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MEMORANDUM

TO: Steering Committee, Greater Pine Island Comprehensive Plan Update
FROM: Bill Spikowski
DATE: August 6, 2001
SUBJECT: Meeting of August 14, 2001

Enclosed is material for you to review prior to our next meeting on August 14, 2001, which will be held at 7:00 PM at St. John's Episcopal Church near Flamingo Bay.

First drafts of the following new sections for the final report are included:

- a. *Septic tanks along canals*
- b. *Protecting the aquatic preserves*
- c. *Greater Pine Island's boundary*
- d. *Signs*
- e. *County-initiated rezonings*

On August 14 we will review and discuss this material.

This may be the last meeting of the steering committee before our final public presentation in September. We will need to select a date for that presentation and make necessary preparations for publicity. Our final date for submitting this plan to Lee County is September 30.

SEPTIC TANKS ALONG CANALS

Water quality in Pine Island's canals and bays can be degraded by many factors, some of which that cannot be controlled easily (such as polluted water coming down the Caloosahatchee or Peace Rivers).

Other factors can be corrected if the public is aware of the problem and potential solutions and are willing to pay the associated costs. An example of the latter is pollution caused by improperly functioning septic tanks along local waterways. Contaminated canal water can pose health risks from touching the water while swimming or boating or from eating tainted seafood.

Used under proper conditions, septic tanks are a cost-effective method of sewage disposal for individual households. These conditions include porous soils, large lots, the absence of nearby shallow wells or water bodies, and proper maintenance.

However, under other conditions septic tanks can function poorly. During normal operation, excess wastewater is routed from each septic tank to an underground drainfield, which is a series of pipes that spread the water over a porous layer of gravel and then into the ground. Because septic tanks alone provide very limited treatment, proper soil conditions are essential so that movement through the soil can provide another level of treatment to remove viruses and other pathogens before wastewater comes in contact with humans or natural systems.²⁰

Improper conditions for septic tanks include saturated or impervious soils, small lots, nearby wells or waterways, poor installation, and lack of maintenance. When not functioning

properly, septic tank drainfields can provide a direct path for the pollutants in domestic wastewater to reach the canals and then the bays.

Pine Island's 66 miles of canal banks are high-risk sources of pollution. Because most of these canals are deep and dead-ended, they are not easily cleansed by tidal flow. Also, daily tidal fluctuations in the canals can raise and lower groundwater levels near canals, creating a pumping effect that can speed the flow of pollutants through the soil and into the canal.

Over the past twenty years Lee County has installed central sewer service throughout Fort Myers Beach and Matlacha after too many septic tanks along canals caused pollution levels to reach dangerous levels. Unfortunately, Lee County has no regular program to monitor canals for signs of degradation due to septic tanks.

Decisions to upgrade wastewater disposal systems are often caused by outside factors. This is what happened to the temporary sewage plant that Lee County had installed in the early 1980s on state-owned land on Little Pine Island to replace the septic tanks in Matlacha. This plant itself had become a source of pollution and the state insisted that it be removed. Instead of connecting Matlacha's sewers to the advanced treatment plan in Cape Coral for conversion into irrigation water, Lee County decided to build a new sewage treatment plant on Pine Island.

The decision to build a new regional sewer plant on Pine Island was probably ill-advised, given local soil conditions and flooding risks and the excess capacity available at the Cape Coral plant. However, there are some benefits to Pine Islanders. Many of Pine Island's small freestanding sewer plants can now be easily connected to the new plant, and there is a better opportunity to provide sewer service to any sensitive areas where septic tanks are polluting Pine Island's waters.

²⁰ "Human viruses in the coastal waters of Florida," Coastlines, issue 10.6, December 2000, available at <http://www.epa.gov/owow/estuaries/coastlines/dec00/humanviruses.html>

The most likely areas for septic tanks to fail and cause serious harm is in populated areas where small lots abut saltwater canals. These conditions exist in parts of St. James City, Bokeelia, and Flamingo Bay. A coordinated effort should be mounted to determine whether septic tanks and drainfields in those areas are in fact polluting Pine Island's canals.

Continuing to ignore this problem is not acceptable. It is also not enough to use only simple tests for fecal coliform bacteria in canals because bacteria levels can be high for other reasons as well. More sophisticated methods are now available for determining whether septic tanks are actually polluting the water. These include dyes and viral tracers that can be flushed into septic tanks to detect whether wastewater is moving slowly enough through the ground to provide a reasonable level of treatment. Recent studies of this nature in Citrus County and the Florida Keys have demonstrated contamination of waterways by septic tanks.^{21, 22} Similar studies have also been conducted in New Port Richey and Sarasota.

If such tests demonstrate that serious problems exist, the county could establish an inspection program to identify and replace failing septic tanks, or could analyze alternative actions which would either provide full central sewer service for those neighborhoods or would keep the septic tanks but pipe the effluent into sewers instead of underground drainfields.

²¹ "Bacteriological and pathogenic water quality assessment of the upper reaches of the Chassahowitzka Watershed" by Michael R. Callahan, Joan B. Rose, Ph.D., and John H. Paul, Ph.D. 2001, prepared for the Utility Division of the Citrus County Department of Public Works.

²² "Viral tracer studies indicate contamination of marine waters by sewage disposal practices in Key Largo, Florida" by Paul, J.H., Rose, J.B., Brown, J., Shinn, E.A., Miller, S., and Farrah, S.R., in *Applied and Environmental Microbiology*, 1995, vol. 61, No. 6, p. 2230-2234; available at <http://aem.asm.org/cgi/reprint/61/6/2230.pdf>

Central sewer service is fairly expensive to install and involves regular monthly charges for operation. However, septic-tank replacement is also very expensive and disruptive and doesn't provide permanent service like central sewers. Pine Islanders would likely support small extensions of central sewer service if there is clear evidence that septic tanks are sources of pollution and if there is a cost-feasible alternative that can be financed to avoid burdensome one-time charges on users.

SETTING THE COURSE

Water quality in the canals and bays is very important to Pine Islanders. Lee County should initiate a program to test whether failing septic tanks along canals are polluting the water, and if so, the county should analyze steps to solve the problem, including extending central sewer service if warranted.

GETTING THERE

Modify comprehensive plan Policy 14.1.7 as follows:

POLICY 14.1.7: ~~The county shall continue to investigate the need for central sewer service for Bokeelia, St. James City, and Pine Island Center. This shall include, for any area having a strong need for such service, an analysis of available facility sites, alternative types of service, and financial feasibility.~~ Lee County Utilities shall initiate a program within one year to test a sample of septic tanks and drainfields along saltwater canals near St. James City, Bokeelia, and Flamingo Bay. This testing would determine whether current soil conditions or the density or condition of septic tanks is degrading tidal water in the canals. If serious degradation is found, Lee County Utilities shall assess the feasibility of various corrective measures.

PROTECTING THE AQUATIC PRESERVES

The current Pine Island plan requires a buffer area between new developments and aquatic preserves:

POLICY 14.1.5: *New "planned development" rezoning approvals and new subdivisions adjoining state-designated aquatic preserves and associated natural tributaries shall provide a 50-foot-wide vegetated buffer area between the development and the waterbody.*

Buffer areas of this type save a strip of native vegetation along the transitional zone between water (or wetlands) and uplands. With proper design, this strip can prevent erosion and trap sediments and other pollutants running off the land, in addition to its original functions.²³

Such buffers are especially valuable on Pine Island because the island is surrounded by aquatic preserves. These preserves were designated by the state 30 years ago for their “exceptional biological, aesthetic, and scientific value” and are “set aside forever...for the benefit of future generations.”²⁴

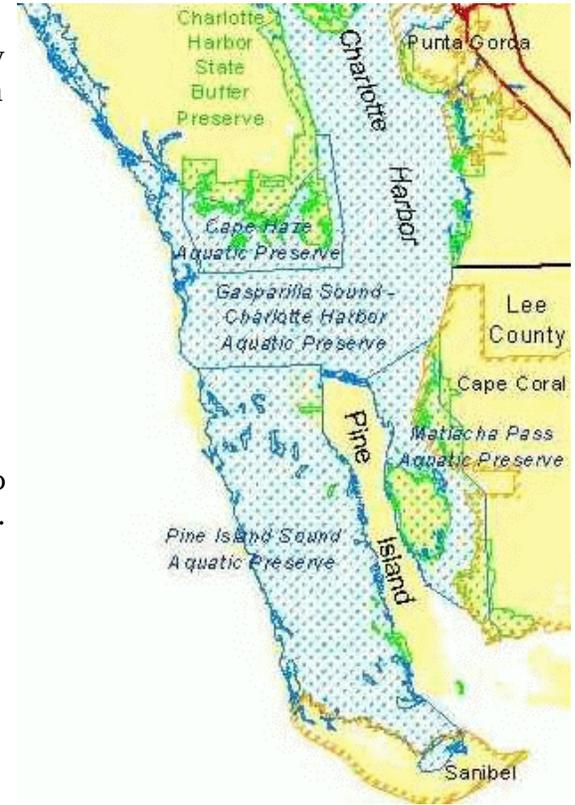
This policy has been incorporated by Lee County into its land

²³ “Lands immediately adjacent to an upland or wetland are transition zones between wetlands and uplands. They are zones that are wetland at times and upland at times, exhibiting characteristics of each and vegetated by species that are found in each. They are important to both the wetland and the upland as seed reservoirs, as habitat for aquatic and wetland-dependent wildlife species, as refuges to wildlife species during high water events, and as buffers to the extreme environmental conditions that result by sharp vegetated edges. When development activities occur in transition zones, wetland-dependent wildlife species that are frequently users of these areas are excluded, silt laden surface waters are generated and cannot be filtered, and ground water may be diverted or drained.” M.T. Brown and J. Orell, *Tomoka River and Spruce Creek Riparian Habitat Protection Zone*, p. 4 (1995).

²⁴ Section 258.36, *Florida Statutes*

development code.²⁵ However, as currently worded, it has proven ineffective because it does not apply to agriculture, the predominant new land use on Pine Island over the past decade.

Normally a new setback or buffer requirement is easy to adopt and administer. In this case it would be more difficult because Lee County has chosen to exempt agriculture from nearly all of the requirements that apply to developers.



²⁵ This policy has been implemented through Lee County’s land development code as shown in these excerpts:

Sec. 34-935(d) Where the proposed planned development is within the Greater Pine Island area and adjoins state-designated aquatic preserves or associated natural tributaries, a 50-foot-wide vegetated buffer area between any structure or building and the mean high-water line of the water body shall be provided.

Sec. 10-414(f) Except where a stricter standard applies for the Greater Pine Island Area (defined in chapter 34 of the land development code), there must be a 25-foot wide buffer landward from the mean high water line of all nonseawalled natural waterways. Where a proposed planned development or subdivision is located in the Greater Pine Island Area adjoining state-designated aquatic preserves and associated natural tributaries, the width of the required buffer will be 50 feet. . . . Existing vegetation within the buffer area must be retained except for the removal or control of exotic plants.

One exception is that Lee County requires new agriculture operations to obtain a “notice of clearing” from the county before clearing any land. A change could be made to the requirements for a “notice of clearing” to require the retention of at least the 50-foot-wide native buffer that is required for all other land uses and to encourage it to be used with a filter strip to cleanse stormwater runoff before it reaches the mangrove wetlands and tidal waters.

The U.S. Department of Agriculture is strongly promoting riparian forest buffers²⁶ of at least 50 feet and filter strips²⁷ of at least 20 additional feet around farm fields through their National Conservation Buffer Initiative. The USDA calls them “common-sense conservation” and promotes these buffers as an important supplement to conventional stormwater retention strategies, to serve as a second line of defense in protecting natural resources from avoidable side-effects of agriculture.²⁸ The USDA even helps pay for riparian buffers on private property through its Conservation Reserve Program.

SETTING THE COURSE

Wholesale land clearing up to the edge of the mangrove swamp is now allowed for agriculture. All other new development must maintain a 50-foot native buffer strip between cleared land and natural water bodies. New rules should require agriculture to maintain at least the same 50-foot separation and use it to filter stormwater runoff.

GETTING THERE

Modify comprehensive plan Policy 14.1.5 as follows:

POLICY 14.1.5: All new development, including New "planned development" rezoning approvals, and new subdivisions, and agriculture, adjoining state-designated aquatic preserves and associated wetlands and natural tributaries shall provide a 50-foot-wide native vegetated buffer area between the development and the waterbody- or adjoining wetlands. For agriculture, this requirement shall be implemented through the notice-of-clearing process in chapter 14 of the land development code and shall include a requirement to use this area as a riparian forest buffer with an adjoining filter strip wherever farmland abuts wetlands.

²⁶ Riparian Forest Buffer (Natural Conservation Service Conservation Practice Standard 391), available from <ftp://ftp.ftw.nrcs.usda.gov/pub/nhcp/pdf/391.pdf>

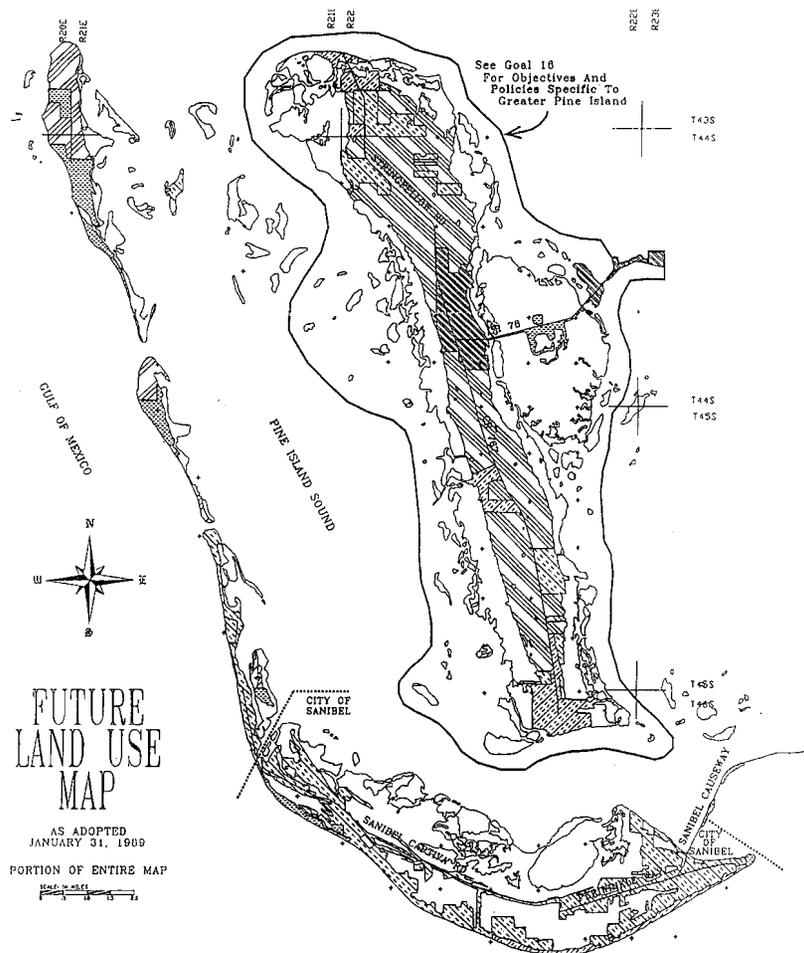
²⁷ Filter Strip (Natural Conservation Service Conservation Practice Standard 393), available from <ftp://ftp.ftw.nrcs.usda.gov/pub/nhcp/pdf/393.pdf>

²⁸ For details on the National Conservation Buffer Initiative, consult USDA's Natural resources Conservation Service at <http://www.nhq.nrcs.usda.gov/CCS/Buffers.html>

GREATER PINE ISLAND'S BOUNDARY

This plan has described Greater Pine Island as Pine Island, Little Pine Island, and Matlacha. A more precise boundary is needed for legal purposes.

The map below shows the original boundary adopted by Lee County in 1989 as part of the original comprehensive plan for Greater Pine Island.



Other Pine Island boundaries have been adopted for different purposes. Map 16 of the Lee Plan divides the entire county into twenty “planning communities” for administrative and accounting purposes; that Pine Island boundary includes some enclaves of unincorporated land between Matlacha Isles and the city limits of Cape Coral, including the Royal Tee Country Club. This is similar, though not identical, to the boundaries of the Matlacha/Pine Island Fire District and the Greater Pine Island Water Association, both of which however exclude Cabbage Key and Useppa and treat other small islands differently.

The original comprehensive plan boundary from 1989 excludes Cabbage Key, Useppa, and all of the unincorporated land east of Matlacha Isles. During the course of this plan update, only the areas within the original boundary were analyzed carefully. Thus the plan update, when adopted, should apply only to the original area. The Lee Plan should prominently display this boundary on the future land use map and/or a separate map depicting Greater Pine Island and all other areas that are subject to community plans.

GETTING THERE

Modify the future land use map to clearly reflect the 1989 boundary for Greater Pine Island, which includes Pine Island, Little Pine Island, and Matlacha eastward through Matlacha Isles.

SIGNS

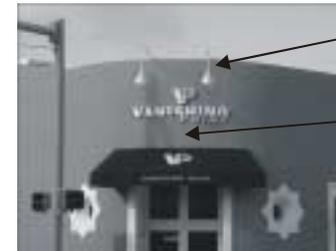
Signs on Pine Island are controlled by general Lee County regulations. At present, only Captiva has separate regulations. For many years the county's regulations were extremely lenient, resulting in some oversized signs that remain standing today.

For new signs, the current regulations encourage signs to be freestanding, either mounted on poles or placed directly on the ground. Large pole and ground signs, however, are more appropriate for suburban strips where commercial buildings are set far back from the road.

Where most motorists drive the roads regularly, as on Pine Island, business signs need not be as large as they would be on a major highway like US 41. When buildings are nearer the road, as promoted by this plan, a better location for signs is directly on the wall of the building. Thus, regulations for business signs on Pine Island could be improved as follows:

- The regulations could limit restrict pole and ground signs to sizes smaller than are needed on major highways.
- The regulations could encourage signs to be wall-mounted or to project out from a building, for instance on awnings, and to be made up of individual letters, rather than using internally lit plastic box signs that are out of character on Pine Island.
- Wall signs are now forbidden when buildings are within 15 feet of a right-of-way (common in Matlacha), yet walls are the most appropriate location for signs there.

In contrast to business identification signs, current regulations classify billboards as “off-premises” signs. New billboards are not allowed in Greater Pine Island. This is important because billboards are needless advertising that blights the scenic beauty of Greater Pine Island. However, some older billboards have been used on Pine Island as “directional signs” that direct travelers to businesses that aren't visible.



External lighting

Sign is centered above the main entrance at the top of the facade

Sign painted directly on the facade above the main entrance

External lighting discreetly located above the awning

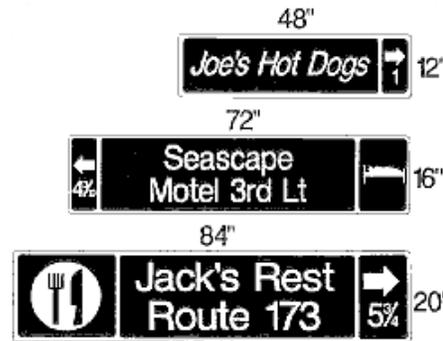


Internally lit box signs of plastic and/or metal are designed for commercial strips

Lee County regulations currently allows new directional signs only for residential subdivisions and for nonprofit groups, but never for businesses. Pine Island has only a single north-south road and there numerous businesses, for instance marinas and groves, that are located on other streets. Current regulations forbid these businesses from having a small sign on Stringfellow showing motorists where to turn.

The state of Maine has developed a program for this situation that could be a model for Pine Island and other locations where some businesses are otherwise “invisible.” Businesses can purchase a small roadside sign using a common format that the

state then installs at safe locations in the right-of-way just before motorists must turn. The illustration to the right shows Maine's standard sign sizes. Municipalities can also contract with the state to use a distinctive theme for their community.



A similar program tailored to Pine Island's needs and perhaps having a common artistic character could help the public locate individual businesses while continuing the prohibition on billboards.

SETTING THE COURSE

Lee County's sign regulations should be supplemented with specific standards for Pine Island. These rules would encourage smaller signs on businesses, discourage signs typically found on suburban commercial strips, allow small directional signs for businesses not visible from Stringfellow Road, and continue to ban billboards.

GETTING THERE

- Adopt a new comprehensive plan policy as follows: **POLICY 14.4.4:** The county shall expand its current sign regulations to include specific standards for Greater Pine Island. These standards will reduce the size of ground-mounted signs, discourage or disallow internally lit box signs, allow walls signs on buildings near the right-of-way, and allow small directional signs on Stringfellow Road for businesses not visible from the road.
- Modify the county's land development code to implement new Policy 14.4.4 by incorporating new sign standards for Greater Pine Island.

COUNTY-INITIATED REZONINGS

Property being developed must comply with its zoning current zoning district *and* with the Lee Plan. In some cases, a property's zoning district has become obsolete due to changes in the Lee Plan. For instance, property that may have been zoned for a subdivision decades ago can no longer be developed at all because it is a protected mangrove swamp.

More commonly, land with zoning that seemingly allows either commercial and residential uses cannot be developed commercially, or as intensely, due to specific policies of the Lee Plan. A 1989 Lee County study identified over 600 acres of land in Greater Pine Island whose zoning allows at least some commercial uses, whereas the Lee Plan will only allow the development of only a fraction of that amount.

Despite the legal requirements for compliance with both zoning and the Lee Plan, investors sometimes purchase land based only on its zoning. Lee County should methodically eliminate zoning that no longer reflects uses that are permissible on land. This is a difficult undertaking that has been largely put off since the adoption of the original Lee Plan in 1984.

SETTING THE COURSE

Lee County should methodically eliminate zoning classifications that will create false development expectations for potential investors.

GETTING THERE

- Adopt a new comprehensive plan policy as follows: **POLICY 14.4.5:** The county shall begin a five-year effort to rezone land to zoning districts that properly reflect its development potential under the Lee Plan.
- Begin the process of rezoning improperly zoned land in Greater Pine Island.