

**Collier County RLSA Program  
Current Program Critiques and Recommendations  
December 2013**

The intent of the RLSA program was to find an alternative that was superior to the baseline zoning of 1 unit per 5 acres, and to create an incentive-based program to achieve a system as to incentivize landowners to protect environmentally sensitive **and rural** lands in exchange for transferring development credits, thus allowing more compact, fiscally prudent development in less sensitive areas. This is a valid premise, assuming that development is directed to appropriate locations and that the program balances the amount of development allowed with protection of natural resources and agricultural uses. 1000 Friends of Florida was impressed with this program as originally proposed and envisioned, in 2005 recognized the Collier County Commission with a Better Community Award for this innovative work.

In 2007, Collier County conducted a review of the RLSA as a retrospective assessment of the program. In doing so, it became clear that more intensive development, in the form of towns and villages (called SRAs), was much greater under the RLSA than was initially anticipated by the County Commissioners and the original RLSA committee. This initial RLSA committee was told that the program would not significantly increase the amount of density available in the Eastern lands, but that it would allow for this density to be compressed onto a smaller footprint, with the addition of necessary infrastructure. This was clearly stated in the Commission's Executive Summary from the 2002 RLSA transmittal hearing:

It is believed that the adoption and implementation of the Rural Lands Stewardship Area Overlay will not result in an increase to the total number of allowable dwelling units or population in the Eastern Lands area, but rather result in a re-allocation of the density and population allowed under the baseline standards (pre-Final Order conditions) from a land-consuming checkerboard pattern into compact, clustered development.

The complexity of the system resulted in excessive credits beyond what was initially anticipated and well outside the land planning and management goals and objectives of the RLSA program. Importantly, the spatial extent of Open Land available for SRAs is too large and much greater than the original 16,805 acres of development footprint.

Moving forward Collier County must reassess this land development and conservation tool to ensure it benefits the citizens of the County (existing and future). The RLSA incentive-based program must achieve a system to incentivize landowners to protect environmentally constrained lands and rural agricultural lands in exchange for transferring development credits to more compact, fiscally prudent developments lands in less sensitive areas.

The following analysis and discussion presents problems or weaknesses of the current program and make suggestions regarding how improvement might be made. The analysis and suggestions follow the section below.

1. Re-evaluate the RLSA Credit System and the Spatial Extent of Potential New SRAs relative to the clear objectives to protect environmentally sensitive and rural lands which serve to condense the development footprint.
2. Sustain rural and agricultural working lands within the Collier County Rural Lands Stewardship Area by strengthening both the policy and the Stewardship Credit Matrix by directing development to appropriate locations and providing incentives that support this policy.
3. Promote the stewardship rural agricultural landscapes in support of updated panther telemetry and mortality data and in furtherance of the identified primary habitat areas.
4. Build towns in appropriate places that make economic and environmental sense –the pattern of development (development-appropriate locations) is critical to supporting compact development, especially as it relates to infrastructure costs.
5. For existing and future residents that must pay, address infrastructure costs – they have not been sufficiently addressed – especially relative to pattern of development, i.e., compact pattern, maximizing existing assets, and minimizing costs to existing and future residents.
6. The Big Cypress Area of Critical State Concern (ACSC) is a recognized State asset – Development and infrastructure should be extremely limited.
7. Immokalee - Immokalee is estranged or separated from the RLSA. Instead, it should be combined with the RLSA to form a coherent whole development and stewardship area.
8. Make sure that the renewal of stewardship agreements are limited to one year extensions so that the county commission can make any necessary adjustments to ensure the integrity of the RLSA program.

1. **Re-evaluate the RLSA Credit System and the Spatial Extent of Potential New SRAs relative to the clear objectives to protect environmentally sensitive and rural lands and which serve to condense the development footprint.**

The original credit calculation and the number of credits required for allowing an acre of development were based upon this assumption. The RLSA committee's 2002 report, entitled, "Report and Recommendations of the Collier County Rural Lands Assessment Area Oversight Committee for the Immokalee Study Area," elaborated upon the justification for their credit system:

Using the current zoning entitlement of 1 dwelling per 5-acres of A-Agriculture zoned land as a control total, the maximum number of dwelling units that could be constructed on the 182,331 acres of privately held land would be 36,466 dwelling units. Using an average gross density for compact rural development of 2.17 dwelling units per gross acre.....only 16,805 acres would need to be set aside for the build-out density in compact rural development as opposed to accommodating that same number of units on 182,331 acres of 5-acre home sites. The remaining step in the calculation process involves eliminating the credits for the number of acres to be used as Receiving lands (16,805 acres x .15 credits per acre = 2,521 credits). The net result is 134,388 credits generated for the rural compact development of 16,805 acres, resulting in an exchange rate of 8.0 Sending Area credits per acre of Receiving Area land.

This provided the justification for the initial 134,000 credits and the 16,800 acres of new towns and villages.

However, in 2008 it was determined by Wilson Miller that instead of the 134,000 credits, there actually could be approximately 315,000 credits generated from the existing RLSA. This unanticipated increase equates to more than double the amount of towns and villages possible within Eastern Collier County, and increased the potential footprint of intensive development to 43,300 acres, or 67 square miles.

It is unclear when the additional credits were added or how these credits could have existed for so long without the public being aware of the extent of development that they would be allowed in the RLSA. Regardless of how this happened, now that the County is aware of the vast differential between what was initially anticipated within the RLSA and what the program actually could generate, we recommend that the County revisit the crediting system in its entirety.

The adopted RLSA policies still contain language that anticipated a much more compressed footprint of development. RLSA Policy 2.1 states, in part:

Analysis has shown that SRAs will be allow the projected population of the RLSA in the Horizon year of 2025 to be accommodated on approximately 10% of the acreage otherwise required of such compact rural development were not allowed due to the flexibility afforded to such development.

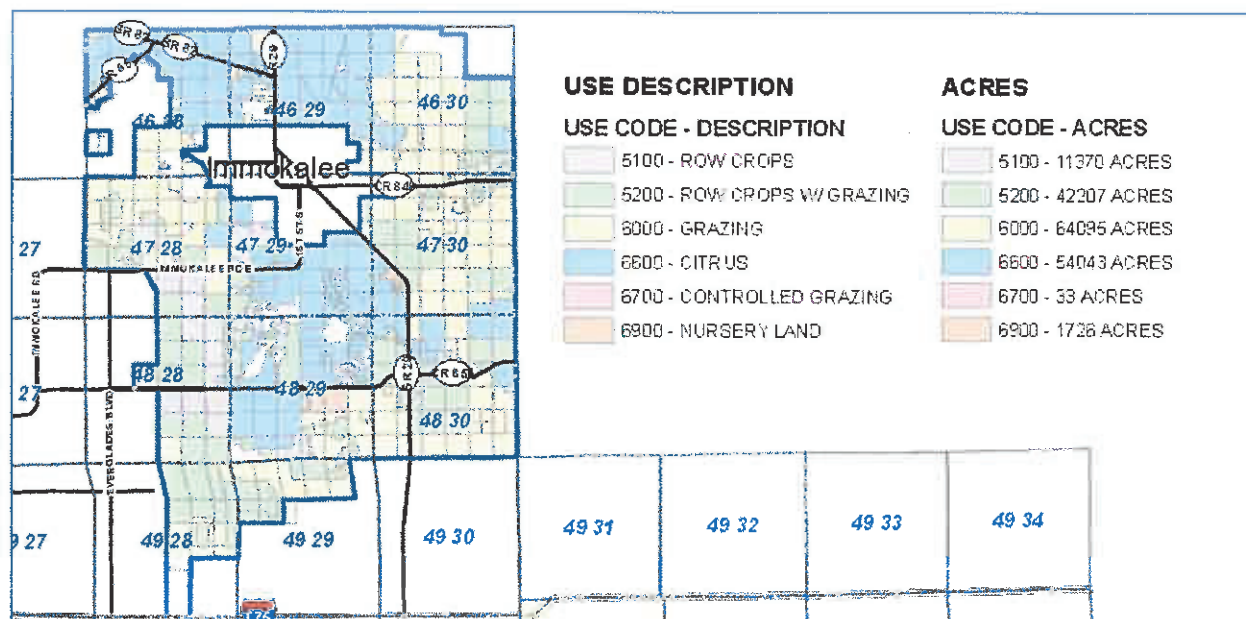
While the County may not desire to scale back the potential SRA development to 10% of the acreage otherwise required, or to limit SRAs to 16,800 acres as initially anticipated, this should not keep the County from taking a serious look at the crediting system in order to adjust the credits available and the valuation of the Natural Resources Index Value table. Such a recommendation would be important in conjunction with issues discussed under number 2 below, where we recommend that in order to protect the future viability of agricultural (and other resources) the locations where SRAs are allowed should be revisited.

**2. Sustain rural and agricultural working lands within the Collier County Rural Lands Stewardship Area by strengthening both the policy and the Stewardship Credit Matrix by directing development to appropriate locations and providing incentivizes that support this policy.**

**The current RLSA is not structured to sufficiently protect agricultural lands and economy.** Valuable blocks of rural agricultural lands are under the RLSA's "Open Lands" category with no specific criteria or guidance provided on long-term stewardship and retention.

### Background

Collier County is an important and productive agricultural area in Florida. A significant part of the County's economic production directly and indirectly links to agriculture (especially areas within the RLSA around Immokalee and east of Ava Maria and grazing areas of the ACSC). The existing farming landscape has been invested in heavily with specific drainage improvements, crop packing and transportation infrastructure and the close proximity of a farm-worker population and State IFAS and farm support networks. The current reality and future strength of Collier County agriculture economy is in recognizing and sustaining ag-infrastructural components of fields, drainage and access, nearby packing and shipping houses, warehouses, workforce, IFAS and farm bureau support networks.



**Figure 1: Map showing extent and general type of agricultural lands within the RLSA**

"Most of the County's agricultural production and distribution occurs in and around Immokalee and within the RLSA and continues to be a major industry for the Collier County and the region. It is difficult to assess the future of the agricultural industry in Immokalee, but it is assumed that it will continue to be a key industry throughout the planning timeframe..

According to the Immokalee Master Plan Study Economic Analysis, prepared by Regional Economic Research Institute at Florida Gulf Coast University in 2006, more than 60 percent of all employment and around 20 percent of all business establishments in Immokalee were based in agriculture in 2005. To put it another way, one out of every five businesses is related to agriculture, and over half of the employed

population, more than one out of two, works in an agricultural industry.” (From the Collier County Growth Management Plan Immokalee Area Master Plan, Data & Analysis, Prepared By Immokalee Master Plan And Visioning Committee – 2010). The existing farming landscape has been heavily invested in by the County and numerous private and public resources with specific drainage improvements, packing and transportation infrastructure, close proximity of a farm-worker population and investment by the State’s IFAS and farm support networks.

Physically, from a landscape level, the pattern of many of the most intensively farmed areas (e.g., east of Ava Maria and north of Immokalee) represent multiple well defined fields that are often 1 mile by 1/4 mile or 1/2 mile by ¼ mile. The fields are grouped together usually with some level of rural road access.

Sustaining agricultural and ranching land uses within the RLSA revolves around recognizing and supporting these ag-infrastructure components of multiple well defined fields and drainage networks with worker access for planting, harvesting and management close at hand. Related are the many in-place agricultural infrastructure and services, which include packing houses, warehouses and ready workforce with developed IFAS and farm bureau support (Immokalee area).

If the pattern of new community development occurring within the RLSA does not recognize and plan around the pragmatic economic and logistical needs of agricultural and ranching operations, the rural land uses will not persist.

Importantly, land use planning and the general pattern of new town development in the RLSA needs to recognize and accommodate the fact that there are “nuisance” land use aspects to row crop agriculture and even animal pasture operations. Large agricultural operations require distance/buffering when siting near suburban/urban areas – e.g., ag operations are industrial in nature with fertilization, pest management, planting and harvesting actions, including support trucking and worker access. Adequate buffering and “greenbelting” should be planned, providing some separation between developed and farmed areas; otherwise the growing suburban/urban SRA populations will experience the nuisance aspects and make farming operations less likely.

As presently constructed the RLSA program is weak on valuing stewardship and thus sustaining agricultural lands:

- Lands that essentially “**multi-task**” in providing wildlife habitat functional value along with valuable agricultural or ranching lands and drainage/stormwater management functions;
- Lands that need contiguous large blocks of “Open Land” areas to have the opportunity for a sustained economic future; and,
- Lands the need some level of separation from more developed areas due to their inherent “nuisance” characteristics.

Furthermore, the RLSA identifies the majority of the agricultural rural lands as Open Areas, all of which are identified as appropriate for conversion to developed areas in the form of Stewardship Receiving Areas (SRA). This creates approximately a 93,000 acres footprint that allows intensification, without policies to sustainably protect agricultural lands or direct development intensification to appropriate locations in the RLSA “Open Lands”.



Rural stewardship efforts to maintain viable farm and ranching landscapes must be cognizant of the basic investment and operational needs, nuisance factors and cross-purpose uses and values of blocks agricultural land to drainage, wildlife and rural character.

Fundamental flaws with the current RLSA program from an agricultural protection and growth management perspective:

- a. The program under-values working rural lands and tends to treat these lands as a placeholder for future suburban/urban development. This is implicit in the present wording that says, to protect these areas from “premature conversion” when referencing rural ranch or agricultural lands.
- b. The Stewardship Natural Resources Index Factors undervalue both the Soils/Surface Water Indices for “Flats (transitional) soils and, the indices for FLUCCS Code Group 3 Land Use – Land Cover. Together these two indices represent much of the ranching and agricultural lands.
- c. The Stewardship Natural Resource Indices factors do not recognize sufficiently and reward (incentivize) areas of ranch and agricultural lands that provide multi-use services of both important primary panther habitat and important rural land that has been long-developed and used in support of the high-valued agricultural economy.
- d. Existing and future agricultural and ranching investment, basic operational and nuisance factors are not captured in the policy or Stewardship Natural Resource Index Factors.
- e. The crediting system allows for more credits than initially anticipated at the 2002 Transmittal, resulting in the ability for over 43,300 acres of SRAs within the RLSA. The initial program was anticipated to allow for only 16,800 of SRAs, which would have been a less impactful footprint of development within the 93,000 acres available for SRAs. However, now that it has been demonstrated that the credits available within the RLSA can result in 43,300 acres of SRAs, it is imperative that both the locational criteria and the crediting system itself be revisited.

## Recommendations

- A. Do significantly more to protect and enhance the existing agricultural land uses and important agricultural based economy.
  - a. “Collier County’s goal is to retain land for agricultural activities to direct incompatible uses away from wetlands and upland habitat, to protect and restore habitat connectivity, to enable the conversion of rural land to other uses in appropriate locations, to discourage urban sprawl, and to encourage development that employs creative land use planning techniques through the use of established incentives.”
- B. **Amend the Group 2 Policies** and related policies to say: protect agricultural lands and foster from premature conversion to other uses and the continued productive use and viability of agricultural uses of the land of agricultural production through the Collier County Rural Lands Stewardship Area Overlay Program.
  - a. The emphasis ought to be directed to “Stewardship” of rural land in this section and not using agricultural lands as temporary placeholders for possible development. Thus, strike the words “premature conversion” that add a pejorative characterization to Ag land inside the RLSA.

- C. **Amend Policy 2.5** “Agriculture is an important aspect of Collier County’s quality of life and economic well-being. Agricultural land and related infrastructural resources within the RLSA/Immokalee areas are a major part of the County’s rural economic base and culture that the RLSA Program seeks to sustain.”
- a. **Note:** The generic discussion of the Florida Right-to-Farm Act detracts and does not add to the RLSA program guidance and ought to be dropped.
- D. **Revisit the Stewardship Natural Resource Indexing valuation system in its entirety, and as part of this reassessment, include in future configuration of the indexing value an Agricultural Stewardship Area (ASA) lands designation.** Under the framework of the RLSA program encouragement to landowners to seek stewardship credits, i.e., to remove development potential ought to be provided via permanent easement areas under a new “Agricultural Stewardship Area” (ASA) category with incentivized values given to Stewardship Natural Resource Index Factors (soils, land use-land cover indices and proximity to HSAs and FSAs within primary panther habitat).

Presently, the system is skewed to result in low Stewardship Credit Worksheet values as was noted in an evaluation of the RLSA scoring by Jesse Robertson-DuBois of the American Farmland Trust in a Technical Memo July 2, 2003.

“The scoring of the seven Land Use Layers is weighted to value more-developed uses. Base credits for land use restrictions range from 0.0 (all layers intact) to 1.0 (all layers restricted). Layers may only be eliminated sequentially, in the established order: Residential Land Uses; General Conditional Uses; Earth Mining and Processing Uses; Recreational Uses; Agriculture Group 1 [e.g., crops]; Agriculture Support Uses; and Agriculture Group 2 [e.g., ranching]. The first four uses (everything except agricultural uses) account for 60% of the base credits, with elimination of crop agriculture bringing the total to 80%.

The Natural Resource Index does not directly consider agricultural capability (i.e. soil productivity) in assigning values, but current land use (including agriculture) is one of 6 factors considered. Adding up the highest scores available under each of the 6 factors, there is a potential maximum resource index score of 3.2. The land use factor for agricultural land is either 0.3 (for palmetto prairie rangeland and woodlands) or 0.2 (for other rangeland, all cropland, orchards, groves, and pasture).<sup>1</sup> The result is that most agricultural uses will provide a maximum of 0.2 out of a potential 3.2 points for resource value, or 6.25% of the total potential resource index value. Other environmental resources (primarily water and habitat resources) account for the remainder of potential natural resource value.

The combination of these two components means that in the absence of other natural resource values to increase the Natural Resource Index of a parcel, agricultural land which participates in the program while retaining all agricultural uses will receive a maximum of 0.12 stewardship credits per acre, out of a potential maximum of 3.2. In reality, most agricultural land will possess other environmental attributes, but the figures cited above demonstrate that while this



program may protect agricultural land in Collier County, protecting the agricultural resources not itself a primary--or even important--program purpose. ... With appropriate modifications to focus the scoring criteria on agricultural productivity and related factors, the theory and techniques in this approach could result in an outstanding farmland protection program."

To help incentivize conservation of viable substantially-sized agricultural lands, the Stewardship Natural Resource Index Factors should correspondingly be modified to provide weight/value for agricultural lands by adapting the existing factors. In valuing "Open Lands" within the RLSA improvements to the Stewardship Natural Resource Index Factor worksheet might be defined around several of the criteria below:

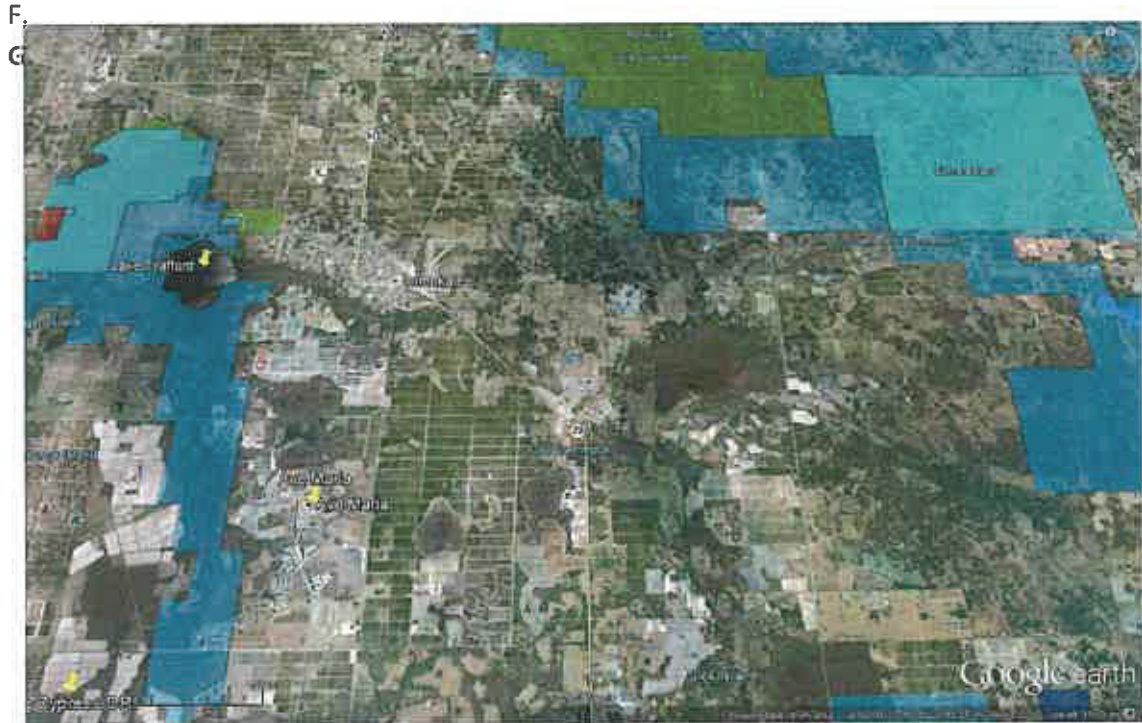
- ✓ Of sufficient size and connectivity to other sustainable ag-lands and ag-infrastructure components (access roads, drainage/irrigation improvements);
- ✓ Desired and do double duty if they are within primary panther habitat;
- ✓ Are located where telemetry, mortality and sighting data indicate panther habitat functions;
- ✓ Can Include the Big Cypress ACSC;
- ✓ Often includes FLUCCS Code for Group 2 & 3 (active agricultural production);
- ✓ Often includes "Flats (Transitional)" soils; and,
- ✓ Can include a Proximity Indices such that, "Agricultural field of ranch land within primary panther habitat zone and adjacent to or within 1 mile of a FSA or HSA."

Notes:

1. The RLSA rules group FLUCCS land cover codes into four groups for the purpose of establishing land use--land cover index scores. Palmetto prairie (FLUCCS code 321) is included in Group 2 (with a index score of 0.3), while all other agricultural land types are in Group 3 (with an index score of 0.2).
2. Land Use Code Group 3; Soils/Surface Water Indices for "Flats (transitional) soil (represents many of the row crop areas)

From such scoring an Agricultural Stewardship Area (ASA) designation needs to be derived, like is done for the HSAs and FSAs. The current policy directive of directed compact development footprint is correct, but needs to have the Stewardship Natural Resource Index Factor worksheet modified to add value to important ag-lands and follow this with an Agricultural Stewardship Area (ASA) designation and density transfer to the Stewardship Receiving Areas.

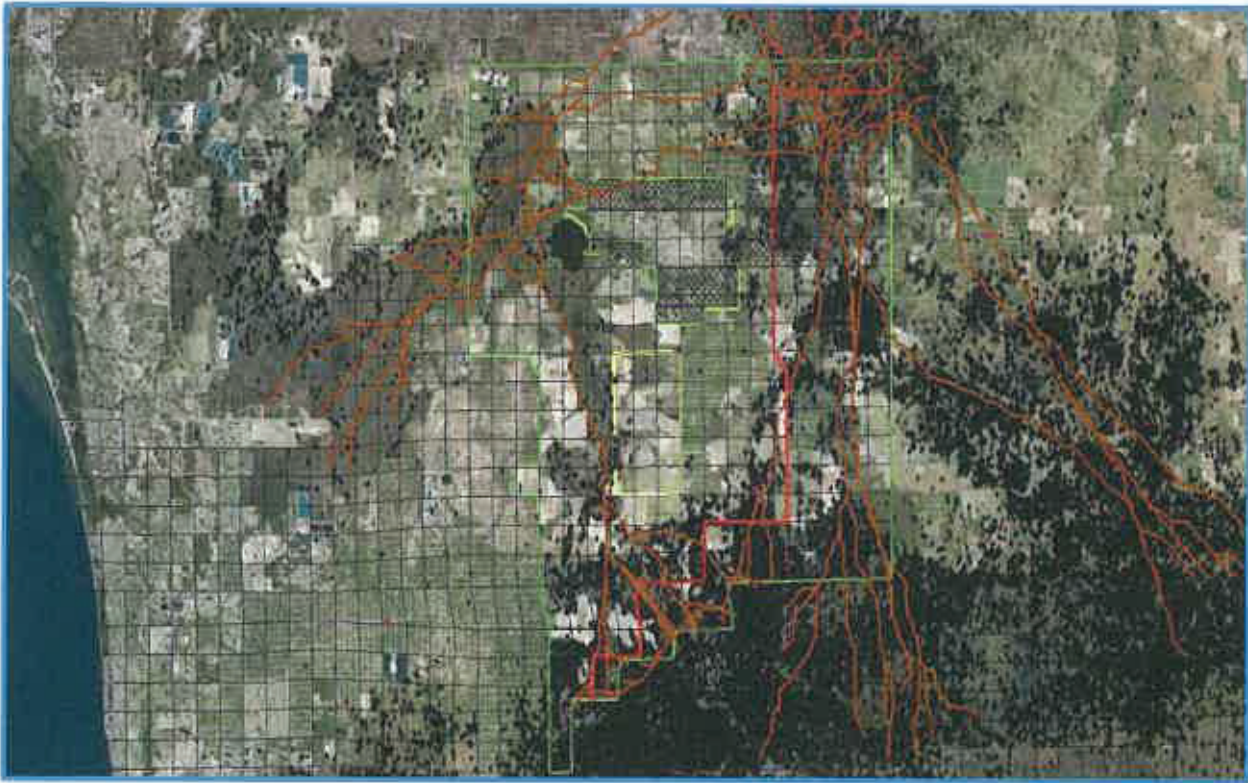
- E. **Collier County should perform “Cost of Community Services (COCS) studies for agricultural and ranch lands within the RLSA.** Cost of Community Services studies are case studies used to determine the fiscal contribution/cost of existing local land uses. In areas where agriculture and ranching are major industries, it is especially important to consider the real property tax contribution of privately owned working lands. Working farm and ranch lands may generate less revenue than residential, commercial or industrial properties, **but they require very little public infrastructure and few services, thus the eventual pattern of developed areas, to viable agricultural areas is an important consideration for RLSA planning.**



**Figure 2: Notice the carefully sized and developed ag-fields that form much of the landscape of the RLSA both north and south of Immokalee.**

In general, COCS studies conducted over the last 20 years show working lands generate more public revenues than they receive back in public services. Their impact on community coffers is similar to that of other commercial and industrial land uses. On average, because residential land uses do not cover their costs, they must be subsidized by other community land uses. Converting Collier County agricultural land to residential land use should not be seen as a way to balance local budgets.

### 3. Stewarding of Rural Landscapes in Support of Updated Panther Telemetry and Mortality Data and in furtherance of the Identified Primary Habitat Areas.



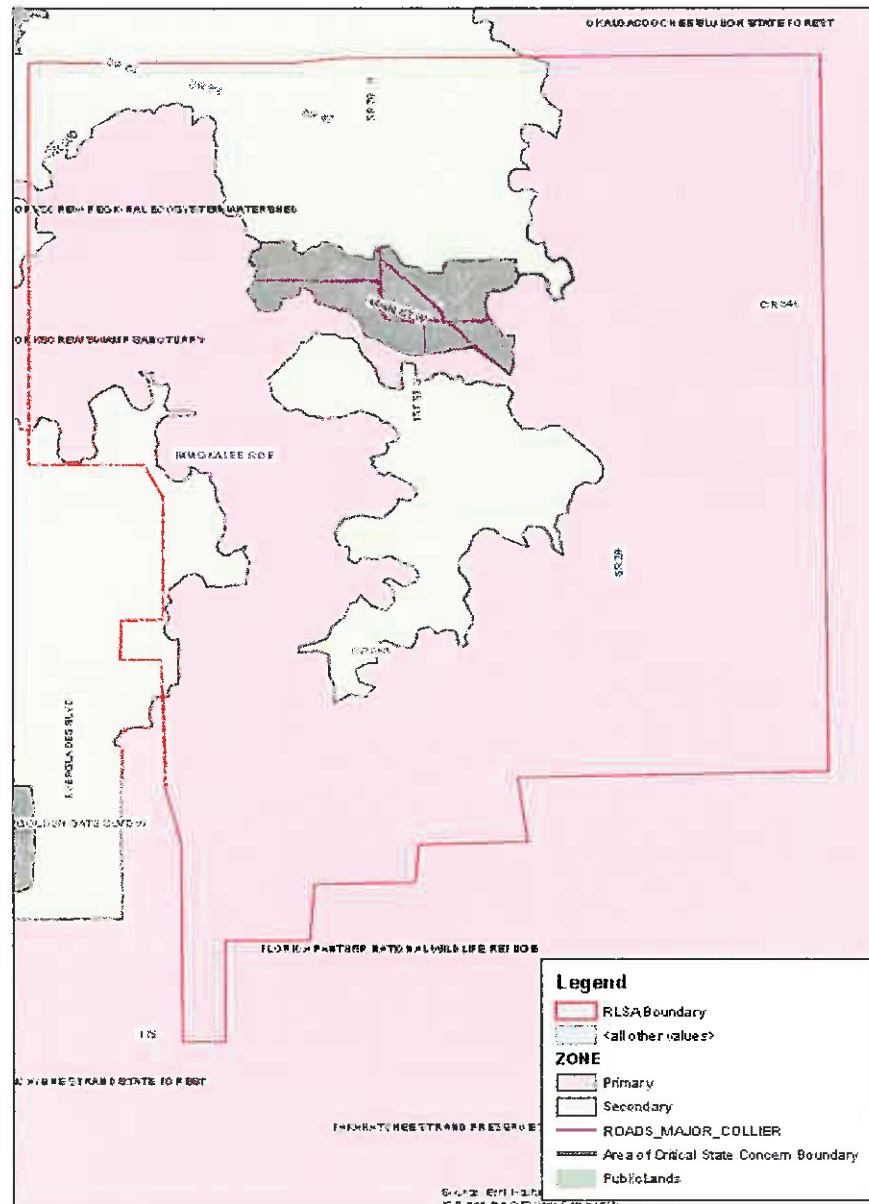
**Figure 3: Black dots show panther locational telemetry data, purple show road kill mortality data, red line Big Cypress Area of Critical State Concern, yellow Ave Maria, Green Immokalee**

The RLSA program was developed as a voluntary land use tool whereby landowners within the program area choose to remove various land development rights from sensitive natural and rural lands for transferable development credits to be used in development appropriate locations within the RLSA. Importantly in this regard, panther habitat protection has always been one of the main underlying themes and reason for the RLSA program as Collier County's location in Florida's natural systems landscape places it as a lynch-pin in panther population viability.

Since the initial adoption of the RLSA program, panther habitat research has continued with the realization that sensitive lands within the RLSA are usable for primary panther habitat and co-use as productive farm land and that these lands deserve greater preservation attention. Panther movement telemetry data, mortality data and the careful analysis of The Florida Panther Protection Program Technical Review Team (2009 Report) clearly help in development of appropriate amendments to the RLSA program.

After more than a decade since the RLSA inception use of the more refined panther habitat data to make adjustments to the program is necessary, the RLSA crediting system undervalues the importance of ag lands for panther use by giving these lands little to no natural resources credits.





**Figure 4: RLSA with primary panther habitat areas in pink, secondary in green, Immokalee in black in the center**

### Recommendations

- The Natural Resources Index Values should be updated to capture the environmental value of primary panther habitat.
- The actual number values assigned to various environmental factors should be reassessed.
- The arbitrary decision to define lands scoring 1.2 and above as environmentally valuable and lands scoring less than 1.2 as not environmentally valuable should be completely reevaluated.
- The lands classified as appropriate for designation as Open Lands should be reassessed, utilizing the panther primary and secondary zone habitat map and incorporating the concept of an Agricultural Stewardship Area category and designation.

- E. Policy and LDRs should be amended to incorporate the panther habitat science that identifies and maps primary and secondary habitat.
- F. Policy should direct development nodes to areas outside of those determined to be important for panthers, as identified by panther telemetry data, mortality data and least cost path usage,. Such limitation is necessary because a pattern of development that allows the placement of new villages, hamlets or towns across a landscape will drive additional development pressures, services and infrastructure needs and likewise will reduce or eliminate panther and other large animal habitat. Development-appropriate locations under a volunteer RLSA program should keep strong the underlying panther habitat protection theme.
- G. Provide incentives for use of Stewardship Credits in RLSA lands out of primary panther habitat. For example:
  - For towns **not in primary panther habitat**, remove the acreage cap of 4000 acres as it provides no community or economies-of-scale benefits and further, allow flexibility for density increases beyond what Attachment C of the Collier County RLSA Overlay Stewardship Receiving Characteristics. Correspondingly encourage the linkage of different new towns (landowner projects) and Immokalee within the bulk of non-primary panther habitat in the central RLSA. Over the long-term multiple “town” development in this area will tend to blend together anyway.
  - Increase the base residential density allowable for town level SRAs **not in primary panther habitat**. It is **not in primary panther habitat** where development should be encouraged. Currently, the base residential density of 4 units per acre [note the existing provisions do not restrict **net** residential density of parcels within a SRA (i.e., you can concentrate density on a parcel well beyond 4 units per acre)].
  - Presently, the means to incentivize density increases is limited to an affordable workforce housing density bonus or an Immokalee sensitive areas density transfer bonus mechanism. As an option, increasing the base residential density allowable for specifically town level SRAs **not in primary panther habitat** from 4 unit par acre to 6, or 8, may be useful. The result would be that for each acre of land, 8 stewardship credits would deliver to a landowner/developer 6 or 8 units rather than the current 4 - offering a strong incentive for use in the Town/non-primary panther habitat SRA locations. If sending areas (SSAs) of FSA, HSAs and the proposed ASAs are permanently hardwired and protected in the landscape, development appropriate locations is less about density and more about location.
  - A variation of this might be to offer density increases with Stewardship credit use of 10 (or 12) Stewardship credits per acre of land **for a Town (SRA) not in primary panther habitat**. This would result in the landowner/developer **gaining** an addition 2-to- 4 units per acre of SRA land, using up the pool of Stewardship credits at a faster rate for these more preferable development locations. The result would be the; use of more stewardship credits in a more

compact area, not within the panther primary habitat and increased-density beyond the too often used *suburban* 4 units/acre.

More clearly identify and name the natural wildlife corridor connector of **Summerland Swamp/Mud Lake Strands** that link between SSA 10 and the ACSC/ Okaloacoochee Slough. This is a Panther LCP Corridor Route as identified by the Panther Review Team (PRT). It should be clearly recommended that land uses should be maintained at no greater than existing uses for this area and that RLSA incentive be applied to encourage it to be a “sending area”.



**Amend Policy 3.11** – “In certain locations there may be the opportunity for flow-way or habitat restoration. Examples include, but are not limited to, locations where flow-ways or habitat have been constricted or otherwise impeded by past activities, or where additional land is needed to enhance wildlife corridors. Priority shall be given to restoration within the Camp Keais Strand FSA or contiguous HSAs, the natural wildlife corridor connector of Summerland Swamp/Mud Lake Strands that links between SSA 10 and the ACSC and Panther LCP Corridor Routes as identified for the RLSA lands for which the Panther Review Team (PRT) recommends that land uses should be maintained at no greater than existing uses (See: Technical Review of the Florida Panther Protection Program Proposed for the Rural Lands Stewardship Area of Collier County, Florida, 2009, see Figures 14, 17 and 23 of the Report.) Additional Stewardship Credits shall be assigned for each acre of land so dedicated. An additional two Stewardship credits shall be assigned for each acre of land dedicated for restoration activities within other FSAs and HSAs. ~~The actual implementation of restoration improvements is not required for the owner to receive such credits and the costs of restoration shall be borne by the governmental agency or private entity undertaking the restoration.~~



Should an owner also complete restoration improvements, this shall be rewarded with additional Credits for each acre of restored land upon demonstration that the restoration met applicable success criteria as determined by the permit agency authorizing said restoration. This policy does not preclude other forms of compensation for restoration which may be addressed through public-private partnership agreement such as a developer contribution agreement or stewardship agreement between the parties involved. The specific process for assignment of additional restoration credits shall be included in the Stewardship District of the LDC.”

#### **4. Build Towns in Appropriate Places that make Economic and Environmental Sense –The Pattern of Development (Development-Appropriate Locations) Is Critical To Supporting Compact Development**

##### **A. Economics and the Pattern of Development in the RLSA**

One of the original rationales for the RLSA was to help manage fragmentation of the area by urban sprawl, (i.e., either low density suburban development at the underlying 1 unit per every five acres or too many nodes of development across a sensitive landscape). When planning for the long-term development pattern within the RLSA focusing on desired outcomes need to be kept in mind that benefit the County and existing and future citizens economically, socially and environmentally. Thus to guide growth to development-appropriate locations and a pattern of development that is non-sprawling, more compact development within the RLSA focus on policy and results that end with:

- ✓ More Primary Panther Habitat left intact and useable over the long-term to the rebounding panther population.
- ✓ Profitable agricultural businesses and spin-off businesses in the Immokalee area and adjacent future new towns remain viable.
- ✓ County/Towns/Stewardship Development District/CDDs building robust tax bases with compact efficient service areas.
- ✓ Developers get a higher yield from their land assets.
- ✓ Residents getting well planned places to live work and play with cost efficient infrastructure and services (from EMS, Schools, Libraries to sewer and water).
- ✓ Businesses having larger more concentrated customer base.
- ✓ Personal and governmental travel/transportation costs down because Vehicle Miles Travelled (VMT) and personal time in vehicle are reduced.
- ✓ County and state highway/road/stormwater management costs are more manageable.

##### **B. County Planners and Commissioners be Observant of the Fiscal Impact Metrics**

###### **Background on Fiscal Neutrality of Planned SRA's and Responsible Cost Efficient Provision of Infrastructure and Services**

The present structure of the RLSA program requires SRAs to be fiscally neutral or positive to Collier County at the horizon year based on a cost/benefit fiscal impact analysis model (some exceptions can be granted by the County Commission).

Fiscal Neutrality refers to the impact of a development program on the costs and revenues of the County and the School Board. It is a comprehensive analysis of all costs and all revenues. In the context of County budgeting this entails analysis of the effects on the General Fund Special Revenue Fund and debt service Fund of the county Enterprise Funds and enterprise activities such as utilities are excluded since these are self-supporting activities which do not require and do not receive any subsidies from the County. In addition, various trust funds and inter-fund transfers are also excluded since these are either accounted for elsewhere or are self-supporting. Fiscal impacts encompass both operating costs and revenues and capital costs and revenues. The Working Model accounts for each of these separately. The application of FIAM (Fiscal Impact Assessment Model) requires the loading of relevant project data and the selection of site specific parameters within the model framework. Certain default values can also be modified when relevant data is available. Modifications were made to the Collier County default values in the FIAM Version model due to specific location and unique characteristics.

### Use of Independent Districts to Provide Infrastructure & Services

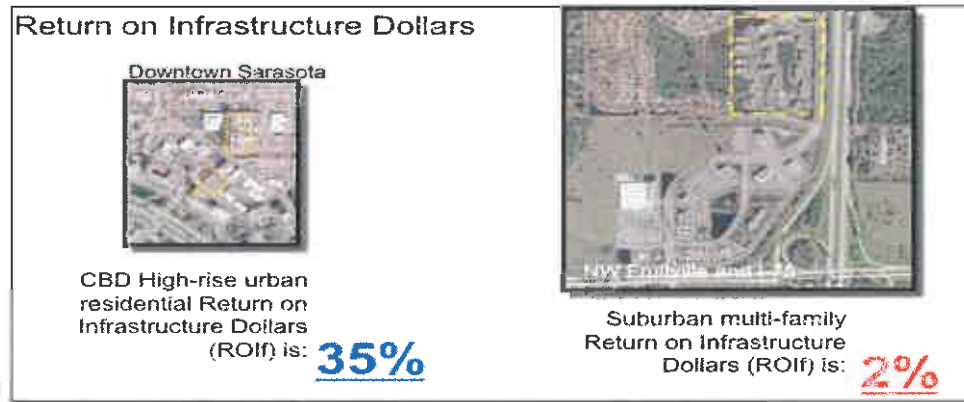
In addition to observance of general fiscal neutrality for the County's direct budgetary concerns, good fiscal planning and protection for future constituents in RLSA Towns and other developments should be a concern. Though creation of independent development districts for provision of some infrastructure and services may keep the taxing and monetary issues separate from the County's direct budget, creation of multiple and sparsely populated independent districts may eventually affect the County's bottom line. High taxes/rates to SRA residents for infrastructure district needs, in addition to regular county taxes and fees (which SRA residents are not released from), could result in slower growth in these SRA development areas. Further, multiple smaller independent districts increase individual user/customer costs (i.e., smaller tax/rate payer base to spread cost among) and decrease the financial viability of the district. When such districts cannot meet financial obligations and/or environmental or health protection needs the County will likely be brought in as part of the solutions.

- ✓ Capital costs for local roads, water, sewers, schools and transportation costs, fire and policing are linked to the pattern of development. Sprawling low density development and shotgun nodal patterns are less efficient and costly to the county or private utilities.
- ✓ Operations and maintenance costs for public works and related contracted government services are more costly for sprawling low density development and shotgun nodal patterns are less efficient and costly to the county or private utilities.
- ✓ County and special district tax/fee revenues necessary to provide infrastructure and services are more costly for sprawling low density development and shotgun nodal patterns.
- ✓ Health services infrastructure costs, delivery cost and related EMS services (important to the young and retirement community development market) are more costly to provide to sprawling low density of spread-out nodal patterns than more compact patterns.

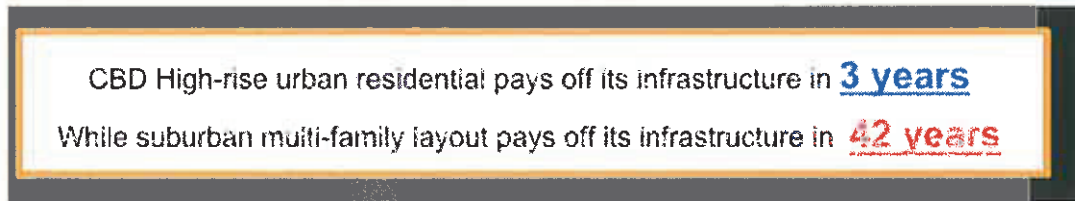
Data repeatedly shows that more efficient revenues streams and manageable costs are generated by compact, less sprawling development patterns. Studies in Florida and elsewhere have indicated a direct correlation between the number of years required to pay back infrastructure investment (Fiscal Impact Quotient) and the chosen pattern of development. Most all data reflects much longer payback (i.e., higher costs) for sprawling less compact development.

**FIQ=Fiscal Impact Quotient**  
The number of years required to  
pay back the municipality's  
infrastructure investment

Another way of looking at the fiscal equation is return on investment, or revenue dollars generated by the pattern of development. For example, when Sarasota County performed an analysis of return on investment looking at the two extremes of Central Business District High rise urban residential compared to low density suburban multi-family residential, the comparative dollar rate of return for the higher density to the lower was 35% to 2%.



The fiscal impact quotient for similar areas (the length of time to pay down infrastructure investment) was three years for CBD High Rise urban residential compared to suburban multi-family patterns.



**C. Pattern Of Development - Directing Uses Away From Valuable Wetlands And Upland Habitat, Restoring Habitat Connectivity And Discouraging Urban Sprawl.**

Canadian philosopher of communication theory Marshall McLuhan coined the expression “*the medium is the message*” referring to television and its impact on our lives. Likewise, for any major rural stewardship and land planning program, it is the “pattern of development” that is the message. Once suburban and urban development patterns are set with homes, businesses, infrastructures, services and voting constituents, stewardship for rural land and habitat conservation are subservient. Guidance and limits provided by the RLSA program must be acutely aware that the allowable pattern of development (i.e., development-appropriate location as the program’s goal states) will foster success or failure in meeting the goals to protect land for agricultural activities, directing incompatible uses away from valuable wetlands and upland habitat, restoring habitat connectivity and discouraging urban sprawl.

The present RLSA program has large rural areas as indicated in white on the County’s [RLSA Overlay Status Map](#). Much of this area in white represents a great part of the County’s important agricultural lands and includes significant acreage of primary panther habitat, which the RLSA program was designed to protect, but in reality is leaving vulnerable to intensive development as SRAs. Therefore, a revised RLSA approach needs to discern and guide SRAs to “development-appropriate locations” while preserving substantial block of functional agricultural lands.

SRA development footprints should be guided by a number of factors such as the retention of productive agricultural lands, primary panther habitat, Outside of the Big Cypress ACSC as well as where adequate provision of infrastructure, especially roads, sewer, water, schools, policing and EMS services can be delivered in a compact and cost efficient manner.

**5. Infrastructure Costs Have Not Been Sufficiently Addressed – relative to pattern of development, i.e., compact pattern, maximizing existing assets, and minimizing costs to existing and future residents.**

**Roads** – See the attached Appendix 1, “Road Diet for the Proposed RLSA Planning Area Build-out Network A Comparative of Stewardship Outcomes and Cost Linked To the Build-Out Roadway Network.” The synopsis of this attachment is that by more carefully planning a compact and efficient road network for the RLSA in Eastern Collier County multiple economic and environmental objectives can be achieved. Important points are:

Many millions of dollars can be saved (in the attached example from our analysis a half a billion dollars or more) by directing the road network:

- To the more developable areas such as the lands that have been identified as secondary panther habitat;
- Away from significant strategic blocks of important agricultural lands thus limiting the development access and ease that new and widened roads allow; and,
- In a more compact fashion around the existing Immokalee core.

In addition, this same logic and monetary saving to the County applies for the full complement of infrastructure for which the County has some part and responsibility to provide (Sewer, water, stormwater, waste management, EMS, policing, schools, etc.)

#### **Sewer & Water**

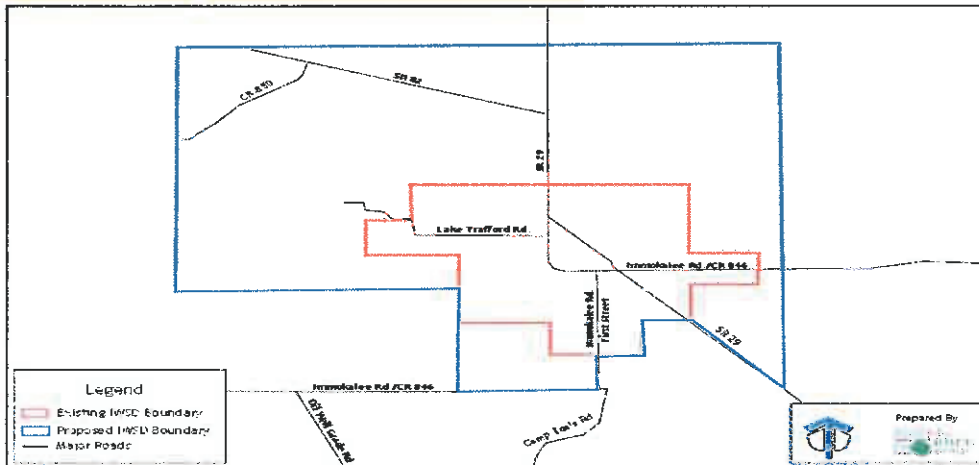
In regard to sewer and water, presently the two major providers active within the RLSA are the Ave Maria Stewardship Community District and the Immokalee Water & Sewer District.

**a. Ave Maria Stewardship Community District** – Essentially a CDD-type infrastructure and services development and delivery taxing district create by special act of the Florida legislature for Ave Maria and surrounding lands – it can serve an area or 10,850 acres, about double the SRA land area of the approved Ave Maria – the land between Immokalee Road and Oil Well Road and Camp Keias Road.

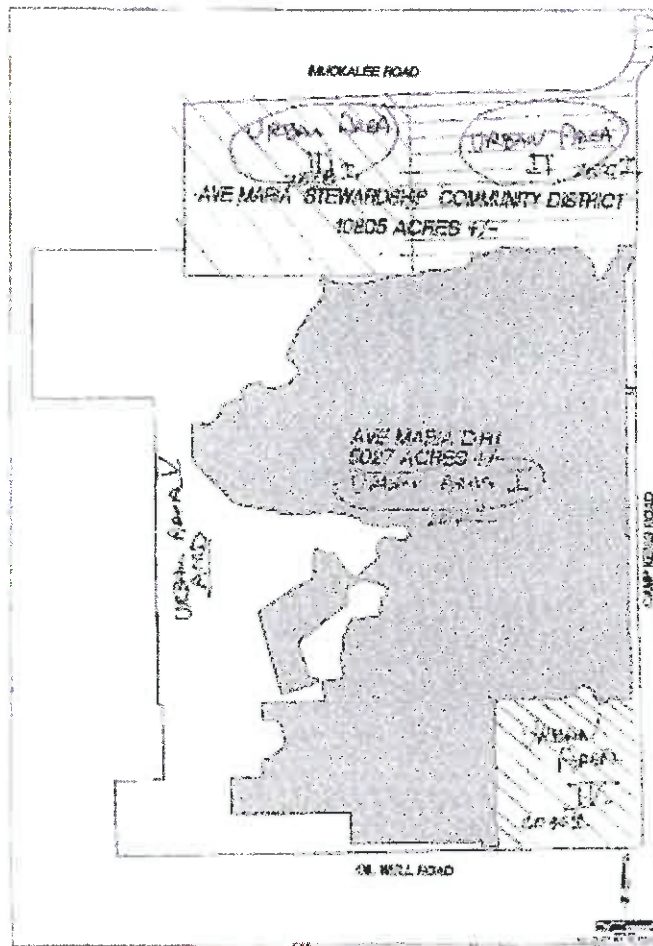
**b. Immokalee Water and Sewer District** –Presently serves the designated Immokalee area but has expansion proposals to serve lands within the RLSA, especially to the north of the present Immokalee. The service are of the proposed expansion would make it adjacent to the Ave Maria Service area.

Below are maps of Existing Sewer and Water Areas in the RLSA: First is the Immokalee Service Area which has been proposed to extend well into the RLSA. Second, below is the Ave Maria Service Area (10,805 acres) that also extends significantly beyond the Ave Maria footprint, north to abut the Immokalee area.

Map 11 Existing and Future Sewer Service Areas



Immokalee Master Plan Immokalee, Florida





### Police & Fire

Immokalee Fire Control and Rescue District serves a large part of the RLSA - The service area encompasses 215 square miles. The Immokalee District has the highest impact fee assessment for residential property of the fire districts in Collier County. Expansions include a permanent fire station at Ave Maria University.

Being an unincorporated jurisdiction, police protection is provided by the Collier County Sheriff's Office. The LOS for police protection is 0.196 officers per 1000 residents. A potential population increase of 36,466 dwelling units with approximate 2 residents per unit would result in the County needing to hire an additional 14 officers to adequately police the area ( $36,466 \text{ units} \times 2 \text{ residents per unit} / 1000 \times 0.196$ ). Also likely would be the need to develop additional police station facilities in the eastern County area and hire additional police support personnel.

### **6. The Big Cypress Area of Critical State Concern (ACSC) is a recognized State asset – Development and infrastructure should be extremely limited.**

Best available data indicates that 74% of the County's wetlands are within the Big Cypress Area of Critical State Concern Overlay. The lands of the Critical Area are generally outside of most existing development nodes. The land development regulations contained in the ACSC Overlay District on the Future Land Use Map provide standards that facilitate the goal of directing higher intensity land uses away from wetland systems. All of the ACSC lands within the RLSA are primary panther habitat.

With or without a RLSA program, development density and intensity have been historically low due to its remoteness and underlying development suitability limitations. The development standards for the ACSC overlay specify that site alterations shall be limited to 10% of the total site. A large percentage of the land contained in ACSC is also within the Conservation Designation (outside of the RLSA) and thus is subject to the land use limitations of that Land Use Designation. (Land Use Designation Section V).

The RLSA policy 4.2 provides that lands shown on the Overlay Map as eligible for SRA designation include approximately 74,500 acres outside of the ACSC and 18,300 acres within the ACSC.

Policy 4.21 describes many of the allowed actions within the ACSC.

"Lands within the ACSC that meet all SRA criteria shall also be restricted such that credits used to entitle a SRA in the ACSC must be generated exclusively from SSAs within the ACSC. Further, the only form of SRA allowed in the ACSC east of the Okaloacoochee Slough shall be Hamlets and CRDs of 100 acres or less and the only form of SRA allowed in the ACSC west of the Okaloacoochee Slough shall be Villages and CRDs of not more than 300 acres and Hamlets. Provided, however, that two Villages or CRDs of not more than 500 acres each, exclusive of any lakes created prior to the effective date of this amendment as a result of mining operations, shall be allowed in areas that have a frontage on State Road 29 and that, as of the effective date of these amendments, had been predominantly cleared as a result of Ag Group I or Earth Mining or Processing Uses. This policy is intended to assure that the RLSA Overlay is not used to increase the development potential within the ACSC but instead is used to promote a more compact form of development as an alternative to the Baseline Standards already allowed within the ACSC. No policy of the RLSA Overlay shall take precedence over the Big Cypress ACSC regulations and all regulations therein shall apply."

Though Towns are not allowed within the ACSC, Villages, Hamlets and Compact rural developments are allowed. Placement of the *Village* land use category within the ACSC would entail the related need to provide essentially the full complement of urban infrastructures and services. Though described initially as smaller than towns, development of villages in the rural areas and particularly in the eastern ACSC will require urban/suburban levels of infrastructure and services to meet the demands of village constituents. For this reason, we do recommend allowing any additional Villages within the ACSC.

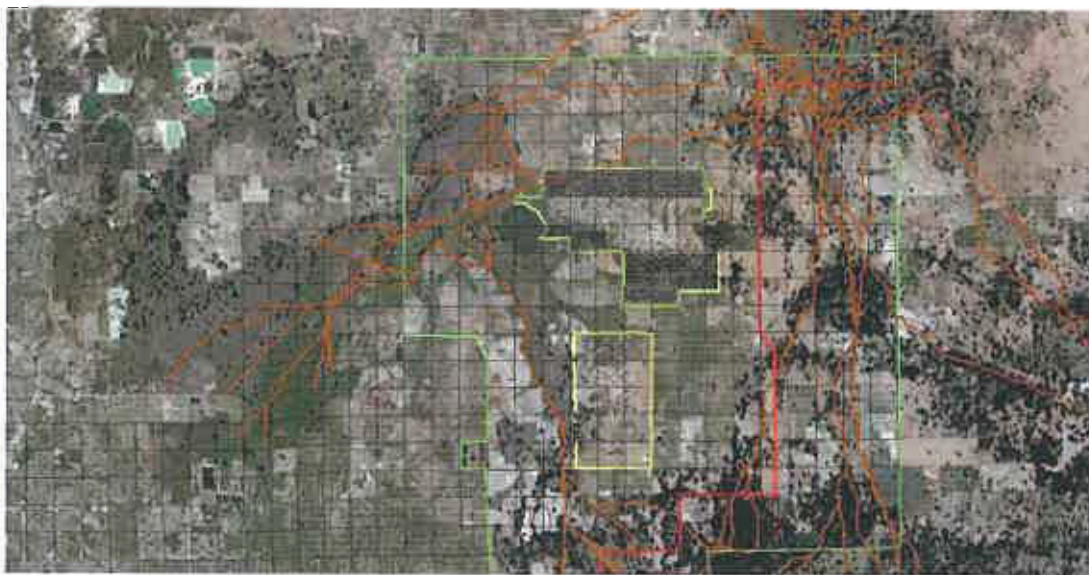
**7. Immokalee - Immokalee is estranged or Separated from the RLSA. Instead, it should be combined with the RLSA to form a coherent whole development and stewardship area.**

When Collier County was formed in 1923, the only non-coastal settlement in Collier County was located in the Immokalee and Corkscrew areas. Today, Immokalee is the only community of considerable size in interior Collier County and remains the focal point of the County's interior transportation network.

Immokalee is essentially a non-incorporated urban area in northeast Collier County that evolved as an important "central place" for agricultural production in the State of Florida due to its moderate winter weather, water availability and productive soils. The transportation system in this part of the County evolved in support of the ag and ranching economic aspects. A local airport is a part of this transportation network.

Immokalee has a large area of undeveloped lands not included in the RLSA (e.g., Immokalee has about 8,000 "developed" acres of urban/suburban and airport lands and 9,000 acres agricultural/ranching lands. Within these uses are about 3,000 acres of wetland/sensitive lands. These 9,000+ acres of undeveloped ag-land, though contiguous to SRA developable Open Lands of the RLSA - and developable under the Immokalee Plan have not been considered as a part of the RSLA eventual developed areas.

*Figure 5: Green line shows Immokalee Area that is excluded from the RLSA growth management planning. The hashed areas north and south of developed Immokalee are significant undeveloped lands adjacent to RLSA Open Lands.*



Immokalee is directly surrounded by the RLSA and includes areas that are likely developable consistent with the recommendations contained in this paper (Rural and not in the Primary Panther Habitat zone).

Agriculture is a dominant land use type within the Urban Designated Area (UDA), making up approximately 55 percent of the land, or approximately 9,440 acres. Agricultural lands are generally located at the periphery of the Immokalee boundary, surrounding the downtown core and backing directly against comparable rural lands of the RLSA.

The estranged relationship presents a land use problem relative to the specific goals of the RLSA program to:

*“Prevent the premature conversion of agricultural land to non-agricultural uses, to direct incompatible uses away from wetlands and upland habitat, to protect and restore habitat connectivity, to enable the conversion of rural land to other uses in appropriate locations, to discourage urban sprawl, and to encourage development that utilizes creative land use planning techniques.”*

Substantial land in Immokalee is undeveloped agricultural lands or sensitive wetlands that are adjacent to similar lands of the RLSA. Almost 10,000 acres are not developed and are not included in the airport property. Some of the area forms logical extensions of the Flowway and Habitat Stewardship Areas into the RLSA (especially the large west-to-east wetland/habitat linkage areas across the bottom part of Immokalee). Some of the undeveloped Immokalee lands form logical future developed lands and need to be brought into RLSA build-out calculations (e.g., ag-lands to the north and south of existing developed Immokalee developed area).

**Table 3-1 Existing Land Use in the Immokalee Urban Area**

Land Use	Parcel Count	Acres	Percent
Agriculture	103	9,442.1	55.2%
Commercial	198	187.6	1.1%
Conservation	4	90.6	0.5%
Government	77	2,883.0	15.6%
Industrial	57	127.1	0.7%
Institutional	120	386.6	2.3%
Multi-Family	183	140.7	0.8%
Single-Family	2,973	1,790.8	10.5%
Seminole Reservation	2	423.9	2.5%
Roadways	60	718.0	4.2%
Vacant Land	1,467	1,101.6	6.4%
<b>Total</b>	<b>5,234</b>	<b>17,892.0</b>	<b>100.0%</b>

Source: Collier County Property Appraiser, 2008

Also, economic development is the main goal of the Immokalee Area Master Plan. The community particularly looks to agricultural related industries and the industrial lands surrounding the Immokalee Regional Airport as key economic drivers for Immokalee. These areas provide part of the jobs and economic base for future SRA new towns within the RLSA.

Use Code	Description	Number of Parcels	Total Acres	Total Building Square Feet
42	Heavy industrial, heavy equipment	2	5.67	40,359
44	Packing plants, fruit and vegetable packing plants, meat packing plants	24	82.80	1,043,875
47	Mineral processing, phosphate processing, cement plants, refineries, clay plants, rock and gravel plants	1	0.94	6,481
48	Warehousing, distribution terminals, trucking terminals, van and storage warehousing	13	19.43	140,439
49	Open storage, new and used building supplies, junk yards, auto wrecking, fuel storage, equipment and material storage	17	18.28	85,564
	<b>TOTAL</b>	<b>57</b>	<b>127.11</b>	<b>1,316,718</b>

Source: Collier County Property Appraiser, 2008, and RWA, Inc.

Figure 2-1 Immokalee Population Estimates and Projections, 2000-2020

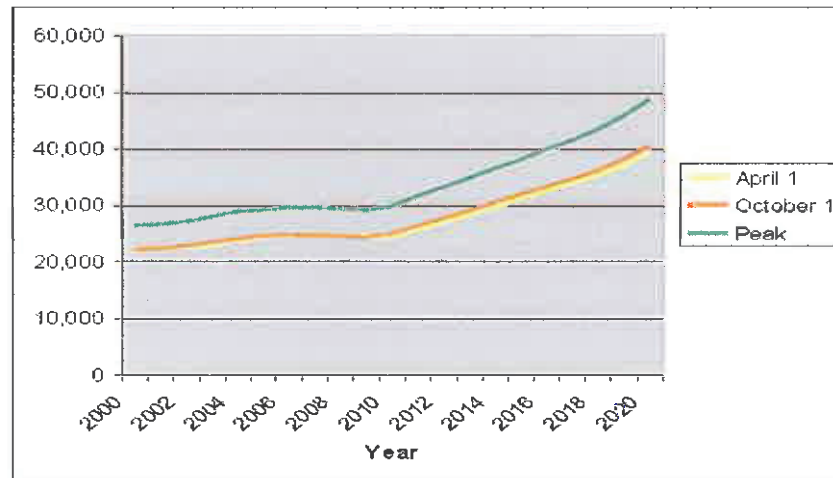


Figure 6: From the Collier County Growth Management Plan, Immokalee Area Master Plan, Data & Analysis, March 2010

By excluding likely Immokalee development areas and population growth from the RLSA calculations, Collier County is missing the opportunities to further the goals of controlling sprawl, promoting compact growth, protecting and restoring habitat connectivity and developing efficient and low cost infrastructure.

#### Recommendations

- Use/Link to the Immokalee Water and Sewer District when planning to service development within the RLSA that is adjacent/proximate to Immokalee. This approach will help limit the number of competing utilities within the RLSA and foster development that is sewerred and on a public water supply system rather than septic systems, individual wells or smaller utilities without the service population to economically deliver service and growth to utility users.
- Encourage co-operative planning and agreements between the Ave Maria Utility and other existing utilities that operate in or near the RLSA such as Immokalee Water and Sewer District and Collier County. Infrastructure development, deployment and management costs are substantial and multiple smaller-scale utilities within the RLSA may be costly to the consumer (i.e., home/businesses in the RLSA) and costly to manage. Many county/large utilities in Florida have had to eventually take over and manage smaller less effective/profitable utilities, and Community Development District-run utilities often have to charge users relatively high prices due to small customer base.

The existing centralized utilities within or adjacent to the RLSA should be encouraged to serve the area and, where practical, to cross-connect networks to strengthen the resiliency. It should be the County's RLSA policy to limit the number of utilities created to serve development within the RLSA as a means to:

- ✓ Improve efficiencies of scale important to cost and delivery of service,
- ✓ Improve bonding and infrastructure deployment payback costs over time (i.e., larger customer base); and importantly,



- ✓ Help prevent leapfrogging of development into/across rural and sensitive areas of the RLSA beyond logical and programed infrastructure extensions.
- c. Find means to incorporate Immokalee into the overall vision and marketing aspects of the RLSA. Presently, Immokalee is treated as if it were somehow estranged or separate from the RLSA when in reality it is an island of land, community, businesses and infrastructure within the body of the RLSA.
- d. Planning for compact and new town development for the RLSA should include the undeveloped rural and sensitive lands of Immokalee. The current debates about acreage caps have grown overtime from an original 16,800 developed acres to now an approximate 43,300 developed acres.

This higher acreage of SRAs in the RLSA could be reduced by inclusion of the Immokalee rural lands, much of which is not primary panther habitat and which is very likely to be developed concentrically and peripherally, as both the Towns of the RLSA and Immokalee grow. The spreading of secured (or additional) stewardship credits to the 7000-9000 acres of rural/agricultural lands in Immokalee, especially land not identified and primary panther habitat, will support multiple RLSA goals such as helping drive growth to the appropriate locations and promoting a more compact and utility efficient use of lands.

- e. Foster combined density blending between future development at the Immokalee periphery and SRAs of the RLSA. The current “Density Blending” provision of the Immokalee Master Plan that can serve to transfer density and intensity from lands within the Immokalee Urban Area containing high natural resource value to the lands within a contiguous SRA of the RLSA. This provision may be a useful incentive toward protection of the large slough and primary panther habitat on the area’s south side. Nevertheless, the provision does not blend RLSA and Immokalee future developing areas that sit side-by-side and contain more developable secondary panther habitat lands.
- f. Develop a hierarchy of limited development nodes and consider eliminating certain nodal types such as Villages and Hamlets as they just tend to spread low density suburban levels of development in a shotgun sprawling pattern throughout the RLSA. Fewer nodes (i.e., SRAs) that link/integrate from one to the next where possible make for more compact and economically sound developments. Not only does this pattern of development make good sense fiscally for the county and the landowners when deploying and operating infrastructure and services, it will also provide the most benefit for preservation of wildlife habitat and sustaining blocks of functional agricultural and ranching lands. In contrast, increasing numbers of development nodes spreads development across the landscape, requires provision of infrastructure and services and develops constituencies that have needs and will demand attention.
- g. An important planning action can be to invigorate and blend the existing Immokalee area with the evolving development SRAs of the RLSA. The current estranged relationship promotes a more sprawling, less compact pattern of development, missing opportunities to link and efficiently use infrastructure and services, business development and health and recreational options. The established road network in the RLSA is anchored by Immokalee as the hub or historical central place. Establishing new towns/SRAs within the RLSA, such as Ave Maria or others in the future, ought to plan an urbanizing landscape cooperatively with Immokalee. The County should be careful not to duplicate services or infrastructure (e.g., fire, policing, schools, emergency, library, etc.).

- h. Limit the number utilities and service providers to maintain viable economies of scale so that infrastructure fiscal quotients are minimized and return on investments can be maximized. In addition, via cooperative arrangements between a few utilities, some level of redundancy and system back-up can be provided.
- i. Keep the footprint of SRA development compact, closely linked to one-another by directing SRAs to lands outside primary panther habitat and the Big Cypress Area of Critical State Concern. These identified environmentally sensitive areas will have added development costs (e.g., road design and development costs for wildlife crossing and limitation needs, buffering needs, lower unit density and thus higher public services costs, etc.).



## Appendix 1

### Road Diet for the Proposed RLSA Planning Area Build-out Network

#### A Comparative of Stewardship Outcomes and Cost Linked To the Build-Out Roadway Network

The proposed new roads or road segments indicated below are from the Wilson Miller, *Conceptual Build-out Roadway Network for Eastern Collier County*. If these segments are removed, a desirable development outcome can be achieved while improving chances for wildlife and agricultural sustainability for the Stewardship Area. As new roads are themselves land use types that are a prerequisite to direct and allow development, deletion of these road segments from any future consideration furthers the RLSA Goal and Policy to promote a dynamic balance of land uses in the Collier County Rural Lands Stewardship Area (RLSA) that collectively contribute to a viable agricultural industry, protect natural resources, and enhance economic prosperity and diversification...via the use of the RLSA Overlay to protect natural resources and retains viable agriculture by promoting compact rural mixed-use development as an alternative to low density single use development, and provides a system of compensation to private property owners for the elimination of certain land uses in order to protect natural resources and viable agriculture in exchange for transferable credits that can be used to entitle such compact development.

**Strategic placement of roads to developable areas, and the purposeful strategic lack of roads in, or proximate too sensitive areas within the RLSA, is the key critical factor that will serve to direct desired allowable grow – i.e., the pattern, intensity and density of development within the RLSA.**

The Conceptual Build-out Roadway Network that was postulated by Wilson Miller appears to work counter to the strategic agricultural and natural systems stewardship role of the RLSA. If constructed to the extent portrayed it will likely result in a loss of most of the viable agricultural lands and an important segment to Collier County's economy as well as reducing natural ecosystems and wildlife habitat functions.

Importantly, county taxpayer infrastructure costs (both new and existing residents) will be significantly more following the full build-out presented by Wilson Miller consultant. These costs can be dramatically cut by reducing the envisioned road network to better direct growth and meet the RLSA underlying intentions (i.e., ag-land preservation and natural ecosystem and wildlife protection).

#### **Original Wilson Miller Consultant and Landowner Build-out Road Network scenario -**

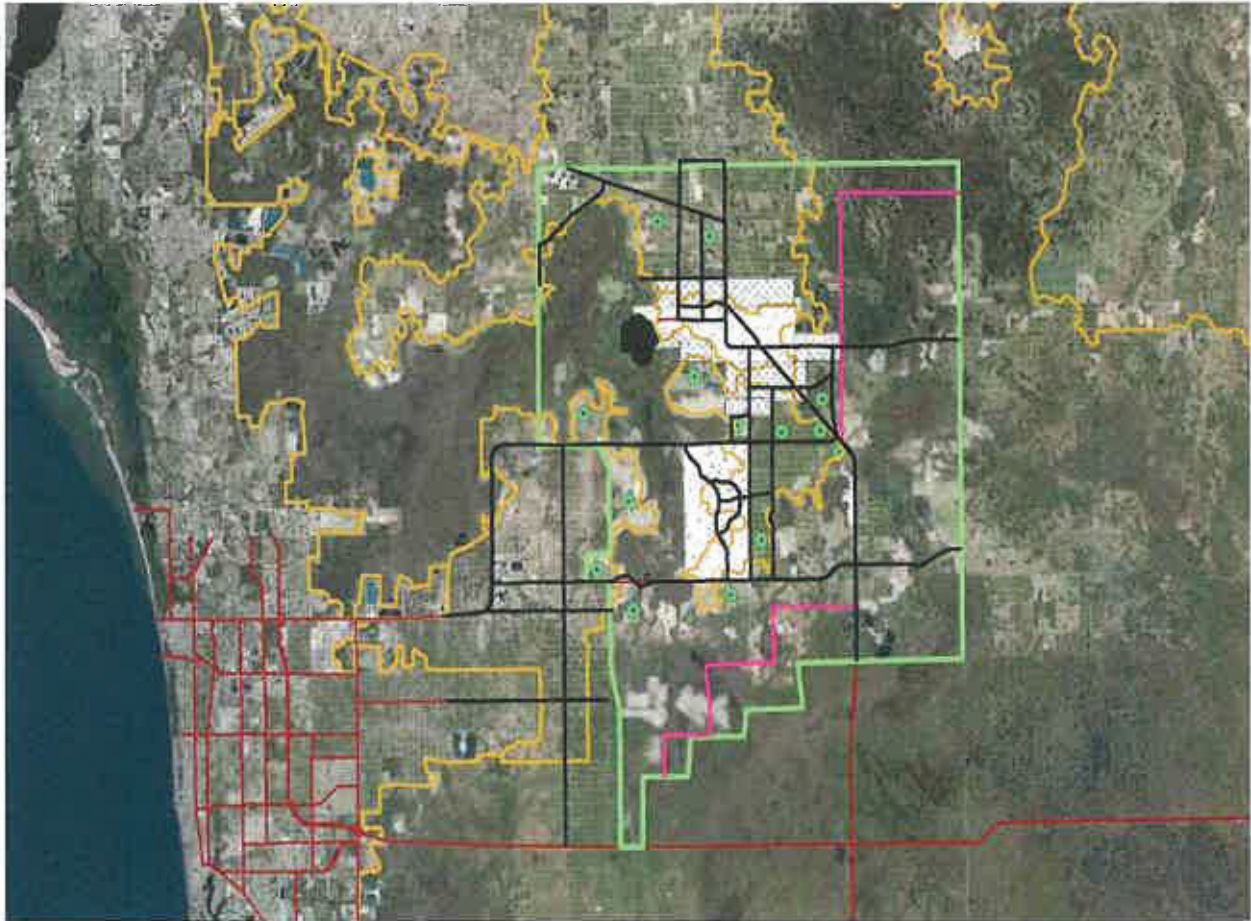
Essentially all of the RLSA agricultural areas are sub-divided and made accessible to development by the construction of new roads and envisioned communities. Further, there are a

number of proposed development nodes are essentially outliers in the midst of primary panther habitat, wetland areas and/or the Big Cypress Area of Critical State Concern. The proposed Conceptual Build-Out Roadway Network does not tend promote stewardship of significant rural areas other than those large wetland strands that would be protected under the state's wetland permitting regulatory program.



**Original Wilson Miller Conceptual Build-Out Roadway Network for the RLSA and eastern Collier County.** Green hexagons are proposed communities, blue presents the “islands” of secondary panther habitat in the RLSA and outward, yellow in Ave Maria, Blue the envisioned roadway network, tan, the Big Cypress Area of Critical State Concern to the east side of the RLSA. Immokalee is also the green enclosed area within the RLSA.





**Conceptual Build-out Roadway Network – Eastern Collier County – Modified to reflect Agricultural Area and Wildlife Corridor Conservation aspects as driven by the goals and policies of the adopted RLSA.** The islands of tan lines represent secondary panther habitat areas more supportive to development, purple line is the Big Cypress Area of Critical State Concern Boundary. Roads to be built or expanded in black. New Towns/villages in green and Ave Maria and Immokalee patterned. This conceptual Build-out Roadway Network presents greater emphasis on agricultural lands conservation and wildlife and habitats retention. Note larger block of agricultural lands have been conserved to sustain an agricultural-based economic base in the County. Proposed development areas for the SRA footprints concentrate more in the secondary panther habitat areas and toward the west portion of the RLSA.

### Costs of RLSA Planning Decisions

The indicated Conceptual Build-out Roadway Network removes previous proposed roads and road segments in eastern agricultural areas of the RLSA so as to leave intact contiguous functional agricultural areas. This configuration uses the road network to direct future growth and development around Immokalee central, with both a northwest cluster of development node and a southwest node cluster. Most importantly to the County and existing and future county resident, this proposed land use configuration saves a tremendous amount of money needed for infrastructure costs and results in several large, intact agricultural areas which help to steward the rural economies that have been a great strength to Collier County. Below is an analysis of the

cost savings such a stewardship-oriented configuration will provide. This analysis focuses on transportation costs. The true cost savings to the County would of course be much greater. Stewarding rural-agricultural areas and the more sensitive wildlife and wetland areas and directing development in a more compact fashion away from these areas has many more cost savings. Note that this analysis does not address other necessary development infrastructures and services, for example sewers, water, solid waste, stormwater, electrical, policing, EMS and Fire service. Nevertheless, the roadway analysis demonstrates the potential cost saving to the County by carefully working to meet the rural land stewardship goals and policies.

The estimated costs are from the 2010 Collier County Transportation Impact Fee Cost and Credit Update Study, Final Report, September 2010. The Study estimated that the cost per lane mile for County Roads was \$4,222,120 per, but included cost calculations dealing with interchange costs that would not apply to the county road development within the RLSA. The \$576,000 interchange costs were not included for consideration here, and thus the estimated cost per lane mile was \$ **3,646,120**. Similar 2013 cost estimates for Hernando county estimate approximately \$3,168,000 per lane mile of County Road (2013) and approximately \$3,287,700 per lane mile of County Road for Polk County (2009). Hernando County costs generally are somewhat less as the land has less wetland avoidance and mitigation costs than Collier County. Nevertheless, for comparative purposes, it can be seen that the estimates used in this report are reasonably conservative.

**Estimated cost of \$ 3,646,120 per lane mile for County Roads** – estimated cost for non-state roads in Collier County

The cost estimate includes:

- ROW,
- Construction,
- Design, construction engineering/inspection (CEI),
- Utilities,
- Mitigation, and
- Carrying costs.

**NOTE:** An appendix is included that provides more information on the roadway costing estimate.

Below are the road segments removed to achieve RLSA stated stewardship goals and policies while still directing SRA growth to most suitable area

#### **New Roads or Road Segment Expansions Removed**

#### **Costs Saved**

##### **1. Immokalee Loop Road (New)**

$$11.4 \text{ miles} \times 4 \text{ lanes} \times 3,646,120 = \$166,263,072$$

**Note:** The FDOT SR 29 Loop around/through Immokalee may handle this route from a local and regional traffic pass-through perspective. Nevertheless, the proposed Wilson Miller Immokalee

Loop Road was presented more as a local land access road quite north of Immokalee to assist development of new communities in the productive agricultural lands there.

2. Immokalee Circle Road (New) - East segment

$$3.3 \text{ miles} \times 4 \text{ lanes} \times 3,646,120 = \$48,128,784$$

3. Little League Road (New) – From Immokalee Rd to West Clox Street

$$5.1 \text{ miles} \times 6 \text{ lanes} \times \$3,646,120 = \$111,571,272$$

4. Gopher Ridge (New North seg)       $2 \text{ miles} \times 4 \text{ lanes} \times \$3,646,120 = \$29,168,960$

5. Gopher Ridge (New South seg)       $2.3 \text{ miles} \times 6 \text{ lanes} \times \$3,646,120 = \$50,316,456$

6. Stockade Road (New)       $2.7 \text{ miles} \times 4 \text{ lanes} \times 3,646,120 = \$39,378,096$

7. Horse Trail Road (New)       $2 \text{ miles} \times 4 \text{ lanes} \times \$3,646,120 = \$29,168,960$

8. Randall Ext. (New)       $1.5 \text{ miles} \times 6 \text{ lanes} \times \$3,646,120 = \$32,815,080$

9. Grove Road (New)       $3.2 \text{ miles} \times 4\text{-lane} \times \$3,646,120 = \$46,670,336$

10. Citrus East Road (New)       $3.8 \text{ miles} \times 4 \text{ lanes} \times \$3,646,120 = \$55,421,024$

11. County Line Rd (New - SR 82 to Proposed Little League Rd)

$$4 \text{ miles} \times 4 \text{ lanes} \times \$3,646,120 = \$58,337,920$$

11. Oil Well Rd (existing-expand)       $4.7 \text{ miles} \times 2 \text{ to } 4 \text{ lane (2 lanes)} \times \$3,646,120 = \$34,273,528$

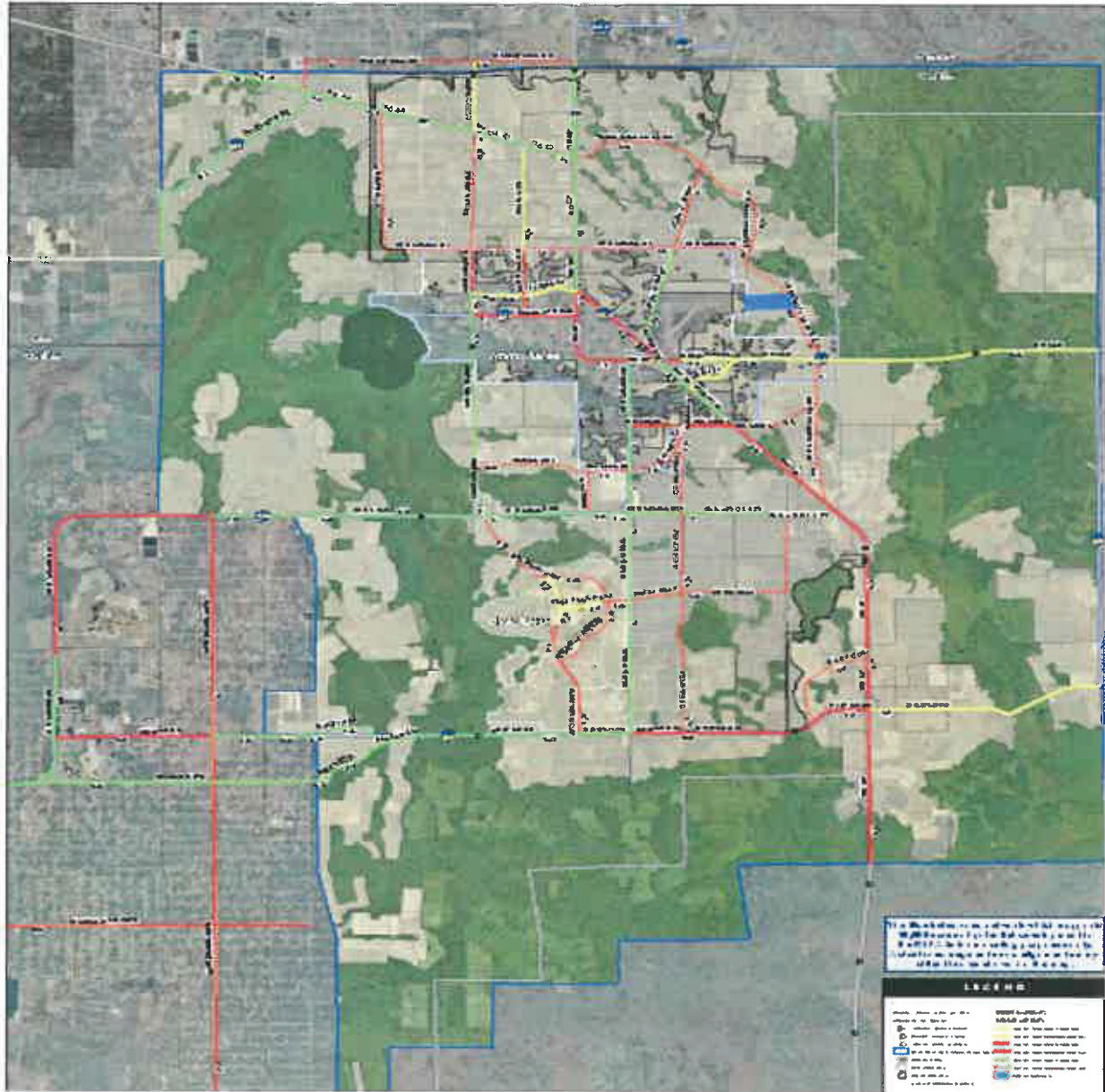
For this RLSA scenario here is the estimated miles of new roadway **not necessary and cost reduction to the County** that would be more conducive of greater rural stewardship, sustainable agricultural and wildlife areas and still support extensive community development.

New **25.9 miles – or road (various lane #)for a cost savings estimated at \$500,976,888**

**Existing Road not expanded 4.7 for a cost savings of \$34,273,528**

**Total Savings of \$535,250,416.00.**





Graphic above and chart below shows a breakdown of the proposed Conceptual Build-out Roadway Network as prepared by Wilson Miller to support 45,000 areas of potential development in the RLSA. The chart points out the new roadway segments, the number of envisioned lanes and proposed but not final actual locations (linked to the graphic above). Comments are provided about various environmental sensitivities.



<p>1. Immokalee Loop Road (New)</p>	<p>SR 29 North of Immokalee, east around to eventually connect with SR 29 South of Immokalee</p>	<p><b><u>New proposed 11.44 miles - 4 lane road</u></b> that would open up the NE area of the RLSA to development and likely conversion of existing productive Ag-lands.</p> <p>The proposed and currently underway State process to redirect SR 29 around/through the NW side of Immokalee may make this proposed road duplicative and costly to the County.</p>	<p>This road would loop east around Immokalee through Collier County's prime agricultural area and along the edge of Ok Swamp, the ACSC and partially in Primary Panther Habitat area and partially in the Secondary Area. Highly Sensitive Area. Would serve to open this area to development and increase likelihood of conversion of ag-lands in concert with the proposed north extension of Gopher Ridge Rd and the proposed development of an Immokalee Circle road.</p>
<p>2. Immokalee Circle Road</p>	<p>From the proposed Immokalee Loop Road heading west and then north to link to SR 82</p>	<p><b><u>New Road – 4 lanes</u></b> – Could be broken into 2 distinct segments: east of SR 29 and west of SR 29 – App. 10 miles total length.</p> <p><b><u>East segment – 3.3 miles of 4 lanes</u></b> West Segment – 6.7 miles of 4 lanes</p>	<p>This proposed new road east of SR 29 enter into and opens up for likely conversion the active agricultural lands. East Segment has significant wetlands intersperse with the ag-lands and follows along the north Immokalee Area boarder – which has not been planned as a part of the RLSA. Backs up on the east side to OK Swamp and ACSC. Quite sensitive. The west portion from 29 to SR 82 is current ag-lands, few wetlands and in secondary panther habitat area. Also just north of</p>

			Immokalee and would benefit from a joint planning action. This west segment also abuts/parallels Grove Road and the upper portion of Corkscrew Swamp and the RSLA envisioned north greenway/wildlife corridor. This portion of the west portion of the proposed corridor is quite sensitive.
3. Little League Road (New)	<p>From Immokalee Road heads north directly to intersect proposed new County Line Road just outside of RLSA.</p> <p>3 Segments</p> <ol style="list-style-type: none"> <li>1. Immokalee Rd to West Clox Street – 6 lanes</li> <li>2. Clox Street to SR 82 – 4 lanes</li> <li>3. SR 82 to Proposed new County Line Road – 2 lanes</li> </ol>	<p><b>New Road</b></p> <p><b>3 Segments – 10.4 miles</b></p> <p><u>1. Immokalee Rd to West Clox Street – 6 lanes- 5.1 miles</u></p> <p>2. Clox Street to SR 82 – 4 lanes – 3.6 miles</p> <p>3. SR 82 to Proposed new County Line Road – 2 lanes – 1.7 miles</p>	<p>This proposed road would have very significant wetland and wildlife impacts as it is proposed just east of Corkscrew Swamp major linkage corridor, crossing important wetland arms of the system.</p> <p>The segments north of West Clox Street impact wetlands and wildlife much less and are generally in secondary panther area.</p>
4. Gopher Ridge (New – south segment)	<p>From intersect with 29A in Immokalee to intersect with proposed new Immokalee Circle Road</p>	<p>Existing narrow rural road proposed for expansion to – <u>6 lanes App. 2.3 miles</u></p>	<p>Connects outward-north past the Immokalee Airport into active agricultural area. Would increase likelihood of ag conversion to developed lands. Some wetland impacts.</p>
5. Gopher Ridge (New north segment)	<p>From the proposed Immokalee Circle Road to the proposed Immokalee Loop</p>	<p>Existing narrow rural road proposed for expansion to – <u>4 lanes App. 2 miles</u></p>	<p>Opens up the north-central agricultural area to more intense development – Some</p>

	Road		wetland impacts.
6. EAST CR 846 Existing	From SR 29 east to County line Rd	Existing – 2 lanes - App. 5.4 miles	Mostly passes through ACSC and south-to- north OK Swamp to Big Cypress linkage. Future Improvements will likely have to include panther crossing along some portion of its length and funneling fencing. Highly Sensitive Area.
7. Stockade Road	Mostly new Road – 1 mile existing - New 3 miles From Immokalee Road to proposed new Immokalee Loop Road. Two district new segments. West of SR 29 – 2 miles East of SR 29 – 1.7 miles	New – app. 2.7 miles – 4 lanes	West existing portion in the secondary panther area, proposed new east portion in the primary panther area. Represents a potential east-west panther connector along the south Immokalee Area where large wetlands almost make the link between Ok Swamp area and Corkscrew Swamp and lake Trafford
8. Serenoa Circle	New - From Proposed Little League to SR 29 – App. 5.5 miles	New – 4 lanes App. 5.5 miles	This proposed road is mostly in the secondary panther zone, just south of Immokalee. Crosses Immokalee Road.
9. Oil Well Road (Existing)	From SR 29 to east County line RD	Existing - 2 lanes- App. 4.7	Passes through southeast ACSC, Ag areas and is a direct south-to-north natural corridor linkage area from Big Cypress to Okaloacoochee Slough State Forest – Future improvements will likely have to include accommodations for panther crossings. Highly Sensitive Area

10. Oil Well Road (Existing)	From Camp Keais Road to SR 29	4.7 miles 2 to 4 lane (2 lanes)	This segment southeast of Ave Maria presently serves the ag areas and connects east-west traffic. Crosses south- to-north wetlands and ag-lands panther/wildlife crossing and linkage. The link is in out of the secondary panther zone, adjacent to the ACSC. Sensitive wildlife and active ag area.
11. Horse Trail Road (New)	New Road from Oil Well Road to SR 29	<u>New – 4 lanes –</u> <u>App. 2 miles</u>	The route would be on existing agricultural lands squeezing between large wetlands that form south-to- north a wildlife/panther linkage from Florida Panther National Wildlife Refuge/Big Cypress Preserve to the south and the Big cypress ACSA and Ok Swamp to the north. Very sensitive location.
12. Randall Ext. (New)		1.5 miles x 6 lane	
13. Grove Road (New)	North to south 3.2 mile segment intersects SR 82 to the north.	a. miles x 4- lane	Along the NE side of Corkscrew Swamp – Sensitive and likely panther corridor route NE.
14. County Line Rd (New)	From SR 82 to Proposed Little League Rd)	4 miles x 4 lanes	New road proposed for outside the RLSA in Hendry County
14. Citrus East Road (New)	Portion form Citrus West to Immokalee Extension	3.8 miles x 4 lanes	This road as proposed is for development access of one of the larger block of productive agricultural lands

## **Other Important Transportation Cost Considerations Don't Forget the Infrastructure Costs for Bridging, Pedestrian, Bicycle & Wildlife-Crossings Improvements in the RLSA**

The build-out development pattern of that fosters compact communities will result in a resident population that demands more than just rural roads. Most of the new roads planned for the populated portions of the RLSA will have to be constructed with pedestrian and bicyclist infrastructure improvements included. This of course adds to the cost. By working to minimize the development footprint (clustered and compact on the more upland and secondary panther habitat areas) the planned stewardship of larger blocks of sustainable agricultural lands and sensitive sloughs, wetlands and wildlife habitat can better be achieved.

The costs per lane mile discussed above do not include many other costs involved in developing a RLSA transportation network. Below cost discussions for bicycles, pedestrian paths, bridging (the RLSA has many canals and drainage ditches as well as major sloughs and wetlands that the roadway network must cross). Further, an underlying purpose for the RLSA has been wildlife conservation, especially for the endangered panther population. The identification of logical Well-linked wildlife corridors and wildlife crossings needs to be considered.

### **Bikeway Infrastructure**

**Note:** These cost estimates for bicycle and pedestrian infrastructure are adapted directly from, “Costs for Pedestrian and Bicyclist Infrastructure Improvements, A Resource for Researchers, Engineers, Planners, and the General Public” by authors: Max A. Bushell, Bryan W. Poole, Charles V. Zegeer, Daniel A. Rodriguez at the UNC Highway Safety Research Center. Prepared for the Federal Highway Administration and supported by the Robert Wood Johnson Foundation through its Active Living Research program, October, 2013

Bikeway contains bicycle lanes, bicycle paths, and signed bicycle routes. The cost of separated multi-use paths designed for bicyclists and pedestrians can be found in the “Path” section below. For the purposes of standardizing the units, bicycle lanes are assumed to be five feet in width and bicycle paths 8 feet, with costs given in miles. Additionally bicycle boulevards, streets designed to give priority to bicyclists as through-going traffic, typically range from approximately \$200,000 to \$650,000 each.

Bikeways, or bike paths, are separated facilities designed specifically for bicycles, while bicycle lanes are designated travel lanes for bicyclists. Separated bikeway projects typically cost between \$536,664 and \$4,293,320 per mile, depending on site conditions, path width, and materials used. Indicated by bike route signs, signed bike routes are used to direct bicyclists to safer facilities and/or are located on lightly trafficked roads. These types of large-scale bicycle treatments will vary greatly due to differences in project specifications and the scale and length of the treatment.



Infrastructure	Description	Median	Average	Minimum	Maximum	Cost Unit	Number of Sources (Observations)
Bikeway	Bicycle Lane	\$89,470	\$133,170	\$5,360	\$536,680	Mile	5 (6)
Bikeway	Signed Bicycle Route	\$27,240	\$25,070	\$5,360	\$64,330	Mile	3 (6)
Bikeway	Signed Bicycle Route with Improvements	\$241,330	\$239,440	\$42,890	\$536,070	Mile	1 (6)

Table 2: Costs for Bikeway

## Pedestrian Crossings and Paths

This section provides information about the cost of facilities for pedestrians and includes information about sidewalks, crosswalks, and paths. Treatment information for sidewalks is presented in miles or square feet, while crosswalks are included as a cost per unit. Path costs are presented in either miles or linear feet. For some infrastructure treatments, such as paths, cost information was presented using a variety of different units. Assuming that a standard multi-use path is eight feet wide, the authors converted cost information for paths to linear feet and miles.

### Crosswalks

Striped crosswalks indicate a legal and preferred crossing for pedestrians, and may be installed at intersections or midblock locations. Motorists often fail to yield to pedestrians at these crossing points so marked crosswalks are often installed to warn motorists to expect pedestrians crossings ahead and also to indicate a preferred crossing location to pedestrians. A wide variety of crosswalk marking patterns exist, including parallel lines (standard crosswalk marking) and high visibility types, which include ladder, transverse lines, and zebra among others.

Cost information for striped crosswalks of all varieties as well as for high visibility crosswalks is given in the table below. For crosswalk types, costs tend to vary by a large amount. For instance, for crosswalks using other materials such as brick or pavement scoring, costs range from \$7.25 to \$15 per square foot, or approximately \$2,500 to \$5,000 each. Ladder crosswalks cost range from \$350 to \$1,000 each and patterned concrete crosswalks cost \$3,470 each or \$9.68 per square foot on average.

Since street widths vary a large amount depending on the situation, it is difficult to estimate the cost to provide crosswalks at every intersection. However, if a high visibility crosswalk costs approximately **\$3,000 per crossing**, the cost for the entire intersection would be **\$12,000 (\$3,000 X 4)**.



Infrastructure	Description	Median	Average	Minimum	Maximum	Cost Unit	Number of Sources (Observations)
Crosswalk	High Visibility Crosswalk	\$3,070	\$2,540	\$600	\$5,710	Each	4(4)
Crosswalk	Striped Crosswalk	\$340	\$770	\$110	\$2,090	Each	8 (8)
Crosswalk	Striped Crosswalk	\$5.87	\$8.51	\$1.03	\$26	Linear Foot	12 (48)
Crosswalk	Striped Crosswalk	\$6.32	\$7.38	\$1.06	\$31	Square Foot	5 (15)

Table 19: Crosswalk Cost

## Sidewalks

Sidewalks are the most basic pedestrian facility and provide an area within the public right-of-way for pedestrian travel. Sidewalk materials can vary substantially, including concrete, asphalt, brick, or other materials. In some cases, sidewalk costs are presented as a combination of both sidewalks and curbs, though it is important to note that the costs presented in the table below represent the cost of the sidewalk “in the ground” and may or may not include curb and gutter. All sidewalk costs are presented either by linear foot or by square foot with all unit conversion assuming that sidewalks are five feet in width. Sidewalk costs without sufficient details to include in the table are included in the following paragraphs.

Infrastructure	Description	Median	Average	Minimum	Maximum	Cost Unit	Number of Sources (Observations)
Sidewalk	Asphalt Paved Shoulder	\$5.81	\$5.55	\$2.95	\$7.65	Square Foot	1 (4)
Sidewalk	Asphalt Sidewalk	\$15	\$35	\$6.02	\$150	Linear Foot	7 (11)

Infrastructure	Description	Median	Average	Minimum	Maximum	Cost Unit	Number of Sources (Observations)
Sidewalk	Brick Sidewalk	\$60	\$60	\$12	\$160	Linear Foot	9 (9)
Sidewalk	Concrete Paved Shoulder	\$6.10	\$6.54	\$2.79	\$53	Square Foot	1 (11)
Sidewalk	Concrete Sidewalk	\$27	\$32	\$2.09	\$410	Linear Foot	46 (164)
Sidewalk	Concrete Sidewalk - Patterned	\$38	\$36	\$11	\$170	Linear Foot	4 (5)
Sidewalk	Concrete Sidewalk - Stamped	\$45	\$45	\$4.66	\$160	Linear Foot	12 (17)
Sidewalk	Concrete Sidewalk + Curb	\$170	\$150	\$23	\$230	Linear Foot	4 (7)
Sidewalk	Sidewalk Unspecified	\$34	\$45	\$14	\$150	Linear Foot	17 (24)
Sidewalk	Sidewalk Pavers	\$70	\$80	\$54	\$200	Linear Foot	3 (4)

Table 20: Sidewalk Cost

## Bridging and Wildlife Crossing

### Bridging Costs for a Transportation Network in the RLSA Will be Significant

The Build-Out Roadway Network analysis for the RLSA needs to include the cost estimates for bridging of the many canals, sloughs and potential wildlife crossings. This is in addition to basic cost per roadway mile. The area is a matrix of low uplands, drained farmed lands amid major remaining wetlands and sloughs. Further, this area will require particular attention to providing wildlife crossing at various locations and some discussion and attention needs to be given to these important RLSA infrastructural features. Below are some basic bridging cost examples. Any reductions or strategic minimization in the eventual build-out roadway network will lower costs to the County (both existing residents and future).

### Bridge Costs (From several Florida Department Of Transportation-Transportation Costs Reports)

A highway bridge is defined as any span of 20 feet or more in length. Not all bridges go over bodies of water. A large proportion of the statewide highway construction budget, usually in excess of 20%, is devoted to bridge construction. Bridge construction costs increased rapidly in the mid-2000s. As with other categories of construction, costs per square foot have tended to decline or stabilize over the last few years. Planning estimates for bridges over irrigation and drainage canals would be no different than for any other bridges. These would usually be short span bridges. As indicated in our web page, <http://www.dot.state.fl.us/planning/policy/costs/Bridges.pdf>, the cost would be estimated at \$112 to \$160 per square foot for reinforced concrete flat slab simple spans (*Martin Markovich, FDOT, personal communication, 12/2013*).

#### New Construction - (Cost per Square Foot)

Bridge Type	Low	High
<b>Short Span Bridges:</b>		
Reinforced Concrete Flat Slab Simple Span*	\$112	\$160
Pre-cast Concrete Slab Simple Span*	\$80	\$150
Reinforced Concrete Flat Slab Continuous Span*	NA	NA
<b>Medium and Long Span Bridges:</b>		
Concrete Deck/ Steel Girder - Simple Span*	\$100	\$138
Concrete Deck/ Steel Girder - Continuous Span*	\$125	\$173
Concrete Deck/ Pre-stressed Girder - Simple Span	\$67	\$140
Concrete Deck/ Pre-stressed Girder - Continuous Span	\$85	\$145
Concrete Deck/ Steel Box Girder – Span Range from 150' to 280' (for curvature, add a 15% premium)	\$110	\$160
Segmental Concrete Box Girders - Cantilever Construction, Span Range from 150' to 280'	\$145	\$175
Movable Bridge - Bascule Spans and Piers	\$1,450	\$2,000
* Increase the cost by twenty percent for phased construction.		

# Bridge Cost Per Square Foot Revised June 2012

	Cost Per Square Foot
<b>New Construction</b>	2012
Low Level	\$125
Mid Level	\$140
High Level	\$170
Overpass (Over Roadway)	\$155
Bascule	\$1,800
Pedestrian Overpass	\$335
<b>Widening</b>	
Low Level	\$150
Mid Level	\$170
High Level	\$205
Overpass (Over Roadway)	\$185
<b>Bridge Removal</b>	
Concrete Bridge	\$50

**Note:**

1. Figures are for construction costs per square foot of deck area
2. All figures exclude costs for right-of-way, bridge approaches, and approach slabs.
3. Figures account for recent increases in concrete and steel, and the effects of labor and material shortages in the construction industry.
4. The costs developed for this report are not site-specific and should be used for preliminary estimating purposes only.

In Collier County, as smaller more rural roads are enlarged to service the developing areas of the RLSA demolition cost associated with the existing narrow and outdated bridges must also be considered. Below is a chart indicating **bridge demolition, widening and maintenance** in cost per square foot)

<b>Bridge Demolition:</b>	<b>Low</b>	<b>High</b>
Typical Bridge Removal	\$18	\$50
Movable Span Bridge (Bascule)	\$50	\$75
<b>Widening and Maintenance:</b>		
Bridge Widening Construction	\$120	\$250
Fixed Bridge, Annual Maintenance	\$0.02	\$0.04
Movable Bridge, Annual Maintenance	\$5.00	\$5.80

### **Bridge and Wildlife Crossings Costs**

From calculations, the \$110.00 to \$125.00 is about right for the box culvert crossings. The flat slab bridges are running a bit below the \$160.00 per square foot but it is really dependent on the soil conditions and the lengths of the piles, etc.

For pipe crossings, it is totally dependent on the size of the pipe used and would run anywhere from about \$100.00 per foot for 36-inch pipe to about \$320.00 per foot for 72-inch pipe. To this cost you would also need to add headwalls. This would probably cost an additional \$4,000.00 for 36-inch pipes and about 10,000.00 for 72-inch pipes (this is a guess based on the numbers I found for end walls).

The real wild card in all this is the maintenance of traffic and temporary bypass roads and their associated costs. This is particularly true for Collier County where many of the areas you would put wildlife crossings are wet. Maintenance of traffic in these areas can be as much or more than the cost to construct the crossings.

### **Fencing Associated with Wildlife Crossing Infrastructure**

Fencing (10-foot with barbed wire) vs. gravity walls and additional costs will include wildlife jump-outs for animals stuck on the roadway, etc. Typically will have a FDOT standard Type A fence, which is a woven wire farm fencing with barbed wire across the top. This fence can be of various heights but we typically use a 10' height (including barbed wire). Also, typically used is fine mesh fencing with the farm fencing. This fine mesh is about a meter out of the ground and about 0.35 meters underground, and is used to stop your herps (turtles, lizards, snakes, frogs, etc.) from getting through the fence. Installation of the two fences together is difficult as it is better if the small mesh fence goes in front of the bigger fence (away from the post), but it's hard to bury the small mesh fence and then place the larger fence between it and the posts.

Various suppliers and contractors indicate a cost of about \$30.00 a linear foot for installation of the fencing or about \$98.40 a meter. Additional costs associated with the fencing include cantilever slide gates, which are about \$2,000.00 per gate. Please note that barbed wire is often added to the top of the gates and a "grooved brush" system on the base of the gate.

Replacement of the fencing would typically occur about every 15 years or so here (probably less in Collier County area due to weather) and if you assume a 100 year live cycle on the walls, then the cost of the fencing is about \$492.00 a meter. That means you would replace the fence about five times during the life cycle of the wall. Note that this estimate does not include any costs for general maintenance of the fence due to branches/trees falling on it, cars hitting it, etc. which would add additional cost to the fence that you would not see with the wall.

Associated gravity wall costs considerations where these are used:



- 3-foot high gravity wall: \$326.00/meter
- 4-foot high gravity wall: \$474.17/meter
- 5-foot high gravity wall: \$637.21/meter
- 10-foot high fence: \$492.00/meter (plus cost of gates)

So, the fence would be economical relative to long term costs up to about a 4-foot high gravity wall. However, the wall would not be able to prevent larger wildlife (large mammals) from getting on the road. (*Personal Communications with Mr. Mark Easley, Sr. Project Manager Environmental Services, Kisinger Campo & Associates Corp. December 2013*)

#### Example - Costs Associated with Crossing One Slough And Providing One Wildlife Crossing





As an example of some of the added cost that needs to be considered for some of the proposed roads envisioned in the RLSA are crossings for wildlife and adequate water flow. For just one of the needed wildlife and water crossings (several such crossings are needed along the length of this proposed north-south road adjacent to and, at times, crossing portions of Corkscrew Swamp sloughs) on the proposed crossing on the “Little League Road” just south of Immokalee. This example is provided to emphasize the point that by reducing the road network to just those segments that service development in the most suitable locations, costs can be greatly reduced!

**1<sup>st</sup> crossing just south of Lake Trafford Road – 1.3 miles at 120 foot ROW inclusive of 1.3 miles of dirt crossing the slough with 1 flat slab bridged wildlife crossing and 4, 36” culvert crossings to assure water flow and an estimated mitigation cost.**

- Approximately 8,000 feet of fencing on both sides of the road to guide/funnel wildlife and prevent direct road crossings. At \$30 per liner foot that is \$480,000 per side or **\$960,000 in fencing.**
- Main bridge & Wildlife Crossing – 12,600 square feet estimated bridge dimension for Oil Well Road Wildlife linkage x \$160 per square foot= **\$2,016,000** for just the bridge (A flat slab bridge).
- 2-4 Box Culverts for adequate water flow and some wildlife connectivity. \$100.00 per foot for 36-inch pipe. To allow adequate water flow through the filled causeway multiple large culvert crossings would be needed in addition to the main wildlife bridge.  
120 feet of 36-inch pipe@ \$100.00 per foot = culvert road crossing X **4 Culvert Crossings= \$48,000**
- Causeway dirt fill cost with significant wetlands mitigation cost. Approximately 1.3 miles.
  - Fill - 120 feet x 6864 feet x 5 feet = 4,118,400 Cubic feet/3= 1,372,800 cubic yards of fill at \$5.94 per cubic yard of fill = **\$8,154,432**
  - Mitigation – 1.3 x \$156,000 per lane mile x 6 lanes= **\$1,216,800**

**Minimum Total Costs of crossing one slough with 1 wildlife crossing and 4 36” culverts: \$12,395,232**

**Note:** This does not include the actual road construction or bike & pedestrian lane considerations – as this road is envisioned as serving an urban/suburban part of the RLSA.



## Legal questions Outstanding

1. Without reducing any of the already issued credits (300,000+), can the county win a legal challenge if, in meeting the goals, objectives and policies, including the implementing LDRs, it **prioritizes SRAs** such that the very large “open ” areas depicted on the FLUM are changed in consideration of:
  - a. New info on primary and secondary panther habitat
  - b. Including the Immokalee area in the RLSA
  - c. Avoiding sprawl with compact development patterns
  - d. Protecting agriculture and rural character consistent with the intent of the RLSA

As a side question - Can lands identified as “Open” , unidentified in white on the Adopted RLSA Status Map be addressed differentially, such that distinctions in suitability, land use and character can be preserved as the siting of SRA footprints within occur? Can amendments to the existing policies and implementing LDRs be made to pursue identified County objective (e.g., productive agricultural area conservation) without triggering successful Bert Harris challenges?

2. Given the original stated acreage development footprint of 16,000 acres, which has now become 43,000 acres+, could the county reduce the development footprint to some lesser figure that would be more consistent with the statutory intent of the RLSA, GOPs and LDRs?
3. Can the county DENY and successfully defend a request to establish a SRA based on existing GOPs and LDR provisions?
4. Can the county DENY outright a stewardship credit agreement (as they “expire”) and/or could it renew such agreements with conditions?
5. Can the “VILLAGE” land use be eliminated by the county successfully from Policy 4.2.1 in recognition of its incompatibility with the overall purposes of the RLSA and the ACSC?
6. If the county chose to increase allowable densities within a SRA in order to limit the development footprint, does that in any way infringe on property owner rights?