

PROSPECTS FOR SOUTHEAST LEE COUNTY

PLANNING FOR THE DENSITY REDUCTION / GROUNDWATER RESOURCE AREA (DR/GR)



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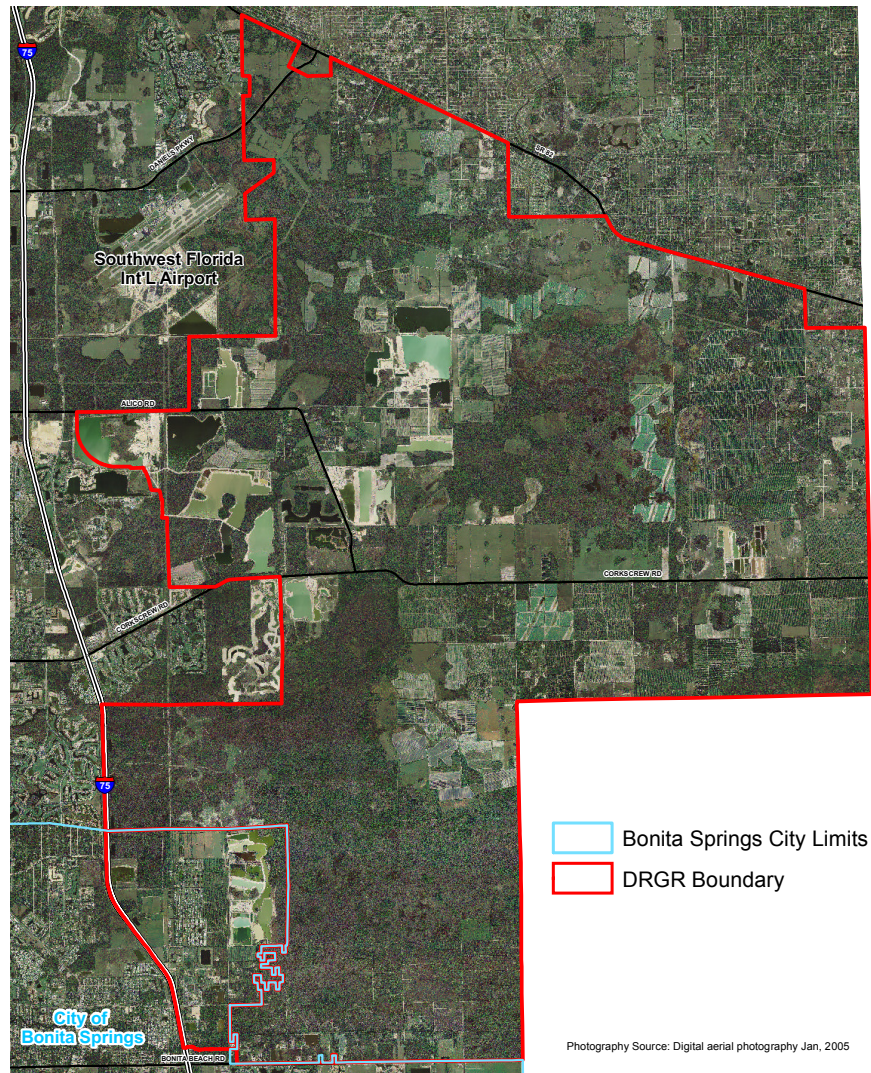
Don Troyer

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background information 1



Aerial photograph of outer extent of southeast Lee County DR/GR-designated lands, including those lying within the city of Bonita Springs.

WHAT IS THE DR/GR?

The Density Reduction/Groundwater Resource designation was applied to most of southeast Lee County in 1990 to settle litigation with the Florida Department of Community Affairs. There were two reasons for this designation: Lee County's desire to protect its shallow aquifers, and the state's insistence that Lee County reduce the population capacity of the Lee Plan's Future Land Use Map.

Five general types of land uses can take place in the DR/GR area. Some are permitted by right, including very low density residential at one unit per 10 acres; agriculture (citrus, row crops, and pasture); open space/recreation; and conservation. A fifth type, mining, can be approved through the rezoning process. Wetlands permeate the DR/GR; wetlands have their own category on the future land use map with a residential density of one unit per 20 acres. Categories called "Conservation Lands" designate some uplands and wetlands that are being permanently protected by public or nonprofit entities. A "Public Facilities" category has been applied to the Airport Mitigation Park, although a pending plan amendment would redesignate the majority of the park as "Conservation Lands."

DR/GR is the predominate designation applied across 82,560 unincorporated acres in southeast Lee County. This area is east of I-75, south of the Southwest Florida International Airport and State Road 82, and extends all the way to the county lines of Collier and Hendry Counties. DR/GR lands are located east of the cities of Fort Myers and Bonita Springs and south of the vast low-density residential community of Lehigh Acres. The DR/GR holds a strategic position between developed urban areas to the north and west and pristine environmental preserves to the southeast. DR/GR lands immediately adjoin the Corkscrew Swamp, which lies just across the Collier County line. The watershed of Corkscrew Swamp extends well onto the DR/GR lands.

The importance of DR/GR-designated lands extends beyond their actual boundaries. DR/GR lands store and protect a critical supply of water for the region. Several wellfields already tap this supply for public use, while valuable natural and agricultural systems also depend on this same

resource. DR/GR lands constitute a last frontier of natural wetlands and uplands with a remnant system of interconnected flowways that historically have supported abundant wildlife and the critical estuarine system of Estero Bay.

Agriculture has played an important role in the DR/GR for fifty years, with row crops, citrus, and cattle predominating. Because DR/GR lands have remained relatively undeveloped, they allow a rural way of life in the region for about 435 households, with the potential for about 1,145 more on existing subdivided parcels. The unique qualities of the area and inexpensive land have also attracted major new developments along Corkscrew Road and a proposal for a Development of Regional Impact (DRI) just northeast of the airport that could bring thousands more residents to the area.

Another valuable resource is found under DR/GR lands: limestone. This layer of limestone is a critical aquifer that stores water; in central and southeast Lee County it also constitutes a valuable source of easily accessible aggregate-quality limerock, an important building material for roads and buildings. Road building agencies, construction industry stakeholders, and mining companies all have a keen interest in the management of southeast Lee County's DR/GR lands.



The DR/GR area includes thousands of acres of protected wetlands and conservation areas.

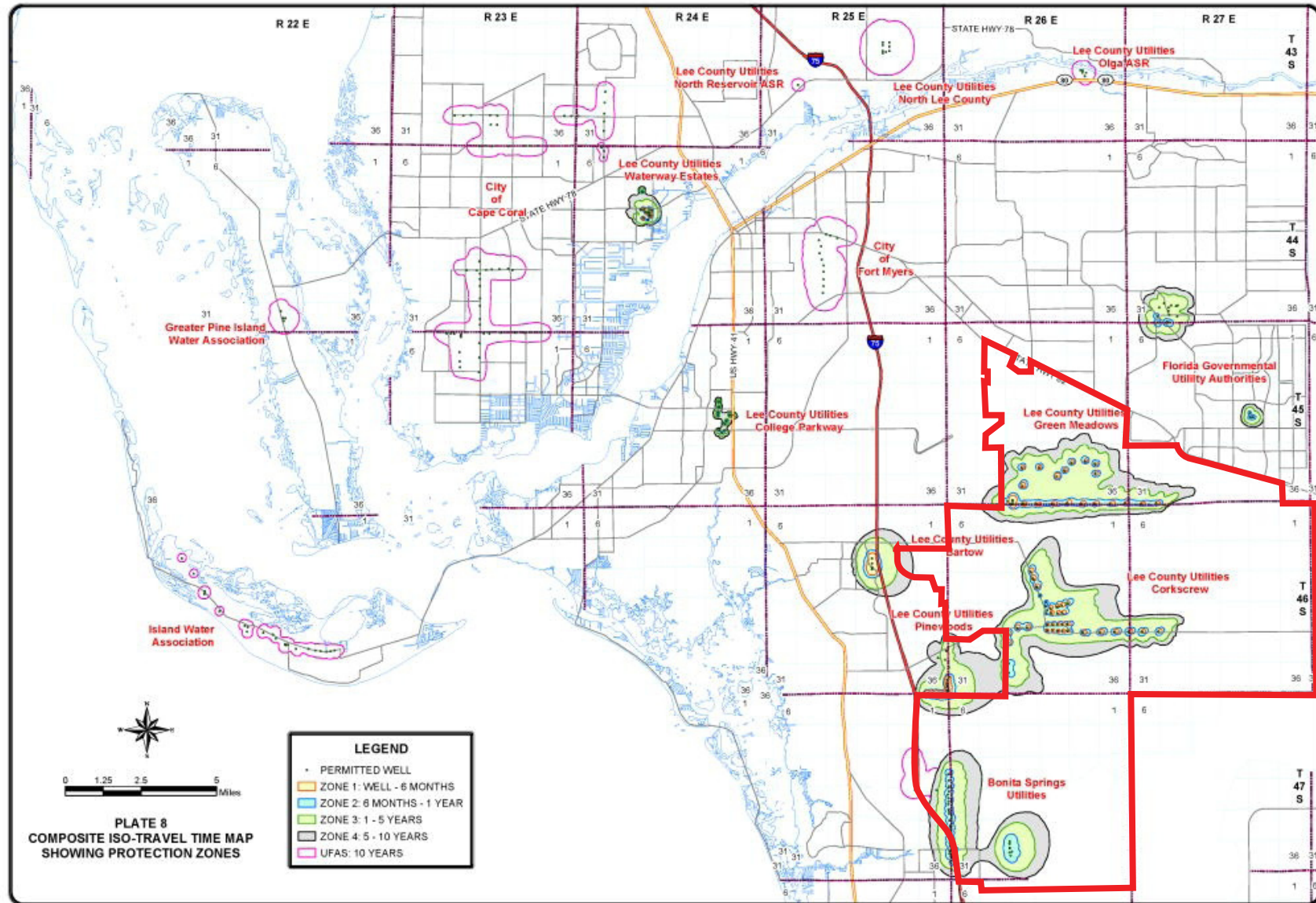
LEE PLAN DR/GR DEFINITION

POLICY 1.4.5: The Density Reduction/Groundwater Resource (DR/GR) areas include upland areas that provide substantial recharge to aquifers most suitable for future wellfield development. These areas also are the most favorable locations for physical withdrawal of water from those aquifers. Only minimal public facilities exist or are programmed. *Land uses in these areas must be compatible with maintaining surface and groundwater levels at their historic levels.*

Permitted land uses include agriculture, natural resource extraction and related facilities, conservation uses, publicly-owned gun range facilities, private recreation facilities, and residential uses at a maximum density of one dwelling unit per ten acres (1 du/10 acres). Individual residential parcels may contain up to two acres of Wetlands without losing the right to have a dwelling unit, provided that no alterations are made to those wetland areas.

“Land uses in these areas must be compatible with maintaining surface and groundwater levels at their historic levels.”

WHY ARE GROUNDWATER RESOURCES IMPORTANT?



Public water supply wells, with protection zones indicating where hazardous substances could reach shallow wells.
(SOURCE: Lee County Ordinance 07-35, with DR/GR boundary added)

LEE PLAN: ADDITIONAL GROUNDWATER PROTECTION PROVISIONS

GOAL 63: GROUNDWATER. *To protect the county's groundwater supplies from those activities having the potential for depleting or degrading those supplies.*

OBJECTIVE 63.1: WELLFIELD PROTECTION. The county will maintain a wellfield protection ordinance to provide regulations protecting the quality of water flowing into potable water wellfields. (Amended by Ordinance No. 94-30, 00-22)

POLICY 63.1.1: The wellfield protection ordinance will be amended whenever better technical data is developed and whenever additional potable wellfields are proposed. (Amended by Ordinance No. 00-22)

POLICY 63.1.2: The staff hydrogeologist will review and comment on all development applications near public utility potable water wellfields, with particular attention to proposed land uses within a 10-year travel time from the wellheads. (Amended by Ordinance No. 00-22)

OBJECTIVE 63.2: POTABLE GROUNDWATER. *Base all future development and use of groundwater resources on determinations of the safe yield of the aquifer system(s) in order not to impair the native groundwater quality or create other environmental damage. Criteria for safe-yield determinations will be determined by the SFWMD, the agency charged with permitting these activities. (Amended by Ordinance No. 94-30, 00-22)*

POLICY 63.2.1: For maximum protection of groundwater resources, identify future wellfields and/or relocation site(s) for existing wellfields well in advance of need. Coordinate with Community Facilities and Services IV-19 August 2007 SFWMD, other water suppliers, and DEP to avoid duplication and to assist in data collection and interchange. (Amended by Ordinance No. 94-30)

POLICY 63.2.2: Institute a program to identify sources of groundwater pollutants in Lee County and to map these (point and non-point) on a county-wide basis.

POLICY 63.2.3: Identify water needs consistent with projections of human population and the needs of natural systems in order to determine the future demands for groundwater. (Amended by Ordinance No. 94-30)

POLICY 63.2.4: Expand current programs to identify and map the contamination potential of groundwater resources for those areas of Lee County not currently under public ownership.

POLICY 63.2.5: Lee County, in cooperation with other agencies and the municipalities, will budget to maintain its current program of plugging non-valved, abandoned, or improperly-cased artesian wells so that at least seventy-five of these wells are plugged each year until such wells are eliminated. (Amended by Ordinance No. 94-30, 00-22)



TOP: Fill dirt excavation being converted to limerock mine
 MIDDLE: Lee County Utilities potable water treatment plant
 BOTTOM: Lee County Utilities wellfield

WHY THIS PLANNING PROCESS?

In recent years, the DR/GR designation has come into question for providing too little guidance as to where the five potential land uses would be appropriate. This issue became more visible when mining interests began proposing mining pits well outside the traditional Alico Road industrial and mining corridor.

New mines have been proposed along Corkscrew Road where new public water supply wells are being drilled and where future wellfields may be located. Water shortages are already a recurring problem while Lee County is poised to nearly double its population by the year 2030. Pressure for new residential development in the DR/GR area has remained steady despite potential conflicts with mining, agriculture, and restoration of natural systems.

The conflicts among these seemingly incompatible interests have regional repercussions. The Board of County Commissioners has affirmed its intention to take a proactive role in addressing competing needs in the DR/GR area and to identify appropriate locations for various uses of land.

In 2003 the Smart Growth Committee recommended a review of DR/GR policies. Since that time the Board of County Commissioners has commissioned several studies to better understand the competing interests in the DR/GR area. Water resources and geology were examined in the Groundwater Resource and Mining Study by Greg Rawl and Michael Voorhees. Previous DR/GR-related studies were compiled and reviewed in the Review and Summary of Studies Containing Information Relating to Density Reduction / Groundwater Resource Lands, which was produced by McLane Environmental in May 2007. Wellfield protection regulations were updated in December 2007.

In the fall of 2007 the Board of County Commissioners initiated a 14-point Action Plan on southeast DR/GR matters including critical mining, traffic, and land use issues. Each action will provide clear information that can lead to tangible responses, including changes to DR/GR policies in the Lee Plan and the land development code. For one year until the fall of 2008, new or incomplete rezoning applications will not be processed and changes to DR/GR designations will not be entertained.

To help carry out these actions, a 15-member DR/GR Advisory Committee was appointed by the Board of County Commissioners. To provide a balanced perspective, each commissioner appointed one member from each of three categories:

- Mining industry, Florida Department of Transportation (FDOT), or major landowners (public, private, or nonprofit)
- Residents of the southeast DR/GR and Estero areas
- Other county wide interests including environmental, water management district, general citizens, smart growth members, etc.

As part of the Action Plan, Lee County commissioned a major planning effort that includes four related parts: a mining truck impact evaluation, an integrated surface and groundwater model, detailed ecological mapping, and this land-use study.

Ecologists have been conducting an exhaustive mapping effort of existing and historic conditions throughout the DR/GR area, based on 2007 and 1953 aerial photographs. A comparison of these maps will provide answers to questions such as:

- What types of habitats were predominant prior to development and what were their hydrological characteristics?
- How wet was the DR/GR then compared to now, and what is the potential for recovering some of this water storage?

A separate technical memorandum will be published to present these maps and the findings based on them and to refine the conceptual restoration plan that is introduced in Chapter 4 of this report. The restoration plan is based on the potential for restoring impacted natural systems by identifying restorable land and prioritizing restoration activities that would be most beneficial to natural resources, with an emphasis on water resources (surface and groundwater).

Findings of the truck impact evaluation and the integrated computer modeling will also be published in separate reports.

This land-use study is charged with formulating three different scenarios for the future of the DR/GR area. The preliminary findings of this study are presented in the following chapters of this report and in the technical appendices that follow.

The Advisory Committee will review the three scenarios outlined in this report and will present its independent findings to the Board of County Commissioners. After weighing the recommendations of the committee, county staff, stakeholders, and the general public, the Commissioners will provide direction to staff and consultants about the goals of the final phase of this planning effort, which will involve various implementing steps and ultimately the preparation of Lee Plan policies, regulatory changes, and other public actions that will lead toward the evolution of the preferred scenario.

LEE COUNTY BOARD OF COUNTY COMMISSIONERS 14-POINT ACTION PLAN

Prospects for Southeast Lee County addresses the following three points of the 14-point Action Plan:

- 3. **Mining Traffic Enforcement**- Facilitate meeting with mining companies to determine proactive ways for mines to address traffic issues such as speeding.
- 10. **Land Use** - Evaluate water models, monitoring, and water budget
- 11. **Land Use** - Evaluate Comprehensive Plan Amendment for DR/GR
 - Possible Components of a plan:
 - Data and analysis
 - Analyze major land uses in DR/GR
 - Environmental connectivity
 - Habitat protection
 - Evaluate various approaches to clustering / TDR's / overlay
 - Flowway Protection
 - Infrastructure - transportation, water and sewer
 - Land Uses: Mining
 - Residential
 - Agriculture
 - Conservation/open space recreation/golf course

This study will create three different land-use scenarios for the future of the DR/GR area to move toward a sustainable mix of mining, agriculture, preserved and restored lands, and other rural land uses.

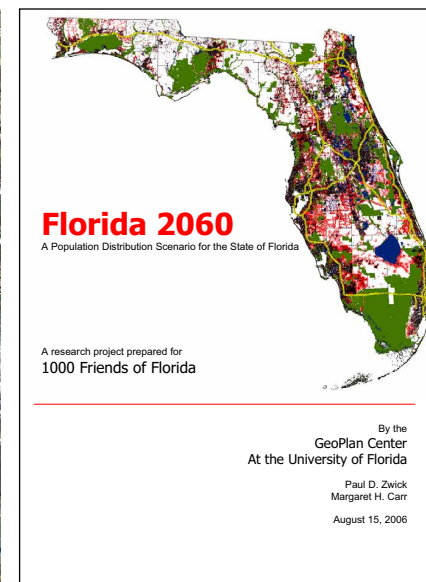
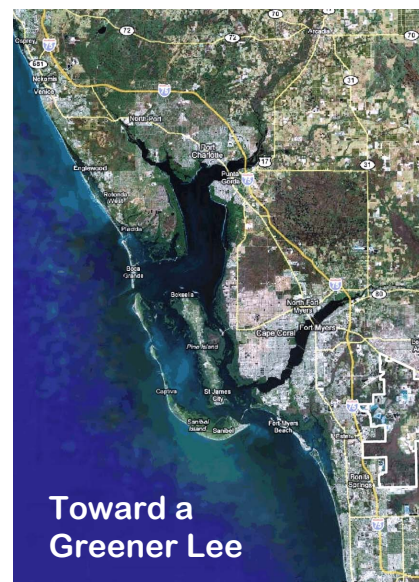
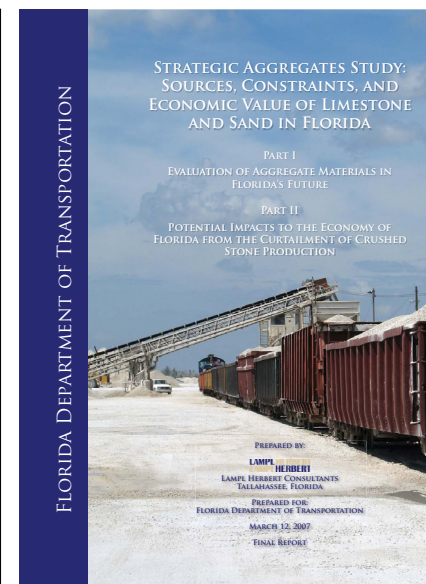
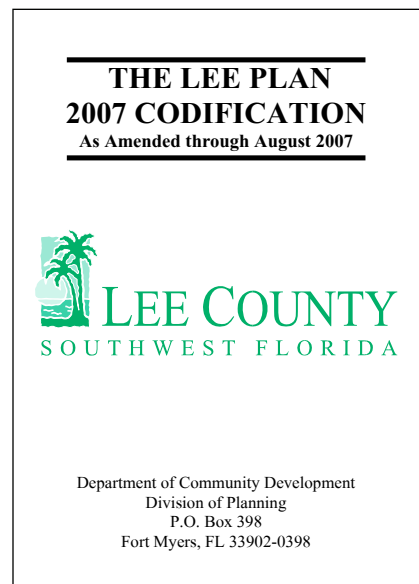
PREVIOUS PLANS AND STUDIES

Southeast Lee County has been the subject of numerous studies since the 1950s when the National Audubon Society began conducting wetlands research in and around the Corkscrew Swamp Sanctuary.

Lee County has commissioned a number of studies concerning conservation, water resource, and mining issues in the DR/GR area to inform policy-making. Numerous studies of the regional ecosystem have been conducted by other public and private entities. The purpose of these studies have ranged from justifying a mine or new development, to understanding the entire watershed, to determining the best locations to provide drinking water for residents and businesses throughout Lee County.

Despite the number of studies that have been conducted over the years, there is surprisingly little comprehensive scientific data available. Challenges in creating a complete body of knowledge about the DR/GR include the expense of conducting these studies over such a large area and the differing methodologies employed by scientists studying different subjects and working at varying scales. In order to gain a complete understanding of the role of DR/GR lands in the regional ecosystem, monitoring and water quality studies should be coordinated to build upon previous work and should provide data in formats that are comparable over time and between different studies.

A summary of previous plans and studies that relate to DR/GR lands is included in the following pages.



Land-Use Studies Relevant to the DR/GR

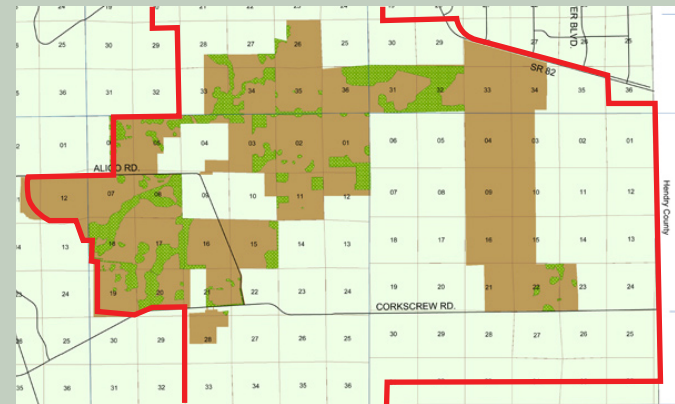
- 1996: *Arnold Committee Report and Recommendations*
This committee developed recommendations for a coordinated program of sustained resource management for southeast Lee County and Estero Bay. This effort was mandated by negotiations over permit issuance for the siting of Florida Gulf Coast University on formerly DR/GR lands.
- 2006: *Florida 2060*
Study sponsored by 1000 Friends of Florida that forecasts 7,000,000 acres of additional land being consumed by 2060 to accommodate growth under current development pattern.
- 2007: *GIS Population Growth/ Land Use Projection Model*
A model created by the University of Florida Geoplan Center for the Southwest Florida Regional Stewardship Alliance. The model presents seven alternative scenarios including various levels of infill and redevelopment at higher intensities, introduction of light rails, and increased acquisition of conservation lands.
- 2007: *An Alternative Future: Florida in the 21st Century*
Regional planning study conducted by the Metropolitan Center for Regional Studies at the University of Central Florida. According to the report, if Florida applies smart growth strategies, population growth by 2060 will require only 1,600,000 additional acres.
- 2007: *Toward a Greener Lee*
Study conducted by Spikowski Planning Associates that summarizes rural planning programs in Florida and how they could be applied to Lee County.
- 2008: *Bonita Springs Density Reduction/Groundwater Resource Land Use Study*
This study was commissioned by the City of Bonita Springs. Its purpose is to transform the existing land use pattern into one that restores the environment and adds to the quality of

Water Resource Studies Relevant to the DR/GR

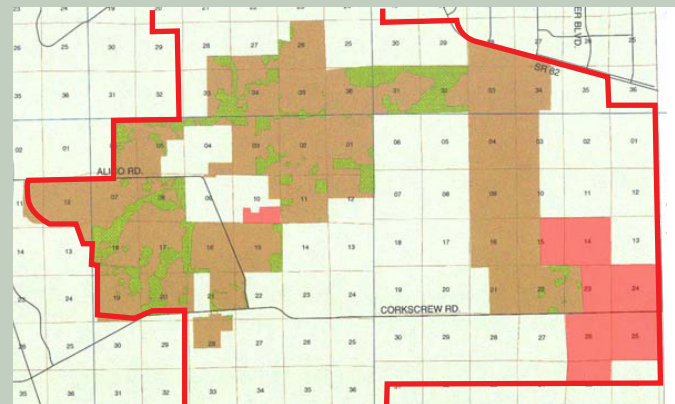
- 1988: *Lee County Water Resource Management Project*
This report mapped Lee County's upper aquifers and identified aquifer recharge areas and potential wellfields.
- 1993: *Ground Water Resource Protection Study*
This study was commissioned by Lee County to examine whether DR/GR density reductions were necessary to protect potable water sources and what new land development regulations might allow increases in density and/or intensity.
- 1995: *Recharge to the Surficial Aquifer System in Lee and Hendry Counties, Florida*
Study conducted by the U.S. Geological Survey to investigate various measures for estimating recharge to the surficial aquifer system in southwest Florida.
- 2005: *Lee County Groundwater Resource and Mining Study*
Study to provide technical background information on groundwater resources on which to base future planning (prepared by Greg F. Rawl, P.G. and Michael Voorhees, P.E.).
- 2005: *Engineering Analysis for Properties Designated within the City of Bonita Springs as "Density Reduction/Groundwater Resource" (DR/GR)*
Evaluation of land use, groundwater, surface water and other natural resources for the City of Bonita Springs.
- 2006: *Southwest Florida Feasibility Study*
Water resources study conducted by the South Florida Water Management District to identify southwest Florida water resources conditions and to develop potential solutions to any problems that may be identified. This ongoing study is part of the larger Everglades restoration effort.
- 2008: *Growth Management Regulation, Public Investment and Resource Implications for the Estero Bay Watershed*
Environmental study sponsored by the US EPA and the Southwest Florida Regional Planning Council that investigates the deterioration of Estero Bay water quality.

Lee County-Commissioned DR/GR Studies

- 2002: *Strategic Mining: A Report on Mining in Lee County*
Study conducted by Lee County Division of Planning that analyzes current understanding of mining operations within the DR/GR.
- 2005: *Groundwater Resource and Mining Study*
Study conducted by Greg Rawl, PE., that summarizes current knowledge of subsurface conditions in the DR/GR area.
- 2007: *Review and Summary of Studies Containing Information Relating to Density Reduction/Groundwater Resource Lands*
Study conducted by McLane Environmental LLC that summarizes current knowledge of flow-ways, native habitat, historic water levels, and restoration potential for degraded lands, and identifies gaps in current knowledge.



The 2002 *Strategic Mining: A Report on Mining in Lee County* study produced this map proposing specific locations for mining activity within the DR/GR. This map was never adopted.

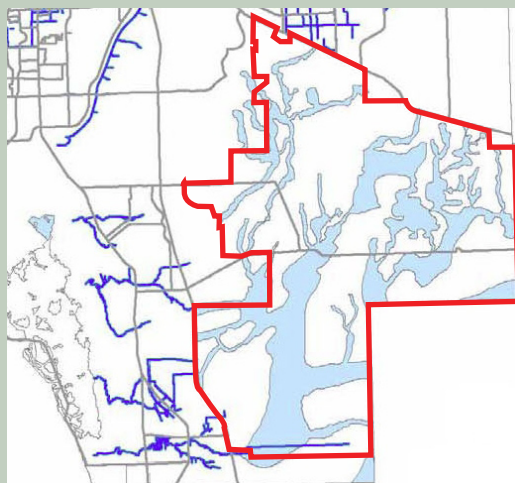


A revision to the proposed mining land use map was submitted by the mining industry, with additional potential mining. Owners of large parcels suggested adding the pink areas on this map to expand the potential mining areas.

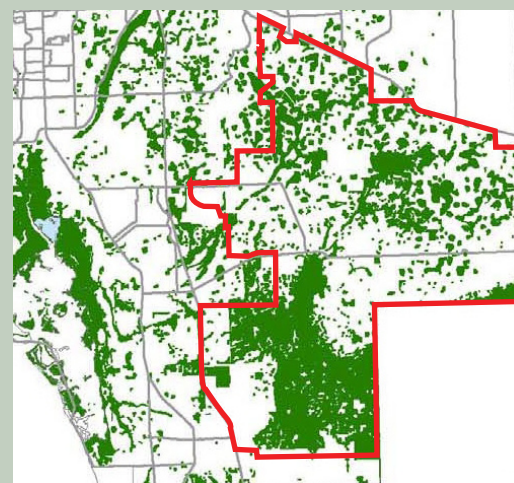
Lee County Master Mitigation Plan

This study was initiated in 2004 by the Southwest Florida Regional Planning Council in an attempt to identify the most valuable natural resources in the DR/GR.

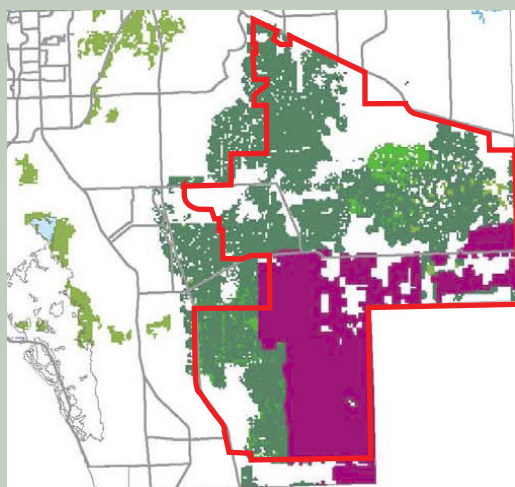
This study includes a map of critical environmental features that are proposed for future mitigation, restoration, and preservation activities. The map covers the entire county but provides considerable detail as to DR/GR lands, including preliminary identification of historic flowway.



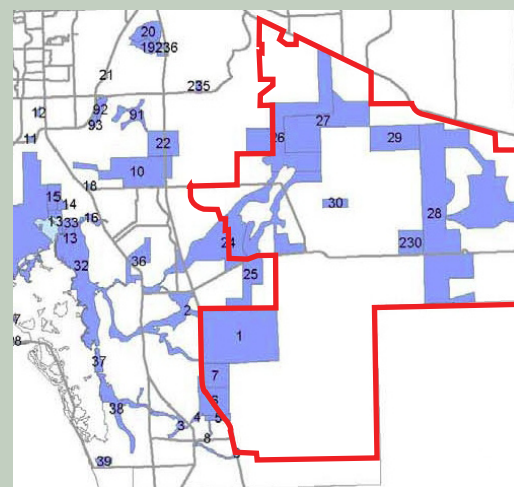
Historic Flowways and Rivers/Streams



Wetlands



Strategic Habitat Conservation Areas



Proposed Mitigation/Restoration/Preservation Sites

EXISTING CONDITIONS SUMMARY

The following pages present a series of maps that summarize existing conditions in the DR/GR area.

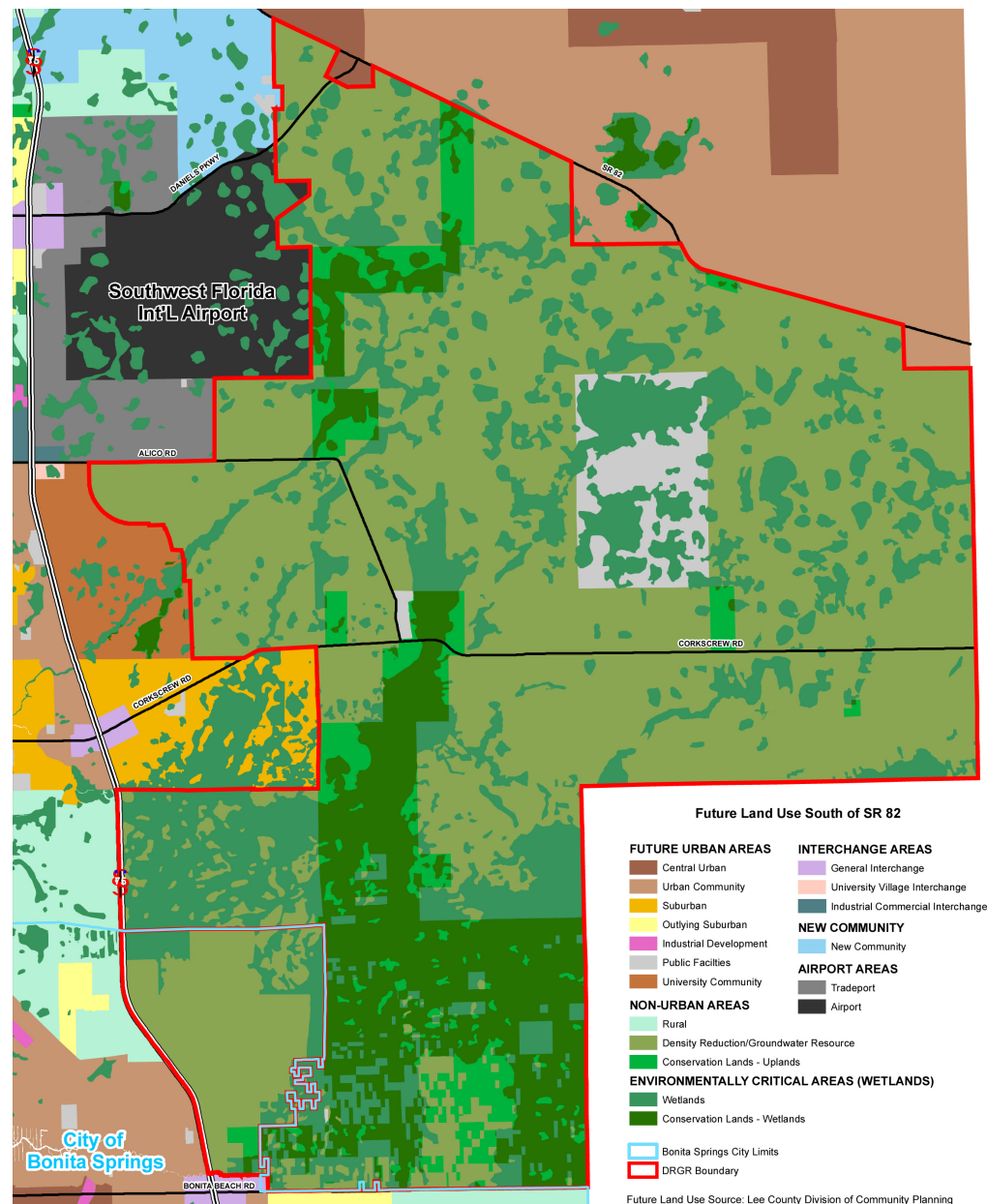
Future Land Use Map Designations

Southeast Lee County designations on the Lee Plan's "Future Land Use Map" consist primarily of non-urban (generally uplands) and environmentally critical areas (generally wetlands).

Non-urban lands include the actual DR/GR lands which comprise most of this area. DR/GR uses permitted by right include very low density residential at one unit per 10 acres; agriculture (citrus, row crops, and pasture); open space/recreation; and conservation. Mining can be approved through the rezoning process. Some uplands that are permanently protected by public or nonprofit entities are designated as "Conservation Lands." Uplands that are being preserved and restored as mitigation for airport expansion are shown on this map as "Public Facilities" but are in the process of being more appropriately designated as "Conservation Lands." These uplands are undergoing ecological restoration to benefit water resources and natural habitat.

Environmentally critical areas include privately owned wetlands and some of the wetlands that are permanently protected by public or nonprofit entities. Wetland designations are only approximate; mapping is adjusted based on later field inspections.

There is a notable lack of differentiation in land in southeast Lee County that has been designated DR/GR. The main future land use map does not designate priority or discouraged locations for any uses, leading to continuing conflicts between different stakeholders. There are only two supplemental maps in the future land use map series that affect this area. One shows where private recreational facilities (primarily golf courses) may be located; the other designates land where continued mining is encouraged (see Chapter 3 for further information).



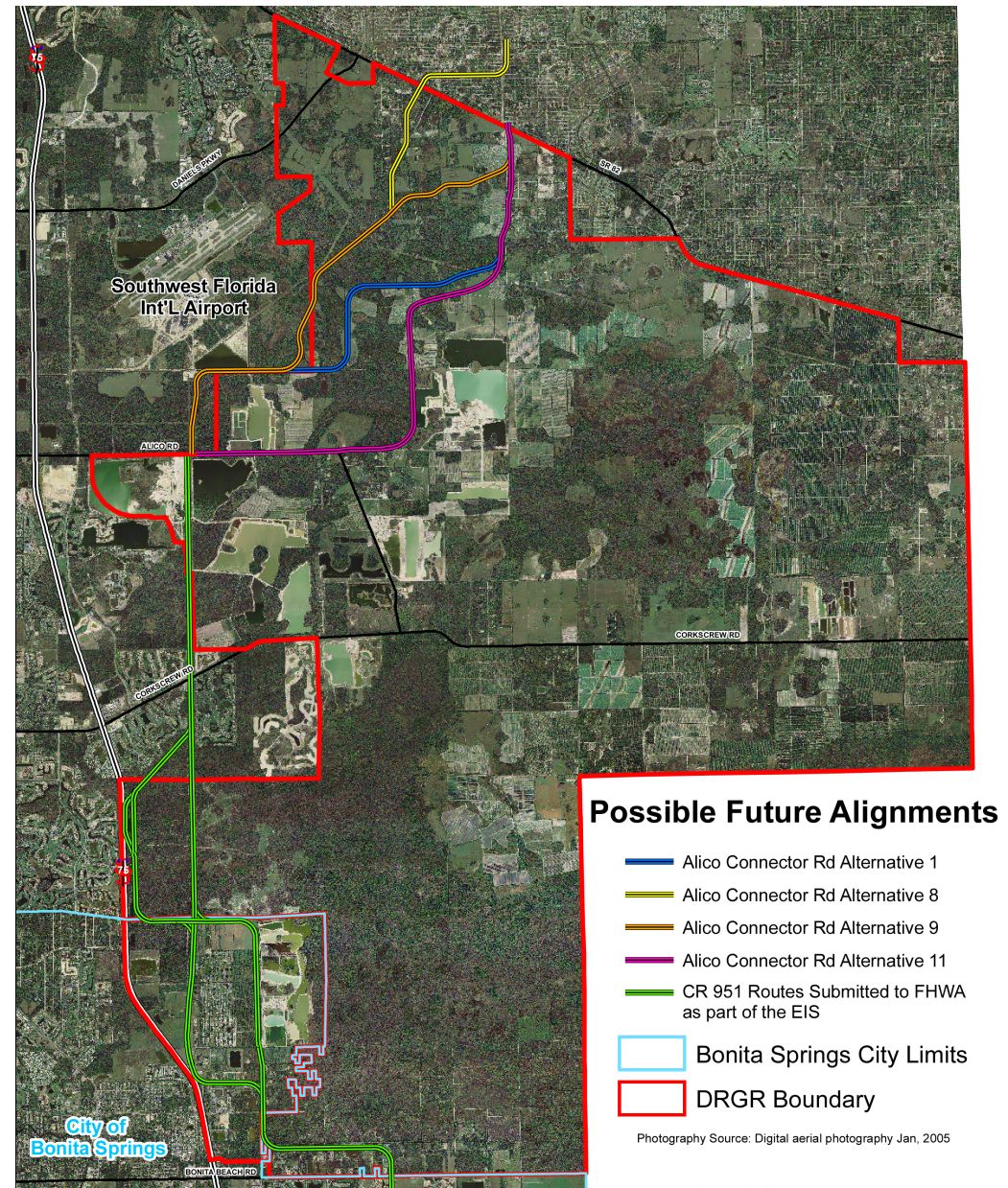
"Future Land Use Maps" adopted by Lee County and Bonita Springs.

Future Roadway Alignments

Two new roads are proposed within the DR/GR boundaries. Each could have profound impacts on land uses.

The Alico Connector Road would connect the eastern end of Alico Road to Lehigh Acres at State Road 82 in the vicinity of Sunshine Boulevard. This roadway would provide residents of Lehigh Acres better access to jobs and stores in south Lee County and Collier County, and better access to Florida Gulf Coast University. Some potential routes for the Alico Connector are shown on the map. During the course of this land-use study, a variation on Alternative 11 emerged as the preferred alignment.

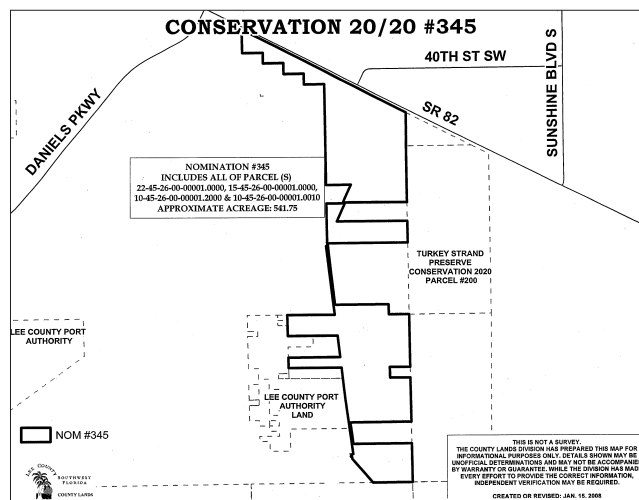
A northern extension of Collier Boulevard (CR 951) into Lee County would provide an alternative to I-75 for regional traffic. Potential routes from an in-depth Environmental Impact Statement are shown on the map.



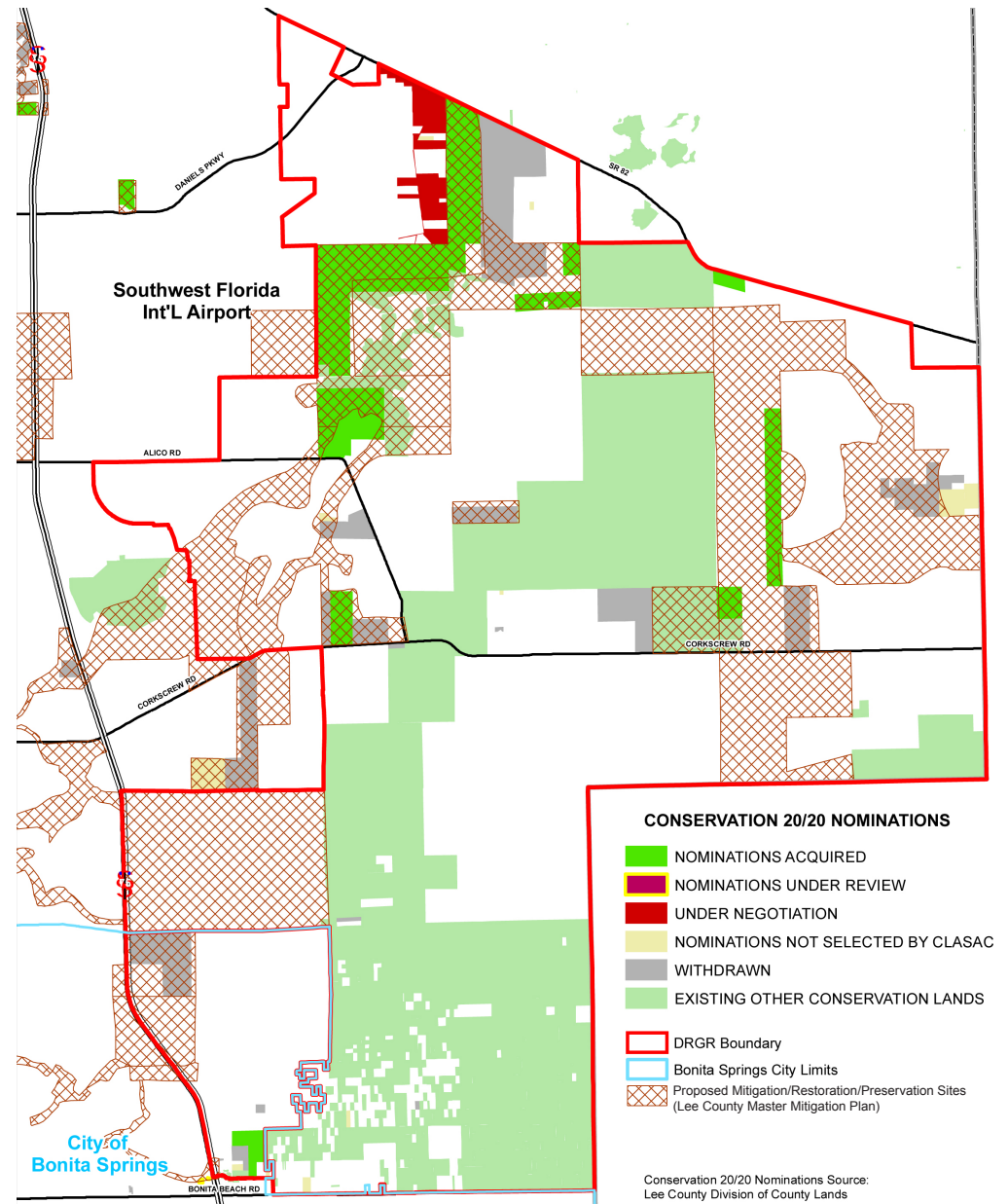
Conservation 20/20

The mission of the Lee County's Conservation 20/20 program is "To acquire properties of environmental significance, restore those lands to their natural state and condition, manage them in an environmentally acceptable manner and provide public recreational opportunities that are compatible with protecting the natural resources."

Conservation 20/20 has been responsible for the acquisition of a large amount of environmentally sensitive land within the DR/GR area. These acquired lands contribute to the significant environmental resources already protected by other entities, including the South Florida Water Management District, the CREW Land & Water Trust (Corkscrew Regional Ecosystem Watershed), the Lee County Port Authority, and the National Audubon Society.



The Turkey Strand Expansion, illustrated above and shown in red on the nominations map, will be Conservation 20/20's latest acquisition.

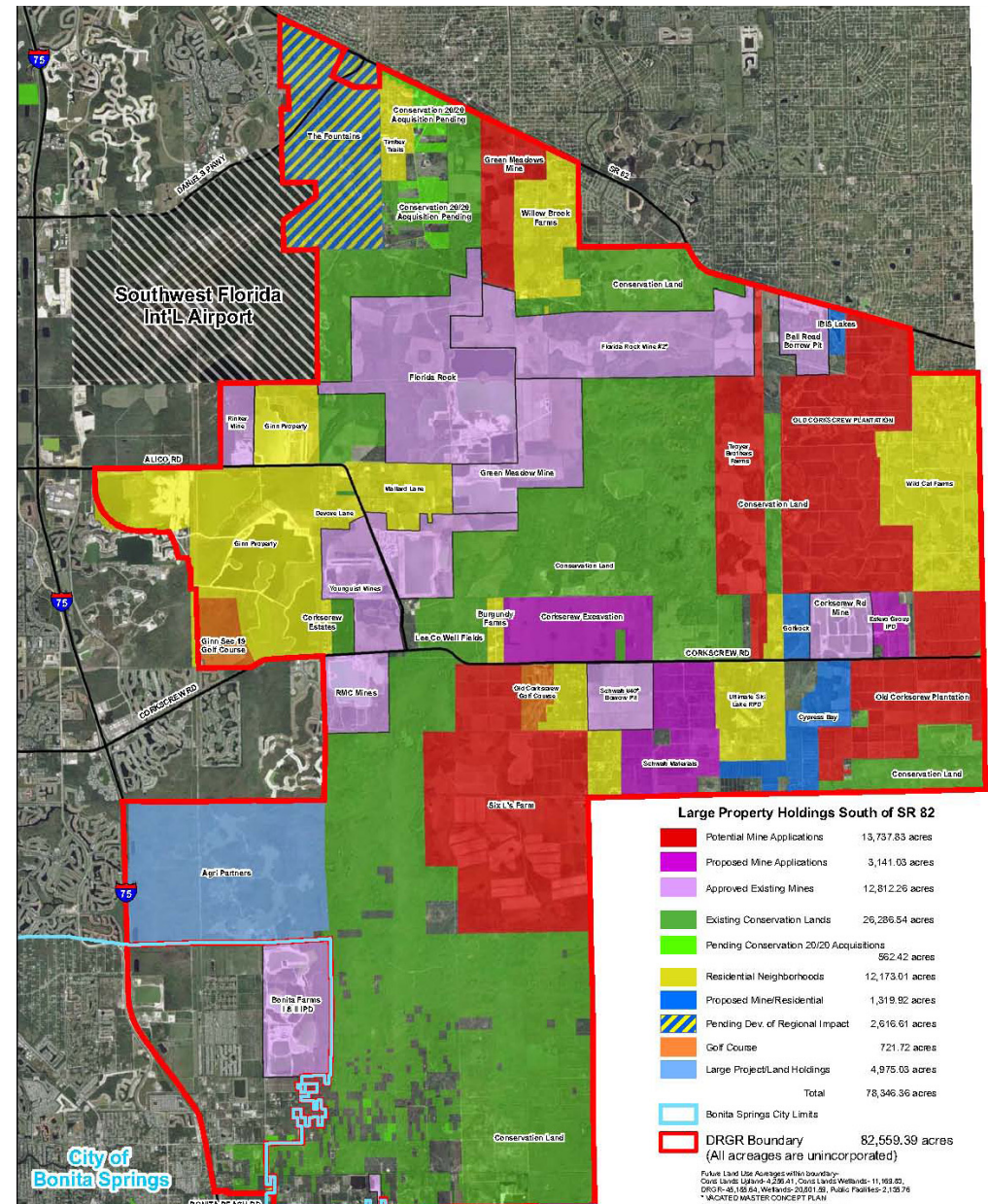


Large Property Holdings

The proximity and intermixing of different land interests in the DR/GR area is apparent by examining this map of large property holdings which was prepared by County Staff.

Residential neighborhoods (existing and proposed) are shown in yellow. Mining land holders are shown in pink (approved mines) and purple and dark blue (proposed mines). Land in red indicates that large land holders have contacted county officials about their future plans which include mining. Conservation lands are shown in green. Other large land holders are shown in light blue.

The proximity of residential areas to mining is always problematic. Mining activities are particularly undesirable for the nearest residents; these conflicts can lead to untimely cessation of mining even in areas that are most suitable for that purpose.



Wellfield Protection

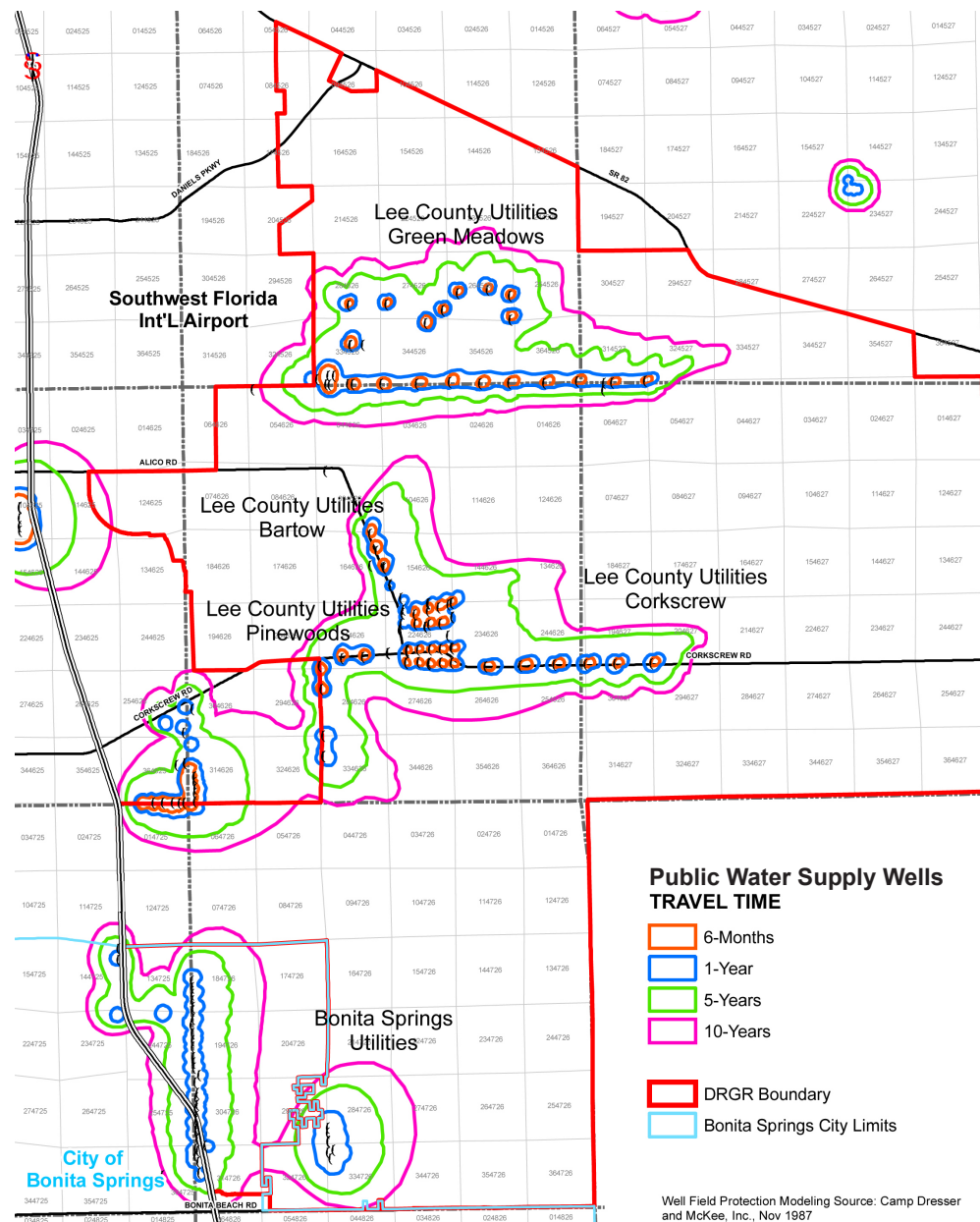
The DR/GR area was originally given this designation because of its rich groundwater resources. Important users of this resource are over 100 producing municipal wells in the DR/GR, with 66 more proposed. Lee County Utilities provides about 70% of its potable water supply from wells located in the southeast DR/GR area. Bonita Springs Utilities has the capacity to provide 53% of its service area with water drawn from wells in DR/GR land in Bonita Springs and unincorporated Lee County.

Potable wells in shallow aquifers are susceptible to contamination from fertilizers, pesticides, fuel spills, septic tank drainfields, and leaking storage tanks. Surface water bodies such as mine pits can introduce contaminants into the aquifer's production zone and then into the water supply wells.

Lee County's Wellfield Protection Ordinance identifies wellhead protection areas in order to protect the water supply from polluted groundwater. "Travel time" is how long it might take water to enter into the aquifer's production zone; they are shown with semi-concentric circles based on computer simulations of groundwater flow.

The Lee Plan states in Goal 63 and Policy 19.4.3 that the county will enforce wellfield protection requirements to ensure that future wellfield zones are protected. Staff members from the Lee County Natural Resources Division review and comment on all development applications near wellfields.

Lee Plan Policies 4.4.1 and 117.1.4 state that development designs must maintain groundwater levels at or above existing conditions and permitting measures should aim toward rehydrating the region. Wellfields can adversely affect wetlands by drawing down the water table. A stricter standard in Policy 1.4.5 applies in the DR/GR: "Land uses in these areas must be compatible with maintaining surface and groundwater levels at their historic levels."



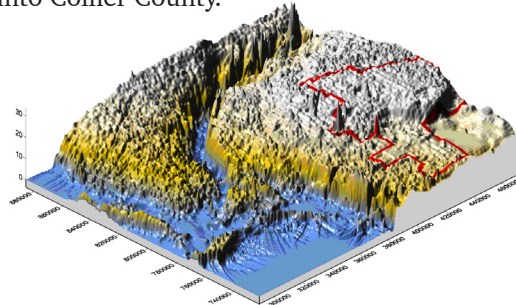
Public water supply wells (existing and permitted), with protection zones indicating where hazardous substances could reach shallow wells.

Major Flowways

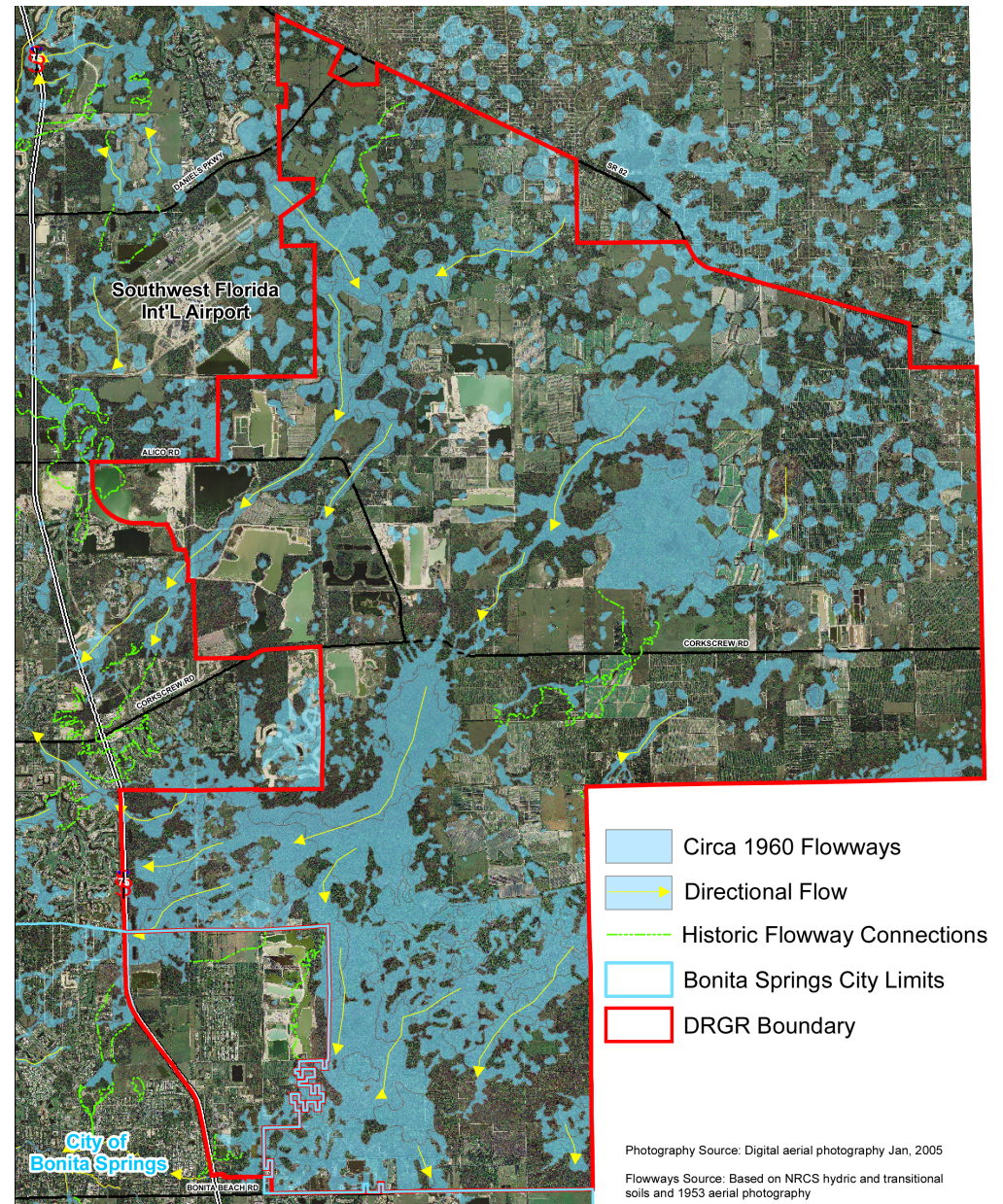
Major flowways in the DR/GR were delineated using aerial photographs and early surveys from the Soil Conservation Service. The adjoining map was prepared by county staff to estimate the extent of flowways around 1960 and to hypothesize where historic flowways have been lost to development or agriculture.

Surface water and shallow groundwater within the DR/GR feeds the wetlands and sloughs that provide habitat for plant and animal species. Surface water recharges the groundwater of the DR/GR's shallow aquifers. When water flows across the land's surface and through shallow wetlands and sloughs, contaminants including sediments and nutrients are removed, lessening the impact of human activities on aquifers and coastal waters into which these lands drain.

Historically, surface water flowed from the northeast to the south into the Corkscrew Swamp and to the southwest into the Estero River and the Imperial River. These flows are part of a larger water migration which occurs in the 345-square mile Estero Bay watershed, which starts along the ridge where SR 82 has been built and extends south into Collier County.



The diagram above indicates relative ground elevations (diagram provided by Greg F. Rawl, P.G.). Southeast DR/GR areas are outlined in red. Because there is little topographic change within the DR/GR, small changes, even roads, ditches, and culverts, can dramatically affect the flow of water. The vertical elevations in the diagram above have been greatly exaggerated to highlight subtle but important changes in elevation. What appears in this diagram as a deep bowl at the far right is the Corkscrew Swamp, which lies just beyond the Lee County boundary.



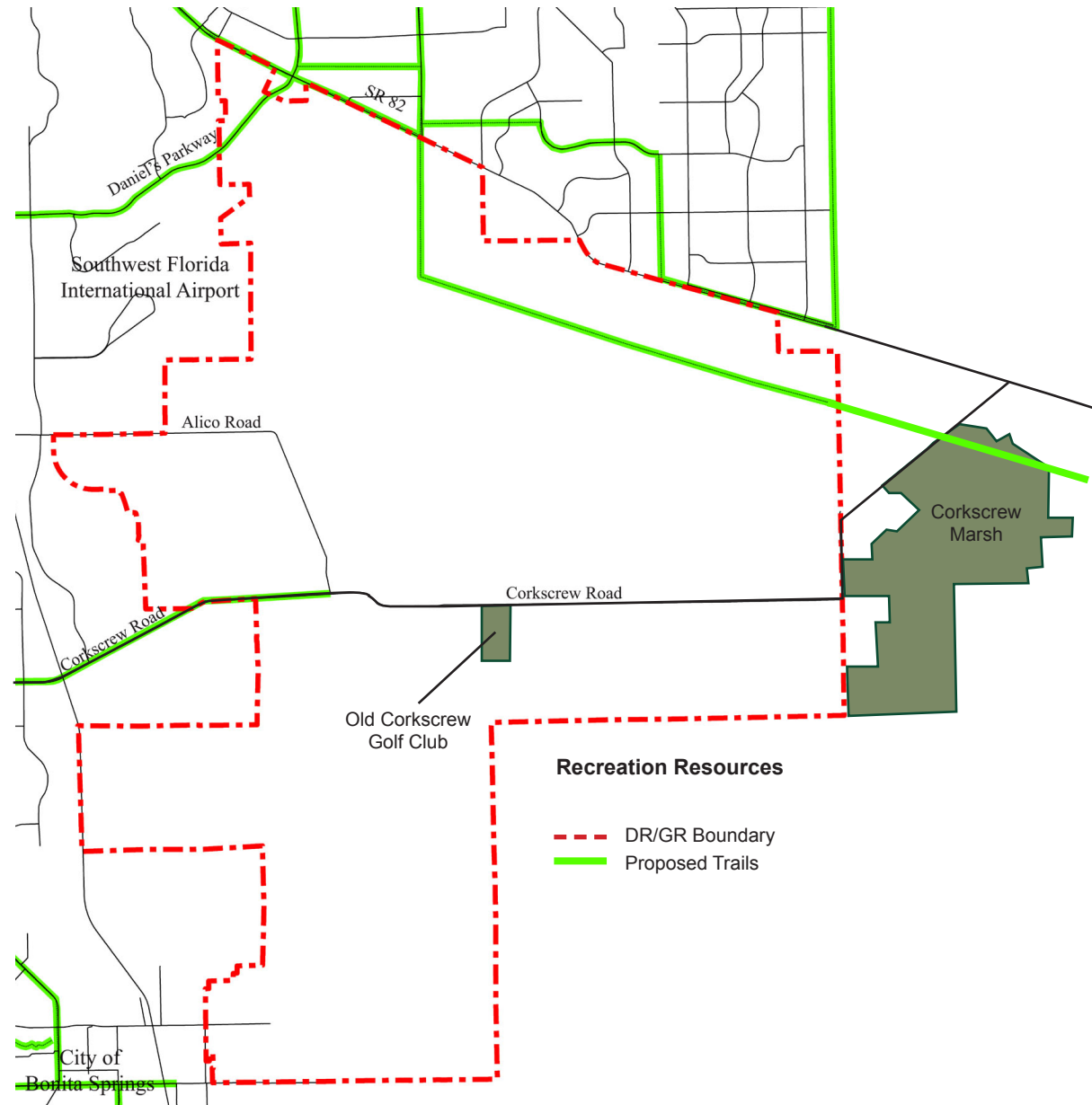
Flowway map supplied by county staff.

Recreational Resources

There are few organized recreational activities available in the DR/GR. The Old Corkscrew Golf Club is the only golf course that has been built in the DR/GR's private recreational facilities overlay.

The Lee County Greenways Master Plan proposes three trails in the DR/GR area. The Lehigh Trail is a proposed greenway that would run for 12 miles through the north-east portion of the DR/GR along a power line corridor to connect Lehigh Acres to Hendry County and Collier Counties. The trail would run through pine uplands, cypress preserves, and farmland. Additional trails would run along Corkscrew Road from Estero and along Daniels Parkway.

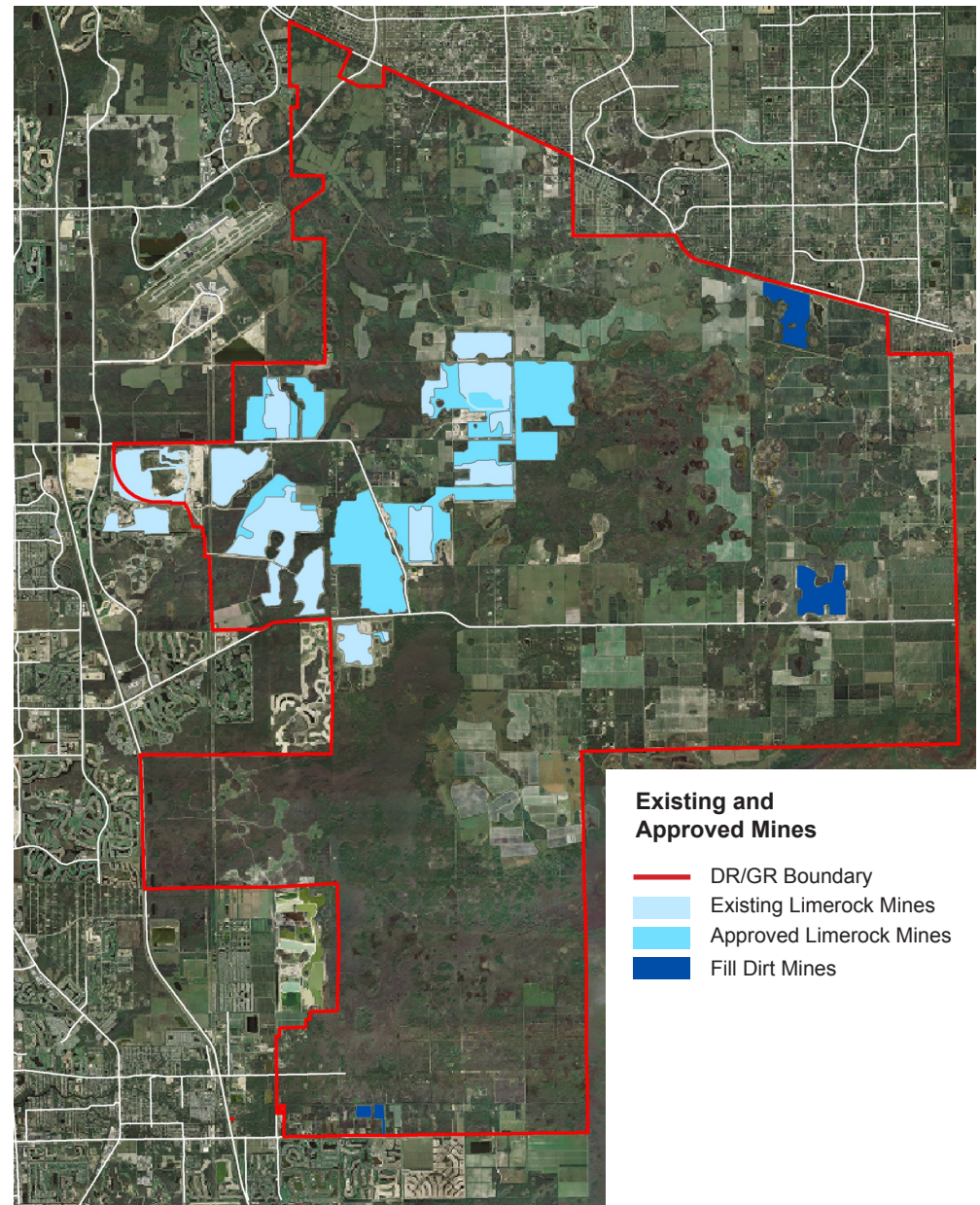
The CREW Land & Water Trust provides excellent hiking trails just east of the DR/GR area in Collier County. There are 5.5 miles of ground-level trails and boardwalks, offering hikers views of pine flatwoods, the 5,000-acre Corkscrew Marsh, a popash slough, and several oak hammocks. The trails are free and open to the public all year.



Recreational resources within the DR/GR include the Old Corkscrew Golf Club and the proposed trail system shown in green on this map (as proposed in the Lee County Greenways Master Plan).

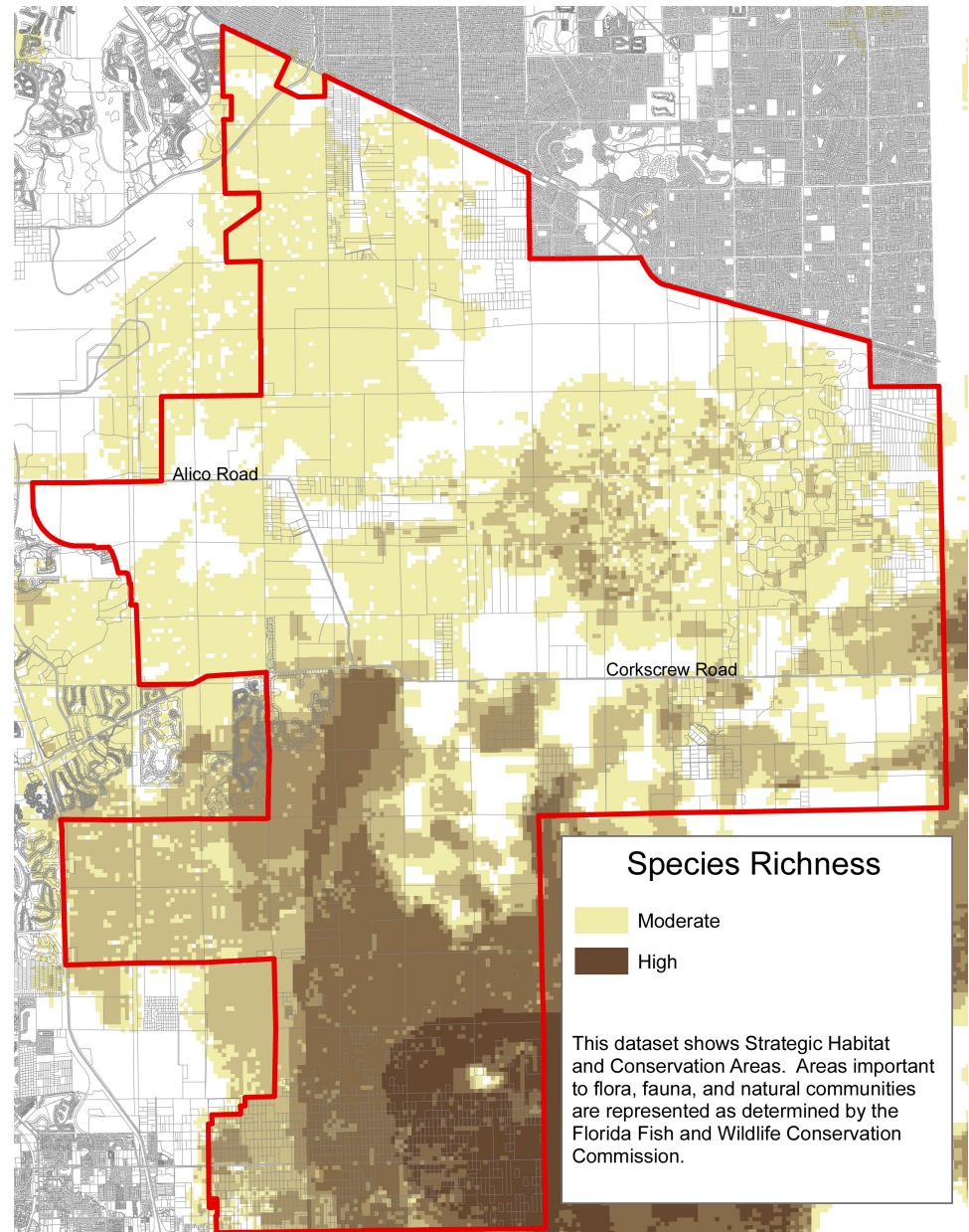
2006 Limits of Mining Excavation

This map summarizes existing and approved mining activity in the DR/GR as of January 2007. Existing limerock mining pits are illustrated in light blue; future limerock mining to the approved limits is illustrated in medium blue. Where mining has been approved for fill dirt only, the approved limits of mining are shown in dark blue.



Species Richness

This map illustrates locations within the DR/GR that are host to a wide variety of native flora and fauna. The darker colors on the map indicate those areas that have the most diverse range of species present. The most diverse areas on the map are located in the least disturbed and most naturally continuous areas of the DR/GR. This map suggests that pristine natural conditions and large swaths of connected, undisturbed land are the key to promoting a healthy ecosystem.



Florida Panther Focus Areas, from the United States Fish and Wildlife Service Panther Focus Area GIS dataset (12/13/06)

Panther Habitat

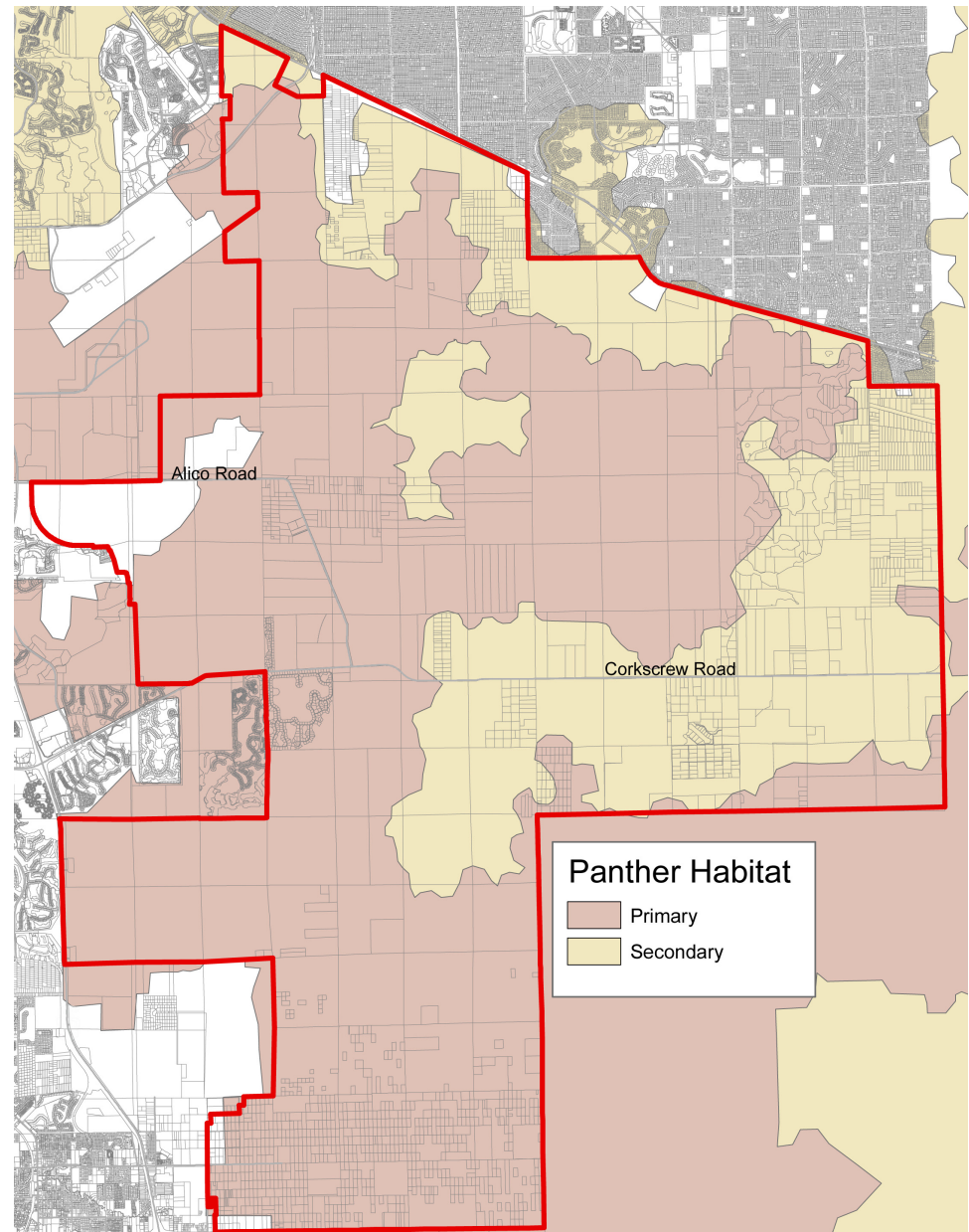
The following map illustrates habitat of the panther in the DR/GR area. Panthers require large hunting areas for their survival; it is crucial that large areas of uninterrupted habitat are available if they are to survive. Conflicts arise when panthers are pushed into settled areas, such as into Lehigh Acres and the I-75 corridor.

The largest contiguous tract of Florida panther habitat is the Big Cypress/Everglades ecosystem, but suitable panther habitat extends across the DR/GR.

The primary panther zone supports the present panther population and generally has the highest conservation value. Preservation of the primary zone is expected to contribute most to the long-term persistence of the Florida panther in the wild.

The secondary panther zone 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 habitat is lost to mining, intensive agriculture, or urban development. The secondary zone also contains fallow farm fields which provide habitat for panther prey such as hogs and deer.

(SOURCE: "How Much is Enough? Landscape-Scale Conservation for the Florida Panther" by Kautz, Kawula, Hctor, Comiskey, Jansen, Jennings, Kasbohm, Mazzotti, McBride, Richardson, & Root, in *Biological Conservation* 130 (2006), 118-133)



Strategic Habitat and Conservation Areas, from the Florida Fish and Wildlife Conservation Commission GIS dataset (2000)



Many residents along Corkscrew Road vehemently object to more mines.



Drag line removes material from quarry pit and allows it to drain before processing.

DR/GR STAKEHOLDERS

The variety of land uses that can be approved within the DR/GR has shaped the expectations of landowners. Accordingly, DR/GR stakeholders have unique and conflicting interests.

The most rapidly expanding land uses in the DR/GR are mining and conservation. Agriculture has historically played a significant role in the area, although its future is less clear than in the early 1990s when a major expansion of citrus groves was in progress.

The following pages introduce various stakeholder groups, summarizing their interests, their contribution to the economy, and their impacts on the region.

Environmental Stakeholders

Environmental stakeholders play an important role in the existing management and future policy decisions in the DR/GR. Elements of the DR/GR that are of particular concern to environmentalists include groundwater resources, wetlands, conservation lands, and wildlife habitat. An essential element of DR/GR lands is their connection to the regional ecosystem. These lands have important hydrological and ecological connections to bays, coastal ecosystems, and neighboring wetlands, due to their large swaths of protected lands and remnant flowways.

Groundwater resources throughout the DR/GR are of concern to environmentalists, both for their relationship with regional flowways and their connections to coastal estuaries and the Everglades. Furthermore, groundwater within the DR/GR is of concern for its contribution to Lee County's drinking water supply.

Wetlands throughout the DR/GR are identified as a separate designation that is interspersed with DR/GR on the Lee Plan's future land use map. These wetlands are valued for their relationship to larger regional flowways, their contribution to groundwater recharge, their unique ecosystems, their ability to store significant amounts of freshwater, and their role in filtering and purifying stormwater runoff before it reaches estuarine waterways.

Preserved land within the DR/GR includes the Flint Pen Strand, a swath of low-lying land whose flowways move water south from Corkscrew Road into the lower portions of Corkscrew Swamp. Another band of preserved land extends to the northwest of the Flint Pen Strand, connecting to the airport mitigation park. These lands have been acquired by a number of public and private entities, including Lee County and the South Florida Water Management District, and through mitigation funds created through the construction of the Southwest Florida International Airport and Florida Gulf Coast University. The Conservation 20/20 Program has successfully acquired a significant amount of land within the DR/GR as well. Preserved land is managed by a number of different conservation groups, including CREW Land & Water Trust and the National Audubon Society.



A major flowway remains undisturbed before entering a limerock mining area.



Large areas of preserved land in the DR/GR support a regional ecosystem.

The unique environment within the DR/GR serves as a strategic habitat for endangered species and ecosystems. These species include the Florida panther, the black bear, wading birds, the American swallow-tailed kite, the wood stork, and the indigo snake. It is estimated that only 60 to 100 panthers remain in south Florida; in the last ten years three panthers were killed on Corkscrew Road. A wide variety of plant species are found in wetlands and uplands, many of which are not common outside this watershed.

Finally, the DR/GR's relationship to Corkscrew Swamp is of regional significance. The DR/GR immediately adjoins the Swamp, which lies just across the Collier County line. 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.

Environmental experts have differing opinions about the potential impacts of mining. According to Fort Myers ecologist Kevin Erwin, the effects of large mines are essentially irreversible as deep lakes cannot be returned to a natural ecosystem. Jim Beever, senior planner at the Southwest Florida Regional Planning Council, suggests a different approach. He states that completed mines could mimic natural lakes if they are planned that way from the beginning. Natural lakes are generally shallow (to maintain oxygen levels) and have irregular and diverse shorelines and bottom topography. Two examples of this type of mining are Webb Lake along I-75 in Charlotte County and a series of lakes that were dug where Highway 29 crosses Alligator Alley in Collier County. This approach requires a major compromise between extraction and conservation because mine pits that are deep for more than one-third of their area will not support a balanced ecosystem.

Some analysts believe that mining pits contribute to regional water storage because much more water is stored in the mine pits than had been stored when the limestone was still in place. Others dispute this claim and assert that mine pits actually “leak” water resources because open pits lead to increased water loss through evaporation and/or through lowered groundwater levels nearby, thus losing the supply of water that is naturally stored on adjoining land.

Key Environmental Stakeholders

Audubon of Southwest Florida
Conservancy of Southwest Florida
Estero Council of Community Leaders
Florida Wildlife Federation
National Wildlife Federation
Responsible Growth Management Coalition
Lee County Conservation 20/20 Program
National Audubon Society / Corkscrew Swamp Sanctuary



Florida Rock quarry, with potable wellhead located in a 500-foot radius protection zone between two quarry pits.

Mining Stakeholders

Mining stakeholders have an important interest in current regulations and future land use policies that affect the DR/GR area. The DR/GR is a central part of one of only six areas in the State of Florida that are believed to contain high quality, sub-surface limestone that can be economically processed for use in road construction. Crushed stone, often known as aggregate, is also an important raw material in the construction of buildings. Aggregate is considered to be a geographically limited essential resource for economic development and growth in Florida.

Aggregate is a heavy and relatively low-value commodity. Most of Florida is supplied with aggregate mined from Miami-Dade County's Lake Belt, which is shipped by rail up Florida's east coast. Aggregate also arrives in Florida at several ports.

Southwest Florida does not have an aggregate port or a convenient connection to the east coast rail line. These factors increase the pressure to obtain aggregate locally even where mines are proposed in or near environmentally sensitive areas.

The rail spur that formerly allowed aggregate to be shipped from DR/GR mines has been abandoned. At present, local production means all aggregate is shipped from the mines by truck. This adds significant cost to the final product and limits the distances from which aggregate can be shipped, factors that are beyond the control of mining companies. Total reliance on heavy dump trucks is a burden on mining companies and nearby residents, with a detrimental effect on safety on otherwise rural roads where truck traffic conflicts with local traffic. The lack of rail also means that all development in Southwest Florida is auto-dependent, thus placing greater pressure on existing roadways and fueling increased demand for aggregate for construction of additional roads.

In order to construct one single mile-long lane, 4,951 tons (roughly 9 million pounds) of aggregate are needed, according to Deborah Snyder, PE, District Materials Research Engineer for FDOT. 147 million tons of aggregate are used in Florida each year. Roughly 119 million tons (80%) are produced in-state, with 12 million tons imported domestically, and 6 million tons imported internationally. Housing and commercial construc-



Limerock mines produce crushed stone and other aggregate products for all of southwest Florida.



Dump truck on Six L's Farms Road.

Key Mining Stakeholders

Florida Department of Transportation
 Florida Rock (now part of Vulcan Materials)
 Rinker Materials (now part of CEMEX)
 Youngquist Brothers Inc.
 Ginn Company
 Resource Conservation Holdings LLC
 Ascot Development
 Westwind Contracting, Inc.
 Estero Group Ltd.
 Bonita Grande Aggregates
 Schwab Materials
 Golfrock LLC
 PDJW II LLC (Bell Road mine)
 Dirtbags LLC (Ibis Lake Estates)
 Sanfilco LLC (Plumosa Farm)
 Highgate Corp / Bonita Land Resources
 Construction industry leaders

tion use 86 million tons per year, roads and infrastructure use 42 million tons and about 10 million tons are recycled yearly. FDOT contractors are the single largest user of aggregate, using 10% of Florida's supply. FDOT currently certifies production from 148 mines worldwide, 6 of which are located in the DR/GR.

The effects of mining activity on surrounding residential areas and on local rural roads have been a serious cause of conflict within the DR/GR. Residents in the DR/GR complain of disturbance from mining blasts, some of which are taking place adjacent to existing neighborhoods, in addition to conflicts with mining trucks. These concerns lead to great difficulty in obtaining permits for new and expanded mines. A tremendous expense is required to submit a complete rezoning request for mining in Lee County, with no guarantee of success. Even after approval is obtained from Lee County, state and federal permits must be obtained, either of which can be challenged in court.

Aggregate is an essential resource for construction in Florida. It is found only in limited locations, many of which have already been completely urbanized. Mining has lasting consequences, especially in environmentally sensitive areas. Current practices of road and building construction may not be sustainable, requiring alternative development strategies. These strategies could use more recycled aggregate than is common today or alternative materials for construction, or could result in planning for compact transit-oriented development to reduce the ever-increasing demand for more roads.

The table on the next page summarizes the location and size of existing and proposed DR/GR mines. Additional detail on these mines can be found in Appendix B. (In June 2008 the Board of County Commissioners denied the rezoning request for the Estero Group mine. Because this denial was "without prejudice," that application may be resubmitted at any time.)

DR/GR MINE SUMMARY

MINE NAME	FORMER NAME OR LOCATION	SEC-TWP-RGE	PROJECT ACRES	MINE ACRES
Approved Mines				
Rinker Materials (s. of Alico)	Florida Rock Ph. 1-A (northerly)	11, 12-46-25	915	537
Rinker Materials (n. of Alico)	Florida Rock Ph. 3-A, 3-B	5, 6-46-26	1,194	622
Rinker Materials (Ginn Lago)	Florida Rock Ph. 1-B, 2-A, 2-B	7, 8, 17, 18, 19, 20-46-26	3,560	1,357
Florida Rock (Miromar Lakes)	Florida Rock Ph. 1-A (southerly)	13, 14-46-25		
Florida Rock Greenmeadows	Harper Bros. Green Meadows	35-45-26; 2, 3-46-26	1,521	1,075
Florida Rock Greenmeadows exp.	SE expansion of Green Meadows	1, 11, 12-46-26	1,529	1,132
Youngquist Brothers	West Lakes; University Lakes	9, 10, 11, 15, 16, 21-46-26	1,955	1,511
Cemex/RMC	Corkscrew Woods (s. of Corkscrew)	28-46-26	309	228
Westwind Corkscrew	(n. of Corkscrew; far east)	22, 23-46-27	603	299
Bell Road	(replaces Sunstate; s. of 82)	27, 34-45-27	504	265
Bonita Grande Aggregates	Bonita Farms I & II	17, 20-47-26	1,321	557
Bonita Land Resources	Highgate Corp.	33-47-26	48	32
Plumosa Farm	Sanfilco	33-47-26	37	30
TOTALS:			13,496	7,645
Partially-Approved Mines				
Florida Rock Mine #2	(IPD vacated; no ACOE permit)	26, 27, 28, 33, 34, 35, 36-45-27; 28, 31, 32, 33-45-27	4,839	2,471
Mine Applications that are Pending or in Litigation				
Corkscrew Excavation	(n. of Corkscrew)	19-46-27; 23, 24-46-26	1,366	840
Golfrock	(n. of Corkscrew)	22-46-27	253	142
Estero Group	(n. of Corkscrew)	23-46-27	318	251
Schwab 640	Corkscrew Lakes	30-47-26	644	378
Schwab II	(also s. of Corkscrew)	29-46-27	600	318
Cypress Bay	(s. of Corkscrew)	27, 33, 34-46-27	953	267
Ibis Lake Estates	(s. of SR 82)	34-45-27	93	61
TOTALS:			4,227	2,257

Residential Stakeholders

The DR/GR allows very-low-density residential development of up to one dwelling unit per 10 acres. Large DRI-scale developments can only be approved if land is redesignated from DR/GR to an urban designation on the future land use map.

Rural residential settlement in the DR/GR dates back to the turn of the century when the historic Corkscrew Settlement was first established just east of the county line. It has grown over the years to consist of around 435 households, with about 125 in Wildcat Farms and the rest in smaller rural subdivisions.

Although these households are somewhat spread out, they collectively identify themselves as members of the same rural community. One of the centers of this community is the Corkscrew Country Store, which was built in the 1970s and serves as an informal gathering place for neighbors to meet.

Significant conflicts exist between mining stakeholders and residents of the DR/GR. Mining and residential are essentially incompatible uses; their proximity within the DR/GR causes strains for both groups. Future planning for the DR/GR should take these conflicts into account and designate appropriate areas for each use to minimize future conflicts.



Willow Brook Farms rural community, east of Green Meadows Road.



The Corkscrew Country Store has provided supplies and camaraderie to area residents for thirty years.

Key Residential Stakeholders
Corkscrew Road Rural Community
Prospective developers (for instance, SouthStar Development Partners
and Ginn Company)



Agricultural uses just south of SR 82. Top of photo: Cleared field awaiting conversion to limerock mine. Center of photo: Troyer Brothers farm. Bottom of Photo: Sakata Seed Corporation farm.



Citrus groves at Corkscrew Plantation encircle remnants of a former wetland system.

Agricultural Stakeholders

Agriculture has historically played a significant role in the DR/GR area, with row crops, citrus and cattle grazing being the predominant types of agriculture today.

As development began to move east of I-75 in the 1980s, the future of agriculture in Lee County was in doubt. A series of freezes in central Florida reinvigorated agriculture in southwest Florida as citrus growers moved southward, especially to Lee and Hendry Counties. The role of agriculture has begun to decline again in recent years despite major planting of new citrus groves in the 1990s.

The widely varying perceptions of agriculture industry leaders in southwest Florida were compiled in 2007 by Florida Gulf Coast University. Appendix A summarizes that report, provides a brief history of farming in southeast Lee County, and identifies today's major agricultural operations.

Farming in metropolitan fringe areas has often been a transitional use on a path toward urbanization. Some planners and ecologists believe that fringe farmland has equal potential for continued farming for specialty crops for local food production, as well as being a potential transitional use on a path back to natural habitat. Farmland located on former wetlands or flowways could provide critical water storage during non-growing seasons while remaining in agricultural production. Farmland could also be partially or fully restored by modifying artificial drainage and replanting native vegetation.

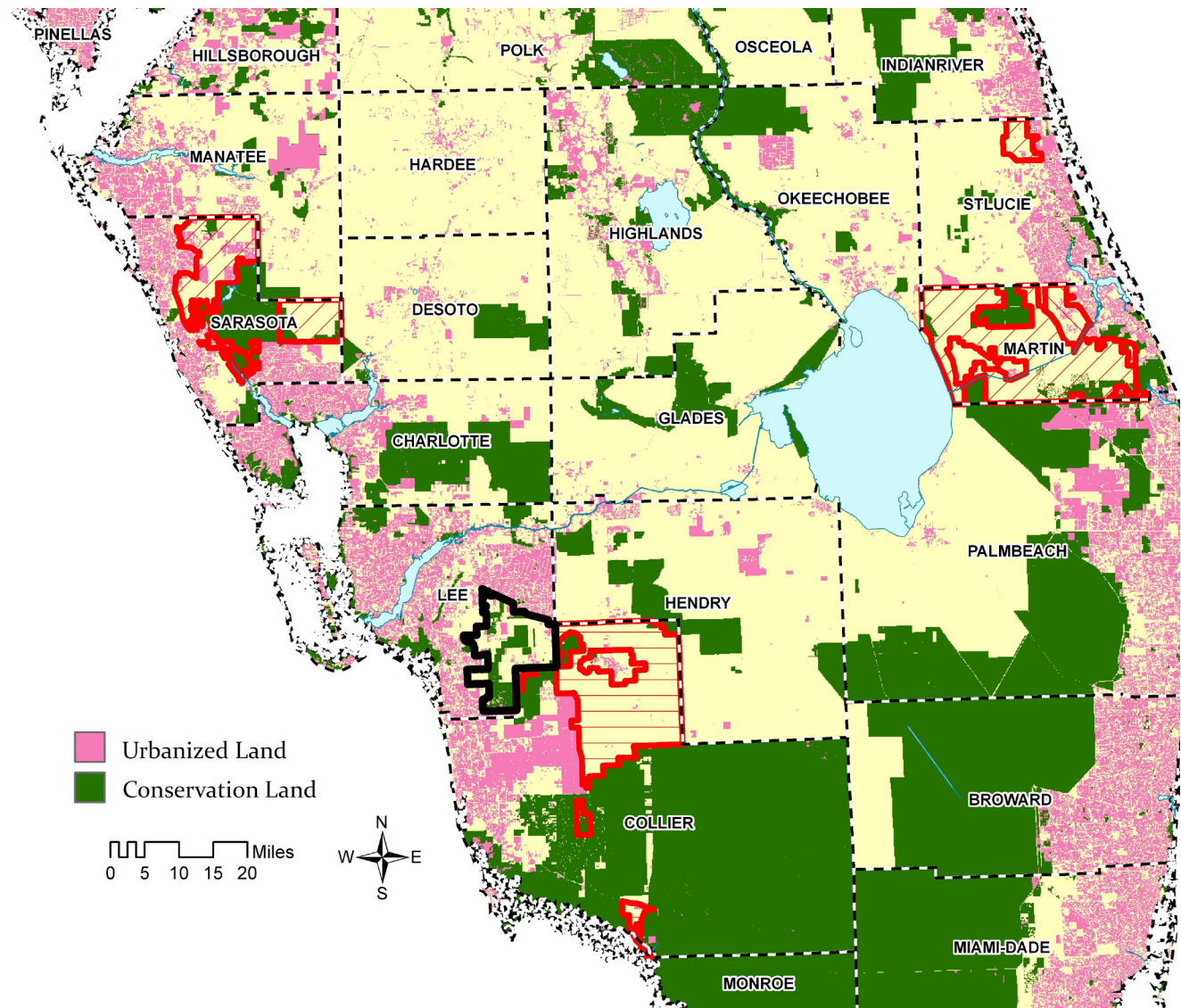
Key Agricultural Stakeholders

Six L's Farms
Old Corkscrew Plantation
Troyer Brothers Florida
Gulf Coast Citrus Growers Association
Jamerson Farms

ALTERNATIVE RURAL PLANNING TECHNIQUES

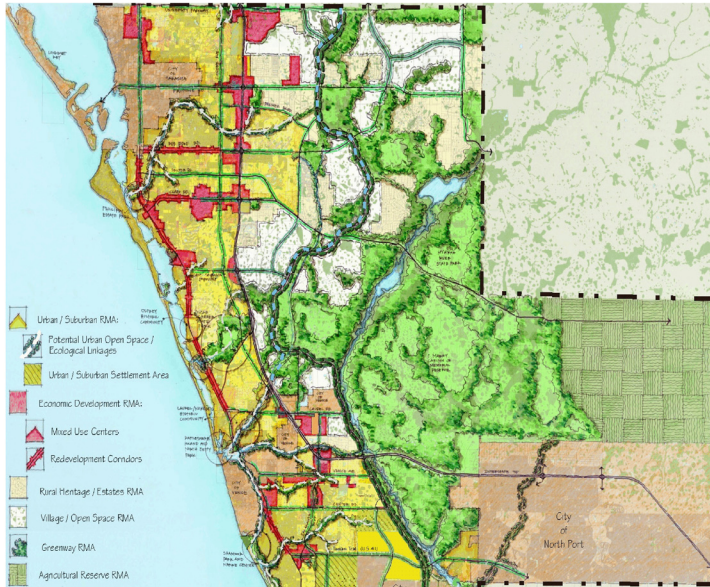
Lee County can learn from other Florida counties that have incorporated innovative rural planning techniques into their comprehensive plan. The following four rural planning initiatives were investigated in the 2007 Dunn report, *Toward a Greener Lee: Effective Planning Alternatives for Rural Lee County*. Each of the counties described 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, including preservation of natural resources and permanent open spaces, farmland preservation, and the concentration of development rights rather than uniformly low densities. On the other hand, they differ in many significant ways. Participation in some programs is entirely voluntary, while other mix regulations and incentives. Some programs raise rural densities dramatically while others allow minor increases or none at all. Finally, one program was driven by landowners and other stakeholders while the others were primarily governmental efforts.



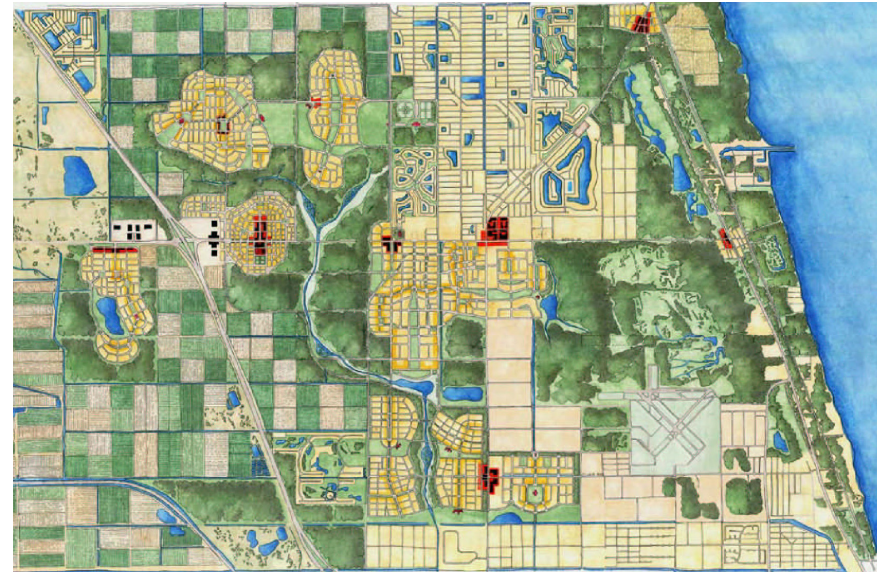
Rural planning programs examined in "Toward a Greener Lee"

OPTIONS FOR PLANNING IN THE DR/GR

**Sarasota 2050**

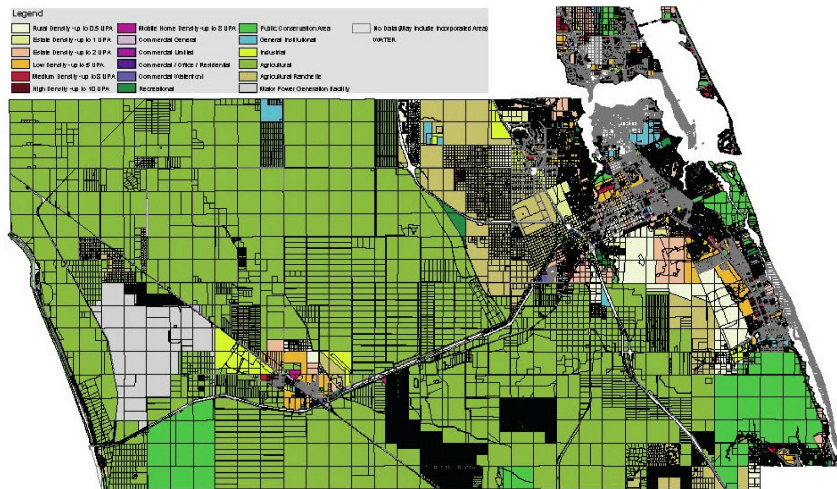
Sarasota County adopted its *Sarasota 2050* plan in 2002. For decades, county regulations had limited density on most “Rural” lands east of I-75 to 1 dwelling unit per 5 acres with no distinction between uplands and wetlands. The *Sarasota 2050* plan established a series of overlay zones in the County’s comprehensive plan. If landowners elect to comply, they can benefit in two ways: by increasing their development rights, in some cases dramatically, and selling those rights to other landowners; or 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.

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.

**St. Lucie Towns-Villages-Countryside**

St. Lucie County formulated its *Towns, Villages, Countryside (TVC)* plan in 2004 and formally adopted it in 2006. The 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 dwelling unit per acre.

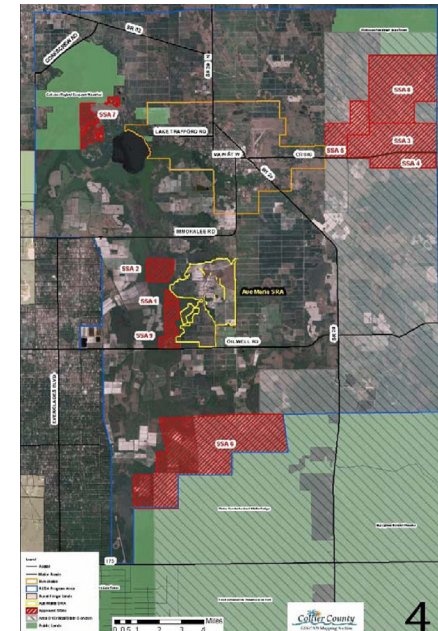
This plan changed the “Residential Estate” designation in the comprehensive plan to a new TVC designation. The TVC plan established the framework for developers to build several new villages or towns, each to be surrounded by land dedicated to continued agricultural uses. A riverine flow-way system will 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.



Martin Land Preservation Incentives

Martin County has strictly controlled growth by establishing relatively small urban areas and rarely expanding them. 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 this challenge, the Martin County Commission transmitted a proposed comprehensive plan amendment (CPA 07-20) 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 dwelling unit per 20 acres for the entire tract (previously, density transferred from wetlands only qualified for 1 dwelling unit 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, at least half must be donated, and no 2-acre lots can be placed on the remainder.



Collier Rural Land Stewardship

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. The pre-existing density was 1 dwelling unit per 5 acres.

Under the program, a landowner may elect to keep a tract of land in permanent rural or conservation uses. Such 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.

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.

Public Outreach and Preparation	2.2
Advisory Committee Hands-on Design Session	2.3
Kick-off Presentation	2.4
Public Hands-on Design Session	2.5
Open Design Studio	2.7
Technical Meetings	2.7
Open House	2.8
Advisory Committee Meeting	2.8
Work-in-Progress Presentation	2.9
Advisory Committee Survey Results	2.10
Public Hands-on Session Survey Results	2.11
Work-in-Progress Survey Results	2.12

creating the plan 2

A Better Plan for Lee County's Density Reduction / Groundwater Resource Area



Located in southeast Lee County, east of I-75, these 83,000 acres host rural neighborhoods, limerock mines, and active farms.

This land also contains valuable ecological and hydrological features including panther habitat and public water supply wells.

With broad public input, a new plan could strike the proper balance for our future.

Will you help?

Participate in the following to help create a better plan.

Kick-off Presentation

6PM, Wednesday, April 16
Commission Chambers, Old Courthouse
2120 Main Street, Fort Myers, Florida 33901

Hands-on Session

Join members of the public and designers for an exercise designed to generate input and discussion
9AM to 2PM, Thursday, April 17
Harborside Event Center
1375 Monroe Street, Fort Myers, Florida 33901

Open House

5PM to 7PM, Tuesday, April 22
Harborside Event Center
1375 Monroe Street, Fort Myers, Florida 33901

Work-In-Progress Presentation

6PM, Thursday, April 24
Commission Chambers, Old Courthouse
2120 Main Street, Fort Myers, Florida 33901

For more information contact:
Joan D. LaGuardia, Lee County
(239) 533-8705 jlaGuardia@leegov.com

Informational postcards were sent to all property owners in the DR/GR, as well as other stakeholders, local residents, media sources, elected and appointed officials.



Members of the Dover-Kohl team toured the DR/GR by helicopter.



The helicopter tour provided the team with high-quality aerial photography.

PUBLIC OUTREACH AND PREPARATION

Public input is an essential component in creating a workable vision and plan for the Lee County DR/GR. Direct community input shaped the ideas and recommendations found in this document, *Prospects for Southeast Lee County*. In April 2008, the Dover-Kohl team conducted an open planning process, which combined hands-on community brainstorming with “designing in public.” Extensive public input was gathered from over 300 stakeholders and county-wide interest groups. These groups included residents, business and mine industry representatives, Florida Department of Transportation (FDOT), Smart Growth members, Southwest Florida Water Management District and natural resource experts, and community leaders. The DR/GR Advisory Committee, a special steering committee created to advise Lee County commissioners on DR/GR issues, played a significant role throughout the process. The high level of civic involvement displayed during the planning process will ultimately guide the future of the DR/GR and ensure the best future for the coming generations.

Public outreach was an essential part of the planning process. In preparation for the public input sessions, Lee County spread the word about the planning process by distributing printed brochures to property owners in the DR/GR, as well as other stakeholders, local residents, media sources, elected and appointed officials. The County continually updated its website with information about the planning process. The community itself also played an important role in getting the word out. Residential groups spread the word to neighbors, and regional interest groups kept members updated on public input opportunities.

Planning for the public process began in January 2008. Members of the team conducted a preliminary site visit to Lee County in February 2008, where they met with County staff, the Advisory Committee, and key stakeholders. The meetings and interviews helped the team to shape the objectives of the planning process and understand the leadership’s vision and ideas for the future of the DR/GR. During this site visit, members of the Dover Kohl team studied the DR/GR from the air by helicopter, providing a valuable perspective on the study area and the aerial photographs found in this report. The February tour would become one of many conducted by members of the team throughout the duration of the project.



The team presented to the Advisory Committee during two workshops, conducted in the studio.



During the hands-on session, the Advisory Committee divided into three tables and participated in planning exercises.

ADVISORY COMMITTEE HANDS-ON DESIGN SESSION

A special hands-on design session specifically for the DR/GR Advisory Committee was held on Wednesday, April 16th. During this session, the Dover Kohl team presented its initial observations of the DR/GR to the Committee, and explained the planning process that would unfold throughout the week. Following the presentation, the Committee broke up into three tables and participated in a hands-on planning exercise, in which each Committee member was handed a pre-determined number of colored dots. Each color represented a different land use in the DR/GR, and Committee members were instructed to prioritize locations for each land use by placing their dots on a base map on the table. The same exercise was conducted the next day, on a much larger scale, during the public hands-on session.

The input received from the Committee was carefully considered and formed the guiding principles of the plan.

Preliminary Questionnaire
Southeast Lee County DR/GR Advisory Committee
 Committee members should answer the following questions by April 9, 2008, to provide county staff and consultants with insight into the initial priorities of all committee members.

1) Please rank each of the following land uses to indicate your impression of the relative importance of each within the DR/GR area, with "1" being the most important and "5" being the least important:

	Your Ranking
Continued agricultural uses including citrus, row crops, grazing, and silviculture	1
Additional mining areas, protected from encroachment by incompatible uses	4
Additional conservation areas to preserve natural lands, wildlife habitat, and water resources	3
Additional residential areas, protected from encroachment by incompatible uses	4
Introduction of commercial areas to serve nearby residents	4
Protection of land and aquifers for public water supply	2
Public recreation areas	2
Other (please specify): <u>Additional property rights (mining, etc.)</u>	1

2) Additional Acquisition of Preservation Lands. At present, Lee County's environmental lands acquisition program, Conservation 20/20, only considers land that is offered to them by sellers. Should the county consider altering the program to begin seeking out strategically important parcels? Yes ☒ No ☐

3) Should the following levels of government have the authority to place conditions on, or even reject, an application to operate a new mine in the DR/GR area? (answer yes or no for each)

Lee County Commission	Yes
Lee County Water Management District	Yes
South Florida Water Management District	Yes
Florida Department of Environmental Protection	Yes
State Fire Marshal (as to blasting only)	Yes

YOUR NAME (optional)

Some Florida counties have programs that allow new lands in exchange for the preservation of nearby lands in interested in considering this idea for the DR/GR area.

How interested are you in considering this idea for the DR/GR area?
☐ Not interested ☒ Somewhat interested ☐ Very interested

What are the three most important issues that you are most concerned about in creating a successful long-range plan for the DR/GR area?
 (rank in order of importance)
 1. Public water supply, the preservation of natural lands, and wildlife habitat.
 2. Drinking water, as well as maintain the quality of water for Southwest Florida.
 3. Issues with regards to property owner rights, the state of Lee County, and the impact from the adjacent area.
 4. possible in adhering to regulations, maintenance, and the reclamation of their minds.

DR/GR area 20 years from now, what would you like to see as a result of this committee's collective efforts?
 I present to the Lee County as a well-thought plan, with consideration of all stakeholders, and was placed on this area. Most importantly that we are the land.
 I would like to see the area as a result of your committee team that had the foresight to

Committee members expressed their concerns and hopes for the DR/GR in a series of questionnaires.

KICK-OFF PRESENTATION

On the evening of Wednesday, April 16th, Lee County residents, County leaders, stakeholders and county-wide interests came together for a kick-off presentation at the Commission Chambers in the Old Courthouse.

Victor Dover, Principal of Dover, Kohl & Partners, outlined the challenge for participants during the week and stressed the importance of stakeholder involvement throughout the process to ensure the creation of scenarios that best balance the various interests within the DR/GR. He introduced the various consulting teams and presented some of the preliminary information and findings. At the end of the presentation attendees were able to ask the consulting team questions about the process and the project.



Victor Dover presented the main issues in the DR/GR, as well as key planning principles. He encouraged participants to stay involved throughout the week.

<p>ONE WORD that comes to mind about the DR/GR:</p> <p>NOW: <u>FRAGMENTED</u></p> <p>IN THE FUTURE:</p> <p><u>Connected</u> (in my vision)</p>	<p>ONE WORD that comes to mind about the DR/GR:</p> <p>NOW: <u>Red</u> ⁹¹¹ (High Alert) Code</p> <p>IN THE FUTURE:</p> <p><u>Green</u> (in my vision)</p>
--	--

One-word cards were distributed at the kick-off presentation. Attendees used these cards to both express their impression of the DR/GR and summarize their vision for the future.



Attendees were given an opportunity to ask questions about the planning process following the presentation.



A table group discusses where future mining, conservation, agriculture, and residential uses should be prioritized.



Over 100 people participated in the hands-on session, giving their input on the future of the DR/GR.



Table members place their colored dots, representing mining, conservation, and residential land uses, on the base map.

PUBLIC HANDS-ON DESIGN SESSION

On Thursday, April 17th over one hundred DR/GR landowners, residents, County leaders, and other stakeholders participated in a hands-on design session at the Harborside Event Center. The event began with a short introduction and briefing by Victor Dover to explain the exercise, orient participants with base maps, and the set ground rules and goals for the session. Working in small groups of approximately eight to ten people, participants gathered around tables to share their varied ideas for the future of the DR/GR. Participants took part in the same planning exercise that the Committee had completed the day before, with color-coded stickers representing different land uses. Participants were also given analysis maps, such as property ownership and flowway locations, to guide their decision making. Each table was challenged to prioritize different land uses in specific areas of the DR/GR. A facilitator from the Dover-Kohl team or the County planning department was assigned to each table to assist participants in the design exercises.

During the table sessions, participants worked together to identify the important issues associated with the future of DR/GR and place their dots accordingly. With this completed, participants began to draw and write on base maps to illustrate how they might like to see DR/GR evolve. They described land uses, mine pit design, neighborhood locations, road design, and services for the area.

At the end of the workshop a spokesperson from each table reported the findings and major points to the entire assembly. Common themes began to emerge and important goals for the DR/GR were identified. Of the many ideas heard, some of the most widely shared ideas included:

- Groundwater supplies should be protected above all else.
- More conservation areas should be established in the DR/GR.
- Mining areas should be kept separate from residential areas.
- Additional residential development should be kept out of the DR/GR.

The goal of the hands-on session was to forge an initial consensus and develop a long-range vision for DR/GR. In addition to the group presentations, each participant was encouraged to fill out an exit survey at the end of the session. The surveys allowed the planning team to gain more detailed insight into the ideas of the many individuals that participated. The information generated formed the groundwork for the three scenarios.

Southeast Lee County DR/GR Hands-on Design Session Participant Questionnaire
Please answer the following questions and return your survey to a Dover-Kohl team member.

1) On a scale of "1" to "5" please rate each of the following land uses with "1" being essential and "5" being unimportant to the DR/GR area:

	Your Rating
Continued agricultural uses including citrus, row crops, grazing, and silviculture	3
Additional mining areas, protected from encroachment by incompatible uses	5
Additional conservation areas to preserve natural lands, wildlife habitat, and water resources	1
Additional residential areas, protected from encroachment by incompatible uses	5
Introduction of commercial areas to serve nearby residents	3
Protection of land and watersheds for public water supply	1
Public recreation areas	5
Other (please specify):	

2) Additional Acquisition of Preservation Lands. At present, Lee County's environmental lands acquisition program, Conservation 20/20, only considers land that is offered to them by sellers. Should the county consider altering the program to begin seeking out strategically important parcels? Yes ☒ No ☐

3) Should the following levels of government have the authority to place conditions on, or even reject, an application to operate a new mine in the DR/GR area? (answer yes or no for each)

Lee County Commission ☒ Yes ☐ No

South Florida Water Management District ☒ Yes ☐ No

Florida Department of Environmental Protection ☒ Yes ☐ No

State Fire Marshal (as to blasting only) ☒ Yes ☐ No

4. Some Florida counties have programs that allow new towns and all lands in exchange for the preservation of nearby environmentally sensitive areas. Are you interested in considering this idea for the DR/GR area? (please check one)

Not interested ☐ Somewhat interested ☒ Very interested ☐

5. Do you believe to be the three most important issues that should be carefully considered in developing a successful long-range plan for the DR/GR area? (you may use a separate sheet of paper)

1. protection of our water supply
2. protection of ecological/environmental resources
3. protection of existing in approved areas

6. Suggestions:

Develop a long-term plan changes + add provisions to ensure that all resources satisfy cumulative impact natural resource tests

YOUR NAME (optional): _____

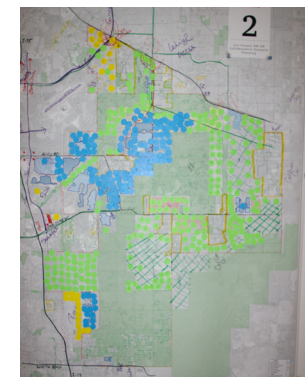
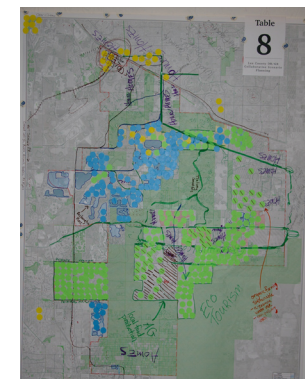
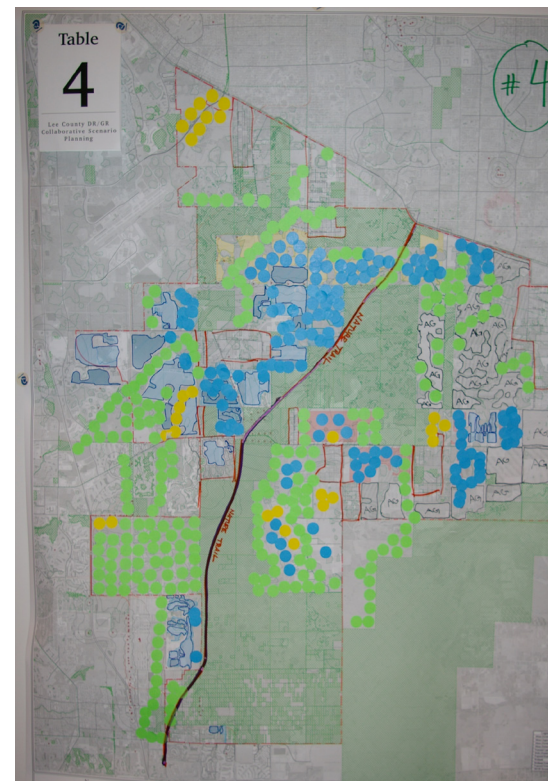
During the hands-on session, each participant completed a questionnaire about key issues affecting the DR/GR.



A participant presents his table's priorities for the DR/GR.



Participants referred to analysis diagrams that represented specific issues, such as endangered species habitat and property ownership.



At the end of the hands-on session, each table presented its priority plan for the future of the DR/GR. Eleven different scenarios were created, representing each table's ideas.



The participants gathered at the end of the hands-on session to hear a summary presentation from each of the tables.



The design team worked throughout the week to develop different scenarios in keeping with the guiding principles of the plan.



Planners and designers drew watercolor diagrams and renderings to illustrate the different issues affecting the DR/GR and demonstrate potential solutions.

OPEN DESIGN STUDIO

From Friday, April 18th through Thursday, April 24th the design team synthesized the ideas gathered during the public input sessions. These ideas were the starting point for the guiding principles for the project (see Chapter 3 of the report). The principles became the basis for the diagrams and illustrations in this report that depict planning solutions, and for the ideas that later became three potential scenarios for the future of the DR/GR area (see Chapter 4). The team worked intensively at the Harborside Event Center in Downtown Fort Myers.

Citizens and local leaders were encouraged to visit the open design studio throughout the week to give feedback on the developing plan, and provide further input. Table drawings and plans were placed around the room for review. Throughout the week it is estimated that over two hundred people visited the studio.

TECHNICAL MEETINGS

In addition to the open design studio, members of the design team met with specific stakeholders and experts in scheduled technical meetings. The meetings were used to answer design questions, discuss the draft plans and scenarios, and further gain input. The technical meetings helped to shape the detailed elements of the plans.

Technical meetings that were held during the week included Transportation & Mining, Local Residents, Mining Issues, Environmental Issues, City of Bonita Springs, Hydrology, Parks & Recreation Department, and Agriculture. Two special meetings were held with the Advisory Committee.

OPEN HOUSE

On Tuesday night, April 22nd, the County Planning Department and the Dover Kohl team hosted an informal open house for the public. During the open house, the team displayed the work in progress, including the master plan, diagrams and sketches. The table drawings from the DR/GR Advisory Committee hands-on session and the public hands-on session were also on display, giving attendees an opportunity to review the public input that was shaping the draft plan. Base maps and analysis diagrams were also available for public review and discussion, giving interested participants an opportunity to take a closer look at the existing conditions in the DR/GR.

Throughout the open house, Lee County Planning staff and members of the Dover-Kohl team were available to discuss the work-in-progress with members of the public.



The public was invited to the design studio in the evening, two days before the work-in-progress presentation, to observe the developing plan and provide feedback on the direction of the work.

DR/GR ADVISORY COMMITTEE MEETING

The Dover Kohl team held a second special meeting for the Advisory Committee on Wednesday, April 23rd. Victor Dover led an overview of the work that had been produced through the week. He began with an overview of the public input that had been received throughout the week, including the input from the Advisory Committee itself. He then explained how public input had shaped a set of planning principles. He presented these planning principles to the committee, and demonstrated how these principles informed the diagrams, maps, and visualizations produced during the week.

Following the presentation, a question and answer session followed. The Committee meeting then transitioned into its regular format, with Committee members discussing key issues and strategizing recommendations to make to the Board of County Commissioners.



Members of the Committee reviewed the developing plan at a scheduled meeting, held the day before the work-in-progress presentation.



The Dover-Kohl team presented the plan's guiding principles at the work-in-progress presentation, and discussed different strategies that could be used to fulfill these principles.

Southeast Lee County DR/GR
Work in Progress Survey

Please answer the following questions and return your survey to a Dover-Kohl team member.

CONSERVATION
Maintain Viable Watersheds
Should Lee County protect water resources by discouraging the disturbance of large stretches of natural lands east of the Flint-Pee boundary? Yes ☒ No ☐
ABSOLUTE

Restore and Recreates
Should Lee County acquire and restore land that reconnects isolated existing conservation areas? Yes ☒ No ☐
ABSOLUTE

MINING
Design Before You Dig
Should Lee County create design standards for mining sites to ensure the appropriate future use of that site, placing residential, recreation, and reclamation uses in locations appropriate to their context? Yes ☒ No ☐
Reclamation Standards should exceed any due to the fragile nature of the area

Think Long Term
Should Lee County create a meaningful map of preferred mining areas to guide future decisions in mining applications? Yes ☒ No ☐

Stick to the Traditional Mining Corridor
Should Lee County approve new and expanded mines along the Alton Road industrial corridor and near the regional airport instead of allowing new mines everywhere in the DR/GR area? Yes ☒ No ☐
These restore natural flows & preserve large connected habitat corridors

AGRICULTURE
Revitalize and Improve Farming
Should Lee County take actions to retain agriculture in the DR/GR area and encourage local food production? Yes ☒ No ☐
Pulse role that should be implemented & that there is a significant difference b/w row crops & citrus

RESIDENTIAL
Reevaluate Development Rights, Create Sustainable Settlements
Should Lee County use Transferable Development Rights to concentrate existing development rights into compact neighborhoods in or around the DR/GR area? Yes ☒ No ☐
Keep the DR in DR/GR
Should Lee County maintain the rural character of unincorporated Lee County by discouraging additional residential development in the DR/GR area? Yes ☒ No ☐
Also encourage higher density residential development

Live Lightly on the Land
Should Lee County create low-impact development standards for homes in the DR/GR area to prevent disruption of flowways and disruption of restoration efforts? Yes ☒ No ☐
They should encourage more green infrastructure

TRANSPORTATION
Anticipate Higher Fuel Costs
Should Lee County consider the potential for continued high fuel costs when planning future mining and residential locations? Yes ☒ No ☐
They should encourage more green infrastructure

Manage Speed and Vehicle Miles Traveled
Should Lee County be more proactive in managing vehicular speed on roads in the DR/GR area? Yes ☒ No ☐
Additional Comments & Suggestions:
It would be helpful to quantify some of the better economic, ecological, and aesthetic values for the natural resources and qualitatively show some of the more complex ecological values. Also, there is the possibility of more local food production. Also, there is the possibility of more local food production. Also, there is the possibility of more local food production.

YOUR NAME (optional) *Steve LaGrone*

Attendees at the work-in progress presentation completed surveys, giving the Dover-Kohl team additional feedback on the developing plan.

WORK-IN-PROGRESS PRESENTATION

The collaborative design workshop ended with an evening Work-in-Progress presentation on Thursday, April 24th at the Commission Chambers in the Old Courthouse. Over seventy-five members of the public gathered once again for the presentation to see the results of the week's work. Victor Dover, Dan Cary and other members of the team presented a summary of the week's work to the attendees. The format of the presentation was similar to that presented to the Committee the previous day. The team presented background information, a summary of the week's public input, planning principles, and proposed planning techniques and possible scenarios for the DR/GR.

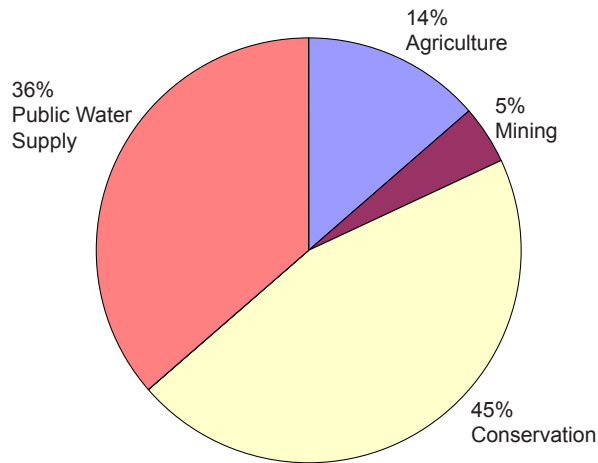
At the end of the presentation, members of the public asked questions about the developing plan, and gave their feedback. A new survey was distributed to gauge the community's opinion on the ideas presented that evening. These surveys gave attendees an opportunity to respond directly to each of the planning principles that was presented, and guide the development of the plan. Space was included at the end of the survey for general comments and concerns.

At the conclusion of the week-long collaborative design workshop, the members of the design team returned their home offices. Over the next sixty days, the consulting team created three potential scenarios from the guiding principles and concepts developed during the workshop. The team also created this report to summarize the background, challenges, work process, guiding principles, land-use scenarios, and conclusions involved in the project. This report, *Prospects for Southeast Lee County*, represents a synthesis of ideas and goals for the future of the DR/GR and suggests a workable framework to achieve these goals.

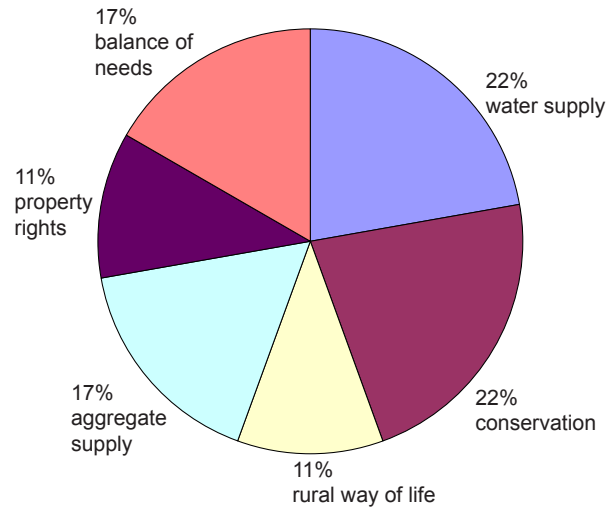


Questions from the public lead to further research which is presented in this report.

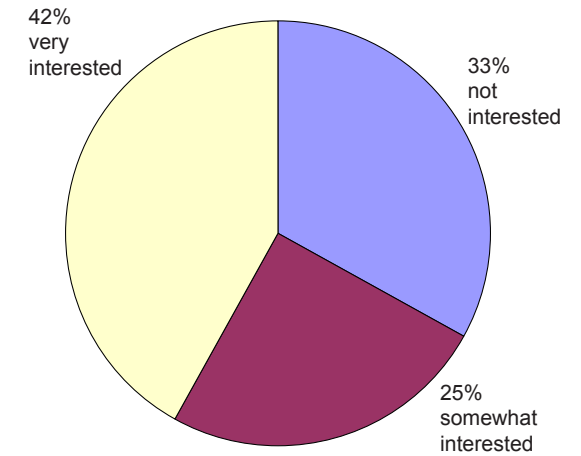
AD HOC ADVISORY COMMITTEE SURVEY RESULTS



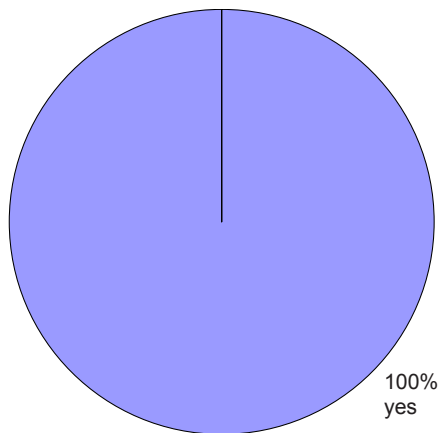
What are the most essential land uses in the DR/GR?



What are the most important issues that should be considered when creating a successful long-range plan for the DR/GR area?

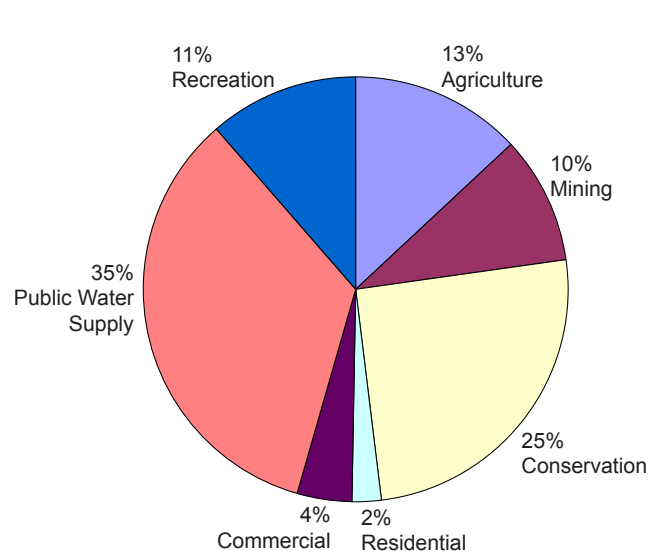


Are you interested in allowing new towns and villages to be built on rural lands in exchange for the preservation of nearby environmentally sensitive lands?

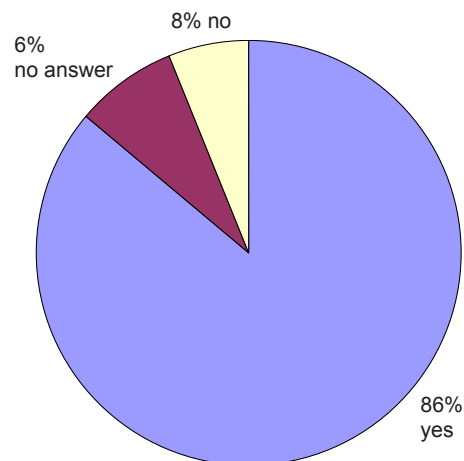


Should Conservation 20/20 seek out strategically important parcels for acquisition?

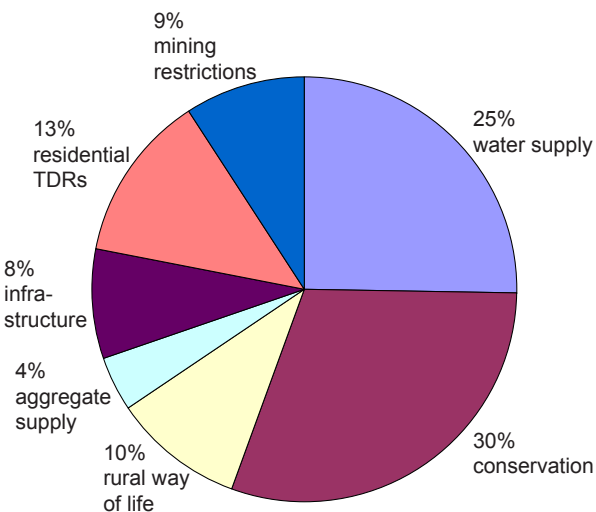
PUBLIC HANDS-ON SESSION SURVEY RESULTS



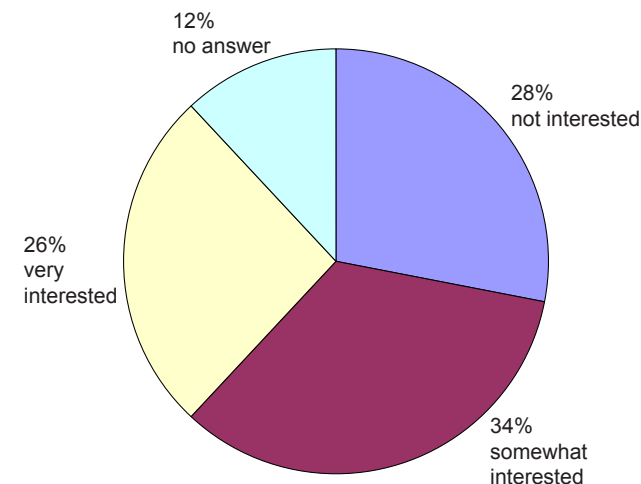
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Should Conservation 20/20 seek out strategically important parcels for acquisition?

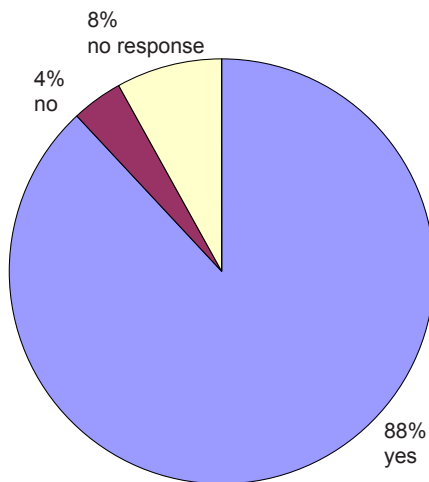


What are the most important issues that should be considered when creating a successful long-range plan for the DR/GR area?

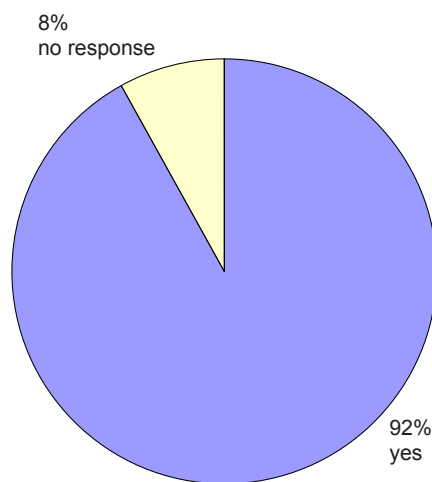


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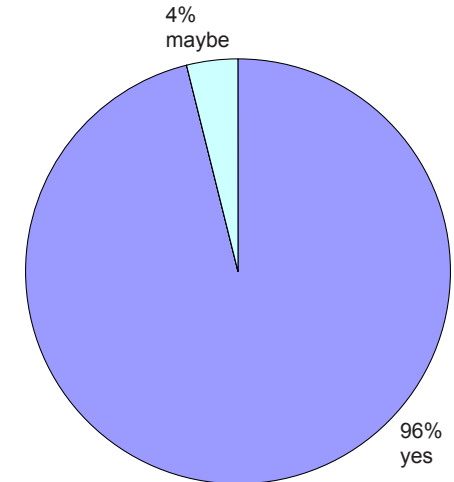
WORK-IN-PROGRESS SURVEY RESULTS



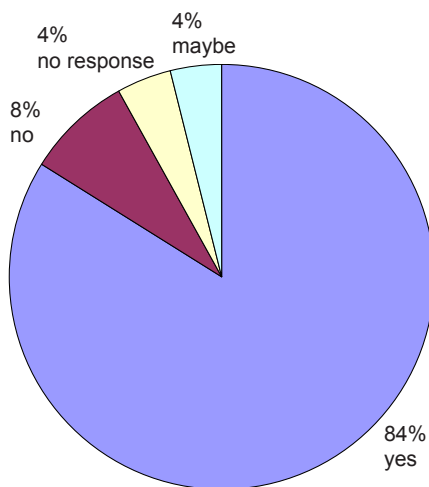
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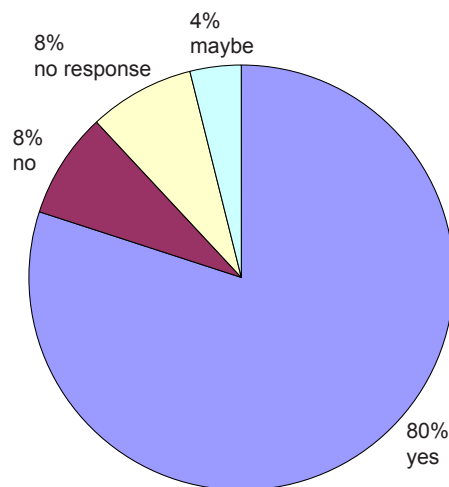
Should Lee County acquire and restore land that reconnects isolated existing conservation areas?



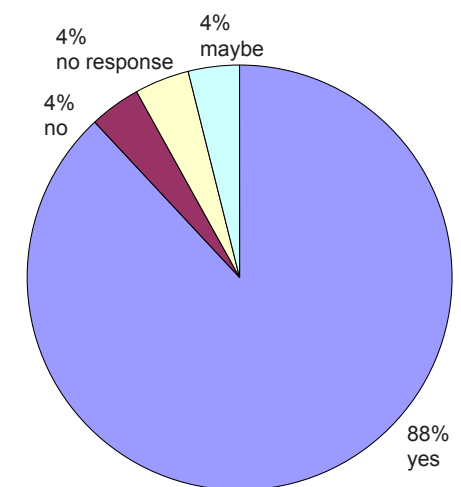
Should Lee County create design standards for mining pits to ensure the appropriate future use of that site, placing uses in locations appropriate to their context?



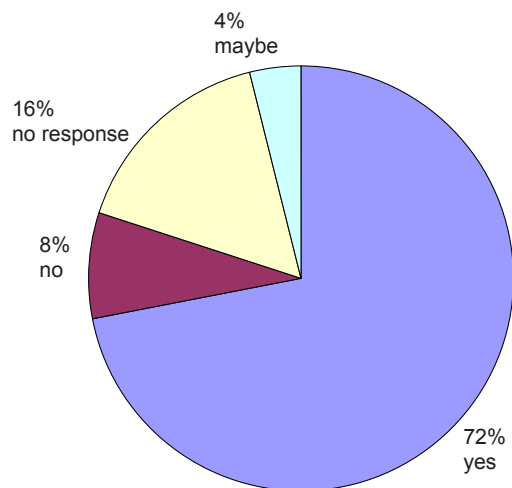
Should Lee County create a meaningful map of preferred mining areas to guide future decisions in mining applications?



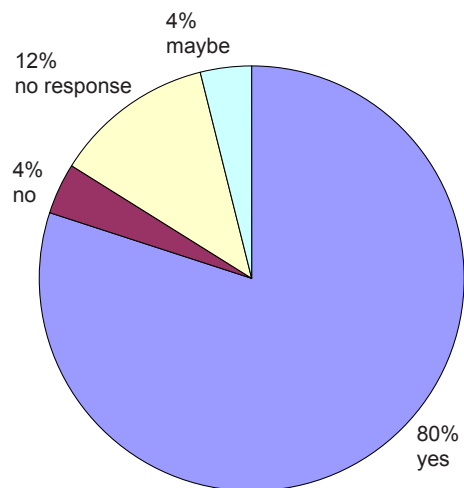
Should Lee County approve new and expanded mines along the Alico Road industrial corridor and near the airport instead of allowing new mines everywhere in the DR/GR area?



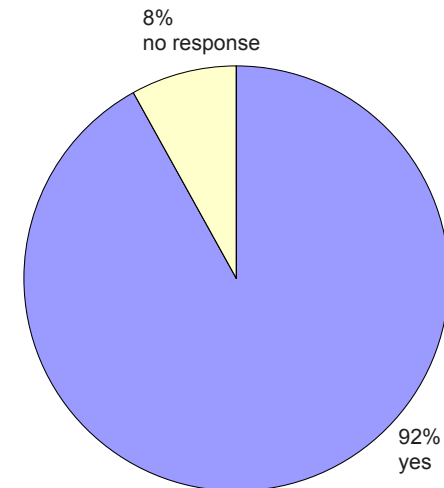
Should Lee County take actions to retain agriculture in the DR/GR area and encourage local food production?



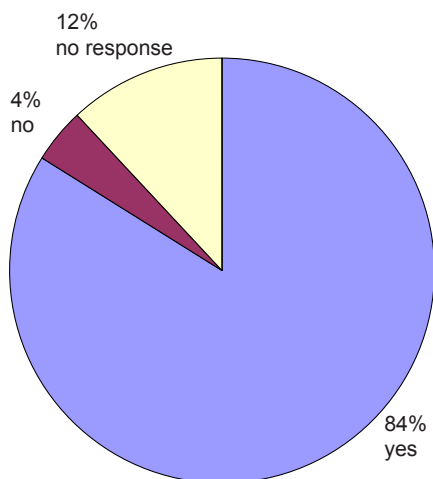
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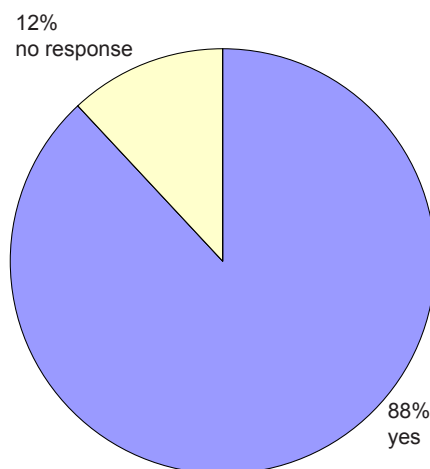
Should Lee County maintain the rural character of southeast Lee County by discouraging additional residential development in the DR/GR?



Should Lee County create low-impact development standards for homes in the DR/GR area to prevent interruption of flowways and disruption of restoration efforts?



Should Lee County consider the potential for continued high fuel costs when planning future mining and residential locations?



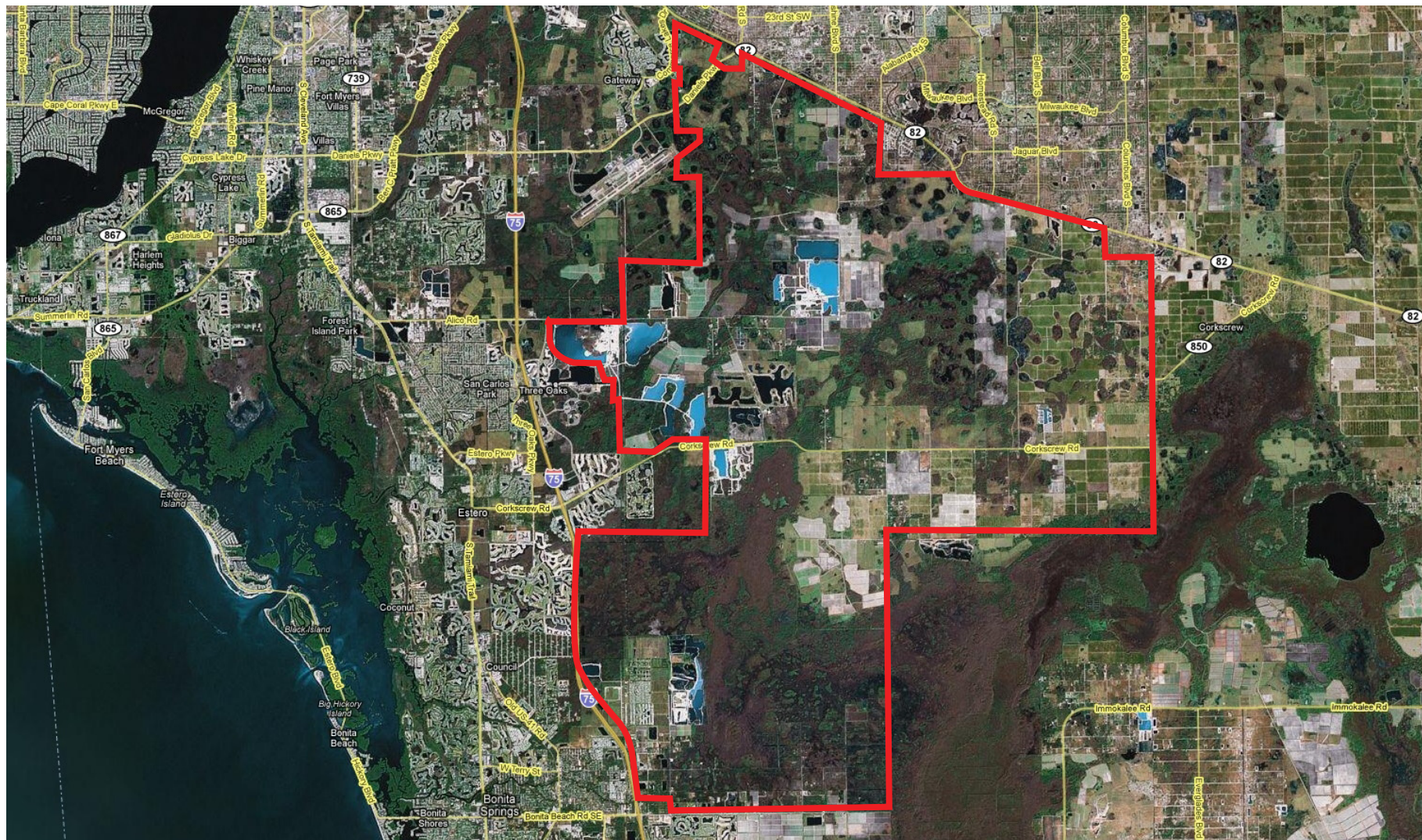
Should Lee County be more proactive in managing vehicular speed on roads in the DR/GR area?

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planning principles 3

Introduction & Summary

A series of conservation, development, mining, and transportation principles were created to guide policy decisions affecting the DR/GR area. Shaped from the input received during the April 2008 workshops, these “Planning Principles” embody a clear vision for the future of the DR/GR. This chapter elaborates on each planning principle.



This satellite image illustrates the challenges facing the DR/GR. Existing mining pits are visible as blue shapes on the land. The interconnectedness of the Corkscrew Swamp and the Flint Pen Strand is clear, and the “peninsula” of mostly farmland that lies between the two swamps stands out. Notice the scale of the DR/GR in proportion to existing urban areas.

PLANNING PRINCIPLES

CONSERVATION PRINCIPLES

Large-Scale Ecosystem Integrity Must Be Restored and Maintained

Acquire and restore lands that can connect existing corridors and conservation areas. Protect larger stretches of natural lands instead of small isolated wetlands in the midst of existing mining.

Maintain Viable Watersheds

Protect groundwater resources in southeast Lee County by analyzing development impacts with integrated surface and groundwater modeling.

Retain and Improve Ecologically-Responsible Farming

Agriculture is a productive and traditional use of DR/GR land. New crops and improved farming practices can keep agriculture viable and reduce its impact on adjacent conservation lands. Local food production could reduce dependence on carbon-intensive, long-distance food supply chains. Land that is farmed is a valuable bank for future conservation efforts.

DEVELOPMENT PRINCIPLES

Reallocate Development Rights; Create Sustainable Settlements

DR/GR land is too valuable to waste on inefficient land-use patterns. Keep new residential development away from preferred mining areas to prevent conflicts. Compact and connected mixed-use communities should be the standard in the DR/GR.

Live Lightly on the Land

Adverse human impacts on DR/GR lands should be minimized. Encourage cluster development to reduce the cumulative impact of human settlement.

MINING PRINCIPLES

Create a Meaningful Map of Preferred Mining Areas

Create maps that serve as predictable guides to approvals of new mines in the DR/GR. Plan for limerock mining in increments of time. Don't concentrate fill-dirt mines in the DR/GR.

Stick to the Traditional Mining Corridor

Limerock mining is a high-disturbance activity whose effects on the surrounding area can never be completely mitigated. Minimize the impacts of mining on valuable watersheds, residential areas, and the road system by concentrating mining activity in the traditional Allico mining corridor. Fully utilize the limerock resources in existing disturbed areas before spreading out into more pristine environments.

Design Before You Dig

The active extraction period of a mining site comprises a small percentage of its life. Ensure that post-mining land uses and site design are appropriate to their location and to the needs of the community.

TRANSPORTATION PRINCIPLES

Anticipate Higher Fuel Costs

The rising price of fuel may affect all aspects of the construction industry, as well as the day-to-day life of average citizens. Plan future mining and residential uses in the DR/GR with rising transportation costs in mind. Explore alternative sources of materials for roads and construction as virgin sources become more difficult to obtain.

Manage Speed and Vehicle-Miles-Traveled

Enforce speeds in the DR/GR to reduce mining truck and residential traffic conflicts. Focus mining uses along the existing road network to reduce the amount of miles traveled for transport. Create small mixed-use centers near existing communities to reduce traffic for daily needs and services.

Transportation Projects Must Follow Land Use Policy

Think carefully before concluding that road widening is the only transportation solution. Begin tailoring existing roads for multi-modal use.

CONSERVATION PRINCIPLES



A slough of hydric pine flatwoods and cypress pine domes originally formed a flowway through which water traveled from upland areas near the airport to the Estero River. The health of the bay and coastal waters depended on the filtration and cleansing that water received en route. In this case, the physical flowway remains but its lower reaches no longer carry water toward the Estero River and Estero Bay.

Large-Scale Ecosystem Integrity Must Be Restored & Maintained

Acquire and restore land that can connect existing corridors and conservation areas.

Priority should be placed on recreating lost flowways and natural water storage areas to restore and enhance the Estero and Imperial Rivers, Estero Bay, Corkscrew Swamp, and strategic endangered species habitat. Estero Bay is an ecosystem recognized by the state as an Aquatic Preserve (the first in the state in 1966), and by the federal government as an integral part of the Charlotte Harbor National Estuary Program, and by residents of Lee County and surrounding areas as a valued recreational, commercial, and scenic asset. Most waters that pass through the DR/GR ultimately drain into Estero Bay; the two systems are inextricably linked.

Changes in the timing, quantity, and quality of freshwater entering into the bay and coastal waters can have detrimental effects on plant and animal life. Most affected are the seagrasses and larval fish that are important to recreational and commercial fishing. Sensitive threatened and endangered species are in particular danger. Long, continuous flowways through the sloughs, wetlands, and rivers within the DR/GR remove harmful nutrients and contaminants. Protection of the pathways that water takes to Estero Bay should be of the highest priority.

DR/GR lands provide a contiguous habitat, at times more than ten miles across, which is of special importance to wide-ranging species such as the eastern indigo snake, Florida black bear, and Florida panther. The hunting trails of panthers, for example, must be far-ranging to support the nutritional requirements of this large predator. Socially, panthers are solitary and each new generation seeks and stakes out new territory.

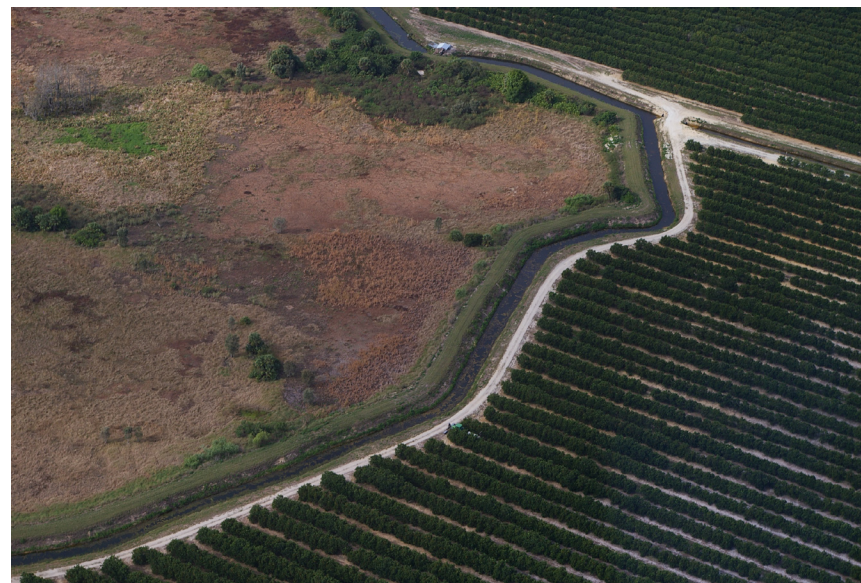
The interconnected wetlands of the DR/GR include all varieties of South Florida wetland types: hydric pine flatwoods, cypress domes, and wet prairies. The northern portion of the 60,000-acre Corkscrew Regional Ecosystem Watershed terminates a very extensive wetland system. The diversity of wetland types provide important nesting, feeding, and “stop-over” refuges for migratory birds that travel between North and South America. DR/GR lands affect even far-off ecosystems.

Protect larger stretches of natural lands instead of small isolated wetlands in the midst of existing mining.

Individual wetlands that are cut off from larger systems often lose essential functions, including their recharge functions or species habitat, once their water flows or migration paths have been interrupted. The ecological viability of wetlands depends on the conservation of land that connects systems.

Some wetlands that government agencies have required to be protected during the permitting process no longer function as they did prior to permitting. The roots of citrus trees, for example, must be kept dry all year; isolated wetlands within citrus groves will not experience their natural hydroperiod because of the drainage that is required for a healthy citrus grove. Cypress trees and plants typically found in wetlands remain, yet the hydrology of a wetland system is impacted and the plant communities change.

Some isolated wetlands can be reconnected to their natural systems and restored to functional capacity. Others may retain some functions as habitat, buffers, or aesthetic features but realistically cannot be restored. Prudent public policy would recognize situations where larger stretches of natural lands could, in some instances, be preserved and even fully restored in exchange for allowing isolated wetlands to be removed in urban or industrial locations.



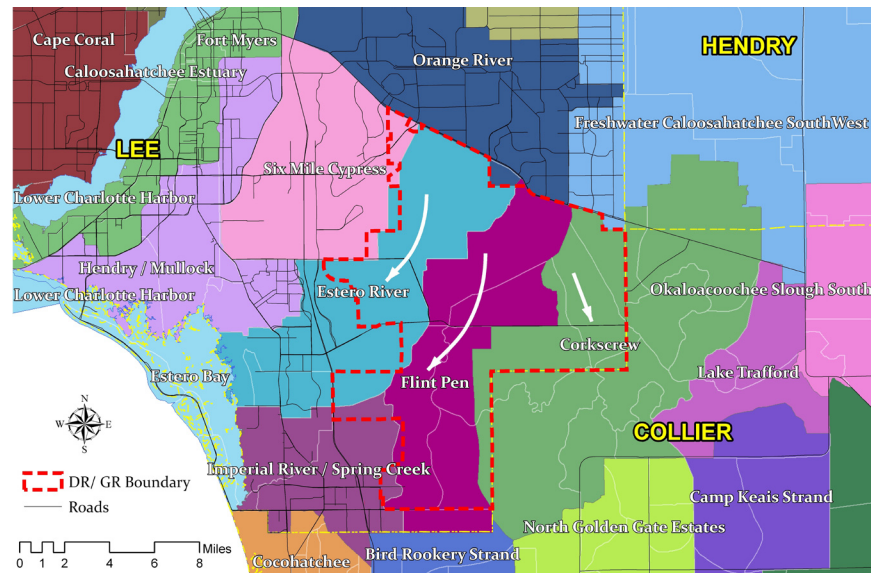
A berm and drainage ditch encircle well-irrigated groves. The isolated wetland system has been significantly altered.



Protected wetlands (center of photograph) sit above the water line in the mine pit that has been dug around it.



Mining pits were approved alongside untouched flowways, but these are essentially incompatible uses that cannot coexist as sustainable natural systems.



The Estero River, Flint Pen and Corkscrew watershed subbasins are shown using County watershed data. Surface and groundwater flows originally went to the southwest to the Estero and Imperial Rivers into Estero Bay, and to the south in Corkscrew Swamp. Newer mapping will improve Lee County's understanding of current and historic conditions.

Maintain Viable Watersheds

Protect groundwater resources in southeast Lee County by analyzing development impacts with integrated surface and groundwater modeling.

A significant portion of Lee County's water supply is drawn from public utility wells in the DR/GR. These and future wells must supply a rapidly expanding population. The water resource provisions of the Lee Plan include objectives and policies to insure the conservation, management, and protection of the natural hydrologic system of Lee County for a continued water supply, among other purposes.

While it is known that many forms of development can have significant effects on the hydrological system, the permitting system for mining has relied on a case-by-case analysis based on studies provided by applicants. In the future the County should rely on a consistent base model that analyzes the interaction of surface and ground water in the DR/GR area; this model is being created as part of this planning effort.

Retain and Improve Ecologically-Responsible Farming

Agriculture is a productive and traditional use of DR/GR land.

Agriculture can provide an economically productive alternative to land uses such as mining and residential development. Another value of agriculture in DR/GR planning is that if farming operations cease, most environmental impacts can be reversed, making restorable agricultural lands even worthy of consideration for acquisition.

New crops and improved farming practices can keep agriculture viable and reduce its impact on adjacent conservation lands.

The importance of protecting the environmental integrity of agricultural operations is easily overlooked. Lee County should consider an advisory committee of state researchers and local farmers to identify methods of encouraging the continuation of ecologically balanced agricultural operations. This committee could also identify better ways to store and treat surplus water, thus improving the local ecology.

Techniques to store large quantities of water at or just below ground surface during the non-growing season are being researched, providing a significant community benefit that may merit compensation for those willing to manage their farms in this manner.

Local food production could reduce dependence on carbon-intensive, long-distance food supply chains.

Local food production will likely become important again. Consumer preference for locally-grown produce is on the rise; and rising fuel prices might make locally-produced food attractive economically.

Land that is farmed is a valuable bank for future conservation efforts.

Agriculture damages natural systems when native vegetation is removed and drainage is adjusted to suit the needs of crops instead of nature. However, agriculture can be conducted in a manner that conserves water resources, and natural hydrology can be restored if agricultural uses are no longer viable -- whether today or in the future. Active crop land is often drained only 5 to 6 months of the year during the growing season. When crop land is fallow, the water table can rise because there is no reason to actively manage the drainage system.



Agriculture in the DR/GR predates the creation of the current regulatory status. Although farming draws heavily from groundwater for irrigation, much of this water flows directly back into the same aquifer. This photo shows an eggplant crop growing along Greenmeadows Road.

DEVELOPMENT PRINCIPLES



The Fountains Town Center is currently proposed for the intersection of SR 82 and Daniels Parkway. Although the size of the surrounding development is not consistent with the DR/GR designation, this form of settlement along the edge of the DR/GR is similar to the settlement principles outlined in this report. *Illustration courtesy of SouthStar Development Partners.*



Ave Maria in eastern Collier County is centered around a new church, university and compact mixed-use core. The community is surrounded by farmland and was permitted through a density-transfer program.

Reallocate Development Rights; Create Sustainable Settlements

DR/GR land is too valuable to waste on inefficient land-use patterns.

Among other uses, DR/GR land is allowed a residential density of one unit per ten acres. The one-per-ten density cap was intended to discourage more residential development. However, development at that density often replaces prior agricultural uses, fragments natural habitats, and requires excessive travel especially for residents who regularly drive to jobs, shopping, and entertainment.

While the DR/GR is protected from suburban and urban development patterns, residential development pressures will continue as other developable land in Lee County becomes occupied. Lee County must resist allowing the valuable and sensitive DR/GR area to continue being developed on a piecemeal basis.

The opportunity exists for DR/GR development rights to be exercised without being increased and without the negative effects of more large-lot subdivisions. Current county regulations allow the clustering of DR/GR densities on individual lots of one acre or larger (and potentially smaller through the rezoning process); the total number of lots can not increase. The planning literature promotes this “conservation subdivision” approach to protect agricultural or conservation lands. These goals are not achieved if the remaining land becomes a golf course or mine.

Lee County should rethink its DR/GR policies of allowing ten-acre ranchette development as the default development pattern. The same is true of allowing residential clustering without obtaining benefits to agriculture, rural character, or conservation.

On large tracts of land, allowable development rights can be shifted and concentrated fairly easily through the standard zoning and development review processes. When parcels are smaller, this shifting requires a transferable development rights program. Lee County has such a program for wetlands which could be expanded to allow transfers from sensitive uplands as well.

Keep new residential development away from preferred mining areas to prevent conflicts.

Some former mining pits in Lee County's urban areas have been reclaimed to become the centerpiece of attractive residential developments. One example is "The Harborage" in south Fort Myers. A similar transformation is taking place as a mining pit on former DR/GR land is being developed as Miromar Lakes, just north of Florida Gulf Coast University.

An extensive series of un-reclaimed pits in south Lee County was acquired by the county for the creation of Lakes Park. The park itself is highly prized by its users, but as adjoining property gets developed along the eastern edge of this site, the unrestored conditions of the former mine are ever more visible.

The useful life of a mining pit declines as it becomes surrounded by urban development. Land values often become too high for mining to remain economically practical, and the impacts of dust, dragline noise, blasting, and heavy truck traffic become a detriment to surrounding land uses.

These conditions have moved most mining in Lee County to DR/GR lands where, theoretically, those problems won't happen again. Since comparable sources of limestone deposits do not occur everywhere in southwest Florida, Lee County should take active steps to keep residential development from encroaching on preferred mining areas.



Harborage development, looking east.



Northern end of Lakes Park, looking east.

Reconsider Development Patterns



Outside the DR/GR, large homes and condominiums are often built up to the edge of detention ponds and even mining pits because water bodies are an attractive amenity. Without intervention, this pattern of development can be expected to continue on DR/GR lands. New residential developments are already forcing the premature closing of active mining pits. This trend is likely to continue to other pits nearby. Residential development in or near the traditional Alico industrial corridor could end up displacing both uses.