman, publisher of the Cocoa Tribune, it was renamed Tamarind. It is now owned by the Citrus Council of Girl Scouts.

In 1921 land was sold at Horti Point on each side of the Beach Road to build a golf course. Since this 18 hole golf course, called Cocoa Beach Golf Course, was built north of what is now SR 520, the whole area south of the Humpback Bridge must have been called Horti Point, not just the very southern tip of our peninsula.

The Beach Road

Although the bridge across the Indian River from Cocoa to Merritt Island was completed in 1917, it wasn't until 1923 that it was linked to the beaches. This road was called The Beach Road. The map showing the Beach Road was drawn by Carl A. Schnabel, C.E. in 1930. I have used present day names to indicate the route that the Beach Road followed. The Beach Road began at the east end of the Cocoa-Merritt Island bridge. It went due

east for approximately 1/2 mile then north east along Palmetto and Audubon. It then crossed the newly constructed Humpback bridge (This was the first bridge to be built on Merritt Island. Part of the Humpback Bridge remains today as a fishing pier.) and curved south on North Banana River Drive, crossed over to Milford point (north of the current 520) then south along the Banana River. At the southern end of what is now South Banana River Drive, a wooden draw bridge was built across the river to todays Minuteman causeway. The total cost to build the Beach Road was $300,000. The toll to cross the Banana River was .20 per car plus .04 for each additional passenger. The bridge was demolished in 1941. There is now a small park on Harbor Point Drive at the site of the bridge. A plaque commemorates the bridge and a few pilings can be seen.



Angel City

Angel City was a fishing community. It did not have a good reputation and those who lived there were certainty not a group of angels. In 1925 Angel Subdivision was platted and recorded in 1926. The owners were Everett Dawley and his wife.

The subdivision consisted of land extending south from Angel Ave for approximately 300 feet and went from Newfound Harbor to the Banana River. Five streets running perpendicular to Angel were platted. The actual location of the fishing village of Angel

City probably encompassed the area along South Banana River Drive from Worley Avenue to Fowler Drive.

The Angel City post office was established in 1927. It was located in a small grocery store owned by Everett Dawley that stood across the street from where the Church of God now stands. The post office only operated from 1927 to 1931.

The Banana River Marina

In the mid 1960s the Banana River Marina was built. The marina basin and a channel were dredged. The small drawbridge, owned and operated by the marina was built in 1963.

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Brevard County Property Appraiser's Platt Maps

RECOLLECTIONS OF EAST MERRITT ISLAND IN THE 1960s

by Janet Bryant

We moved to Merritt Island in 1964. As we drove into the area, we visited friends who lived on Wavecrest. Looking at the map, it appeared that the best way to reach their house was to drive north east from SR 520 across the humpback bridge. I was appalled. Where did they live? There was nothing on either side of the road but water and swamp. Once we hit North Banana River Drive, "civilization" began. Newfound Harbor Drive had just been built to the tip of the peninsula. The southernmost tip was called Horti Point and lots were just beginning to sell. They were much less expensive than canal front lots in Cocoa Beach and Merritt Island, and of course, they were all river front. We fell in love with Horti Point and bought a Banana River front lot at the very southern part.

While we were building our house, we rented a house on Seashell Drive. Our oldest son went to Audubon School. We had arrived at the end of August so that our children could start the school year. We couldn't believe that schools started in mid August and that there were no public kindergartens. After a long search, our youngest son was able to attend Grace Methodist kindergarten.

We were the 10th house to build in Horti Point. There was no city water. We had a well and what seemed like a whole water treatment plant in our garage. We, also, were on a septic tank which was not built to todays standards and backed up every Christmas.

Horti Point, in the 60s, was a marvelous place to live. The road ended a few meters south of our house. (The fork extension was much later.) The tip was completely wild. Orchids were among the beautiful plants and trees that grew there. Most of the families that lived in Horti Point had school age children. It was a wonderful place for little boys.

On weekends and after school our sons would disappear with their friends and their dog until hunger brought them home. They explored the peninsula, swam in the river and had a rowboat. The boys caught sea horses, shrimp, small crabs and seaweed in the river for a saltwater tank that we had. We often went water skiing and the boys learned how to ski, the first year that we lived in Horti Point.

We were boating constantly, but saw our first manatee only after living on Merritt Island for 4 years. We had to look in an encyclopedia to find out what it was.

We occasionally saw peacocks. We're not sure where they came from. Quail would march across our yard in the mornings. Possums would get into empty garbage cans and not be able to get out. And, of course, snakes. There were a lot of snakes, both poisonous and non poisonous. Our boys knew the difference.

They caught snakes and kept them in a snake cage in the house.

Since we were at the end of a dead end road, people dumped the pets that they no longer wanted. These dogs and cats were not feral. They would come to our door and we would feed the them and call animal control. We kept one of the dogs but already had several cats.

Brevard County was valiantly trying to eradicate mosquitos. Mosquito control planes would fly low between the palm trees on the shore and our house as they sprayed the length of the peninsula. In addition, fogging trucks would drive down the street at dusk. Once a mosquito control helicopter landed on the lot next to ours. They were checking for standing water.

A fire engine from the Merritt Island Volunteer Fire Department came every Christmas with Santa Clause. Each child could climb onto the fire engine, sit on sit on Santa's lap and tell him what they wanted for Christmas. And, of course, one Sunday a month we had fried Chicken at the firehouse on SR 520.

For the first six months that we lived in Horti Point, the school bus would only come as far south as the Old Causeway Road, almost two miles north of our house. The families car-pooled because it was not possible to let small children wait for a bus at a road where there was not even a house in sight. After many requests, the county built a turna-round just south of our house so that all the children who lived here could be picked up.

In the 60s, Brevard County was de-segregating the schools (which was a good thing). However, for our children it was not so good. Each year they were bused to a different school. The first year, Audubon, the next year, Tropical. The following year they were bused past Audubon to a newly built school, Robert Lewis Stevenson, which was using an experimental method of teaching.
Brevard County was, in the 60s, the fastest growing county in the nation. Because of this, the University of Florida was doing an in-depth study. One summer, I worked part time for the University doing interviews, mostly on east Merritt Island south of 520. I usually interviewed people living in the trailer parks and those in Angel City. I always had a warm welcome and people were eager to talk. Although Angel City probably looked much the same as it did in the 20s, it was no longer a rough place.

We left Florida after men landed on the moon. When we returned in the 80s, we lived in Cocoa Beach but eventually bought a lot in Angel City and, 25 years ago, built our house there.

HISTORICAL PHOTOS


MARCH 1926
14425-D1
Woodward

A LARGE ROOM AT TAMARIND

TAMARIND STAIRWAY BUILT

TAMARIND: IN SOUTH MERRITT ISLAND. NAMED BY MARIE HOLDERMAN, THE OWNER

TAMARIND, PRESENT DAY SHOWN WITH ITS STEEL FIRE ESCAPE