
Toward a
Greener Lee
Osprey
Nokomis
Venice
North Port
Port
Charlotte
Englewood
Punta
Gorda
Rotonda
West
Placida
Boca
Grande
Bokeelia
North Fort
Myers
Fort Myers
Cape Coral
Pine Island
Captiva
St James
City
Sanibel
Island
Sanibel
Fort Myers
Beach
Estero
Bonita
Springs
Naples
Lehigh
Acres
Alva
La Belle
Palmdale
Venus
Moore
Haven
Clewiston
Felda
Immokalee
Arcadia

Toward a Greener Lee

Effective Planning Alternatives for Rural Lee County

Prepared for:

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With financial assistance from:

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EXECUTIVE SUMMARY

TOWARD A GREENER LEE: Effective Planning Alternatives for Rural Lee County

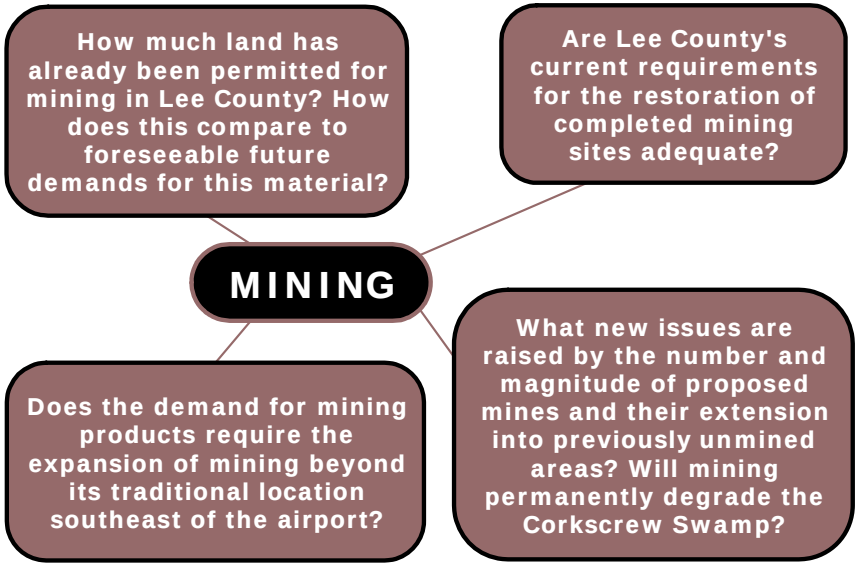
As the frontier of new growth moves deeper into rural and environmentally sensitive lands, increasing attention must be paid to the effects of that growth. Florida's current water shortages and continuing destruction of natural resources indicate that much remains to be done, especially in southeast Lee County. Most land there was designated as a "Density Reduction / Groundwater Resource" (DR/GR) area in 1990.

The background and aftermath of the DR/GR designation is detailed in Section 2 of this report. Since 1990, 35–40% of DR/GR land has lost this protection without any comprehensive review of the cumulative effect of those losses. Several shortcomings of the DR/GR designation result from the area's sheer geographic size and amazingly diverse character. For instance, a single set of regulations now applies to the entire area.

Lee County is now facing an influx of applications for major new mines in areas previously used only for farming, nature preserves, and rural residences. If many of the applications are approved as proposed, DR/GR lands would be irrevocably changed. Instead of an area whose natural resources and opportunities for rural living were being protected from suburban sprawl, this area would become an industrial zone. Mining would take place perilously close to the Corkscrew Swamp Sanctuary and other nature preserves, all to supply limerock well beyond the current local markets for Lee County's mines.

Historically, planning for rural areas has taken a backseat to urban planning. Rural planning often starts and ends with requiring large lot sizes and putting off all further consideration until growth pressures become overwhelming. That approach is no longer acceptable in Lee County.

Every planning effort should start by asking the right questions. Some of the important questions for planning in Lee County's rural areas are highlighted to the right and on the next page. Once the most important questions are formulated, a successful planning process applies resources to find accurate answers and to develop policy suggestions based on those answers.



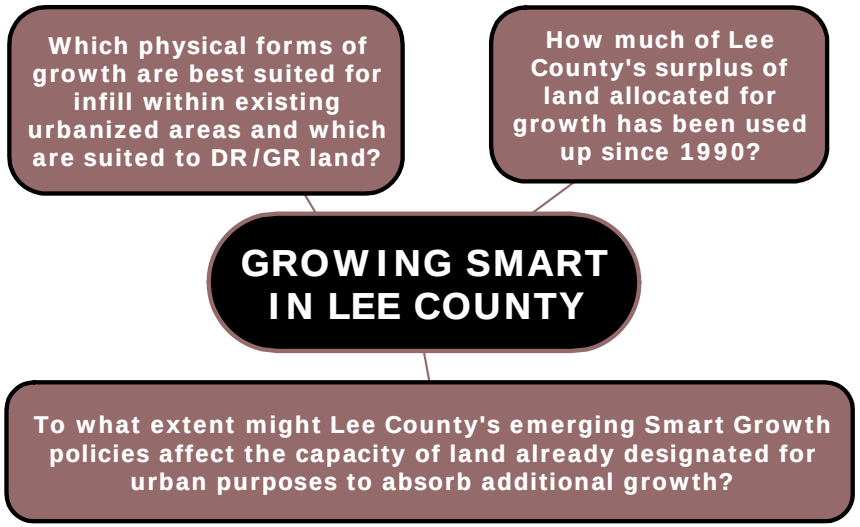
In the past eight years, major rural planning efforts have been undertaken by coastal counties in south Florida: Sarasota, St. Lucie, Martin, and Collier Counties. Each plan attempted to concentrate development rights instead of requiring oversize lots in order to preserve agricultural uses and protect natural resources. These plans used widely varying techniques to achieve that goal. Each plan is summarized in Section 3 of this report, and lessons for Lee County are drawn in Section 4.

Lee County needs to actively review the DR/GR designation in southeast Lee County. This review can be conducted in four parts:

1. Understand the unique ecological character of the land. McLane Environmental has just completed a review of technical studies of the DR/GR area. Some data gaps remain, but the evidence is overwhelming that in addition to irreplaceable groundwater resources, equally valuable resources are above ground. The data gaps should be filled and DR/GR policy revisions made to ensure these resources aren't obliterated or lost piecemeal in coming years.

2. Consider the land's potential for restoration and acquisition. Farming practices have eliminated some native habitats and lowered groundwater levels. However, this damage can be restored to re-create natural flow-ways and repair drainage features that have lowered historic water levels. Farmland should not be viewed as ruined land that is now suitable only for development or mining. Preservation and restoration of natural habitat should have the highest priorities.

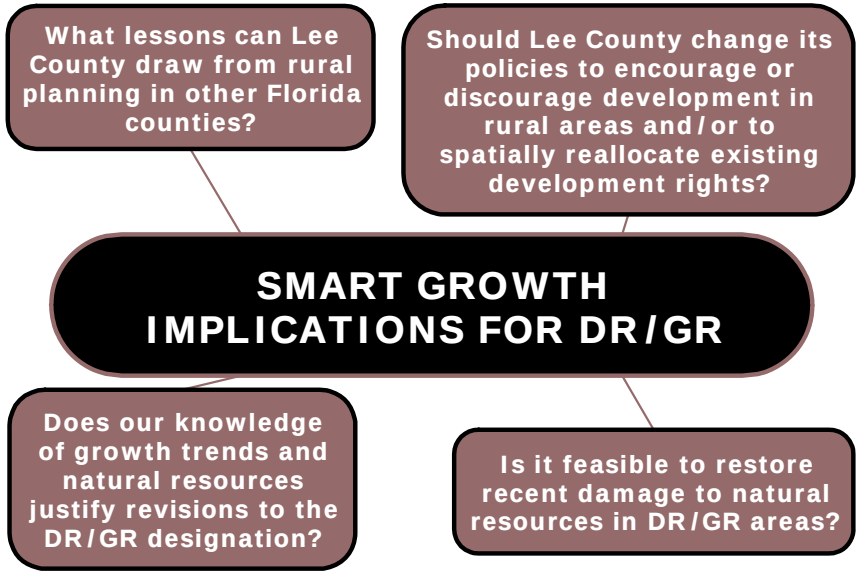
3. QUESTION: Is this the smart place for Lee County to grow? When creating the DR/GR area in 1990, the Lee County Commission answered this question NO. It was already clear that the area's groundwater resources and Lee County's tremendous surplus of land already allocated to growth made urban expansion here unwise. The fundamental questions shown below need to be answered before decisions can be made about the future of the DR/GR area.

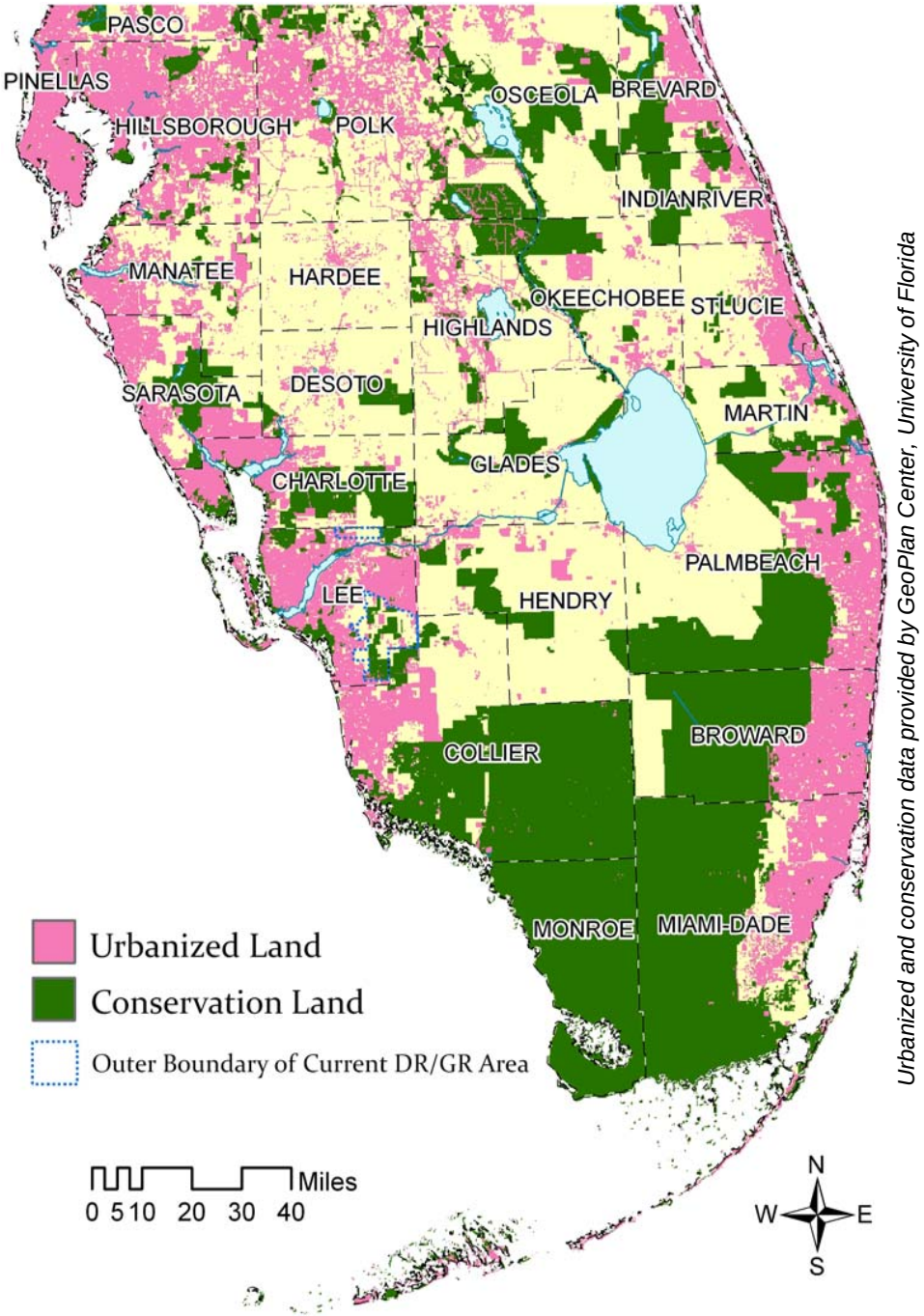


4. QUESTION: How can mining best be integrated? Lee County responds to each proposed mine through the rezoning process. Rezonings are approved only for proposals that meet all Lee County requirements; there is no guarantee of mining or other land uses that are not permitted by current zoning. The rezoning process seemed adequate when mining served only local markets. Lee County is now entering a new era where national and international mining companies are trying to reserve future rights for mining on a scale never before seen in Lee County. The decisions made in the next two years will determine the future of DR/GR lands, not just for the next generation or two when mining is taking place, but far into the future. Completed mining pits will continue to influence groundwater flows to and from public well fields, nearby wetlands, and regional natural systems such as the Flint Pen Strand and Corkscrew Swamp. Fortunately, Lee County need not (and cannot) approve any mine applications that do not fully conform to county regulations.

Lee County should assume in advance that the outcome of this effort will be a healthy mix of planning techniques including new regulations, incentives, and acquisition and restoration of land.

This report concludes with specific suggestions for managing the DR/GR planning process and for interim changes to the Land Development Code.





Urbanized and conservation data provided by GeoPlan Center, University of Florida

SECTION ONE

PLANNING FOR FLORIDA'S RURAL AREAS

Growth pressures throughout south Florida have resulted in a ribbon of higher density development along the Atlantic and Gulf coasts, then vast expanses of low-density development extending inward from each direction and a sparsely populated interior.

With Florida's population potentially doubling by 2060, decisions made now will influence whether low density patterns continue to march inland or whether other paths are chosen.

When the supply of cheap land seemed unlimited and abundant natural resources lay untapped, little thought was given to how our unfolding urban form might result in water shortages and destruction of native habitats.

Suburban patterns have dominated Florida development and many hope they will continue to do so, but unexpected costs continue to emerge. The dream of unlimited mobility is proving illusory because modern single-use neighborhoods require every trip to be a car trip, while canals and cul-de-sac streets interfere with the expansive road network needed to provide free-flowing roads to jobs, entertainment, and recreation.

Prior decisions have actually encouraged this pattern in most of Lee County. Cape Coral and Lehigh Acres still have huge inventories of vacant lots that foreclose many options for their future. Because much of the remainder of Lee County has already been developed since the 1960s, southeast Lee County is now under the microscope for its natural habitat, rural character, underground limerock deposits, and potential for additional suburbanization.

Florida's inner regions are becoming the new frontier where growth pressures challenge rural character and values. Yet planning for rural areas is inextricably linked to planning Florida's urban areas, because infill and redevelopment have the potential to accommodate considerable growth — but only if a conscious and determined effort is made to fulfill this potential.

Two regional planning efforts are underway that examine these very choices. In response to a study by 1000 Friends of Florida that forecasted 7,000,000 acres of additional land being consumed by 2060 to accommodate growth under current development patterns, an alternative proposal was prepared at the University of Central Florida that would require far less land — only 1,600,000 additional acres — based on seven alternative planning principles (see inset).

A similar analysis for southwest Florida counties is being undertaken by the Southwest Florida Regional Stewardship Alliance. The Alliance has modeled seven alternative scenarios including various levels of infill and redevelopment at higher intensities, introduction of light rail, and increased acquisition of conservation lands. The differences in land consumption are striking and deserving of careful examination while planning for future growth.

These general planning issues for rural areas need to be considered by Lee County in addition to all the factors that are specific to southeast Lee County and its Density Reduction / Groundwater Resource (DR/GR) area.

The next section of this report summarizes the history of the DR/GR area and identifies some of its shortcomings.

Smart Growth Vision:

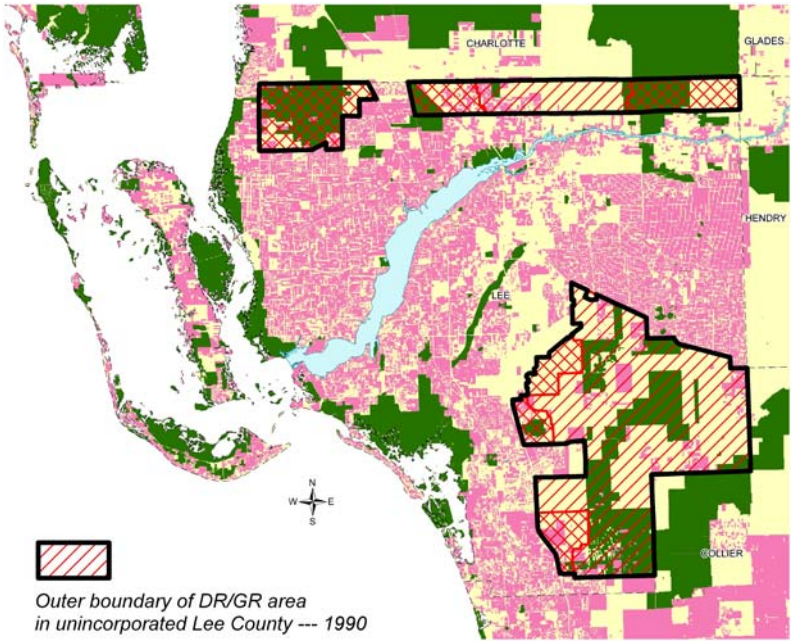
"To shape the future growth of Lee County through a proactive, inclusive community effort that continuously improves the quality of life by reaching a harmonious balance between economic development, environmental sustainability and community livability, to provide a legacy for future generations."

SOURCE: Lee County Smart Growth Task Force

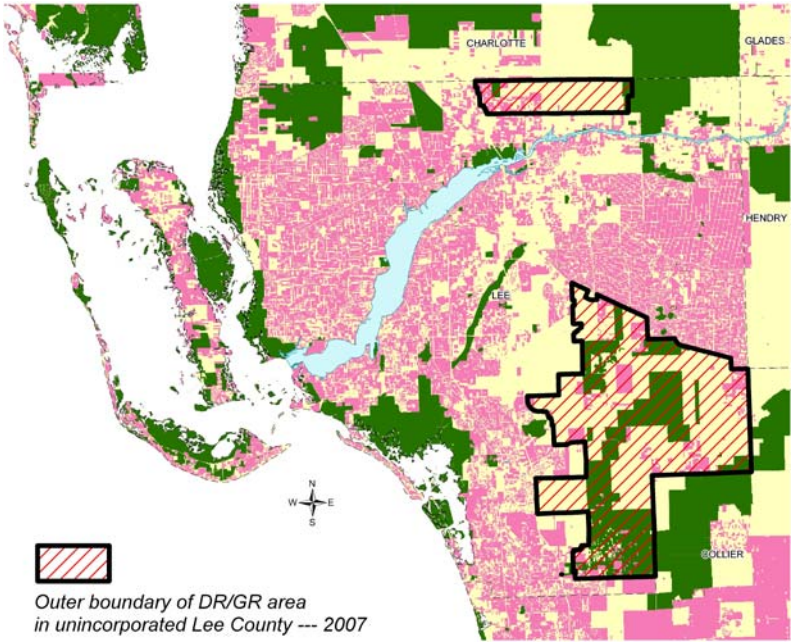
Seven Principles for an Alternative Future:

- ***Protect Florida's essential land:*** *Critical habitat, land needed for aquifer protection, wetlands, significant natural landscapes, and prime agricultural land should all be identified and protected by purchase of development rights or other effective measures.*
- ***Invest in balanced transportation:*** *Florida should have a balanced statewide transportation system that includes high speed passenger rail, rail freight, commuter rail and light rail, as well as highways and airports.*
- ***Plan for climate change:*** *Areas subject to increased flood surges as a result of predictable climate change should be identified and appropriately protected– or not approved as locations for new development.*
- ***Don't waste land:*** *Increase density of some new development to achieve a regional gross average density that is at least equal to the state's average. Promote infill development. Link building in rural areas to conservation.*
- ***Design with nature:*** *New development should be designed to protect and restore natural systems whenever possible.*
- ***Encourage compact development:*** *All Florida development regulations should make compact, walkable, mixed-use communities a permitted alternative in appropriate locations. Provide incentives for this alternative. In transit corridors, communities should zone for higher density for a quarter of a mile from the line on both side of the transit route. Transit nodes, where two lines meet or at a high-speed rail station, should be zoned for higher density within a quarter mile radius of the crossing or station.*
- ***Rebuild to create great places:*** *The trend toward redeveloping under-utilized urban land should be encouraged, particularly within walking distance of transit lines or stops. Business centers and other high-intensity development should be encouraged at high speed rail stations. Historic districts and other stable neighborhoods should be protected from inappropriate intrusions.*

SOURCE: *An Alternative Future: Florida in the 21st Century,* Metropolitan Center for Regional Studies at the University of Central Florida, May 2007



Outer boundary of DR/GR area in unincorporated Lee County --- 1990



Outer boundary of DR/GR area in unincorporated Lee County --- 2007

SECTION TWO

DENSITY REDUCTION / GROUNDWATER RESOURCE AREAS IN LEE COUNTY

In 1990, Lee County amended the Lee Plan's future land use map to designate "Density Reduction / Groundwater Resource" areas (DR/GR) in southeast Lee County, north of Cape Coral, and in a strip of land along the Charlotte County line east of US 41. Maximum residential density was reduced tenfold to 1 DU (dwelling unit) per 10 acres. The upper map on this page shows the original boundaries; the lower map shows the current boundaries.

The DR/GR designation implemented a settlement agreement with the Florida Department of Community Affairs to resolve DCA's challenge to the Lee Plan which alleged inadequate protection of natural resources and tolerance of continued suburban sprawl into rural areas.

A similar proposal for a "groundwater resource" area was well into the public hearing process when the settlement agreement was signed. That proposal would have restricted density to 1 DU per 5 acres and would not have applied to any land north of the Caloosahatchee.

The pending proposal was a direct result of Lee Plan policies adopted in 1988 that committed the county to identifying groundwater recharge areas and modifying the Future Land Use Map to protect or improve such areas by the end of 1989. The one-year delay was due to the late completion of a study commissioned by Lee County in part to provide technical information on which new groundwater regulations might be based.

DCA disputed the necessity of this delay. Another major reason for challenging the Lee Plan was DCA's charge that the Lee Plan's Future Land Use Map had far too much land allocated to urban growth — enough to accommodate as much as 70 years of growth, compared to the 20- or 25-year allocation anticipated by the state.

This over-allocation of urban land was caused by the presence of the pre-platted communities of Cape Coral and Lehigh Acres, plus too much additional land designated for future growth, plus maximum densities on all uplands in the county, including rural lands, having been set at 1 DU per acre or higher. DCA was prepared to fight Lee County in court if a resolution to these complaints could not be reached through a settlement agreement.

DR/GR CHANGES SINCE 1990

When originally established in 1990, 96,685 acres of land was designated DR/GR (not counting the acreage of wetlands embedded within the outer boundaries of the DR/GR designation). Of this total, 66,342 acres were in southeast Lee County, with the remainder near the Charlotte County line.

In 1992, about 2,800 acres of land south of Alico Road was redesignated from DR/GR to accommodate a 760-acre campus being donated to become Florida Gulf Coast University.

In 1994, about 25,800 acres of DR/GR land north of the Caloosahatchee was redesignated into a new "Open Lands" category following further study by county engineering consultants. This amounted to about 70% of the DR/GR land north of the Caloosahatchee. This change allowed residential densities to double and eliminated the requirement that new development cannot lower historic surface and groundwater levels .

In 1994, the county also approved an additional 1500 acres of privately owned land on the north side of Alico Road to provide additional land for airport-related uses.

In 1997, the county increased the density on 1,900 acres between Bonita Beach Road and the Collier County line to 1 DU per acre.

In 1998, Lee County redesignated 133 acres of DR/GR land on the south side of SR 82 at Gunnery Road to provide land for commercial development to serve Lehigh Acres residents.

In 1999, Lee County authorized up to ten 18-hole golf courses in the DR/GR over the next ten years by creating an overlay zone and Lee Plan policies (see hatched areas on the map on the next page for potential locations).

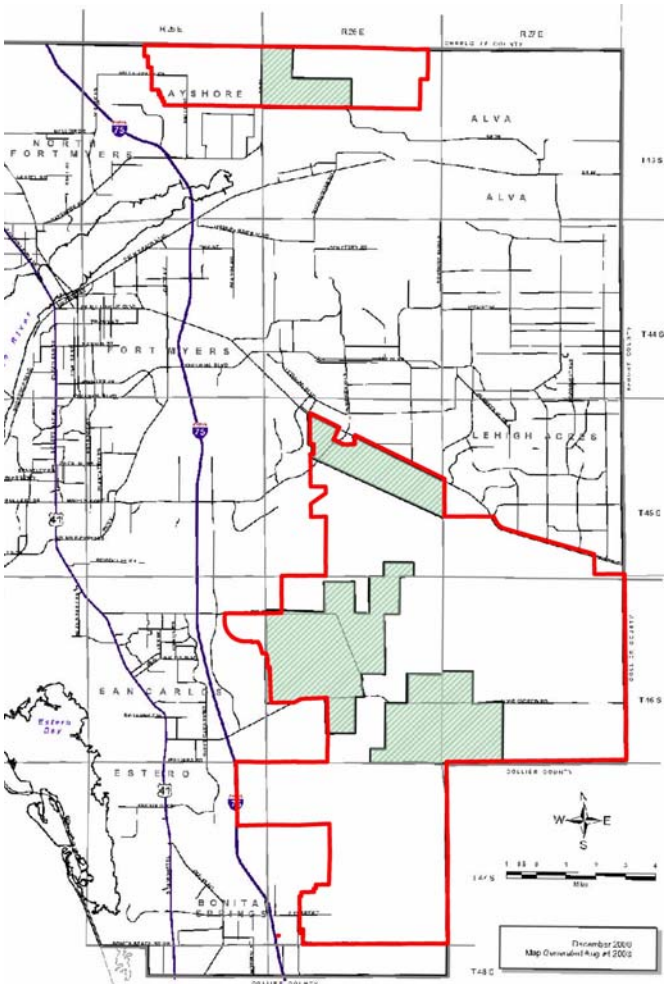
When Bonita Springs incorporated in 2000, about 3,500 acres of DR/GR land was transferred from county to city planning jurisdiction. Annexations continue to transfer DR/GR land to Bonita Springs.

Also in 2000, Lee County redesignated 1,726 acres of DR/GR land for a southerly expansion of the Southwest Florida International Airport.

In recent years Lee County has begun designating most land that has been purchased for preservation purposes to new "Conservation Land" categories. An undetermined amount of DR/GR land has been redesignated this way.

At present, county records indicate that the remaining unincorporated land designated DR/GR totals about 57,670 acres, which includes about 10,120 acres near the Charlotte County line. (These totals do not match the incremental changes just described due to continuing annexations, differing methods of counting wetlands embedded within large parcels, and land redesignated as "Conservation Land.")

In September of 2007 the Board of County Commissioners decided not to consider any further applications to change DR/GR designations or to consider any new or incomplete rezoning applications in the southeast DR/GR area for a period of one year, including mining applications. An ordinance formalizing this decision will be considered in December.



Golf courses may be allowed in green hatched DR/GR areas

CONNECTIONS: *"One of the most important attributes of the DR/GR lands identified in several of the documents selected for review is the concept of spatial continuity and interconnectedness of the resources and processes that exist within DR/GR lands, and which connect DR/GR lands to surrounding ecosystems of importance."*

SOURCE: *Review and Summary of Studies Containing Information Relating to Density Reduction / Groundwater Resource Lands,* McLane Environmental, LLC, 2007

DENSITY REDUCTION:

- *Reduced residential density in the DR/GR area allows Lee County to meet State requirements and manage future growth.*

GROUNDWATER RESOURCE/RECHARGE:

- *Groundwater in DR/GR lands is an important source of potable water.*
- *Aquifer recharge occurs within the DR/GR.*
- *Groundwater in the DR/GR area sustains important surface water bodies.*
- *DR/GR aquifers are a potential source of new water supply for Lee County.*
- *Computer models may serve as valuable tools for managing groundwater resources in DR/GR lands.*
- *Mining activities in DR/GR lands may have both positive and negative effects on the natural hydrologic system.*

ECOLOGY:

- *Existing wetlands are important ecological features of the DR/GR lands.*
- *Native uplands are important habitat areas in DR/GR lands.*
- *Many State or federally listed or endangered species have been observed or have suitable habitat areas mapped within DR/GR lands.*
- *DR/GR lands host a rich diversity of plant and animal species.*
- *DR/GR lands are prime areas for wetlands mitigation and ecological restoration efforts.*

SURFACE WATER:

- *Surface water bodies within DR/GR lands are important hydrologic and ecological features.*
- *Flows through the extensive system of channels, sloughs and wetlands within the DR/GR lands can act to remove nutrients, sediment, and contaminants from surface water to lessen impacts to surface water within the DR/GR and in nearby coastal waters.*
- *DR/GR surface water systems are important for removing storm waters and reducing flood impacts.*
- *Surface water systems may serve as sources of recharge to groundwater aquifers and well fields.*

CONNECTIONS:

- *DR/GR lands provide a large contiguous habitat area that is important to wide-ranging species.*
- *DR/GR lands contain extensive areas of interconnected wetlands.*
- *DR/GR lands provide important connections to nearby and farther-reaching ecosystems.*
- *DR/GR lands connect both hydrologically and ecologically to nearby bays and coastal ecosystems.*

SOURCE: *Review and Summary of Studies Containing Information Relating to Density Reduction / Groundwater Resource Lands,* McLane Environmental, LLC, 2007

DR/GR SHORTCOMINGS

Even staunch DR/GR supporters often acknowledge the fundamental shortcomings of any single designation that is applied uniformly over such a vast geographic area. A single designation cannot carry out nuanced public policy that successfully balances competing needs across a diverse landscape. The existing DR/GR designation was made during a short period when state law required the Lee Plan to be rewritten from top to bottom to comply with the 1985/86 growth management legislation.

Local governments often allow their comprehensive plans to be changed too frequently and with insufficient justification; however, all plans need to be reexamined from time to time to respond to changing conditions, better scientific knowledge, and lessons learned over time about managing growth.

In 1991, rural land in Buckingham was reclassified into a new Rural Community Preserve designation (9,500 acres). In 2003, rural land on Pine Island was reclassified into a new Coastal Rural designation (7,000 acres). Both of these actions were the result of community plans that were undertaken, with some county assistance, by residents and landowners in those areas. To date, no comparable effort has been attempted for the remaining 108,000 acres of unincorporated land that are designated Rural, Open Lands, or DR/GR.

The data and analysis on which Lee County based the DR/GR designation was very focused on groundwater issues (see box). During the 1980s the county had completed voluminous studies on groundwater issues when evaluating its aquifers for new sources of drinking water. There was no lack of understanding of the close relationship between shallow aquifers and wetlands and other natural resources that are at ground level, but better scientific documentation was available about the shallow aquifers and they were relied on most heavily for identifying DR/GR boundaries.

This has led to occasional assertions that the DR/GR is important only to the extent that it affects wellfields and that related issues are not even relevant despite clear statements in the Lee Plan, for instance that even the limited land uses allowed in the DR/GR "must be compatible with maintaining surface and groundwater levels at their historic levels" (Lee Plan Policy 1.4.5). These levels are critical to the health of wetlands and to the wildlife that depend on wetlands for survival.

"Among the investigations previously cited, there is a consensus that the shallow aquifers in Lee County have the greatest potential for meeting future water supply needs. These aquifers are, in descending order from land surface, the Water Table, Lower Tamiami, and Sandstone aquifers. Each has its own particular areal extent, depth, thickness, hydraulic properties, water quality, and current usage, but they have in common the important characteristic of being recharged locally, from rainfall, surface water, and downward seepage. Because they are relatively shallow and not overlain by thick clayey sediments, they share as well a sensitivity to, and the potential for, impact as a result of man's activities at land surface. This sensitivity is especially pronounced for the Water Table aquifer, which responds directly and rapidly to surface conditions. Furthermore, this latter aquifer has been identified in the Hole-Montes and Montgomery studies as the single largest source of future potable water supply.

"A reduction in recharge to the Water Table aquifer occurs when the average elevation of the water table is lowered, most typically by promoting and accelerating runoff through drainage improvements. The consequences of a reduction in recharge to the Water Table aquifer are: a) a decrease in recharge to underlying aquifers and a lowering of their potential for sustained withdrawals; b) a reduction in the volume of water available for use (termed the "safe yield"); and c) a loss in aquifer storage, which represents an increased probability of environmental impacts during prolonged dry periods. All regional studies which have addressed this issue conclude that maximizing the potential of shallow aquifers in Lee County requires, through appropriate land use controls, the water table to be maintained at or above existing levels. This is especially important because very little rainfall recharges the aquifer during the winter. This dry period coincides with Lee County's seasonal population peak (and corresponding peak water demand).

SOURCE: Lee County data and analysis supporting the new DR/GR designation, September 1990

The United States Geological Survey has since declared that groundwater and surface waters such as wetlands can be so closely related that they should be evaluated and managed as "single resource." There is an inextricable link between the health of DR/GR wetlands and maintaining historic water levels in shallow aquifers.

> *"Many wetlands are dependent on a relatively stable influx of ground water throughout changing seasonal and annual weather patterns. Wetlands can be highly sensitive to the effects of ground-water development and to land-use changes that modify the groundwater flow regime of a wetland area. Understanding wetlands in the context of their associated ground-water flow systems is essential to assessing the cumulative effects of wetlands on water quality, ground-water flow, and streamflow in large areas.*
>
> SOURCE: *Ground Water and Surface Water: A Single Resource*, U.S. Geological Survey Circular 1139

Although agriculture is an important use of land in the DR/GR, drainage for agriculture can also lower historic water levels in shallow aquifers due to berms or ditches; fortunately this change is reversible. However, once agricultural land is permanently converted to urban uses based on water levels that were lowered by agricultural ditches, restoration of historic levels becomes impossible.

Mining is another land use with the potential to lower historic water levels. This can occur during the actual mining process due to dewatering or other drainage measures, but it can also be a permanent result, especially if the post-mining uses are urban or if mining lakes are extremely large.

Another difficulty with the current DR/GR designation is the impression that mining is permitted throughout the DR/GR and therefore almost any other use would be preferable. "Natural resource extraction" is in fact one of the uses that may be permitted if the county commission, through the rezoning process, deems a mining application in the DR/GR to meet all standards of the Lee Plan. This is comparable to the standard the county commission uses for all rezoning cases, such as density increases or commercial uses in or near existing neighborhoods. There is no fixed right or guarantee of a potential use if a proposed zoning change does not meet all county standards. As the county land development code succinctly states, "Mining operations, by their very nature, are incompatible with most other uses."

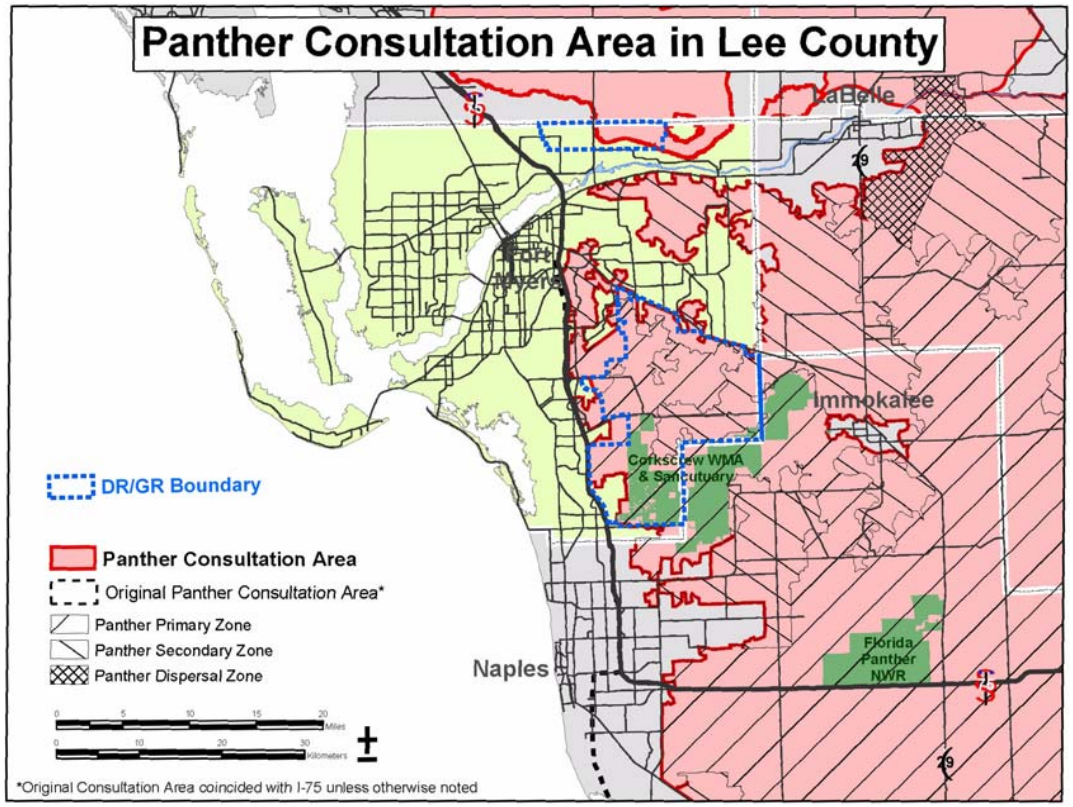
If the Lee Plan contained guidance as to where and what type of future mining activities would be most desirable in the DR/GR, all parties would be advised in advance about county policy. The current system, which requires the great expense of a complex rezoning application before decisions can be rendered, is likely to lead to continued confrontations (see further discussion in Section 4 of this report).

Another DR/GR difficulty is that the current density cap seems to make 10-acre ranchettes the default form of residential development despite limited demand for such large homesites. It is not widely known that Lee County allows landowners to cluster allowable development rights in one portion of a tract while preserving the rest. (Homesites in the DR/GR must still be at least one acre unless the tract is rezoned.)

Although clustered homesites may alter rural character, there are potential compensating benefits, especially if regulations are carefully crafted to accomplish this end. At present a larger threat to rural character is caused by the ability of a large landowner to threaten to convert very large rural tracts into uniform 10-acre ranchettes, thus eliminating most agricultural activity and preventing the preservation of large natural areas. This very threat convinced the Charlotte County Commission to grant major density concessions (on top of $350,000,000 of public acquisition funds) to allow development of a new city on the Babcock Ranch. A county can easily make the clustering of existing development rights to be the default development pattern in rural areas, thus sidestepping the influence of such threats without changing the overall density.

The DR/GR designation does not take sufficient steps to permanently protect wildlife habitat. For instance, the Florida panther is an endangered, wide-ranging predator whose needs conflict with the human population. The greatest threat to the survival of panthers is the loss of their habitat, including land converted to mining, farming, and urban uses. Lee County's DR/GR areas are critical to survival of the Florida panther.

The range-wide recovery goal for the Florida panther is three viable self-sustaining populations. The first priority is to secure the population of the only existing Florida panther population, which lives in southwest Florida. Despite sustained efforts by public agencies in acquiring almost 500,000 acres of land that serves as panther habitat, the Florida panther's survival is still in doubt.



Consultation area map issued by the U.S. Fish and Wildlife Service in December 2006 (with Lee County and Bonita Springs DR/GR areas outlined in blue)

The U.S. Fish and Wildlife Service recently published the adjoining map showing three zones that comprise essential land for a viable Florida panther population in south Florida:

- Panther primary zone, which supports the present panther population and has the highest conservation value. Preservation of the primary zone will contribute most to the long-term persistence of the Florida panther in the wild.
- Panther dispersal zone (near LaBelle), which needs to be protected to allow south Florida panthers to move into potential habitats north of the Caloosahatchee.
- Panther secondary zone, which could accommodate local expansion of the panther population. Many areas in the secondary zone do not now contain panther habitat (e.g., intensive farmland), but could support panthers on a permanent basis with habitat restoration. The secondary zone is important because the primary zone provides just enough space to support a panther population that is barely viable, even assuming that none of the primary is lost to mining, intensive agriculture, or urban development.

"Integration of all conservation efforts will be required to support a self-sustaining population of the Florida panther in South Florida. An ambitious, comprehensive strategy for working with private landowners to protect, enhance, and restore panther habitat within the Primary, Dispersal, and Secondary Zones is essential. Public agencies responsible for land use planning, transportation planning, and land management on public lands must also make decisions that maintain or enhance the ability of South Florida to support a viable population of the Florida panther. Trends in human population growth, habitat loss and fragmentation, agricultural conversions, and transportation planning all indicate that these recommended conservation actions need to begin immediately. The future of the Florida panther will likely be determined in the next 2 decades, and without concerted conservation efforts that future is uncertain."

SOURCE: *How much is enough? Landscape-scale conservation for the Florida panther,* by Kautz, Kawula, Hoctor, Comiskey, Jansen, Jennings, Kasbohm, Mazzotti, McBride, Richardson, and Root,in Biology Conservation 130 (2006), 118-133

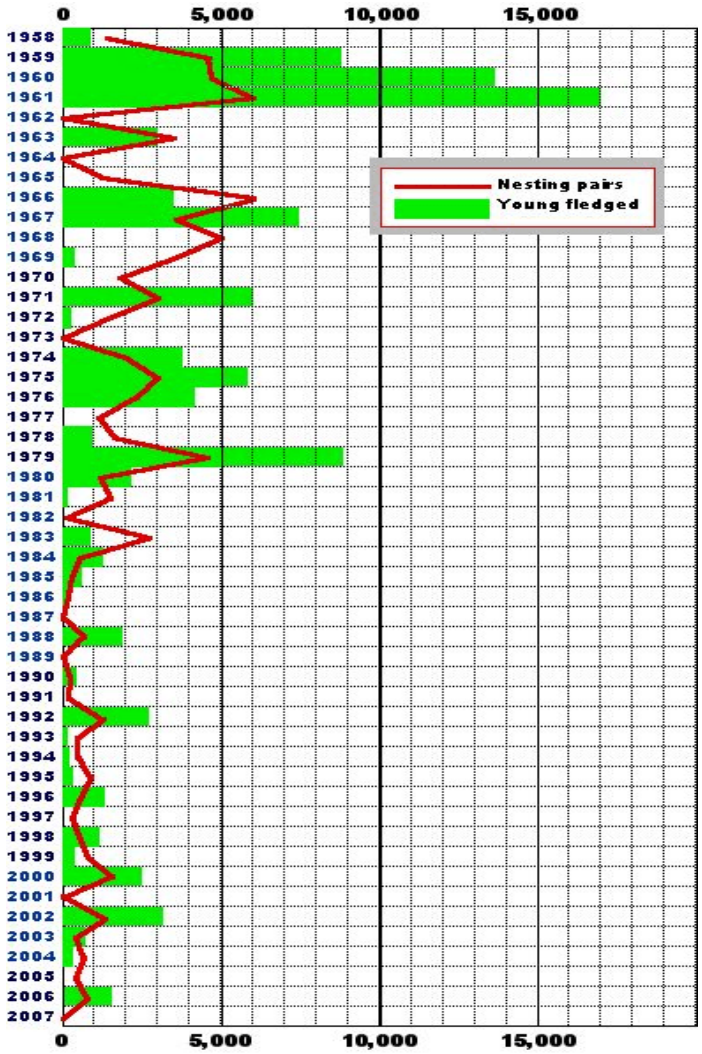
PANTHER PRIMARY ZONE: *The Primary Zone, which supports the existing panther population and comprises predominantly natural cover types, is the most important of the lands mapped in this project to panther habitat conservation. The maintenance of existing home ranges and habitat function within the Primary Zone is essential to maintaining a viable Florida panther population. Assessments of potential impacts of proposed developments within the Primary Zone should strive to achieve no net loss of landscape function or carrying capacity for panthers within the Primary Zone. Loss of function or carrying capacity within the Primary Zone may be affected by: (1) reduction or degradation of the habitat base, (2) reduction in the areal extent of the Primary Zone, (3) increasing landscape fragmentation, and (4) land use intensification (e.g., moving along a gradient from natural conditions to pasture, to cropland, to urban).*

PANTHER DISPERSAL ZONE: *If the Florida panther population continues to expand, dispersal outside of the Primary Zone is likely. The Dispersal Zone is the second most important area mapped because it will play a key role in maintaining a landscape connection between south Florida and potential habitats to the north should a second breeding sub-population become established.*

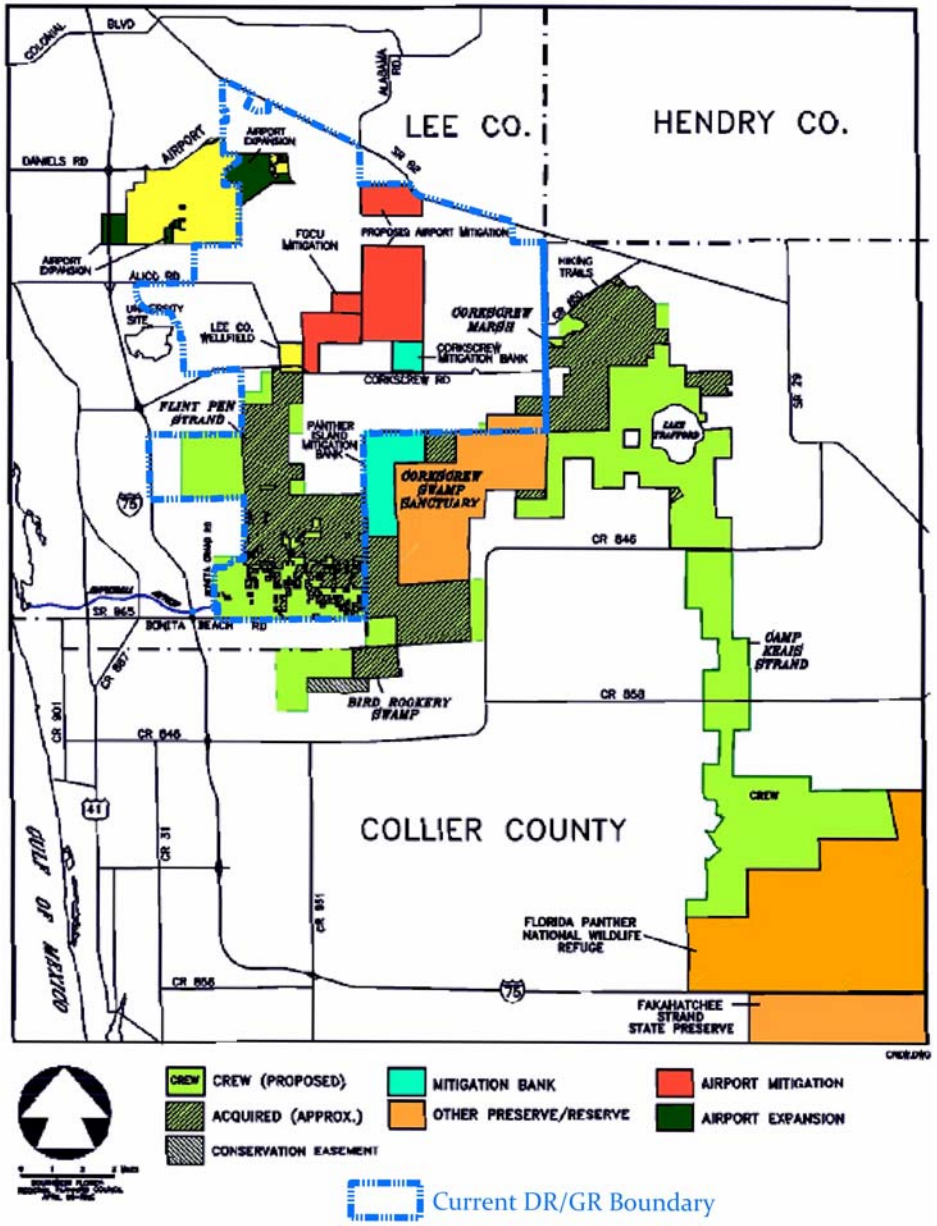
PANTHER SECONDARY ZONE: *The Secondary Zone is the lowest priority for panther conservation. Even though the Secondary Zone is immediately adjacent to occupied areas of the Primary Zone, much of the Secondary Zone is in intensive agricultural use, and some areas are interspersed with low-density residential subdivisions and golf course communities. Restoration of natural cover types would have to occur in many areas of the Secondary Zone before the area could contribute meaningfully to the recovery of the Florida panther. Therefore, although habitat restoration and protection opportunities should be pursued within the Secondary Zone whenever possible, these efforts should not detract from the goal of protecting and enhancing habitats within the Primary Zone.*

SOURCE: *How much is enough? Landscape-scale conservation for the Florida panther,* by Kautz, Kawula, Hoctor, Comiskey, Jansen, Jennings, Kasbohm, Mazzotti, McBride, Richardson, and Root,*in* Biology Conservation 130 (2006), 118-133

A remnant of the virgin Corkscrew Swamp was saved in 1954 when it was acquired by the National Audubon Society. However, the health of its endangered wood stork breeding colony is greatly affected by water levels, which control the food supply for adults and eventual chicks. As many as 5,000 pairs nested during good years in the 1950s; the chart below shows the effects of habitat damage near the Corkscrew Swamp Sanctuary since that time.



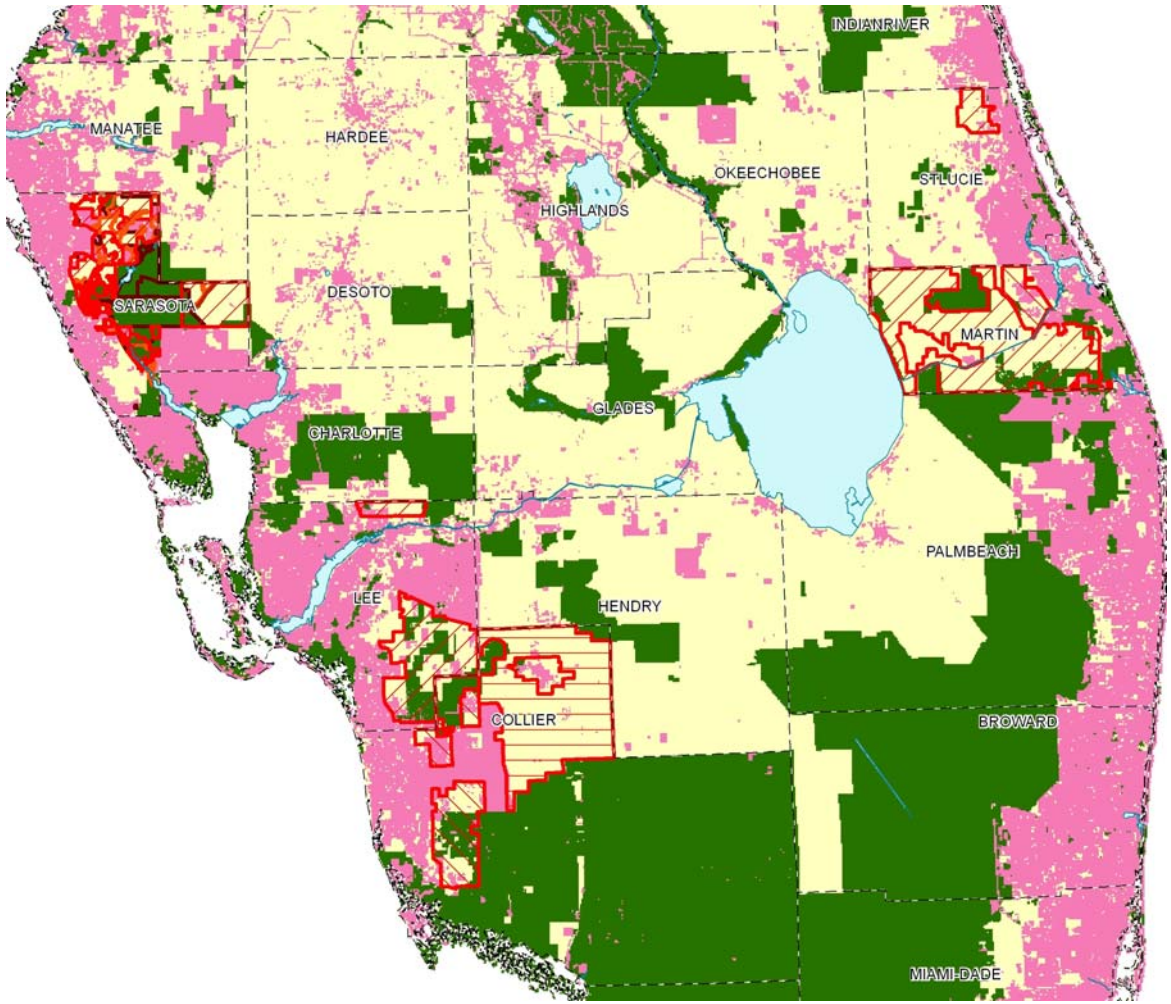
Number of wood stork nesting pairs and young fledged each year at Corkscrew Swamp Sanctuary



(CREW)
CORKSCREW REGIONAL ECOSYSTEM WATERSHED

Even given the best comprehensive planning, continued reliance on government's regulatory powers means that the plans can be undone or reversed in the future as political winds shift. Legally binding transfers of development rights could provide better protection of rural resources than the best comprehensive plan.

This precise combination of issues is unique to Lee County's current concern over the DR/GR. However, many of these same factors also exist in other fast-growing coastal counties like Sarasota, St. Lucie, Martin, and Collier. Recent rural planning efforts in those counties are examined in the next section of this report.



South Florida map showing rural planning areas outlined in red, including Lee County's DR/GR area

SECTION THREE

RURAL PLANNING IN OTHER COUNTIES

This section summarizes five recent rural planning activities in coastal counties in south Florida; see the Appendix for further details.

All of these counties had made only minor changes to their comprehensive plans during the past fifteen years of extraordinary growth. An examination of their similarities and differences should prove instructive to Lee County officials.

These plans have several factors in common:

- Preservation of natural resources and permanent open spaces.
- Farmland preservation.
- Concentration of development rights rather than uniform low densities.

However, they differ in many significant ways:

- Participation in some programs is entirely voluntary, while others mix regulations and incentives.
- Some programs raise rural densities dramatically, while others allow minor increases or none at all.
- One program was driven by landowners and other stakeholders while the others were primarily governmental efforts.

A chart that summarizes the most important common and differing factors will be presented at the end of this report, along with suggestions as to which features in each plan offer the most promise for use in Lee County's DR/GR areas.

SARASOTA 2050

Sarasota County adopted its "Sarasota 2050" plan in 2002. For decades, county regulations had limited density on most "Rural" lands east of I-75 to 1 DU per 5 acres (with no distinction between uplands and wetlands). Consequently, new development has begun spilling into neighboring Manatee County, worsening traffic congestion particularly during commuting hours.

The Sarasota 2050 plan established a series of overlay zones in the county's comprehensive plan. If landowners elect to comply, they can benefit in two ways:

(1) By increasing their development rights, in some cases dramatically, and selling those rights to other landowners; or

(2) By building a village on their property, using a combination of their own development rights and those purchased from others.

Compliance with this plan is completely voluntary, at each landowner's discretion.

The "Village/Open Space" overlay is between I-75 and Myakka River State Park in northern Sarasota County and is likely to see the greatest amount of new development. It was applied to about 32% of "Rural" land. The most valuable environmental features, another 40%, were included in a separate "Greenways" overlay so that new villages won't destroy those features. (Most of the "Greenways" overlay is already in public ownership, including Myakka River State Park, the county-owned Carlton Reserve, and tracts owned by the water management district.) An "Agricultural Reserve" overlay was applied to 15% of "Rural" near the Desoto County line north of the city of North Port. New villages cannot be built there. Another overlay was applied to 10% of "Rural" lands that had been previously subdivided into ranchettes.

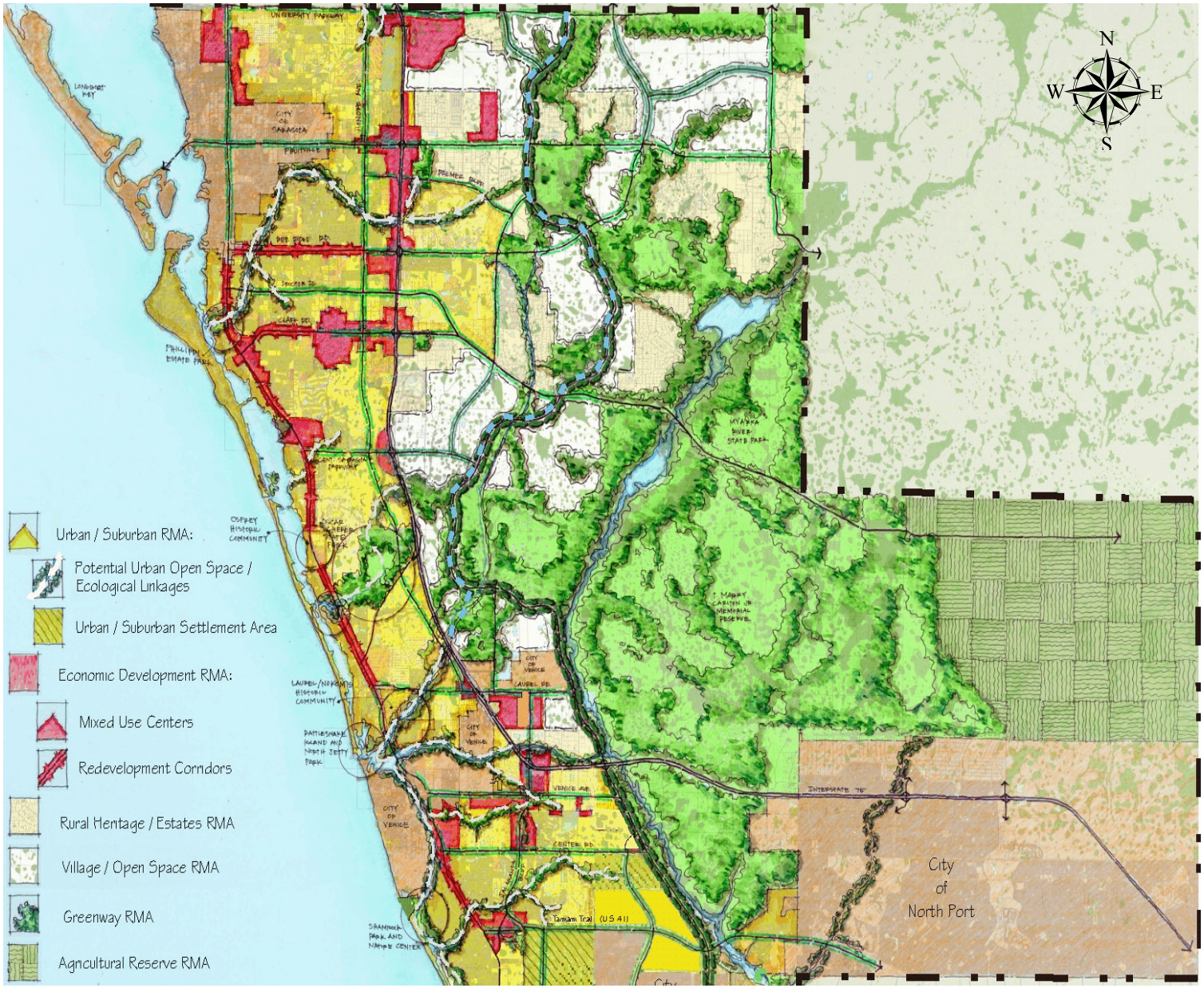
Because Sarasota 2050 relies completely on voluntary compliance, exceptional incentives were deemed necessary to protect natural habitats and productive farmland. These incentives are provided as density increases which can be used on adjoining land that is developed as a new village. They can also be sold to other landowners, or potentially to Sarasota County. The density increases are based on a sliding scale; some examples are provided here:

- Preserving scrub habitat is allowed the largest increase: 10 times the regular density.
- Preserving pine flatwoods: 9 times the regular density.
- Preserving streams and wetlands: 8.25 times the regular density.
- Maintaining pastureland, citrus, or row crops: 5 times the regular density.
- Keeping lakes and regional stormwater facilities: 2.85 times the regular density.

To build a village, a developer must acquire sufficient development rights either through transfers from portions of their own land or through the purchase of development rights from others. Villages can include 1,000 to 3,000 acres of developed land. Within the developed land, densities can range from 3 to 5 DUs per acre. It is a developer's responsibility to acquire enough development rights to meet the rigorous density and design requirements and to demonstrate the proposed village's "fiscal neutrality."

Each new village must be approved through a special rezoning process that was established in 2004. To date, no village proposals have been submitted through that process. The largest landowner in the area wishes to create a 5,500-home village on 3,500 total acres but has been unwilling to permanently set aside all of the required open space in advance of actual development.

SARASOTA 2050



Conceptual diagram illustrating new towns or villages east of Interstate 75 (see upper center of diagram) *SOURCE: Glatting Jackson*

ST. LUCIE TOWNS-VILLAGES-COUNTRYSIDE

St. Lucie County formulated its "Towns, Villages, Countryside" (TVC) plan in 2004 and formally adopted it in 2006. This plan applies to 17,920 acres of land immediately northwest of the city of Fort Pierce. Most of this land had been designated "Residential Estate" and was allowed to develop at 1 DU per acre. The land has long been used to grow prized Indian River grapefruit; however, the land was under intense pressure for suburban development and the groves have been seriously damaged by diseases.

This plan changed the "Residential Estate" designation in the comprehensive plan to a new TVC designation. Landowners may still develop under the prior regulations, but all rezonings or comprehensive plan changes must comply with the new TVC regulations.

The TVC plan established the framework for developers to build several new villages or towns, each to be surrounded by land dedicated to continued agricultural uses. A riverine flow-way system will be constructed incrementally to replace the existing straight-and--deep agricultural drainage ditches with a more natural system that would slow drainage and cleanse stormwater before it empties into the sensitive Indian River Lagoon.

The exact locations of new villages and towns were not established by the TVC plan so that landowners would be allowed maximum flexibility in reallocating development rights to their mutual advantage. The land is flat with few remaining natural features that might otherwise dictate where villages or towns should go. A new regional road network is proposed in the plan, but this can be modified, at developer expense, to accommodate the final location of villages and towns.

A new village can be built on a tract of 500 acres or more. At least 65% of this land must be permanently designated to remain as "countryside." Within the remaining 35% of the land, the neighborhood must achieve a density of at least 5 DU per acre. Two or more villages can be combined into one town, with at least 50% remaining as countryside.

The physical form of each village and town is carefully prescribed through policy language in the comprehensive plan and very detailed design standards in the land development regulations. Each village must provide at least 8% of its dwelling units as workforce housing.

To build a village, a developer must acquire sufficient development rights either through transfers from portions of their own land or through the purchase of development rights from others. The TVC plan provides incentives to protect productive farmland or environmental features and also to provide land for workforce housing, higher education, and targeted industries. These incentives are provided as density increases. The increased densities can be used on adjoining land being developed as a village or they can be sold to other landowners. The density increases are based on a sliding scale; some examples are provided here:

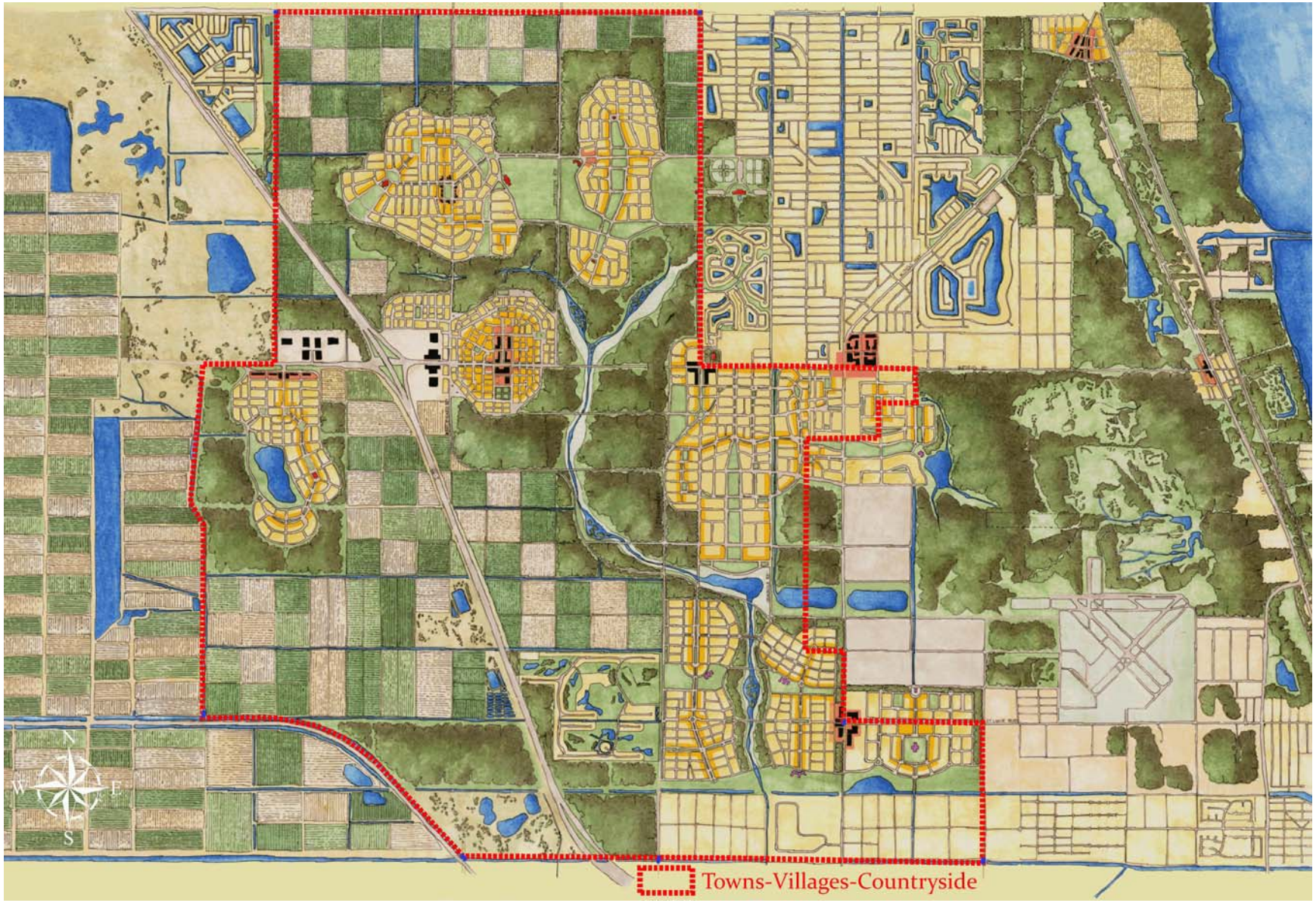
- Preserving environmentally significant land is allowed the largest increase: 2.5 times the regular density.
- Providing land for higher education and targeted industries: 2.5 times the regular density.
- Preserving land outside the urban services boundary by transferring density INSIDE the boundary: 2 times the regular density.
- Preserving land outside the urban services boundary by transferring density somewhere else outside the boundary: 1.25 to 1.5 times the regular density.

Each new village or town must be approved through a special rezoning process. This process uses a form-based zoning district that ensures the result will be traditional neighborhoods but provides considerable latitude as to the character and intensity of each village or town.

Several villages are ready to proceed through this process but have been on hold due to administrative challenges to the validity of the TVC plan. The final challenge, by several rural landowners, will probably be resolved in early 2008.

St. Lucie County has also approved a "Rural Land Stewardship" application on land west of the TVC area. A detailed summary of that proposal has just been published by Florida State University (see citation on last page of the Appendix).

ST. LUCIE TOWNS-VILLAGES-COUNTRYSIDE



Conceptual diagram illustrating four new towns or villages surrounded by preserved countryside (see left half of diagram); Fort Pierce is in lower right corner

MARTIN LAND PRESERVATION INCENTIVES

Martin County has strictly controlled growth by establishing relatively small urban areas and rarely expanding them. In much of the county, only 20-acre ranchettes have been permissible.

At current growth rates and typical development densities in its urban areas, Martin County will not be able to accommodate any additional growth after the year 2015. In response to that condition, Martin County initiated a "Development Patterns Study" in September 2005. The purpose was to examine alternate means of accommodating some growth after the existing urban areas have been filled to capacity. This study, completed in January 2007, evaluated the following potential options for rural lands:

- In areas now limited to 5-acre lots, require that environmental lands be placed under a conservation easement with permanent funding for long-term management and encourage use of PUD zoning by offering up to a 20% density bonus.
- In areas now limited to 20-acre lots, establish similar rules, but also require the following: 60% of the total site must stay under common ownership; lots must be at least 4 acres each; a 500' greenbelt must surround the homesites; a density bonus of up to 100% may be given if the greenbelt is expanded to 1000'; and another density bonus of up to 100% may be given for transferring density from lands identified for public acquisition.

In August 2007, the Martin County Commission transmitted a proposed comprehensive plan amendment (CPA 07-20) to proceed with a variation on the study's second recommendation to allow owners of land designated "Agricultural" an option besides 20-acre ranchettes. Under this proposal, tracts of at least 500 acres could be rezoned to PUD to allow cluster development, with lots of 2 acres or larger. The total number of lots cannot exceed the pre-existing base density of 1 DU per 20 acres for the entire tract (previously, density transferred from wetlands only qualified for 1 DU per 40 acres). At least 50% of the land would have to be made permanently off-limits to residential or commercial development. If the tract contains any land listed for acquisition by a government conservation program (e.g., Everglades restoration), at least half must be donated, and no 2-acre lots can be placed on the remainder.

Nothing in this amendment suggests that Martin County intends to establish regulations that would govern the physical form of development beyond the mandatory open space requirements and the allowance of lots smaller than 20 acres.

Martin County will not be able to accommodate any additional population if this amendment is ultimately approved, but the amendment would encourage permanent preservation of valuable rural lands by allowing existing developed rights to be concentrated on smaller lots (at least 2 acres each, instead of the previous 20-acre minimum).

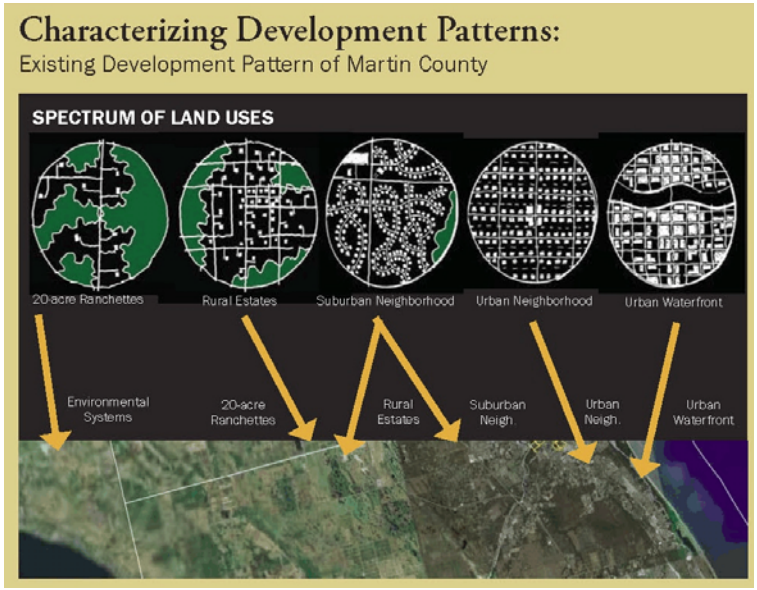
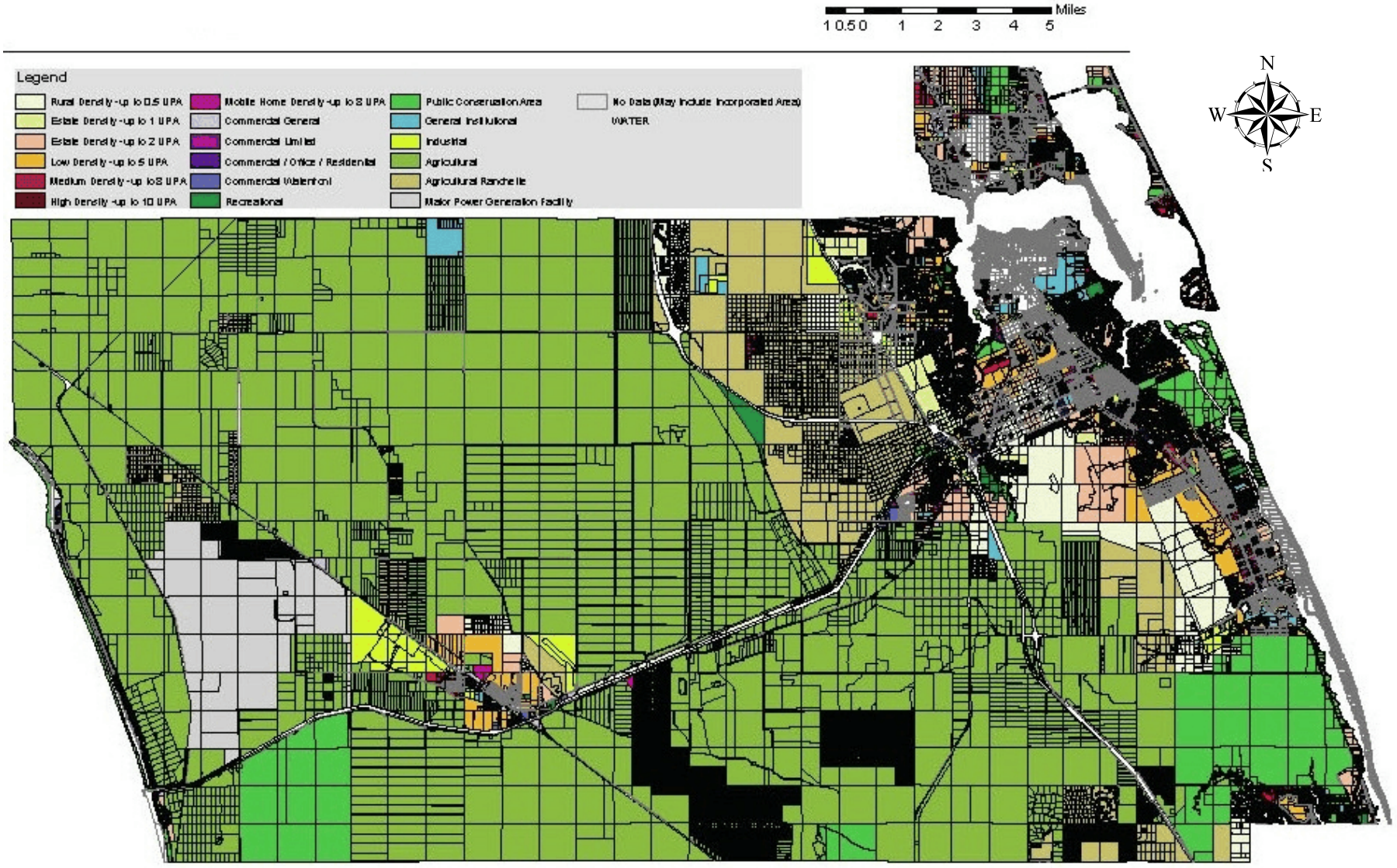


Diagram from Martin County "Development Patterns Study"
SOURCE: Glatting Jackson

MARTIN LAND PRESERVATION INCENTIVES



Martin County's Future Land Use Map; land preservation incentives would apply in "Agricultural" category only

SOURCE: Martin County

COLLIER RURAL FRINGE

After successfully challenging Collier County's growth management plan in 1999, state officials ordered a "Collier County Rural and Agricultural Area Assessment" to protect wetlands, farmland, and habitat for listed species and to limit urban sprawl while planning for future growth in eastern Collier County. This assessment was conducted in two parts, resulting in two different rural plans.

Collier County's "Rural Fringe" planning program affects 72,180 acres of land between Naples and Golden Gate Estates. About 60% are wetlands. This land is broken into over 5,000 individual parcels. The pre-existing density was 1 DU per 5 acres.

Collier's "Rural Fringe" program assigned all 72,180 acres into one of three categories, primarily based on their environmental value:

- Land with the highest degree of environmental sensitivity, including significant wetlands, uplands, and habitat for protected species, was designated as a "Sending Zone" (56%).
- Land that has been disturbed or has a lesser degree of environmental value was deemed most appropriate for development and was designated as a "Receiving Zone" (31%).
- Land that fell between the first two categories was designated as a "Neutral Zone" (13%).

These designations were made as regulatory subcategories on the Future Land Use Map. A combination of regulations and optional incentives are provided to accomplish a major transfer of development from Sending Zones to Receiving Zones in a way that can be beneficial to both sets of landowners.

In Sending Zones, landowners may only construct 1 DU per 40 acres. To offset this reduction of 8 times the previous density, several offsets are provided. If a landowner sells TDR credits to a landowner in a Receiving Zone, the credits are worth a minimum of 1 DU per 5 acres (the previous density on this land). TDR credits cannot be sold for less than $25,000 each; once a TDR credit is sold, agricultural uses can continue but cannot be intensified. A second DU per 5 acres (an increase of 2 times the previous density) is granted contingent on county acceptance of "restoration and management plan" that includes removal of exotic vegetation. There are additional bonuses of 1 DU per 5 acres for donation of the land to a public agency and for those who create TDRs by a fixed date (to stimulate the market by making TDR credits available as soon as possible).

Mining is no longer allowed in Sending Zones. If Sending Zone sites are developed, at least 80% of native vegetation must be preserved (90% if the land is designated as a natural resource protection area).

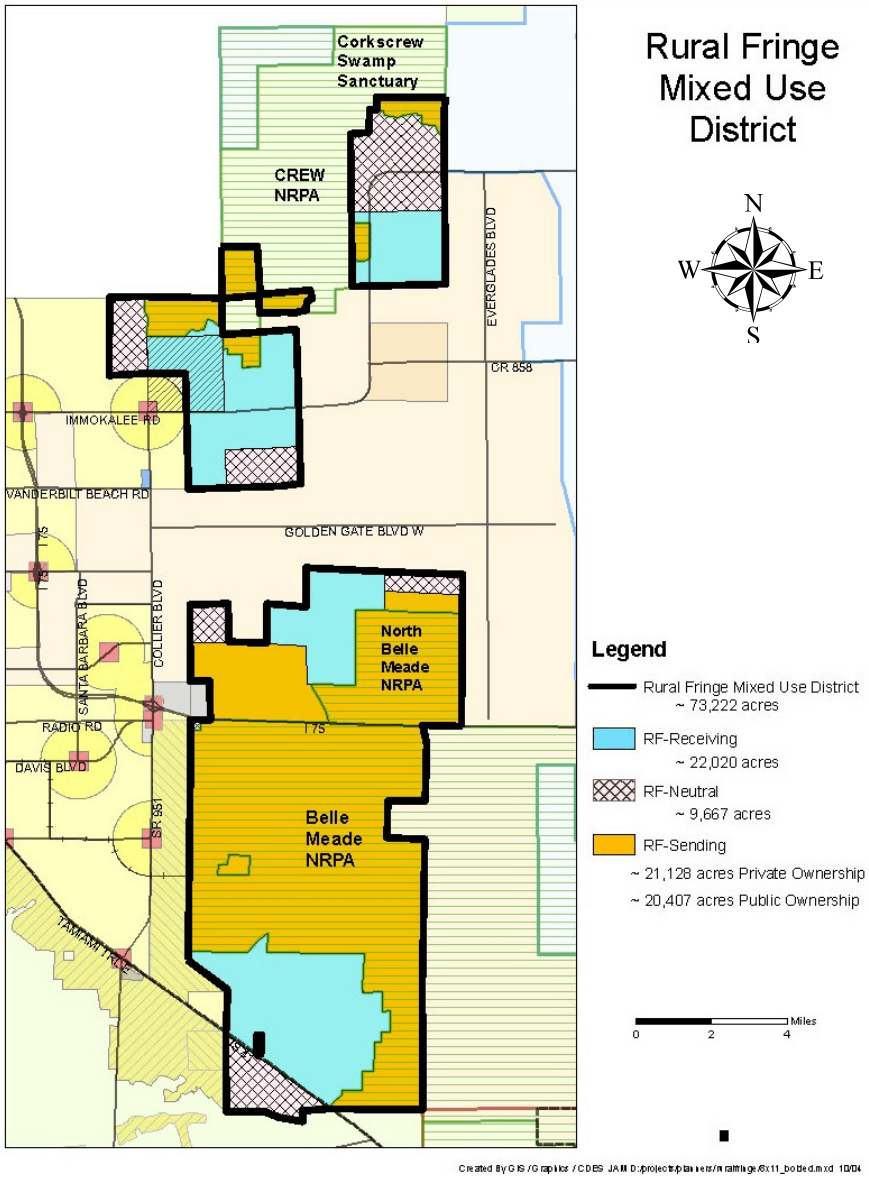
In Receiving Zones, landowners also retain the previous density of 1 DU per 5 acres, but the density may be increased through the purchase of additional development credits from landowners in Sending Zones, which can be used in either of two ways:

- Extra dwelling units can constructed on parcels of at least 40 acres. If this option is chosen: 70% of the land must be maintained as open space; lots must be one acre or less; and density over the entire site may not exceed 1 DU per acre.
- Extra dwelling units may also be provided in a "rural village" of at least 300 acres. Only four rural villages may be constructed in the Rural Fringe. If this option is chosen: 40% of the land in the village must be maintained as open space; density over the entire site may be between 2 and 3 DUs per acre; for each TDR credit purchased, a second is granted at no cost; and fiscal neutrality to the county must be demonstrated.

The Land Development Code establishes detailed standards for clustered development and for rural villages in Receiving Zones. Rural villages must be approved through a PUD zoning process.

In Neutral Zones, most prior rules are maintained, including the original density cap of 1 DU per 5 acres. At least 60% of native vegetation must be preserved (not to exceed 45% of the total site acreage). If the original tract is at least 40 acres, lots may be clustered instead of placed on 5-acre lots.

COLLIER RURAL FRINGE



Mapping of Collier "Rural Fringe" subcategories

COLLIER RURAL LAND STEWARDSHIP

As discussed on page 18, after successfully challenging Collier County's growth management plan in 1999, state officials ordered a "Collier County Rural and Agricultural Area Assessment" to protect wetlands, farmland, and habitat for listed species and to limit urban sprawl while planning for future growth in eastern Collier County. This assessment was conducted in two parts, resulting in two different rural plans. The second plan is described here.

Collier County's "Rural Land Stewardship" (RLS) planning program affects 195,000 acres of land east of North Golden Gate Estates and north of protected lands (Florida Panther National Wildlife Refuge, Big Cypress National Preserve, Fakahatchee Strand State Preserve, and Picayune Strand State Forest). The pre-existing density was 1 DU per 5 acres.

This land includes Collier County's most productive agricultural land which is centered around Immokalee. Major products include vegetables, citrus, and cattle. Lying immediately to the east and west of this farmbelt are two major wetland systems still in private ownership, the Camp Keais Strand and the Okaloacoochee Slough.

Six entities, which together owned 168,000 acres of this land, funded this planning effort. From the outset, a stewardship system was anticipated, defined by proponents as "an incentive-based system not dependent on a regulatory approach" and as "an alternative to publicly funded acquisition of property to promote both natural resource protection and continuing agricultural use." The fundamental concept is allowing farming companies to extract financial value from their land by restricting certain potential uses while retaining most of the land for continued farming.

Conventional regulations provide a list of "permitted uses" based on the land's zoning district. Landowners may choose any use from this list, and may change uses in the future based on the list in effect at that time, but typically can only put an acre of land to a single use. Under the RLS program, the entire list of permitted uses (and to a lesser degree, conditional uses) are in effect authorized simultaneously. The permanent removal of some of those uses from future lists is deemed "compensable" to landowners. Landowners now qualify for compensation even for uses they are not exercising or may not wish to exercise, including uses that are not economically feasible or are not permittable due to other regulations. For instance, eliminating the right to build subdivisions or golf courses in major sloughs has been deemed compensable.

This compensation may come in the form of cash from public agencies to acquire the land or more likely as "Stewardship Credits" which can be redeemed for approval to develop other land. The redemption rate is one acre of development for every eight stewardship credits.

To establish the number of stewardship credits that can be granted, a scoring system was calibrated to meet natural resource protection goals. This system is much more nuanced than TDR programs that are based more on the quantity of acres protected than on their quality. However, the scoring system is so complex that the formulas could not be included in the comprehensive plan or other published documents; thus it is not possible to evaluate the compensation that will be granted to landowners relative to the restrictions being applied to their land. There is no opportunity for public debate over the results for any particular parcel because stewardship credits must be approved by county officials if all application requirements are met.

This following aspects of the credit system are described in the comprehensive plan. Every privately-owned acre was first evaluated based on natural resource attributes, resulting in an objective score for each acre. High-scoring land qualifies for a greater number of stewardship credits. In addition, the most sensitive lands are also identified on a Stewardship Overlay Map as follows:

- Flowway Stewardship Areas (FSAs), for the heart of the major wetland systems (31,000 acres).
- Habitat Stewardship Areas (HSAs, for land likely to support listed species (36,000 acres).
- Water Retention Areas (WRAs), for land permitted as agricultural retention areas (18,000 acres).
- Big Cypress Area of Critical State Concern (ACSC), for land so designated by the state.

A second classification was then created of all potential uses of land under previous regulations, which were grouped into "layers" of potential uses. This program offers more stewardship credits as landowners agree to permanently forgo (or "remove") an increasing number of potential uses from their land.

When a landowner elects to keep a tract of land in permanent rural or conservation uses, that land becomes designated as a Stewardship Sending Area (SSA) and the property owner is compensated with stewardship credits based on the tract's natural resource attributes and the number of potential uses that are permanently eliminated. To date, nine SSAs have been established, covering 23,225 acres of land (90% of which were Flowway or Habitat Stewardship Areas). These SSAs have yielded 50,870 stewardship credits which will allow the development of 6,359 acres of farmland.

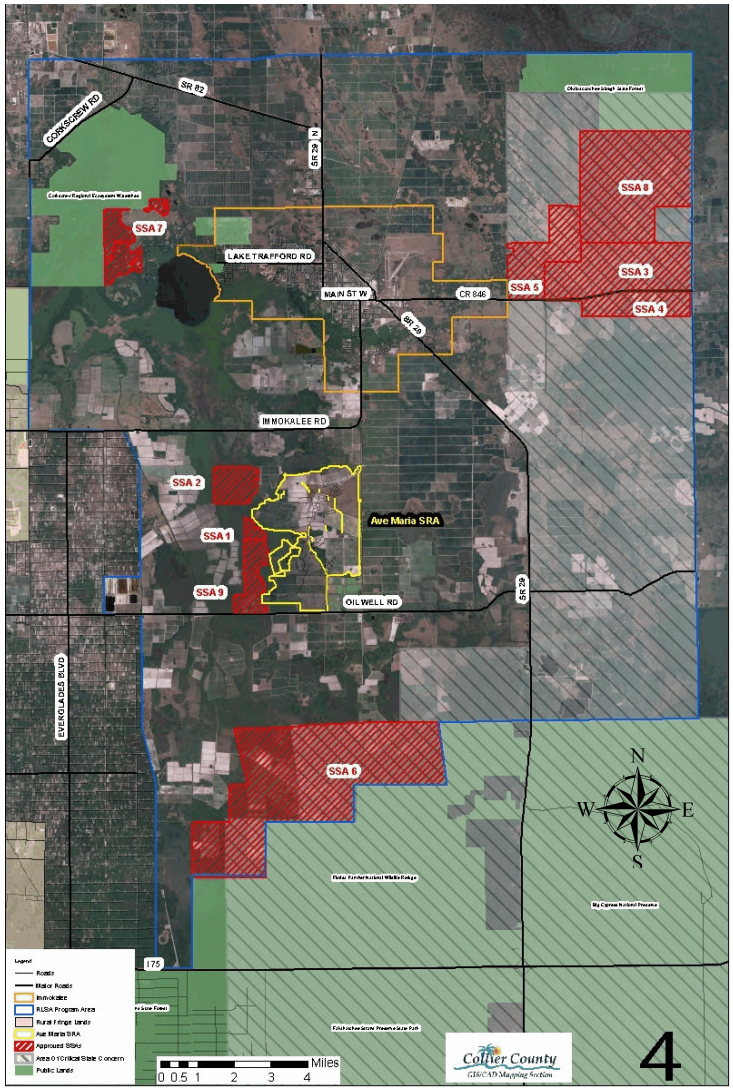
Land that meets defined suitability criteria can become a Stewardship Receiving Area (SRA) and be developed either as a town, a village, a hamlet, or "compact rural development." There is no fixed cap on the number of acreage of future SRAs.

To date, one SRA has been established for the new town called Ave Maria, which includes a private university and 11,500 DUs on 5,000 acres of land. Construction is underway, with the university and town center opening in the fall of 2007. The residential portion of Ave Maria is broken into three pods of housing; construction is underway on all three, with completion expected by 2015.

Two more proposed SRAs have been publicly announced:

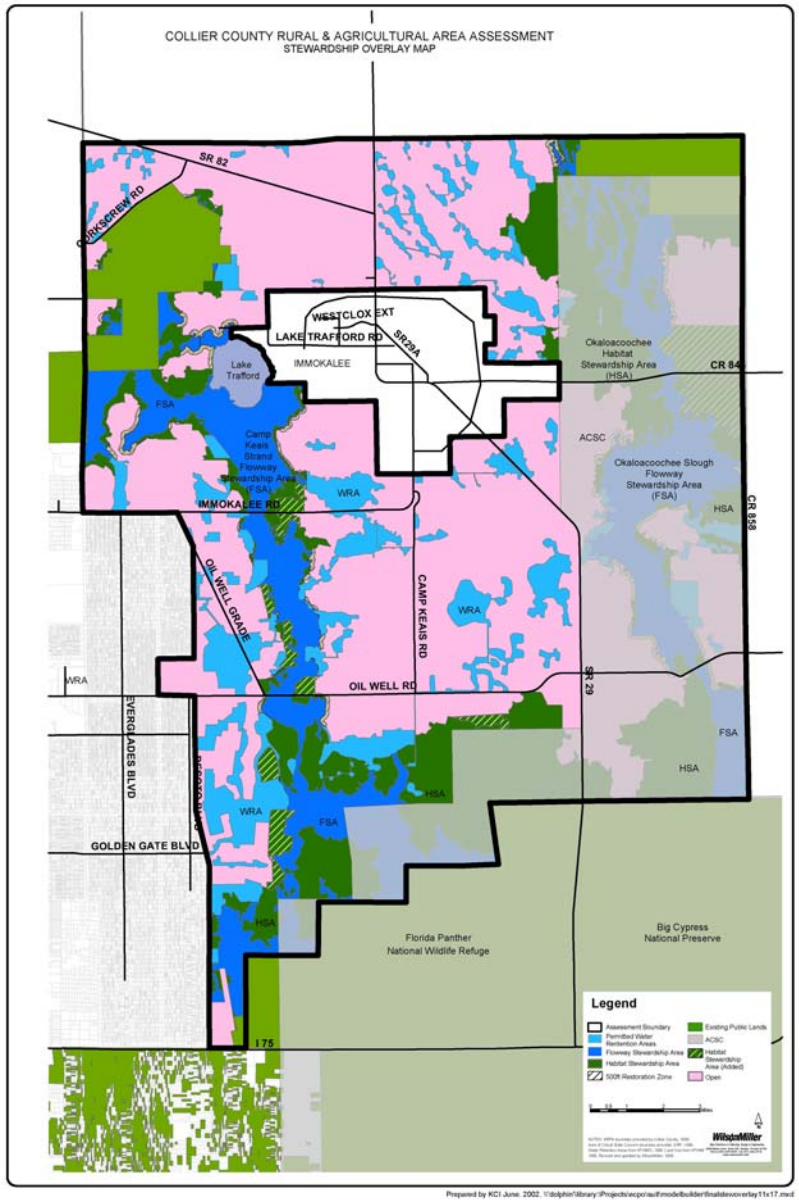
- Serenoa: 8,000 DUs on 2,000 acres north of Ave Maria and south of Immokalee,
- Big Cypress: Initial phase to be 9,000 DUs on 3,600 acres east of Golden Gate Estates near Oil Well Road. This supersedes a previous proposal for 25,000 DUs on 8,000 acres. An independent special district has been authorized by the Florida Legislature to govern 22,000 acres, including these initial phases.

The ultimate impact of the RLS program on farmland protection and in eastern Collier County cannot be determined from publicly available documents. However, its effect on future growth at build-out was projected in a 2005 study by Collier County at 132,283 dwelling units with 389,193 residents. (At the base density of 1 DU per 5 acres, a maximum of 39,000 DUs would have been allowed if every acre of wetlands and farmland were converted to ranchettes.)



Current status of Rural Land Stewardship in Collier County
RED AREAS: sending areas
BRIGHT YELLOW OUTLINE: first receiving area

COLLIER RURAL LAND STEWARDSHIP



Stewardship Overlay Map for Collier County Rural Land Stewardship

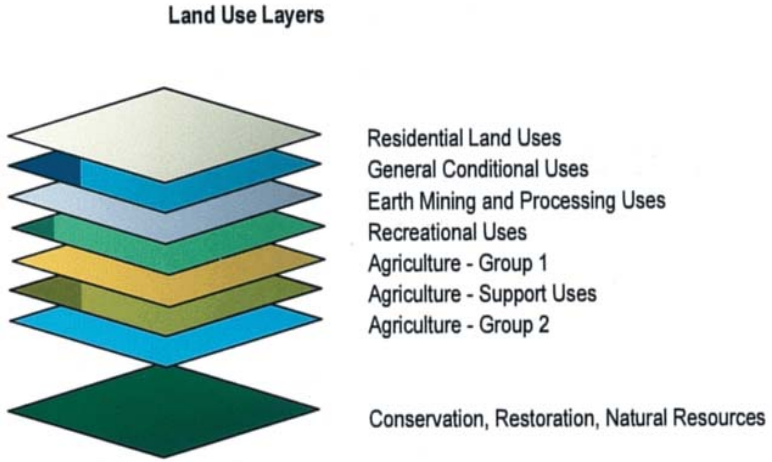
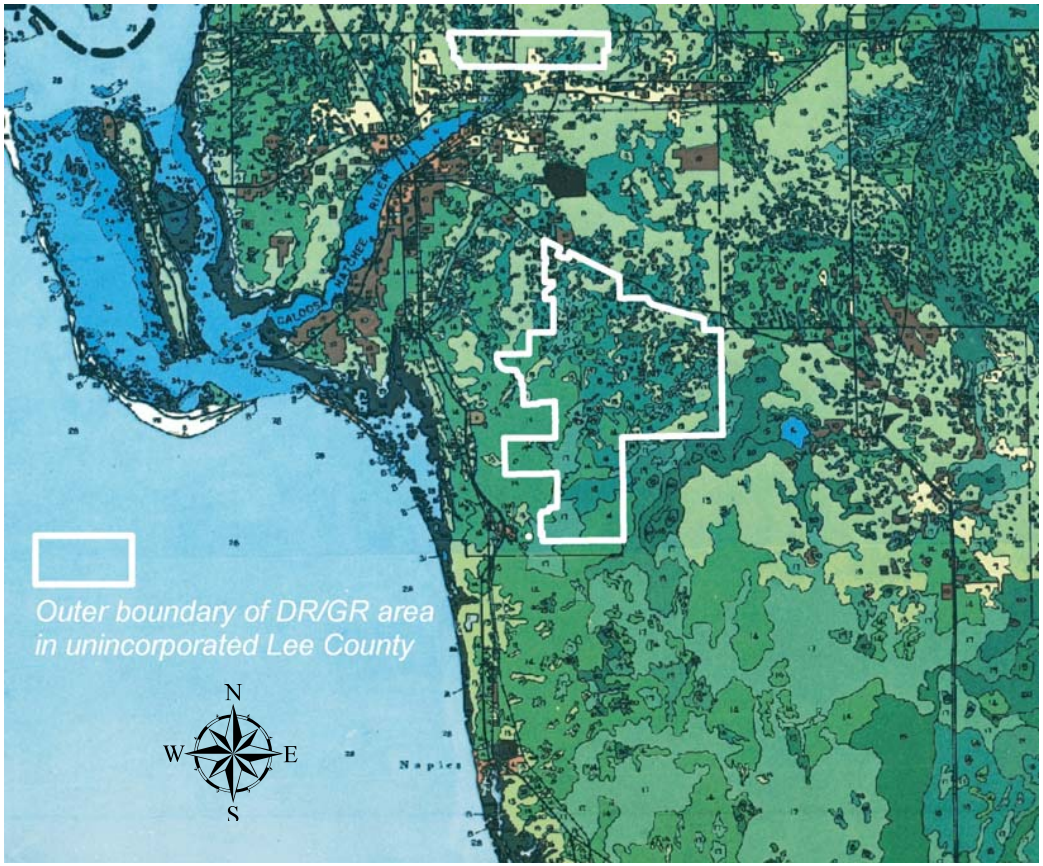


Illustration of Collier County "Land Use Layer" concept



Vegetation and Land Use in 1953 *SOURCE: Center for Wetlands, University of Florida*

"The DR/GR area includes many seasonal wetlands. Regulatory and land-use decisions are resulting in inadequate protection of this ecologically important type of wetland.

"Three of the documents reviewed – the Lower Charlotte Harbor Reconnaissance Report, the Multi-Species Recovery Plan, and the Estero Bay State of the Bay report make special mention of seasonal wetlands. These wetlands only contain standing water or water at the soil surface for part of the year. Many species of wildlife, including amphibians, reptiles, and mammals are listed by the State of Florida as dependent on seasonal wetlands for survival (obligate). These seasonal wetlands are particularly vulnerable to even small changes in the water table and therefore any hydrologic alteration within the area can have negative effects on seasonal wetlands even in cases where the footprint of the wetlands is not directly altered."

SOURCE: *Review and Summary of Studies Containing Information Relating to Density Reduction / Groundwater Resource Lands*, McLane Environmental, LLC, May 2007

SECTION FOUR

LESSONS FOR RURAL PLANNING IN LEE COUNTY

Despite a 35–40% erosion of total acreage, Lee County's DR/GR designation has remained in place for seventeen years. It has provided substantial protection to groundwater resources and has avoided the intrusion of most incompatible uses.

However, for the reasons described in Section 2 of this report, a simple DR/GR designation is not sophisticated enough to respond to the varying character of land or to provide adequate guidance to Lee County officials when considering proposals for new mines or for changes to the base DR/GR designation.

The next generation of DR/GR planning should be informed by the regional considerations described in Section 1 and the experience of other Florida counties as described in Section 3.

In addition, DR/GR planning must be based on the best scientific knowledge of flow-ways, native habitat, historic water levels, and restoration potential for degraded lands. Current knowledge was summarized in the May 2007 review by McLane Environmental LLC; some gaps were identified by McLane and others are described in the DR/GR action plan prepared by Lee County staff in August 2007.

Without the most complete information, county officials will not be able to fully implement important Lee Plan policies such as the requirement that activities on DR/GR land must be compatible with maintaining surface and groundwater levels at their historic levels. These water levels created the natural character of DR/GR land, much of which has been lost in recent decades due to man-made alterations of natural systems. The map on this page indicates the availability of data as to the approximate extent of wetlands throughout the DR/GR area in 1953.

PLANNING BY DEFAULT FOR RURAL AREAS

All too often, planning for rural areas takes place as an afterthought in the planning process of local governments, using these steps:

- Land that is beyond any market demand for urban growth is designated for farming and low-density residential uses, with further consideration postponed indefinitely.
- At some point, landowners or potential purchasers see an opportunity for increasing the land's value by putting it to another use, triggering applications for regulatory changes.
- Local government is then in a position of accepting or rejecting the proposed changes without considering the impact of that decision on the future of the community.

Only rarely do communities deliberately look into the future of their rural areas and decide if those areas are better suited for growth than other locations; if so, how much land is needed; and what form that growth should take. The five rural planning programs reviewed in Section 3 are prominent exceptions. Without taking those conscious steps, the community's future is often left in the hands of individual actors who will proceed based on their personal goals.

In generations past, incremental growth often shaped our towns and cities without a defined plan. Sometimes the results were acceptable; sometime even excellent. When land developers found it in their best interests to expand towns a few or few dozen city blocks at a time, with relatively small blocks and public streets, this growth created a compact development pattern that could be retrofitted over time to meet emerging needs for roads, jobs, and recreation.

Most development today in fast-growing areas like south Florida occurs on a much larger scale. Developers successfully sell the promise of homogeneity and isolation even while extolling the virtues of everything Florida has to offer. The certainty inherent in those promises makes today's development patterns inflexible and unresponsive to evolutionary retrofits. How does government build enough highways to serve car-dependent subdivisions when these highways may have to pierce the isolation of those to be served, or be diverted to become a burden on others? Town planning has become more essential as subdivision patterns and restrictive covenants have become more rigid.

A BETTER WAY TO PLAN

A broader approach is clearly needed to properly plan for Lee County's rural areas, especially sensitive DR/GR lands. This approach should include at least these four components:

1. **Understand the unique ecological character of the land.**
2. **Consider the land's potential for restoration.**
3. **Is this the smart place for Lee County to grow?**
4. **How can mining best be integrated?**

1. Understand the unique ecological character of the land.

Lee County has developed extensive knowledge of subsurface conditions in the DR/GR area, summarized most recently in Rawl's *Groundwater Resource and Mining Study*.

Conditions on and above the ground are less well documented as to current conditions and historic conditions. The current state of knowledge was reviewed in McLane's 2007 *Review and Summary of Studies Containing Information Relating to Density Reduction / Groundwater Resource Lands*. That review summarized what scientists have been noting for years concerning the ecological services that DR/GR lands provide, including valuable natural habitats, hydrologic features that connect internally and outside the DR/GR area, and the importance of maintaining the integrity of this integrated mosaic of natural and man-made features.

As is apparent from the image on the front cover of this report, the DR/GR area immediately adjoins the Corkscrew Swamp, which lies just across the Collier County line and is generally considered the northern reach of the Big Cypress Swamp. Corkscrew Swamp contains the largest remaining mixed swamp forest that still shelters huge bald cypress. The National Audubon Society manages the Corkscrew Swamp Sanctuary to protect the largest wood stork nesting colony in the United States. Lee County's management of nearby DR/GR lands will have a major impact on the continued health or ultimate degradation of the Corkscrew Swamp because its watershed extends well into the DR/GR area.

A major natural feature in the DR/GR area is the Flint Pen Strand which flows southward from Corkscrew Road. A continuous band of preserved lands also extends to the northwest of the Flint Pen Strand. Funding for these acquisitions came from Lee County and the South Florida Water Management District and mitigation purchases for the airport expansion and for Florida Gulf Coast University. This land is managed by the CREW Land & Water Trust (Corkscrew Regional Ecosystem Watershed), which also manages the Corkscrew Marsh just east of DR/GR lands in Collier County. Two mitigation banks have also been established in or near the eastern portion of the DR/GR area. These lands are shown on a map on page 9.

The map on page 21 identifies the approximate extent of wetlands in 1953 before ditching and diking began to alter surface and groundwater levels in the DR/GR area. This was also before mining moved to this area and before wellfields began to pump water from the ground. In 1953, the character of DR/GR land was much wetter, with wetlands even more extensive and intermixed with uplands than they are today. Most of the DR/GR area was and still is quite different in character from land to the west (the community of Estero) and land beyond Corkscrew Marsh to the east (farmland surrounding Immokalee).

DR/GR land was always distinguished from land to the north and south by topography. Immokalee Road (SR 82) runs along the highest land in Lee County, with surface and groundwater flowing generally north toward the Caloosahatchee through what is now Lehigh Acres.

To the south of SR 82, surface and ground water flows to the south and southwest. Although the land appears flat to the naked eye, some of the sharpest drops in elevation in Lee County occur in the east-central portion of the DR/GR area where elevations drop off quickly into the Corkscrew Swamp. These elevation drops make land particularly susceptible to the effects of man-made drainage from agricultural ditches or large mining pits because water levels can easily be lowered by the availability of lower land to accept runoff.

These drops can be seen in the adjoining diagram that shows ground elevations in Lee County. The vertical elevations in this diagram have been greatly exaggerated so that subtle but important changes in elevation are readily apparent. For instance, what appears as a deep bowl at the far right is the Corkscrew Swamp, which lies just beyond the Lee County boundary.

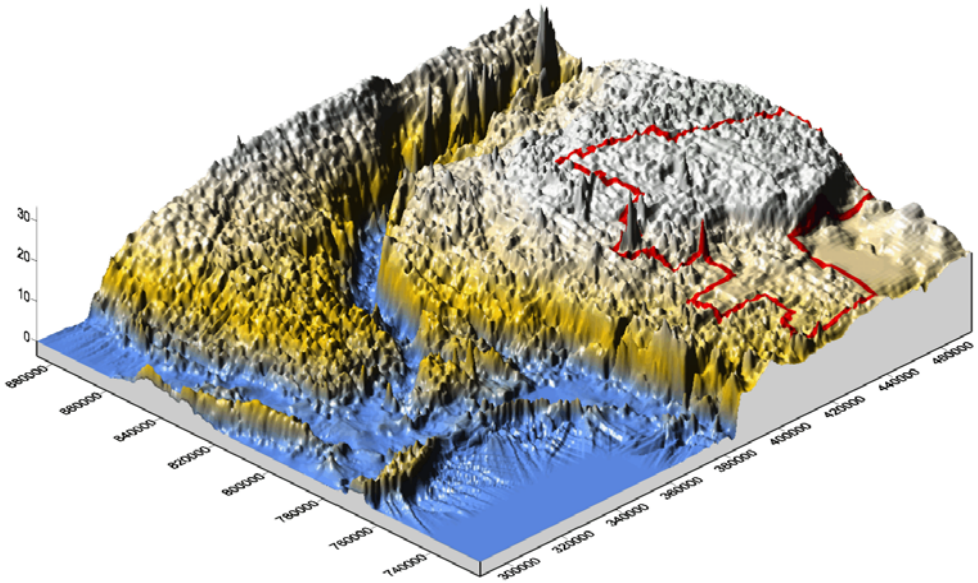
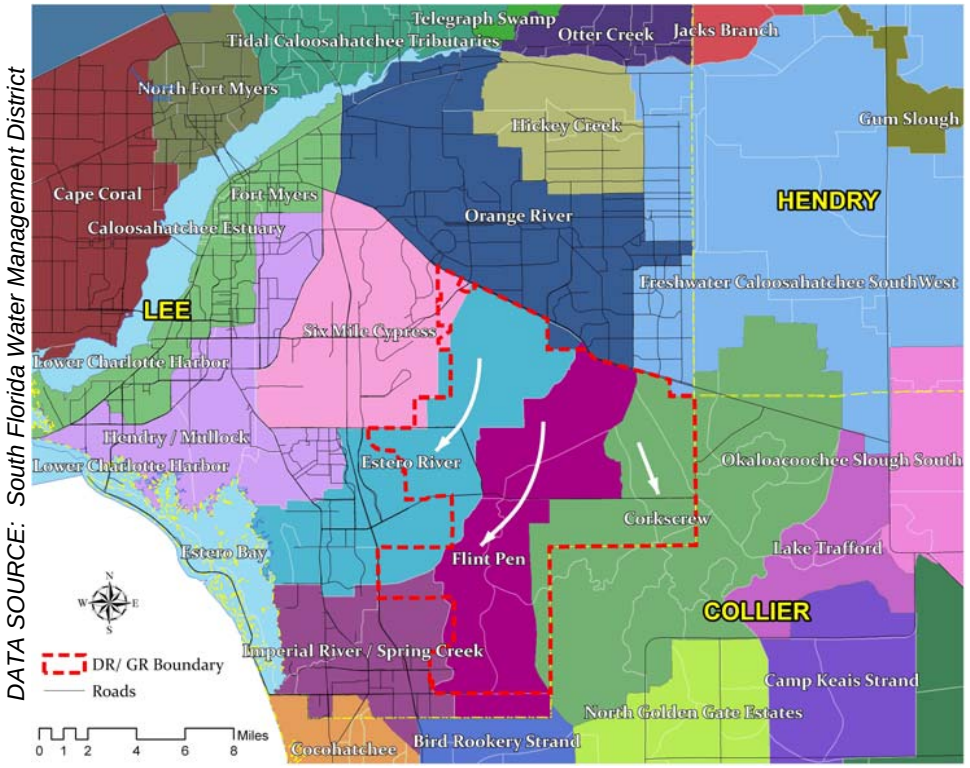


Diagram indicating relative ground elevations; southeast DR/GR areas are outlined in red.
SOURCE: Greg F. Rawl, P.G., Fort Myers FL

"At the outset of the review, the project team was aware that the DR/GR lands were designated to achieve (1) density reduction and (2) protection of groundwater recharge and resource areas. What became clear during the review is that the lands are also important because of their (3) ecological resources (wetlands, uplands, plant and animal species listed as threatened, endangered or of special concern by federal or state agencies, habitats, biodiversity hot spots, etc.). The lands are also very important because of their (4) surface water hydrology features, including flow ways. Finally, the DR/GR lands are not only important on a piecemeal basis for the particular resource that might exist in a parcel, but because (5) the lands support overall landscape integrity due to an extensive, interconnected mosaic of habitats, allowing for wildlife range and migration corridors, interconnected flow ways that interlink wetlands and differing habitats, and connect the land to nearby coastal ecosystems."

SOURCE: *Review and Summary of Studies Containing Information Relating to Density Reduction / Groundwater Resource Lands*, McLane Environmental, LLC, May 2007

Except for land that drains south into the Corkscrew Swamp, the DR/GR area forms the headwaters of much of the Estero Bay watershed. Water from this area ends up in the Estero River, Halfway Creek, Spring Creek, or the Imperial River (the basin map below shows the major watersheds and some watershed sub-basins).



DATA SOURCE: South Florida Water Management District

Specific knowledge gaps could be resolved by completion of the following tasks (adapted in part from July 2007 recommendations to Lee County from Kevin Erwin and Bill Spikowski):

A. Prepare an accurate land use and cover map for the DR/GR area using the Florida Land Use, Cover and Forms Classification System (FLUCFCS) at no less than Level IV for both current and historic (predevelopment) conditions. Tabulate all results by watershed and include mapping of hydric (historically wet) soils.

B. Prepare estimates of current and historic water levels for use in implementing the requirement in Lee Plan Policy 1.4.5 that "Land uses in these [DR/GR] areas must be compatible with maintaining surface and groundwater levels at their historic levels."

C. Evaluate commonly accepted scientific hydrological modeling systems that can assess a wide variety of land use activities. Determine which modeling system would represent the best available science for forecasting the impacts of land uses including residential development, agriculture, golf courses, and mining.

"As a result of land use and water management practices during the past 100 years, the regional wetlands of southern Florida either have been lost or have been substantially altered. It is the premise of the Restudy that an understanding of these defining characteristics, and the factors which caused their loss or alteration, provide focus for setting restoration goals and priorities for the southern Florida wetlands. While it is true that the pre-drainage wetlands can not be fully restored, a successful restoration program will be one that recovers to the extent possible these defining characteristics of the former system. Achievement of this goal should result in the recovery of ecologically viable systems that functionally resemble the pre-drainage Everglades and its interrelated wetland systems.

"The fundamental tenet of south Florida ecosystem restoration is that hydrologic restoration is a necessary starting point for ecological restoration. Water built the south Florida ecosystem. Water management changes have adversely affected this ecosystem. Restoration begins with the reinstatement of the natural distribution of water in space and time. The spatial extent of the hydrologically restored area is critical to ecological restoration. Water quality improvement must be an integral part of all hydrologic restoration. The focus is on the wetlands because the greater part of the pre-drainage south Florida ecosystem was wet."

SOURCE: *Central and Southern Florida Project, Comprehensive Review Study, Final Integrated Feasibility Report and Programmatic Environmental Impact Statement*, 1999

2. Consider the land's potential for restoration.

In recent years several efforts have been undertaken to identify the most valuable natural resources in the DR/GR area. One effort is the Lee County Master Mitigation Plan which includes a map of critical environmental features that are proposed for future mitigation, restoration, or preservation activities. This map covers the entire county but provides extra detail for DR/GR lands, including preliminary mapping of historic flow-ways, as shown on the next page. Two other maps from this plan are also shown, along with another preliminary map of historic flow-ways from ECT Inc.

Another effort resulted from an informal greenways committee which identified pristine lands in the DR/GR area which might be donated to Lee County for preservation in exchange for incentives such as density bonuses usable on other property. There was a fairly close correspondence between the primary and secondary greenways identified by that committee and the mitigation/ restoration/preservation map from the Master Mitigation Plan.

The new information obtained in tasks A-B-C on page 26 would provide the technical basis to supplement these efforts. By more precisely identifying historic flow-ways and wetlands in addition to those remaining today, lost natural resources can be identified. Through Conservation 20/20, Lee County could prioritize the acquisition of farmland that may be critical for restoration of historic flow-ways or for wildlife movement. Other farmland could be optioned or acquired but continue to be farmed using best practices – but never converted to mining or urban uses. If farming becomes infeasible on land that could provide critical natural buffers or wildlife habitat, such land could be partially or fully restored by removing artificial drainage and replanting native vegetation, either through a mitigation bank or through a direct contract with the current agricultural operator. Conservation easements or direct ownership would provide permanent protection of such land.

Restoration potential should be evaluated at the same level of importance as identifying existing resources that are worthy of preservation. The cost of restoration and/or acquisition should be identified so that potential funding sources and overall feasibility can be assessed during the early stages of this planning process.

13. Surface water bodies within DR/GR lands are important hydrologic and ecological features. *While the DR/GR lands were originally designated for groundwater protection, studies reveal that surface waters are also important because they represent hydrologic features with great significance for the ecological systems of the DR/GR lands. Wetlands and sloughs provide a habitat for a wide variety of plant, animal, and aquatic species.*

14. Flows through the extensive system of channels, sloughs and wetlands within the DR/GR lands can act to remove nutrients, sediment, and contaminants from surface water to lessen impacts to surface water within the DR/GR and in nearby coastal waters. *Surface water ecosystems in DR/GR lands have the capacity to perform a cleaning process to some degree on the water that flows through them, thereby acting to lessen nutrient, sediment, and pollutant impacts on waters of rivers and creeks, and bays along the western coastline of Lee County to which the DR/GR lands drain.*

SOURCE: *Review and Summary of Studies Containing Information Relating to Density Reduction / Groundwater Resource Lands*, McLane Environmental, LLC, May 2007

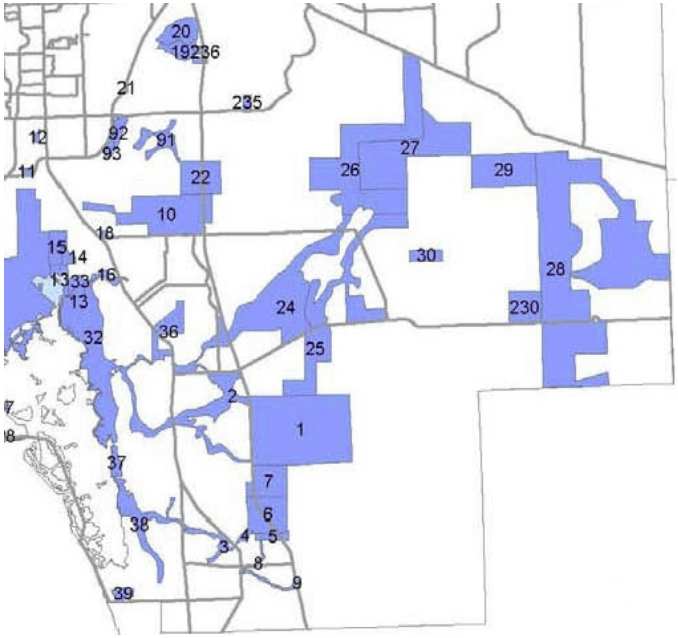
The practical implications of Lee Plan Policy 1.4.5's requirement for maintenance of surface and groundwater levels needs to be evaluated. It may be that this standard is overly strict where restoration is impossible yet essential in the remainder of the DR/GR area. Also, Lee County has taken a hands-off position with regard to agricultural clearing, resulting in unnecessary wetland losses and damaging drainage impacts.

The following additional tasks would analyze these factors:

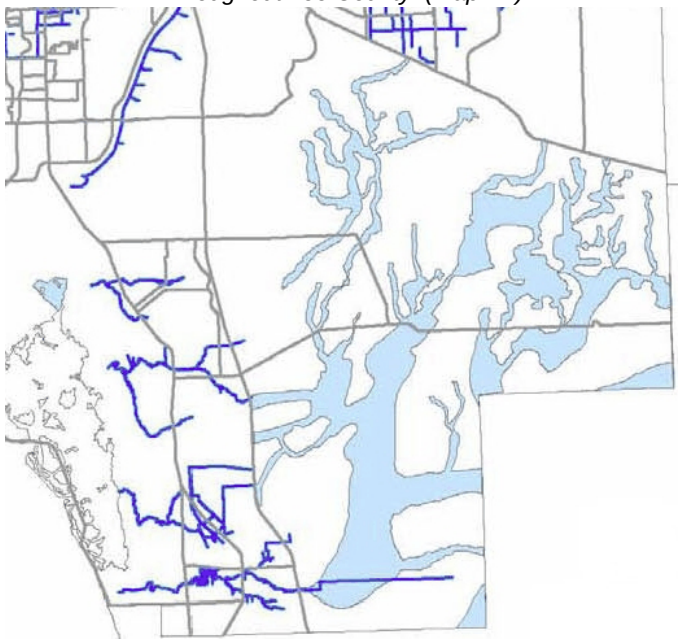
D. Evaluate the potential for restoring damaged natural resources by identifying restorable land, prioritizing restoration that would be most beneficial to natural resources, and assessing potential funding sources for restoration efforts including acquisition where desirable.

E. Assess the impacts of Policy 1.4.5's requirement to maintain surface and groundwater levels on existing and proposed land uses and the impacts of current policy against regulating wetland impacts on farmland.

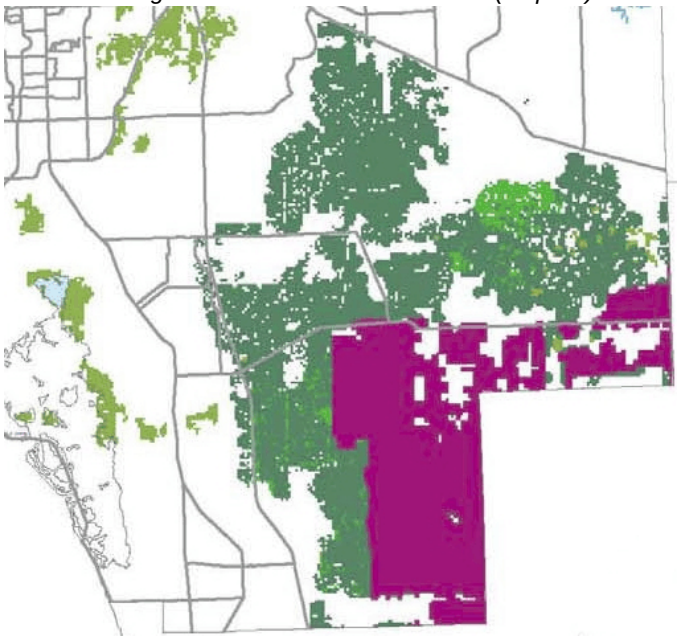
Lee County Master Mitigation Plan
Proposed Mitigation/Restoration/Preservation Sites (Map 5B)



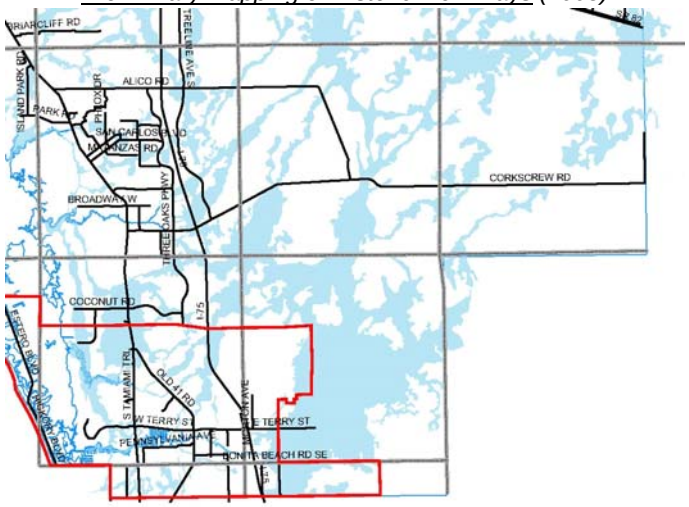
Lee County Master Mitigation Plan
Historic Flow ways in DR/GR Areas and Rivers / Streams Throughout Lee County (Map 1A)



Lee County Master Mitigation Plan
Strategic Habitat Conservation Areas (Map 9A)



Environmental Consulting & Technology, Inc.
Preliminary Mapping of Historic Flow-ways (2005)



3. Is this the smart place for Lee County to grow?

The previous answer to this question, made in 1990 through the DR/GR designation, was NO, based on the area's groundwater resources and Lee County's tremendous surplus of land already allocated to future growth.

With seventeen years having passed, a reexamination is warranted. The new answer to this question will be informed by studying the following questions:

- How much of Lee County's surplus of land allocated for growth has been used up since 1990?
- To what extent might Lee County's emerging Smart Growth policies affect the capacity of land already designated for urban purposes to absorb additional growth?
- How might the feasibility of restoring damaged DR/GR resources affect county policy?
- How should Collier County's decision to allow new towns and villages on farmland around Immokalee affect Lee County's growth policies? Will that decision meet potential demand for this housing choice or create additional demand?
- Can Bonita Springs and Lee County coordinate their DR/GR policies to the advantage of both communities?
- Should Lee County change its policies to discourage development in the DR/GR and other rural areas and/or to spatially reallocate existing development rights? If so, are there specific areas where the land's importance relative to resource issues are lower than their importance for other purposes?
- What physical forms of growth are best suited to the DR/GR area and for infill and redevelopment within existing urbanized areas?
- How much of Lee County's future potable water needs could be met within the DR/GR if a comprehensive conservation plan were implemented?
- Does our current knowledge of above-ground natural resources in the DR/GR area justify revisions to the DR/GR designation and its implementing regulations?

Better answers can be provided to these questions if the following additional tasks are carried out as part of the planning process:

F. Determine the remaining capacity of land designated for urban purposes under current growth trends and feasible alternatives.

G. Analyze the major land uses in southeast Lee County such as residential development, mining, agriculture, and conservation lands. Analyze at least the following levels; already constructed; approved but not constructed; and pending or imminent applications.

H. Evaluate scenarios for reallocating development rights within the DR/GR area to reflect varying sensitivities of land and availability of urban services.

I. Produce prototype designs for redevelopment in Lee County's new Mixed-Use Overlay Zones to demonstrate the potential for accommodating growth without consuming additional land.

"Americans drive so much because we have given ourselves little alternative. For 60 years, we have built homes ever farther from workplaces, created schools that are inaccessible except by motor vehicle, and isolated other destinations—such as shopping—from work and home. From World War II until very recently, nearly all new development has been planned and built on the assumption that people will use cars virtually every time they travel. A larger and larger share of our built environment has become automobile dependent, car trips and distances have increased, and walking and public transit use have declined. Population growth has been responsible for only a quarter of the increase in vehicle miles driven over the last couple of decades. A larger share of the increase can be traced to the effects of a changing urban environment, namely to longer trips and people driving alone."

SOURCE: *Growing Cooler: The Evidence on Urban Development and Climate Change*, Urban Land Institute, Smart Growth America, Center for Clean Air Policy, National Center for Smart Growth Research & Education, 2007.

4. How can mining best be integrated?

More than any other use of land in Lee County, limerock mining is constrained by factors outside the control of its operators.

First, mines must be located where the physical resource exists in nature at depths where economical removal is possible. Second, mining is inherently a heavy industrial activity that necessarily destroys existing soils, vegetation, and wildlife habitat and often creates dust and vibration beyond the mine site. Third, the removal of processed limerock and other fill material requires heavily loaded trucks whose travel patterns cause continuing conflicts with other users of the roads.

The expense for hauling limerock and fill dirt is a major part of the final cost to users. Efforts that would hinder limerock mining in Lee County would greatly increase the costs of materials to Lee County users and would ultimately increase the total amount of truck traffic due to increased distances from out-of-county sources. (This situation could change if new arrangements were made to transport crushed stone by rail, as is done on Florida's east coast.)

After decades of relatively nominal expansion of existing mines to meet regional demand, an unexpected number of major mining applications have been presented to Lee County. This influx has several apparent causes:

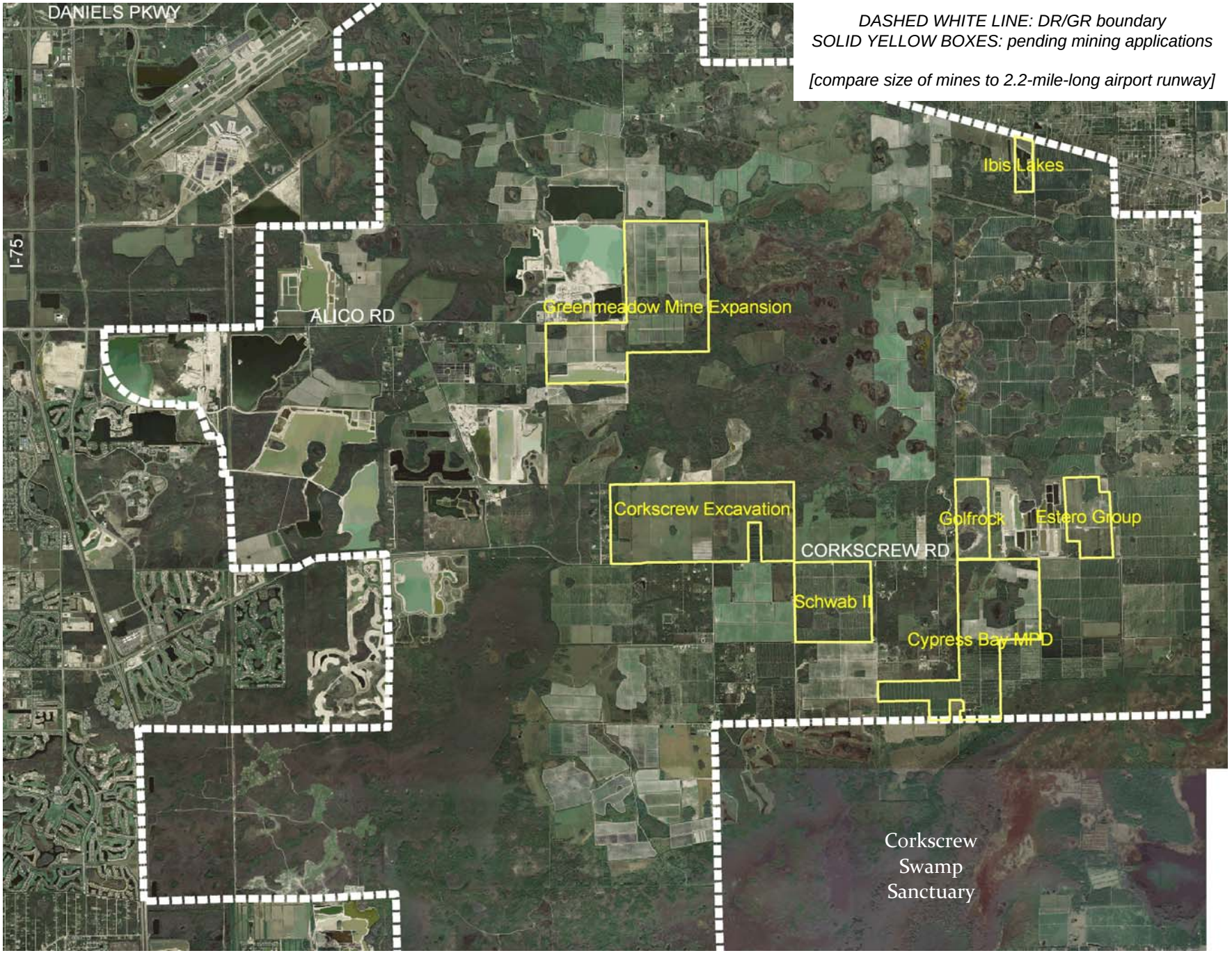
- Plans to abandon mining near Florida Gulf Coast University in the near future to make way for urban expansion.
- The conversion of the mining industry from local and statewide operators to national and international operators who consider markets far beyond Lee County.
- Florida's construction boom, which until 2005 seemed to herald a new era of extremely high growth.
- The possibility of court-ordered restrictions on mining in Miami-Dade County's "Lake Belt" region, which produces 43% of the crushed stone consumed in Florida each year.

Under its current system, Lee County responds to each mining application individually through the rezoning process. Larger issues about the best ways to produce limerock products while meeting other county and regional goals are rarely addressed during the review of individual applications.

Existing limerock mine in DR/GR area
(note three wellheads in circular areas north of the large pit)

Several important questions need to be answered before Lee County can establish optimum policies that balance the need for limerock and other fill material with the protection of natural resources and opportunities for rural living in the DR/GR area:

- How much mining land has already been permitted and how does this compare to foreseeable future demands?
- Are Lee County's current requirements for the restoration of abandoned mining sites adequate? What are the effects of these sites on nearby wetlands and groundwater levels?
- Which mining issues can be resolved by better application questions and which issues are technical in nature and require solutions that can be evaluated separately from larger issues concerning where mines should be located (e.g., repairing roads damaged by heavy truck traffic)?
- Does the legitimate demand for limerock products require the expansion of mining activities beyond its traditional location southeast of the airport? If so, which parts of the DR/GR are most suitable for additional mining?
- What new issues are raised by the number and magnitude of proposed mines and their extension into previously unmined areas, and do these issues require a different review process or different standards?



DASHED WHITE LINE: DR/GR boundary
SOLID YELLOW BOXES: pending mining applications

[compare size of mines to 2.2-mile-long airport runway]

Better answers to these questions can be provided if the following tasks were carried out as part of this planning process:

J. Determine the quantity of limerock resources in the DR/GR area that are already permitted for removal. Analyze the best available data regarding land that is in permitting process for mining. Compare potential yields to reasonable forecasts for demand for mining products under varying growth scenarios.

K. Evaluate expected impacts and current restoration plans for mines in Lee County and consider alternate restoration concepts for mined areas including physical configuration and ultimate use of surrounding land and mitigation of negative impacts.

L. Analyze the existing application and approval requirements for rezoning, mining, and agricultural clearing submittals. Determine any gaps and analyze appropriate methodologies for collecting essential information to fill any gaps. Determine whether changes to current regulations may be needed and draft appropriate land development code amendments.

M. Evaluate new design standards for mine pits that could prevent over-drainage and other negative impacts.

N. Evaluate appropriate requirements for annual reporting for mines to specifically detail the areas being mined, the quantity and type of material being extracted, actual depths of excavations, estimated reserves at each mine, and observed impacts on surface and groundwater levels.

LESSONS FROM OTHER COUNTIES

The following chart summarizes major common and differing factors for each of the five rural plans described in Section 3.

	SARASOTA CO. Sarasota 2050	**ST. LUCIE CO.** Towns-Villages-Countryside	**MARTIN CO.** Land Preservation Incentives	**COLLIER CO.** Rural Fringe	**COLLIER CO.** Rural Land Stewardship	***LEE COUNTY*** *Density Reduction/ Groundwater Resource*
Size of rural planning area	193,320 acres	17,920 acres	210,380 acres	72,180 acres	195,000 acres	*57,670 acres*
Residential density (previous plan)	1 DU per 5 acres	1 DU per 1 acre	1 DU per 20 acres	1 DU per 5 acres	1 DU per 5 acres	*1 DU per 10 acres; 1/20 for wetlands*
Was residential density increased over the previous plan?	x 5 increase (average)	x 1.75 increase (average)	x 1 (no change)	x 4 decrease for sending areas; x 1 – x 4 increase with TDR credits	cannot be determined	*?*
Was growth expansion or growth control the major goal?	growth expansion	growth control	growth control	growth control	growth expansion	*?*
Can residential development be clustered?	with permission	required	with permission		by right	*?*
Was farmland preservation a major goal?	only near Desoto County	yes	no	no	yes	*?*
Is the plan voluntary or mandatory?	voluntary	mandatory (density bonuses are optional)	voluntary	mandatory (density bonuses are optional)	voluntary	*?*
Did previously regulated activities become compensable rights?	no	no	no	no	yes	*?*
Who commissioned the planning process?	county government	county government	county government	county government	major landowners	*?*

To supplement the summaries of each plan that were provided in Section 3, additional detail is provided in the Appendix for each plan.

All of these rural planning programs offer useful lessons for Lee County. The potential relevance of each model to Lee County's DR/GR areas is discussed on the following pages.

SARASOTA 2050

Sarasota County's "2050" planning process began with a logical screening process for its rural land:

- Publicly owned land was immediately separated from the rest into a "greenway" overlay (79,000 acres, including the Myakka River State Park, the county-owned Carlton Reserve, and tracts owned by the water management district).
- Privately owned land with the highest natural resource values was then added to the greenway overlay (26,000 acres, including land targeted for purchase and land with environmental value such as water quality protection or habitat connections).
- Remote agricultural land further inland than the greenways was assigned to an "agricultural reserve" overlay (30,000 acres near the Desoto County line north of the city of North Port).
- Existing ranchette areas were assigned to a "rural heritage" overlay (20,000 acres)

The remaining land was designated as a "village/open space" overlay. This land is under large consolidated ownership, allowing a combination of development and additional preservation on 32,500 acres.

This model would be more applicable to Lee County's DR/GR areas if they had the same physical features as rural Sarasota County and if Lee County had been as restrictive to new growth as Sarasota County, where additional land for development was probably needed and is being supplied by this plan.

Participation in Sarasota 2050 is completely voluntary on the part of landowners. This is likely the reason that it was decided that such high incentives had to be offered to landowners to induce them to participate. The reluctance of landowners to participate thus far seems to be a result of the rigid implementing regulations, which provide great protection to county officials but which require landowners to make permanent commitments to conservation easements quite early in the approval process when major terms of the approval have yet to be resolved.

ST. LUCIE TOWNS-VILLAGES-COUNTRYSIDE

The planning area for St. Lucie County's "Towns-Villages-Countryside" plan differs from the others in this report in several ways:

- The existing density was much higher – 1 DU per acre.
- The location was between I-95 and the city of Fort Pierce in a small area that was a logical extension of the existing urban pattern of St. Lucie County.
- There are very few environmentally sensitive features on this land; it is predominately grapefruit groves.

The county hoped to take advantage of this land's proximity to its existing urban area while permanently maintaining agricultural use on 60% to 70% of the land. Several citrus diseases have put the future of grapefruit on this land in serious doubt, but other crops are possible, particularly if the development value of the land could be recovered from farmland through transfers into new towns and villages. Such transfers would allow the land value to effectively subsidize future agriculture, instead of forcing farmers to either sell their land or ignore its development value.

This situation is quite different than Lee County's DR/GR. However, several aspects of the TVC program warrant further consideration:

- Unlike the Sarasota model, most of the TVC program is mandatory. Development rights will be reallocated within large landholdings and also between landowners using transferable credits. Although some density incentives are provided if development rights are transferred *into* the urban service boundary or for preserving sensitive lands, the incentives aren't anywhere near as high as they would have to be with a fully voluntary program.
- Like the Sarasota model, considerable attention was paid to the physical form of new development. Minimum densities are required so that development will be compact and walkable and will use as little land as possible. These aspects of both plans are in line with Lee County's Smart Growth goals and are highly relevant to DR/GR planning.

MARTIN LAND PRESERVATION INCENTIVES

Martin County has rejected most of the proposals that were formulated in its "Development Patterns Study." Some of the proposals would promote more growth in rural areas than county officials could support; other proposals have simply been neglected thus far but may be considered in the future.

The single change that is now going through the public hearing process would allow existing rural densities of 1 DU per 20 acres to be clustered in exchange for permanently restricting 50% of the tract against future development. Lee County already allows similar clustering in DR/GR areas but without requiring permanent restrictions. Lee County should evaluate the potential for coupling clustering to preservation similar to the Martin County proposal (which incidentally has several similarities to Lee County's new rules for rural lands on Pine Island).

COLLIER RURAL FRINGE

Collier County's "Rural Fringe" program has received little attention outside Collier County, probably because it responds to such a unique set of circumstances.

The planning area is bisected by Golden Gate Estates. Ownership patterns are highly fragmented, and a high percentage of the land is extremely sensitive, encompassing the edges of the Corkscrew Swamp and the Belle Meade and North Belle Meade areas.

The fragmented ownership pattern made the ability to transfer development rights between landowners an obvious requirement of this plan. The careful identification of sending areas and receiving areas was the basis of this plan. Landowners who insist on developing in sending areas will see their densities reduced eight-fold, but the loss is eliminated if development rights are transferred, and in fact may be increased by up to a factor of four under certain conditions.

The initial incentives for transfers were fairly low but were raised after it became apparent that the lower rates were not proving sufficient to spur the transfers. This careful calibration of incentives, including later adjustments where necessary, is the sign of a prudent and realistic planning program.

Many of the details of Collier's "Rural Fringe" program are specific to that land, but several aspects may be equally valuable in planning for Lee County's DR/GR areas:

- A careful mix of regulations and incentives, based on localized conditions and priorities.
- Clear identification of land that should be preserved and land that may be developed.
- Obtaining perpetual preservation of conservation lands in exchange for incentives.
- Willingness to adjust incentives as needed.

COLLIER RURAL LAND STEWARDSHIP

Collier County's "Rural Land Stewardship" (RLS) program has been much heralded and is the model for recent legislation that now encourages RLS programs for rural lands around the state.

The best feature of an RLS program is its rigorous assessment of natural resources in the planning area and its calibration of incentives to protect the most valuable resources. This calibration was apparent in Collier's Rural Fringe program and even more evolved in its RLS program.

However, other features of an RLS program would make it a poor match for Lee County's DR/GR areas:

- The DR/GR areas have a much higher percentage of environmentally sensitive land than the farmland around Immokalee. Collier's RLS model seems to actually reduce some prior regulatory protection given to natural resources, although permanent protection may be "bought back" in exchange for stewardship credits. This isn't an essential requirement of RLS programs, but it has become a generally accepted feature that seems to undermine one of the stated goals of RLS — to protect natural resources.
- Although RLS programs could be formulated without encouraging new development in rural areas, no RLS proposals of this nature have yet been presented. Collier's RLS program is projected in a 2005 study by the county's planning staff to accommodate 132,283 dwelling units with 389,193 residents (considerably more than the entire population of Collier County today). At the previous base density of 1 DU per 5 acres, a maximum of 39,000 DUs would have been allowed even if every acre of wetlands and farmland were converted to ranchettes.
- Participation in an RLS program is completely voluntary on the part of landowners. This is similar to Sarasota County's 2050 plan and is likely the reason that it was decided in both cases that such high incentives had to be offered to landowners to induce them to participate. Excessive incentives will cause more land to get developed, a result that conflicts with other RLS goals such as protecting natural resources, controlling sprawl development patterns, and promoting rural economic activity.
- The scoring system in the Collier RLS program is very complex and is embedded in what is essentially a black-box. The development value being traded to landowners is a mystery to the public and even to the elected officials who approved the RLS program. The ultimate effects of this scoring system on natural resource protection, farmland preservation, and new development in rural areas cannot be predicted with even minimal confidence.

GETTING FROM HERE TO THERE

1. Managing the DR/GR planning process:

In addition to the substantive planning questions posed earlier in this report, Lee County needs to decide on various procedural and management issues that will affect the ultimate success or failure of this planning process.

A. The county needs to decide whether to focus this study on the DR/GR areas in southeast Lee County, or to add the DR/GR area north of the river and in Bonita Springs, or to also add other rural lands in unincorporated Lee County.

B. This report identifies various tasks that should be included. There is considerable overlap between these tasks and the DR/GR action plan prepared by county staff in August 2007. Early decisions need to be made as to which tasks to move forward on and whether additional hydrogeologic research or planning may also be needed.

C. A planning study of this nature must be a multi-disciplinary effort. The various areas of technical expertise need to be identified as early as possible so that county officials can determine which tasks can be completed with existing staff (or existing consultants) and which should be outsourced through new contracts.

D. Two obvious difficulties are how to involve the public in an undertaking of this magnitude and how to manage the interdisciplinary nature of the project. Multi-day charrettes are a excellent tool for public involvement and as well as ensuring that all disciplines work closely together. Through the charrette process, potential solutions are identified quickly by the public and the consulting team. Solutions with less promise can be set aside while the most promising solutions (those with the greatest likelihood of balancing competing public policy goals) can be refined. For details, see *Charrette Handbook: The Essential Guide for Accelerated, Collaborative Community Planning* (National Charrette Institute, 2006).

E. The county needs a steering committee to participate in this process from beginning to end. An existing entity could serve this function (the Local Planning Agency, the Smart Growth Task Force, or even the County Commission). Or one or more separate committees could be established to review work in progress and offer independent recommendations. In any case, this committee must represent interests well beyond the immediate stakeholders, as the future of Lee County's rural areas is of much wider concern, including future generations.

F. Lee County should assume in advance that the outcome of this effort will be a healthy mix of planning techniques including new regulations, incentives, and acquisition and restoration of land. This effort would be hobbled if a decision were made to limit the potential outcomes to only one class of solutions. However, outcomes that would convert existing regulations to compensable rights should be viewed with the greatest caution, not least because Florida's Bert Harris Act makes it risky for local governments to restore regulations once they have been softened.

G. The protection of natural and manmade resources should not be limited to regulations because regulatory protections can be repealed more easily than they were created. Much more permanent protection of resources can be provided through conservation easements or outright ownership. Such arrangements are valuable but often difficult to arrange and have associated costs; acquiring ownership or easement protection may be worth special incentives because they will withstand the possible weakening of regulations in the future.

H. Although the planning area may be limited to rural areas, the potential for maximizing the development potential of urban areas should be a part of this study. More natural areas can be preserved if Lee County's urban areas are used more efficiently, and urban areas have greater vitality when they have a richer mix of activities and travel options.

2. Interim steps:

The DR/GR planning process is a major undertaking that seeks to balance many competing demands. It will be a time-consuming process at best, even though it will be performed under the shadow of a moratorium that may expire in one year.

Lee County need not wait for this process to be completed to make interim changes to its land development code (LDC). Some suggested changes are described below; many would implement ideas from the DR/GR action plan prepared by county staff in August 2007.

A. Modify the LDC to provide clearer and more comprehensive mining application requirements so that Lee County would have adequate information on which to base its decisions on these applications. Require baseline monitoring to document existing hydrological and ecological conditions; this information would be used to model expected impacts of mining and later to compare actual impacts with predicted impacts.

B. Modify the LDC to include more thorough regulations for mining operations. These might include better restoration standards; monitoring requirements to report excavation depths and areas being mined; clearer performance criteria as to acceptable impacts on water levels and natural systems; standards governing size and configuration of mining pits to avoid impacts on connectivity or groundwater levels; requirements for adequate buffers between mining pits and sensitive natural resources; and standards for truck traffic and mitigation of its impacts on the road system.

C. Modify the LDC so that clustering of residential development is the default requirement in DR/GR areas. Developers proposing more than a set number of 10-acre lots could seek approval through the rezoning or special exception process.

D. Reevaluate the current regulations that waive the notice of clearing for agricultural land that already has an agricultural exemption.

E. Resume county wetlands permitting where the current state permitting system has proven inadequate to meet Lee Plan standards for protecting wetlands, particularly the major losses of seasonal wetlands in recent years with little or no mitigation having been required.

Appendix

Supplement to Section 3

— Notes for Sarasota, St. Lucie, Martin, and Collier Counties —

SARASOTA COUNTY'S "SARASOTA 2050"

(1) Land area affected:
193,320 acres of land outside the county's Urban Service Area. About 79,000 of these acres are publicly owned.

(2) Residential density:
BEFORE: (wetlands were not designated separately on Future Land Use Map)
- Rural: 1 DU per 5 acres maximum
- Semi-Rural: 1 DU per 2 acres maximum (these are all now in Rural Heritage/Estate overlay)

AFTER: (if developer chooses optional overlays):
- Rural Heritage/Estate (20,000 acres) was applied only to areas previously subdivided (some had been designated Semi-Rural, others were Rural)
- Village/Open Space (32,500 acres):
  - Target density: 6 DU per net acre ("net acres" means the development area less open space, stormwater retention, wetlands, recreation, parks, and non-residential)
  - Minimum density within developed area: 3 DU per gross developable acre
  - Maximum density within developed area: 5 DU per gross developable acre (6 if additional units are "affordable"
- Settlement Area: 3 DU per acre MINIMUM within "developed areas," if density is transferred from Greenway RMA, on-site greenway, or on-site open space. This designation only applies west of North Port (west of I-75).
- Greenway (105,000 acres) – preservation of non-public lands to come through TDRs and acquisition of conservation easements.
- Agricultural Reserve (30,000 acres) – farming is protected if TDRs are acquired. There is no change in allowable density if a landowner wants to develop.
- TDRs can come from Rural Heritage/Estate, Greenway, or Agricultural Reserve; also from Village/Open Space as designated in "master development plan." Density of TDRs range from 0/ acre to 2/ acre to serve development and preservation goals.

(3) Will development activity be concentrated rather than dispersed?
Yes, if landowners choose to develop using one of the overlays. In the Village/Open Space overlay, the maximum size is 3,000 acres of developed area, or 1,000 acres minimum if not adjacent to the urban service area. Hamlets are typically 50 to 150 DUs but never more than 400 DUs; density within developed areas can be from 0.4 to 1.0 DU per acre.

(4) Developable areas:
(a) Are developable areas defined in advance by this planning process?
Somewhat; the designation of the "Village/Open Space" overlay establishes the general locations for three villages and three general locations for hamlets; within each location, considerable agricultural and/or natural preservation is still anticipated**.**
(b) To what extent is the physical form of developable areas prescribed?
The physical form of development is carefully prescribed through policy language in the comprehensive plan and very detailed design standards in the zoning regulations. Each village is made up of a cluster of neighborhoods with a mix of housing types and is surrounded by large expanses of preserved open spaces. Each village is large enough to support an elementary school and must contain a village center that can serve daily needs of village residents.

(5) Are preferred preservation areas protected by regulatory means?
No. The existing Future Land Use Map only designates publicly owned preservation areas; all others are given the same density as adjoining land. The new overlays (e.g. Greenways) are non-regulatory; see next item for incentives that are provided.

(6) Are preferred preservation areas defined primarily by their environmental characteristics?
Yes, to a considerable extent:
- The "Greenway" RMA includes wetlands.
- Policy TDR1.3 establishes "density credits" based on habitat types; for instance, preserving scrub habitat is given a ten-fold density bonus.

(7) Historical summary of planning process:
- 1999: Urban Land Institute team provides report to county officials
- October 2000: "Resource Management Area" (RMA) concept was created through "Organizing Concepts and Principles of Directions for the Future," Resolution 2000-230
- April 2001: Funds allocated to hire consultants
- July 2002: "Sarasota 2050" is adopted
- July 2004: Implementing regulations are adopted

(8) Mandatory or optional?
Landowners can choose to ignore Sarasota 2050 and develop their land under the base regulations of Sarasota County, or may seek rezonings or Future Land Use Map changes that were available to them before Sarasota 2050 was adopted.

(9) Did the plan include a component affecting existing urban areas?
Yes. One of the RMAs (Economic Development) applies in existing urban areas to "redevelopment corridors" and "mixed-use centers"; another RMA is "Urban/Suburban" that covers land inside the USB. Both have separate policies in the 2050 plan.

(10) Consultants:
Lead Consultant:
Glatting Jackson Kercher Anglin Lopez Rinehart Inc. (Orlando): Greenways, Comprehensive Planning Process, Transportation, Coordination, and Code Work
Major Subconsultants:
Stansbury Resolutions by Design: Community Relations/Facilitation
Fishkind & Associates: Economic and Fiscal Analysis
Zimmerman/Volk: Economic and Fiscal Analysis
Urban Strategies Inc.: Village Planning and Design

(11) Consulting fees:
Approximately $1.5 million for planning and code writing

(12) Where adopted plan can be found:
In Comprehensive Plan, at end of Chapter 9 (Future Land Use Element)
www.scg.co.sarasota.fl.us/Sarasota2050/support/ORD_2001-076_with_Exhibit_A.pdf

(13) Published sources with more details:
For background, up though the beginning of the Sarasota 2050 process, see:
"URBAN SPRAWL AND THE LOCAL STATE" (2004 PhD dissertation by Robert A. Pennock)
www.etd.lib.fsu.edu/theses/available/etd-04122004-223011/unrestricted/PennockDissertation.pdf

(14) Where implementing regulations can be found:
Article 11 of Zoning Regulations (Appendix A to Code of Ordinances), adopted July 12? 2004
www.municode.com/resources/gateway.asp?pid=11511&sid=9

ST. LUCIE COUNTY'S "TOWNS-VILLAGES-COUNTRYSIDE"

(1) Land area affected:
17,920 acres, partly inside and partly outside the county's Urban Service Boundary.

(2) Residential density:
BEFORE:
– "Rural Estate": 1 DU per acre
– "MXD" (for Mixed-Use Development at I-95 interchange): 5 to 9 DUs per acre
AFTER:
– Pre-existing densities remain, but new development must be concentrated in the form of a village (or town). Within the developable area, the density must be at least 5 DUs per acre. To achieve this density, a developer must set aside sufficient land surrounding the village and transfer those DUs (including incentive multipliers that are spelled out in the plan) into the village, or must acquire the needed number of DUs by purchase TDR credits from other landowners.

(3) Will development activity be concentrated rather than dispersed?
Yes, in towns or villages (except for development on acre-sized lots under previous regulations).

(4) Developed areas:
(a) Are developable areas defined in advance by this planning process?
No. Landowners have considerable flexibility to choose where to build a town or village, as there are few environmental constraints remaining (mostly grapefruit groves at this time).
(b) To what extent is the physical form of the developable areas prescribed?
The physical form of development is carefully prescribed through policy language in the comprehensive plan and very detailed design standards in the land development regulations. Each village is made up of a cluster of neighborhoods with a mix of housing types. Two or more villages can be combined to create a town. Each village or town is surrounded by large expanses of preserved open spaces.

(5) Are preferred preservation areas protected by regulatory means?
No. Landowners have considerable flexibility to choose where to build a town or village, as there are few environmental constraints remaining.

(6) Are preferred preservation areas defined primarily by their environmental characteristics?
No. This area has been almost entirely farmed for several generations so there are few environmental characteristics remaining.

(7) Historical summary of planning process:
- February 2004: Charrette, managed by Treasure Coast Regional Planning Council (TCRPC)
- Summer 2004: Final report issued by TCRPC
- Fall 2004: TCRPC retained as lead consultant to implement the plan and manage remainder of consultants
- April 2006: "Zoning in progress" restrictions adopted by Ordinance 2006-012
- May 2006: TVC amendments adopted into Comprehensive Plan; land development regulations adopted simultaneously
- June 2007: TVC element amended to resolve DCA challenge
- November 2007: Legal challenge by landowners still pending; plan and regulations not yet in effect

(8) Mandatory or optional?
Mandatory. Landowners are still allowed to proceed under the prior rules for the most part, but if they want to develop their land in any other manner, they must follow the new TVC rules.

(9) Did the plan include a component affecting existing urban areas?
Yes. Density incentives are higher when dwelling are transferred from outside the urban service boundary to inside; transfers from inside to outside are not permitted. A number of development standards are much more lenient inside the urban service boundary (for instance, new villages inside the boundary require much less open space).

(10) Consultants:
Lead Consultant: Treasure Coast Regional Planning Council
Major Subconsultants:
Dover, Kohl & Partners: Urban Design and Land Development Regulations
Spikowski Planning Associates: Land Development Regulations
LBFH, Inc.: Surface Water Management
Glatting Jackson Kercher Anglin: Transportation
GMB Engineers & Planners: Transportation
Zimmerman/Volk, Inc.: Residential Market Analysis
Gibbs Planning Group: Retail Market Analysis
Peter Spyke: Agriculture
Nancy Stroud: Legal Analysis

(11) Consulting fees:
Approximately $1 million (not counting legal challenge dollars, or original charrette and master plan)

(12) Where adopted plan can be found:
Chapter 3, St. Lucie County Comprehensive Plan
www.tcrpc.org/departments/studio/st_lucie_charrette/tvc_element.pdf

(13) Published sources with more details:
www.tcrpc.org/departments/studio/st_lucie_charrette/implementation_schedule.htm

(14) Where implementing regulations can be found:
Ordinance No. 06-017, which created Section 3.01.03 of the St. Lucie County Land Development Code:
www.spikowski.com/StLucieLDRrevisions-Ordinance06-017-AsAdopted.pdf

MARTIN COUNTY'S "LAND PROTECTION INCENTIVES"

(1) Land area affected:
210,379 acres (total acreage in "Agricultural" designation on Future Land Use Map, including wetlands which are not designated separately)
- 148,000 acres in private ownership
- less 2,000 already developed
- less 9,000 proposed for development
- less 56,000 targeted for purchase

(2) Residential density:
BEFORE:
– "Agricultural": 1 DU per 20 acres (allows only 20-acre lots, not just a gross density of 1/20)
AFTER (PROPOSED):
Tracts of at least 500 acres could be rezoned to PUD to allow cluster development, with lots of 2 acres or larger. The total number of lots cannot exceed the pre-existing base density of 1 DU per 20 acres for the entire tract (previously, density transferred from wetlands only qualified for 1 DU per 40 acres). At least 50% of the land would have to be made permanently off-limits to residential or commercial development. If the tract contains any land listed for acquisition by a government conservation program (e.g., Everglades restoration), at least half must be donated, and no 2-acre lots can be placed on the remainder.

(3) Will development activity be concentrated rather than dispersed?
Somewhat. At least 50% of properties approved under this program must be set aside as "contiguous native habitat preservation area, open space, or agricultural." Individual lots must be at least 2 acres (instead of longstanding Martin County requirement of 20-acre lots).

(4) Developable areas:
(a) Are developable areas defined in advance by this planning process?
No. Approvals must be for increments of land greater than 500 acres and are considered on a case-by-case basis. Disqualified: "unique, threatened or rare habitat"; "environmentally sensitive lands that are critical to the support of listed plant or animal species"; and "lands listed for acquisition by state, regional or local agencies as part of an established conservation program..."
(b) To what extent is the physical form of the developable areas prescribed?
Very little. Individual lots must be at least 2 acres (instead of previous requirement of 20 acres); there are no other fixed requirements.

(5) Are preferred preservation areas protected by regulatory means?
If land is listed for acquisition, it is not eligible for 2-acre lots. Wetlands are well-protected by Martin County but are not shown separately on the Future Land Use Map.

(6) Are preferred preservation areas defined primarily by their environmental characteristics?
They are defined by the same criteria used by "state, regional or local agencies as part of an established conservation program."

(7) Historical summary of planning process:

- September 2005: Development Patterns Study initiated
- April 2006: Enhanced public participation begins with community presentations
- January 2007: Development Patterns Study completed
- June 2007: County Commission initiates "land protection incentives" amendment to comprehensive plan
- August 2007: Plan amendment transmitted (CPA 07-20)

(8) Mandatory or optional?

Optional

(9) Did the plan include a component affecting existing urban areas?

No

(10) Consultants:

Lead Consultant:

Glatting Jackson Kercher Anglin Lopez Rinehart, Inc.

Major Subconsultants:

Real Estate Research Corporation

Strategies for Livable Communities

(11) Consulting fees:

Development Patterns Study: $528,877 for initial contract in October 2005 (study only, not comprehensive plan amendments or other implementation); contract was extended in April 2006 to enhance public participation

(12) Where adopted plan can be found:

Martin County's existing "Comprehensive Growth Management Plan" is available at: www.municode.com/resources/gateway.asp?pid=13591&sid=9

Amendment transmitted to Florida Department of Community Affairs by Martin County Commission on August 21, 2007: www.martin.fl.us/documents/BOCC_Agenda/FY%202007/2007-08-21/Agenda%202007-08-21-Final-Agenda-Packet.pdf

(13) Published sources with more details:

Martin County Development Patterns Study: www.martin.fl.us/web_docs/gmd/web/dev_patterns_study/Development_Patterns_Study/Table_of_Contents.pdf

(14) Where implementing regulations can be found:

Not applicable

COLLIER COUNTY'S "RURAL FRINGE"

(1) Land area affected:
72,180 acres total, about 60% of which is wetlands. Of the wetlands, 75% is in the CREW or Belle Meade "Natural Resource Protection Area" (NRPA).

(2) Residential density:
BEFORE: Future Land Use Map categories were "Agricultural/Rural," "Agricultural/Rural Mixed Use District," or "Agricultural/Residential Subdistrict," all with a density of 1 DU per 5 acres.
AFTER: All are now "Agricultural/Rural," with three different subcategories (not subdistricts):

- **Sending lands** (40,965 acres):
  - The base density has been lowered to 1 DU per 40 acres; the "base severance rate" for density transfers is 1 TDR credit per 5 acres, plus a bonus second TDR credit contingent on county acceptance of a restoration and management plan that includes removal of exotic vegetation. There are additional bonuses for land donation, "early entry," and use in a Rural Village.
  - If sending lands are developed, the following levels of native vegetation must be preserved:
    - the higher of 80% of native vegetation or 80% of the total site acreage; or
    - in a NRPA, the higher of 90% of native vegetation or 90% of the total site acreage.
- **Receiving lands** (22,740 acres):
  - The base density is 1 DU per 5 acres. Through TDRs on parcels larger than 40 acres, a landowner can achieve up to 1 DU per acre via clustering, plus bonuses for preserving extra native vegetation and purposes. Some commercial uses are allowed in rural villages. 70% open space is required.
  - Up to 3 rural villages may be allowed (one in each of the 3 receiving areas). Requirements include: spacing of 3 miles; 300' greenbelt around perimeter; 300 to 1,500 acres each (up to 2,500 acres south of Belle Meade NRPA); gross density from 2 to 3 DUs per acre; must acquire TDR credits for DUs above 1 DU per 5 acres; fiscal neutrality is required for all rural villages.
  - If TDR credits are used, agricultural uses can continue but cannot be intensified.
  - 40% of native vegetation must be preserved, not to exceed 25% of the total site acreage.
- **Neutral lands** (9,475 acres):
  - The base density is 1 DU per 5 acres. Clustering is encouraged on lots up to 1 acre. Density cannot be transferred onto or away from "neutral lands."
  - 60% of native vegetation must be preserved, not to exceed 45% of the total site acreage.

ZONING BEFORE: With a few exceptions, land was zoned "A" (Rural Agriculture).
ZONING AFTER: Most zoning is still the same, but now there is a Rural Fringe Mixed Use zoning overlay with the same three subsets; these zoning overlays dictate the allowable uses and density.

(3) Will development activity be concentrated rather than dispersed?
Yes; the actual level of concentration depends on how landowners respond to incentives. Maximum lot size for clustered development is 1 acre (this does not apply to rural villages).

(4) Developable areas:
(a) Are developable areas defined in advance by this planning process?
Yes; receiving areas are identified as subcategories on the Future Land Use Map.
(b) To what extent is the physical form of developable areas prescribed?
Somewhat; see policies in Growth Management Plan and requirements for rural villages in LDC.

(5) Are preferred preservation areas protected by regulatory means?
Yes, to a considerable extent (such as the severe density penalties for building there).

(6) Are preferred preservation areas defined primarily by their environmental characteristics?
Yes – sending lands are clearly the principal target for preservation and conservation. All privately owned NRPAs were designated as sending lands.

(7) Historical summary of planning process:
- June 1999: Florida Department of Community Affairs challenges comprehensive plan amendments; the result is a state order to complete a "Rural and Agricultural Area Assessment" within three years.
- June 2002: Comprehensive Plan amendments are adopted; they became effective in July 2003.
- November 2004: Land development code amendments are adopted by Ordinance 04-72 (later amended by 05-27 and 05-49).
- 2007: Plan amendment CPSP-2005-14 is pending to redesignate up to 90 properties from "sending" to "neutral" or "receiving." This opportunity was anticipated in the 2002 plan amendment. Applications for 98 parcels were submitted; 6 were withdrawn, 2 require no change, and county staff is recommending approval of only 16 of the remainder.
- Through 2007: One rural village was proposed but later withdrawn. Some tracts are now being platted as residential-only using some TDR credits to increase density. A few other small projects have already been approved using TDR credits.

(8) Mandatory or optional?
Largely mandatory; but many bonuses are available to encourage use of TDRs and to build rural villages rather than isolated residential subdivisions.

(9) Did the plan include a component affecting existing urban areas?
For a limited time, TDR credits may be transferred to urban-designated lands. Minor "density blending" is allowed for parcels at the urban/rural edge.

(10) Consultants:
RWA Inc (Bob Mulhere)
Carlton Fields (Nancy Linnan)
James Nicholas

(11) Consulting fees:
Approximately $565,000 (this total apparently includes some costs for Rural Land Stewardship)

(12) Where adopted plan can be found:
Growth Management Plan, Future Land Use Element, see "Rural Fringe Mixed Use District"
Text: *www.co.collier.fl.us/Index.aspx?page=257*
Map: *www.colliergov.net/Modules/ShowDocument.aspx?documentid=2530*

(13) Published sources with more details:
None available

(14) Where implementing regulations can be found:
Land Development Code, Section 2.03.08
www.municode.com/Resources/gateway.asp?pid=13992&sid=9=13992&sid=9

COLLIER COUNTY'S "RURAL LAND STEWARDSHIP"

(1) Land area affected:
195,846 acres total acres of land. About 13,512 of these acres are publicly owned.

(2) Residential density:
BEFORE: Future Land Use Map category was Agricultural/Rural, with a maximum density of 1 DU per 5 acres. Extensive areas are also designated as Natural Resource Protection Area (NRPA) overlays and/or "areas of environmental concern."
AFTER: Indeterminate; eight "stewardship credits" allow one acre of development. The formulas that govern the granting of credits are embedded in a GIS computer model created by WilsonMiller.

(3) Will development activity be concentrated rather than dispersed?
Yes, to the extent that landowners choose the Rural Land Stewardship option.

(4) Developable areas:
(a) Are developable areas defined in advance by this planning process?
Specific sites are not identified, but generally will be existing farmland. Ineligible sites include Flowway Stewardship Areas, Habitat Stewardship Areas, and Water Retention Areas. Potentially eligible sites include 74,500 acres outside Areas of Critical State Concern 18,300 within these areas.
(b) To what extent is the physical form of developable areas prescribed?
Somewhat. Policy 4.2 says they must be "compact, mixed-use, and self-sufficient in the provision of services, facilities and infrastructure." The implementing codes are much less specific than the codes for the Sarasota and St. Lucie plans. The first built example, Ave Maria has a mixed-use town center adjoining a walkable college campus, but the remainder has little compactness or mixing of uses.
Four development types are allowed:
– Towns are larger and have a town center.
– Villages are primarily residential but can have a "village center."
– Hamlets are small rural residential areas, may also have convenience retail.
– Compact Rural Development – more flexible standards than Villages or Hamlets.

(5) Are preferred preservation areas protected by regulatory means?
Although SSAs are by definition voluntary (despite ambiguous wording in Policies 3.1–3.3 and 5.1), the stewardship overlay explicitly designates the following areas:
– Flowway Stewardship Areas (FSA), 31,100 acres
– Habitat Stewardship Areas (HSA), 40,000 acres
– Water Retention Areas (WRA), 18,200 acres
Mining is not allowed in HSAs with an index value >1.2 (Policy 3.7). Mining is not allowed in FSAs prior to the time they are granted stewardship credits; after that, mining is still not allowed due to compensation paid to landowners in the form of stewardship credits (Policy 5.1).
Agriculture is allowed and can be expanded in HSAs and FSAs, unless this right is bought out with stewardship credits (Policy 3.9).

(6) Are preferred preservation areas defined primarily by their environmental characteristics?
Yes

(7) Historical summary of planning process:
- June 1999: Florida Department of Community Affairs challenges comprehensive plan amendments; the result is a state order to complete a "Rural and Agricultural Area Assessment" within three years.
- June 2002: Comprehensive Plan amendments are adopted.
- June 2005: Land development code amendments are adopted by Ordinance 05-27.

(8) Mandatory or optional?
Optional

(9) Did the plan include a component affecting existing urban areas?
No

(10) Consultants:
Wilson Miller (retained by major landowners)
RWA Inc. and Carlton Fields (retained by county to assist in review)

(11) Consulting fees:
– WilsonMiller fees not of public record; variously estimated at $750,000 and up
– $512,500 to county consultants (this total apparently includes costs for Rural Fringe as well)

(12) Where adopted plan can be found:
Growth Management Plan, Future Land Use Element, see "Rural Lands Stewardship Area Overlay"
Text: *www.co.collier.fl.us/Index.aspx?page=257*
Map: *www.colliergov.net/Modules/ShowDocument.aspx?documentid=2530*
Stewardship overlay map: *www.colliergov.net/Modules/ShowDocument.aspx?documentid=6732*
Index maps: *www.colliergov.net/Modules/ShowDocument.aspx?documentid=6726*

(13) Published sources with more details:
"Report and Recommendations of the Collier County Rural Lands Assessment Area Oversight Committee for the Immokalee Area Study," WilsonMiller, May 2002
www.co.collier.fl.us/Modules/ShowDocument.aspx?documentid=541
"Rural Land Stewardship Area (RLSA) Program Case Studies: Collier County and St. Lucie County," Prepared for Florida Department of Community Affairs by Tim Chapin Ph.D. and Harrison Higgins, AICP, Dept. of Urban and Regional Planning, Florida State University, August 2007

(14) Where implementing regulations can be found:
Land Development Code, Section 4.08.00–4.08.07
www.municode.com/Resources/gateway.asp?pid=13992&sid=9