



# LEE COUNTY

## SOUTHWEST FLORIDA

### BOARD OF COUNTY COMMISSIONERS

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County Attorney

Diana M. Parker  
County Hearing  
Examiner

March 30, 2009

Mr. David W. Depew, Ph.D, AICP,  
Morris-Depew Associates, Inc.  
2914 Cleveland Avenue  
Fort Myers, FL, 33901

RE: CPA2008-03 Kreinbrink Amendment, Alva

Dear Mr. Depew:

The Planning Division has reviewed the information provided for the above Comprehensive Plan amendment. In order for us to deem this request sufficient, we need the following information and documents. Please provide the requested information and documents within 30 calendar days of this letter.

Part IV:

- A-2 Please provide a current Future Land Use Map of the area to an appropriate scale.
- A-3 Please provide a proposed Future Land Use Map of the area to an appropriate scale.
- A-6 Please provide a certified legal description and certified sketch of the description for the subject property.
- A-7 Please provide a copy of the deed for the subject property.
- B-1 Please provide the required Traffic Circulation Analysis for the commercial Land Use category that is being sought.
- C
  - 1) Please provide a map of the plant communities as defined by the Florida Land Use Cover and Classification System (FLUCCS).
  - 2) Please provide a map and description of the soils found on the property and identify the source.
  - 3) Please provide a topographic map depicting the property boundaries and 100-year flood prone areas indicated.
  - 4) Please provide a map delineating wetlands located onsite.

- 5) Please provide a table of plant communities by FLUCCS with the potential to contain species (both plant and animal) listed by federal, state or local agencies as endangered, threatened or species of special concern. The table must include the listed species by FLUCCS and the species status.
- F. Your application did not address all aspects of the urban sprawl analysis required under Florida Administrative Code 9J-5.006(5) *Review of Plans and Plan Amendments for Discouraging the Proliferation of Urban Sprawl*.

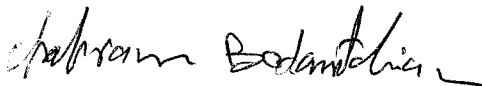
Specifically, the Florida Administrative Code (FAC) Chapter 9J requires that plan amendments be evaluated to ensure consistency with the State Comprehensive Plan, Regional Policy Plans, and Chapter 163.

FAC 9J-5.006(5) outlines several provisions pertaining to urban sprawl that must be addressed as part of the plan amendment process. The Krienbrink application addresses most of the provisions listed, but not the items in subsections 9J-5.006(5)(h) *Evaluation of land uses*, 9J-5.006(5)(i) *Local conditions* and 9J-5.006(5)(j) *Development controls*. Please amend the analysis to address these items.

Staff has not received all review agencies comment yet. Additional comments may be forthcoming.

Should you have any questions, please feel free to contact me.

Sincerely,



Chahram Badamtchian, AICP  
Senior Planner, Division of Zoning

LEGAL DESCRIPTION:

A PARCEL OF LAND LYING IN SECTION 18, TOWNSHIP 43 SOUTH, RANGE 26 EAST, LEE COUNTY FLORIDA MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 18, RUN S 88°52'38" E ALONG THE NORTH LINE OF SAID SECTION 18 FOR 1377.37 FEET; THENCE RUN S 00°16'25" W FOR 50.00 FEET TO THE SOUTHERLY RIGHT-OF-WAY OF STATE ROAD 78, (100 FEET WIDE), AND THE POINT OF BEGINNING OF SAID PARCEL OF LAND; FROM SAID POINT OF BEGINNING RUN S 00°16'25" W FOR 1314.85 FEET; THENCE RUN N 88°51'56" W FOR 1322.57 FEET TO THE EASTERLY RIGHT-OF-WAY OF STATE ROAD 31, (100 FEET WIDE); A NON-TANGENT POINT ON A CURVE CONCAVE TO THE EAST WITH A RADIUS OF 68,704.96 FEET, A CENTRAL ANGLE OF 00°42'23", AND A CHORD OF 847.10 FEET THAT BEARS N 00°07'31" W; THENCE RUN NORTHERLY ALONG SAID CURVE AND ALONG SAID EASTERLY RIGHT-OF-WAY OF STATE ROAD 31 FOR 847.11 FEET TO A POINT OF TANGENCY; THENCE CONTINUE ALONG SAID EASTERLY RIGHT-OF-WAY OF STATE ROAD 31 N 00°24'05" E FOR 158.26 FEET; THENCE N 02°08'14" E ALONG SAID EASTERLY RIGHT-OF-WAY OF STATE ROAD 31 FOR 259.79 FEET; THENCE RUN N 24°26'09" E ALONG SAID EASTERLY RIGHT-OF-WAY OF STATE ROAD 31 FOR 53.94 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY OF SAID STATE ROAD 78; THENCE RUN S 88°52'38" E ALONG SAID SOUTHERLY RIGHT-OF-WAY OF STATE ROAD 78 FOR 1297.58 FEET TO THE POINT OF BEGINNING.

CONTAINING 40.00 ACRES MORE OR LESS.

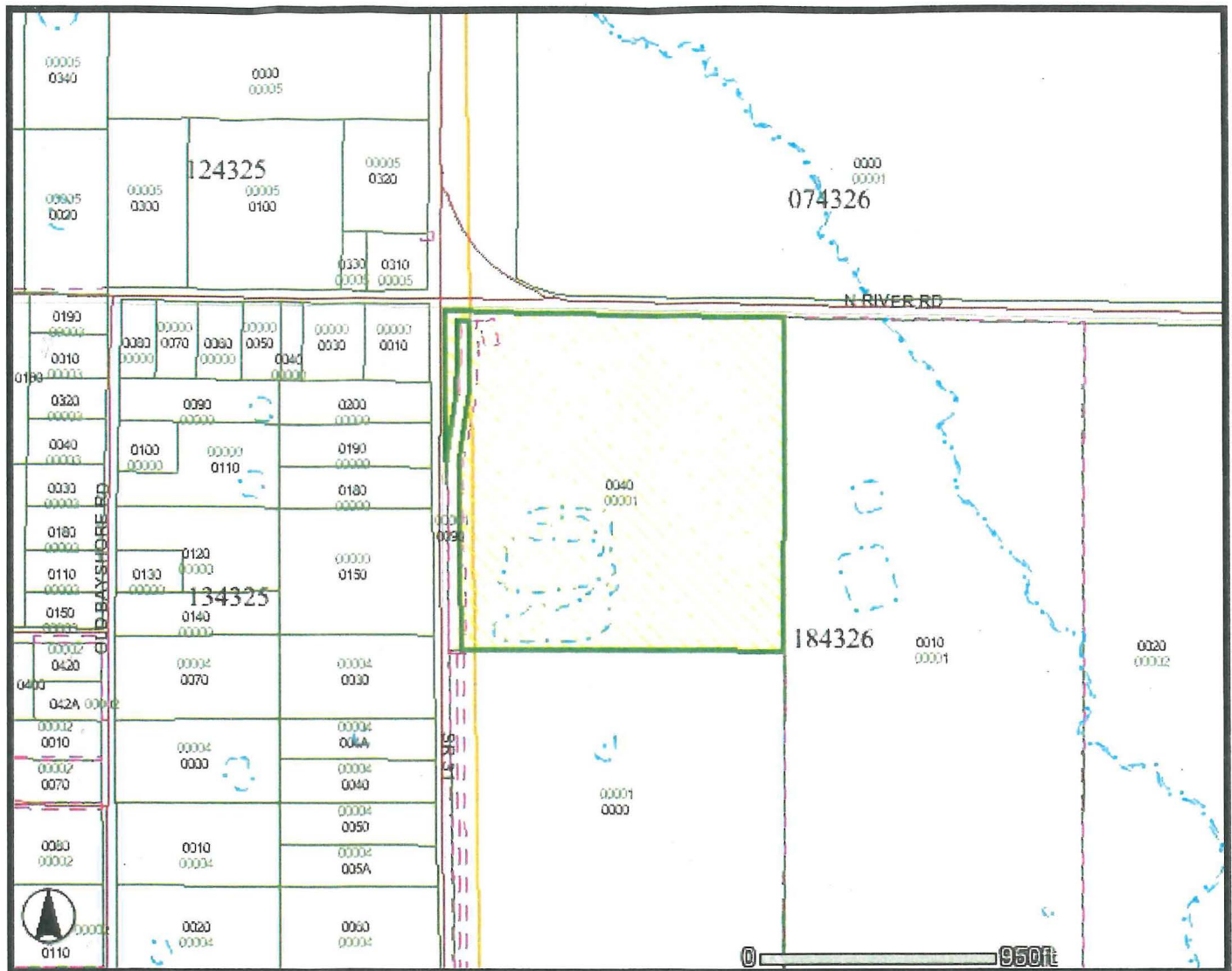
BEARINGS ARE BASED ON THE NORTH LINE OF SECTION 18 AS BEARING S 88°52'38" E.

SUBJECT TO EASEMENTS, RESTRICTIONS, RESERVATIONS AND RIGHT-OF-WAYS OF RECORD.

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2008-00003

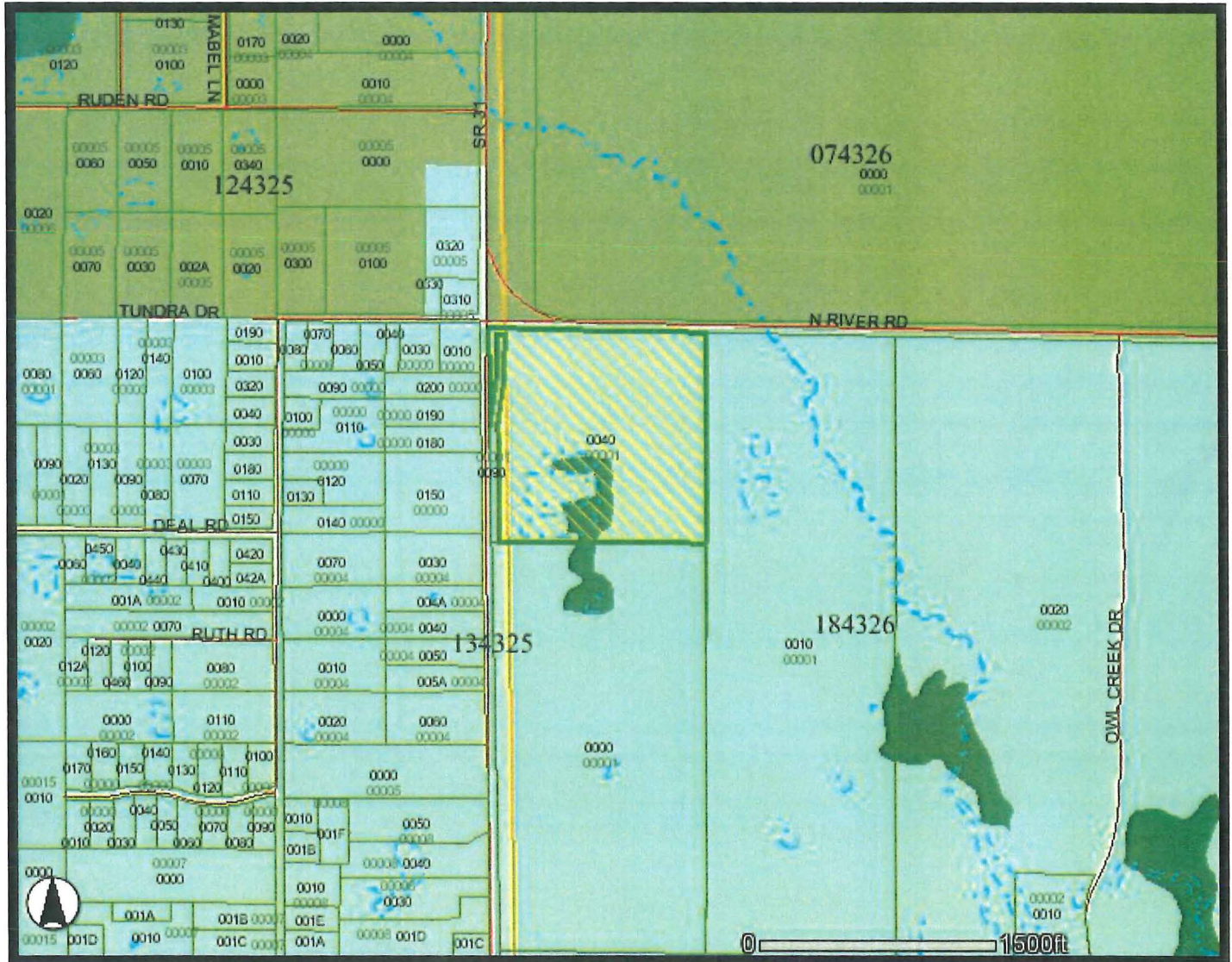


Section 18-Township 43-Range 26  
Lee County Florida

Easements: - - - - -

2914 Cleveland Avenue, Fort Myers, Florida 33901 Telephone: (239) 337-3993 Fax: (239) 337-3994  
327 Office Plaza, Suite 202, Tallahassee, Florida 32301 Telephone: (850) 224-6688 Fax: (850) 224-6689  
408 West University Avenue, Suite PH, Gainesville, Florida 32601 Telephone: (352) 378-3450 Fax: (352) 379-0385  
Toll Free: (866) 337-7341



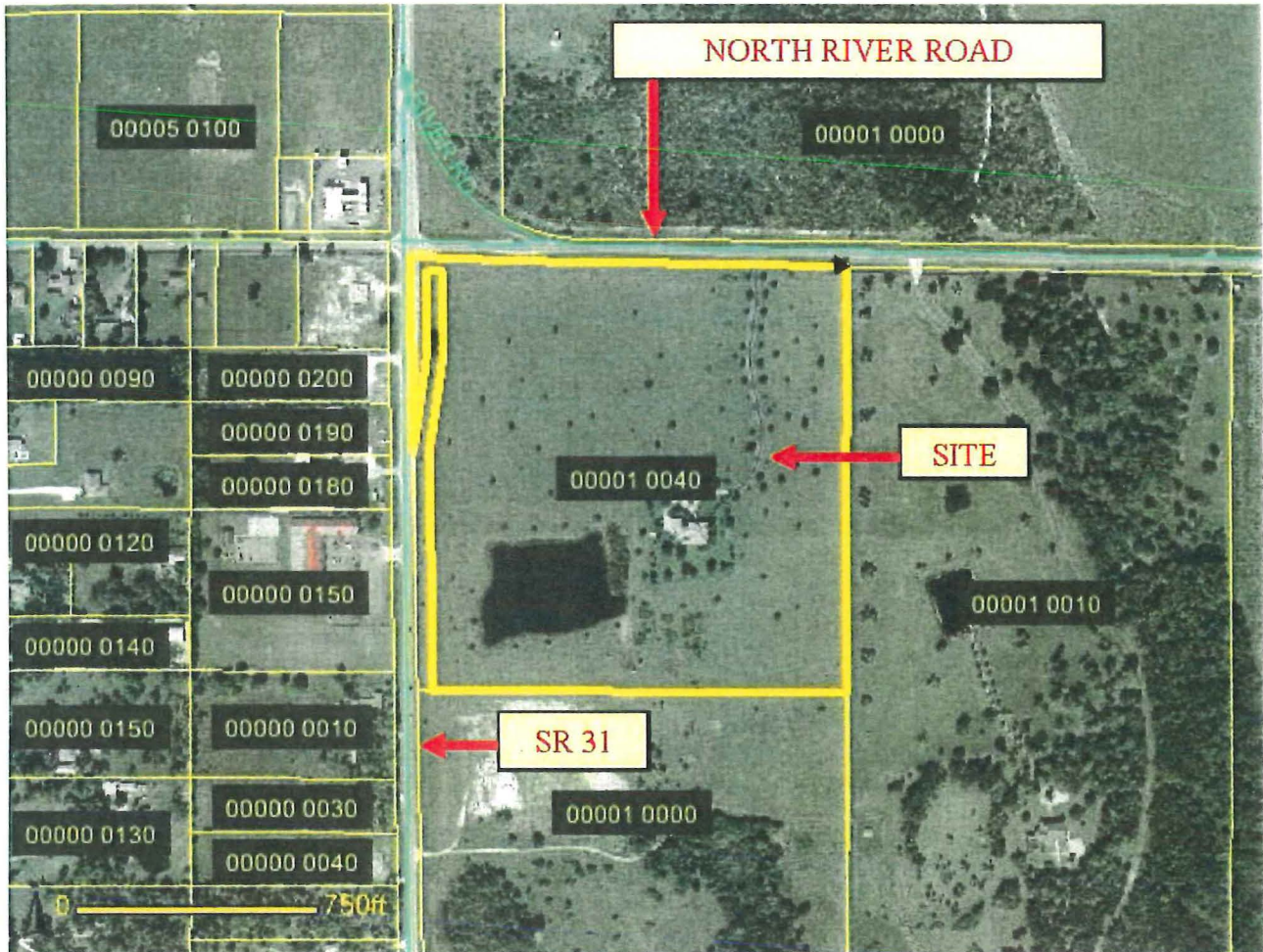


## Future Land Use Map

Section 18-Township 43-Range 26  
 Lee County Florida

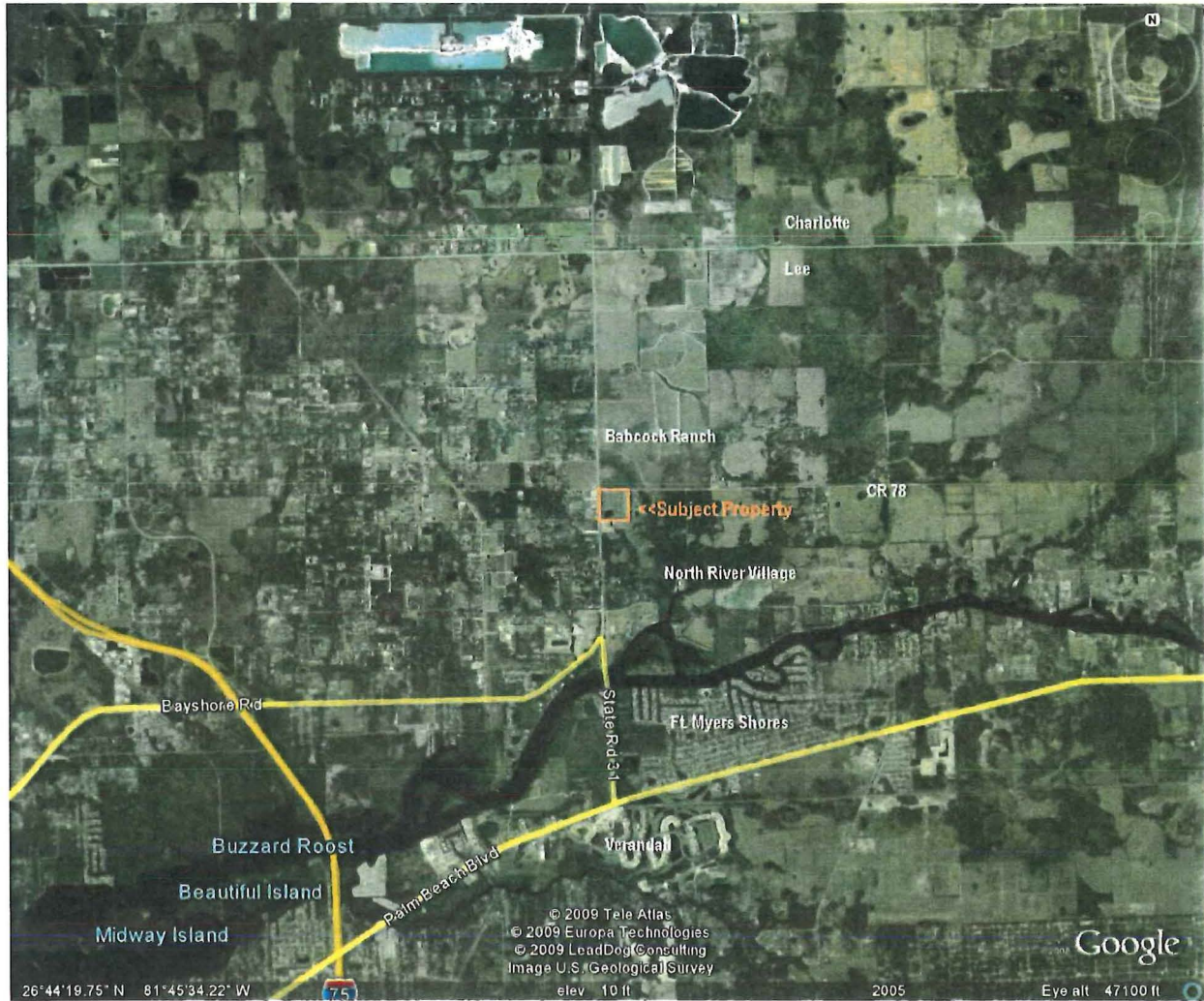
The site is currently located in the Rural and wetland categories





Aerial Photograph, Subject Property





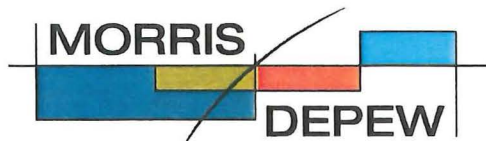
**Aerial Photograph, Subject Property**



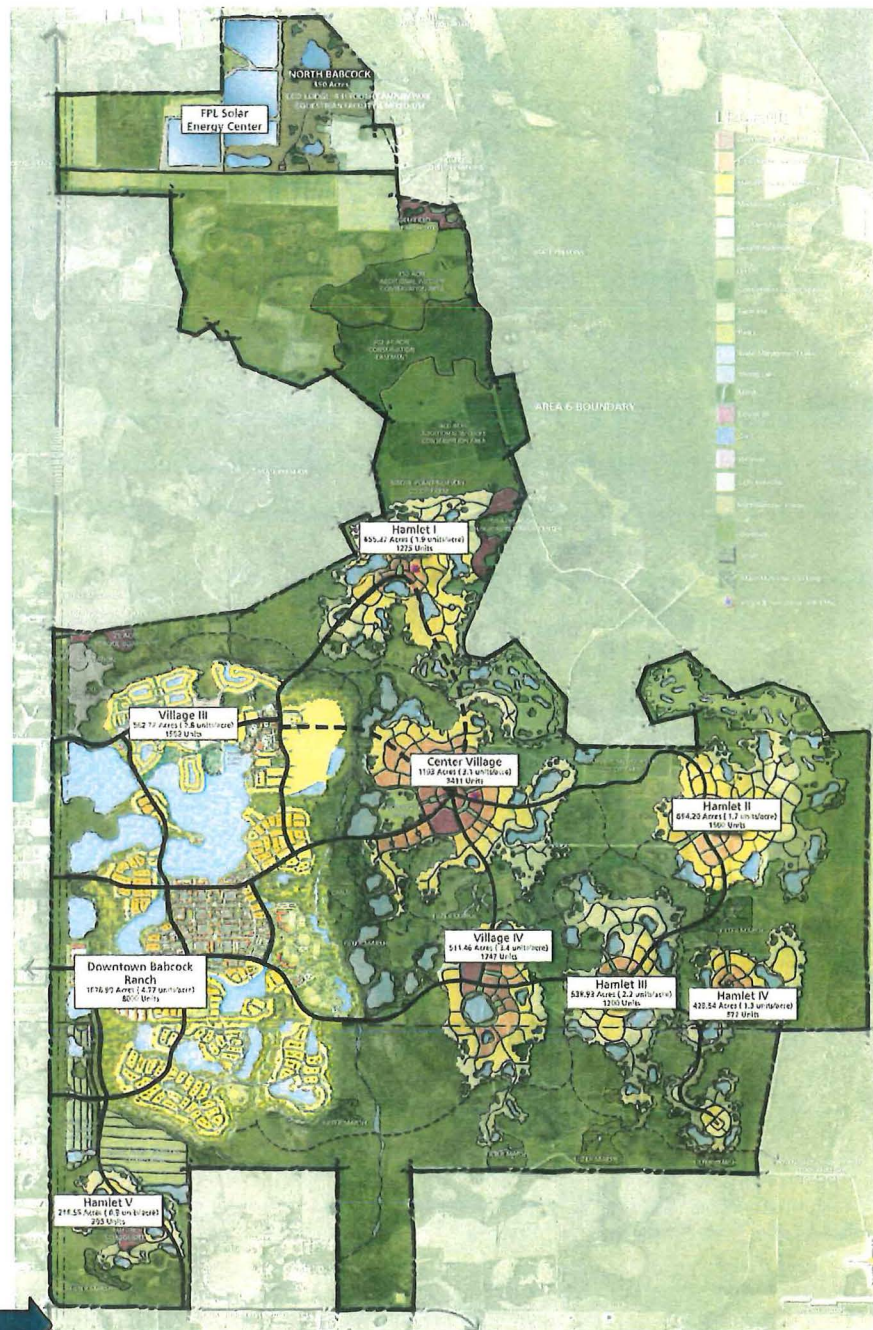


**Aerial Photograph, Subject Property**





ENGINEERS • PLANNERS • SURVEYORS  
LANDSCAPE ARCHITECTS  
#LC26000330



Kreinbrink Property

### Babcock Ranch Site Plan

2914 Cleveland Avenue, Fort Myers, Florida 33901 Telephone: (239) 337-3993 Fax: (239) 337-3994  
327 Office Plaza, Suite 202, Tallahassee, Florida 32301 Telephone: (850) 224-6688 Fax: (850) 224-6689  
408 West University Avenue, Suite PH, Gainesville, Florida 32601 Telephone: (352) 378-3450 Fax: (352) 379-0385  
Toll Free: (866) 337-7341





**Aerial Photograph, Subject Property & Adjoining Proposed Development**





Lee County Board of County Commissioners  
Department of Community Development  
Division of Planning  
Post Office Box 398  
Fort Myers, FL 33902-0398  
Telephone: (239) 533-8585  
FAX: (239) 485-8319

## APPLICATION FOR A COMPREHENSIVE PLAN AMENDMENT

(To be completed at time of intake)

DATE REC'D 9/30/08  
APPLICATION FEE 2,680.00

REC'D BY: Cwm  
TIDEMARK NO: CpA 2008-00003

### THE FOLLOWING VERIFIED:

Zoning ☐ Ag-2 Commissioner District ☐ 5  
Designation on FLUM ☐ Suburban Rural

(To be completed by Planning Staff)

Plan Amendment Cycle: ☐ Normal ☐ Small Scale ☐ DRI ☐ Emergency

Request No: \_\_\_\_\_

### APPLICANT PLEASE NOTE:

Answer all questions completely and accurately. Please print or type responses. If additional space is needed, number and attach additional sheets. The total number of sheets in your application is: \_\_\_\_\_

Submit 6 copies of the complete application and amendment support documentation, including maps, to the Lee County Division of Planning. Up to 90 additional copies will be required for Local Planning Agency, Board of County Commissioners hearings and the Department of Community Affairs' packages. Staff will notify the applicant prior to each hearing or mail out.

I, the undersigned owner or authorized representative, hereby submit this application and the attached amendment support documentation. The information and documents provided are complete and accurate to the best of my knowledge.

Sept. 23, 2008 Katherine Kreinbink  
DATE SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

RECEIVED  
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Cwm

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2008-00003

**I. APPLICANT/AGENT/OWNER INFORMATION**

Dan and Katherine Kreinbrink

**APPLICANT**

12100 N. River Road

**ADDRESS**

Alva FL 33920

CITY STATE ZIP

239-337-1669 239-337-1878

TELEPHONE NUMBER FAX NUMBER

Morris-Depew Associates, Inc. c/o David W. Depew, PhD, AICP

**AGENT\***

2914 Cleveland Avenue

**ADDRESS**

Fort Myers FL 33901

CITY STATE ZIP

239-337-3993 239-337-3994

TELEPHONE NUMBER FAX NUMBER

Kreinbrink, Katherine TR

**OWNER(s) OF RECORD**

12100 N. River Road

**ADDRESS**

Alva FL 33920

CITY STATE ZIP

239-337-1669 239-337-1878

TELEPHONE NUMBER FAX NUMBER

Name, address and qualification of additional planners, architects, engineers, environmental consultants, and other professionals providing information contained in this application.

\* This will be the person contacted for all business relative to the application.

David W. Depew, PhD, AICP  
Morris-Depew Associates, Inc.  
2914 Cleveland Avenue  
Fort Myers, FL 33901

Rae Ann Boylan  
Boylan Environmental Consultants Inc.  
11000 Metro Parkway, Ste 4  
Fort Myers, FL 33916

Ted Treesh, PE  
TR Transportation Consultants  
13881 Plantation Road, Ste 11  
Fort Myers, FL 33912

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2008-00003

## II. REQUESTED CHANGE (Please see Item 1 for Fee Schedule)

### A. TYPE: (Check appropriate type)

☐ Text Amendment

☒ Future Land Use Map Series Amendment  
(Maps 1 thru 22)

List Number(s) of Map(s) to be amended

Map 1

1. Future Land Use Map amendments require the submittal of a complete list, map, and two sets of mailing labels of all property owners and their mailing addresses, for all property within 500 feet of the perimeter of the subject parcel. The list and mailing labels may be obtained from the Property Appraisers office. The map must reference by number or other symbol the names of the surrounding property owners list. The applicant is responsible for the accuracy of the list and map.

At least 15 days before the Local Planning Agency (LPA) hearing, the applicant will be responsible for posting signs on the subject property, supplied by the Division of Planning, indicating the action requested, the date of the LPA hearing, and the case number. An affidavit of compliance with the posting requirements must be submitted to the Division of Planning prior to the LPA hearing. The signs must be maintained until after the final Board adoption hearing when a final decision is rendered.

### B. SUMMARY OF REQUEST (Brief explanation):

The applicant is requesting a future land use map amendment from Rural to  
Suburban with a Neighborhood Center.

## III. PROPERTY SIZE AND LOCATION OF AFFECTED PROPERTY (for amendments affecting development potential of property)

### A. Property Location:

1. Site Address: 12100 N. River Road, Alva, FL 33920

2. STRAP(s): 18-43-26-00-00001.0040

B. Property Information

Total Acreage of Property: 40 +/-

Total Acreage included in Request: 40 +/-

Total Uplands: 39.75 Ac - 99.4%

Total Wetlands: 0.25 Ac - 0.6%

Current Zoning: AG-2

Current Future Land Use Designation: Rural

Area of each Existing Future Land Use Category: \_\_\_\_\_

Existing Land Use: Single Family Residential

C. State if the subject property is located in one of the following areas and if so how does the proposed change effect the area:

*Lehigh Acres Commercial Overlay:* N/A

*Airport Noise Zone 2 or 3:* N/A

*Acquisition Area:* N/A

*Joint Planning Agreement Area (adjoining other jurisdictional lands):* N/A

*Community Redevelopment Area:* N/A

D. Proposed change for the subject property:

Future Land Use Designation from Rural to Suburban with a Neighborhood Center.

E. Potential development of the subject property:

1. Calculation of maximum allowable development under existing FLUM:

Residential Units/Density 39.75 acres (Rural) X 1 dwelling units/ac = 39.75 du

Commercial intensity N/A

Industrial intensity N/A

2. Calculation of maximum allowable development under proposed FLUM:

Residential Units/Density 29.75 acres (Suburban) X 6 du/acre = 178.5 du

Commercial intensity 10 acres - Neighborhood Center (100,000 sf)

Industrial intensity N/A



#### IV. AMENDMENT SUPPORT DOCUMENTATION

At a minimum, the application shall include the following support data and analysis. These items are based on comprehensive plan amendment submittal requirements of the State of Florida, Department of Community Affairs, and policies contained in the Lee County Comprehensive Plan. Support documentation provided by the applicant will be used by staff as a basis for evaluating this request. To assist in the preparation of amendment packets, the applicant is encouraged to provide all data and analysis electronically. (Please contact the Division of Planning for currently accepted formats)

A. General Information and Maps

*NOTE: For each map submitted, the applicant will be required to provide a reduced map (8.5" x 11") for inclusion in public hearing packets.*

**The following pertains to all proposed amendments that will affect the development potential of properties (unless otherwise specified).**

1. Provide any proposed text changes.
2. Provide a current Future Land Use Map at an appropriate scale showing the boundaries of the subject property, surrounding street network, surrounding designated future land uses, and natural resources.
3. Provide a proposed Future Land Use Map at an appropriate scale showing the boundaries of the subject property, surrounding street network, surrounding designated future land uses, and natural resources.
4. Map and describe existing land *uses* (not designations) of the subject property and surrounding properties. Description should discuss consistency of current uses with the proposed changes.
5. Map and describe existing zoning of the subject property and surrounding properties.
6. The certified legal description(s) and certified sketch of the description for the property subject to the requested change. A metes and bounds legal description must be submitted specifically describing the entire perimeter boundary of the property with accurate bearings and distances for every line. The sketch must be tied to the state plane coordinate system for the Florida West Zone (North America Datum of 1983/1990 Adjustment) with two coordinates, one coordinate being the point of beginning and the other an opposing corner. If the subject property contains wetlands or the proposed amendment includes more than one land use category a metes and bounds legal description, as described above, must be submitted in addition to the perimeter boundary of the property for each wetland or future land use category.

7. A copy of the deed(s) for the property subject to the requested change.
8. An aerial map showing the subject property and surrounding properties.
9. If applicant is not the owner, a letter from the owner of the property authorizing the applicant to represent the owner.

B. Public Facilities Impacts

*NOTE: The applicant must calculate public facilities impacts based on a maximum development scenario (see Part II.H.).*

1. Traffic Circulation Analysis

The analysis is intended to determine the effect of the land use change on the Financially Feasible Transportation Plan/Map 3A (20-year horizon) and on the Capital Improvements Element (5-year horizon). Toward that end, an applicant must submit the following information:

Long Range – 20-year Horizon:

- a. Working with Planning Division staff, identify the traffic analysis zone (TAZ) or zones that the subject property is in and the socio-economic data forecasts for that zone or zones;
- b. Determine whether the requested change requires a modification to the socio-economic data forecasts for the host zone or zones. The land uses for the proposed change should be expressed in the same format as the socio-economic forecasts (number of units by type/number of employees by type/etc.);
- c. If no modification of the forecasts is required, then no further analysis for the long range horizon is necessary. If modification is required, make the change and provide to Planning Division staff, for forwarding to DOT staff. DOT staff will rerun the FSUTMS model on the current adopted Financially Feasible Plan network and determine whether network modifications are necessary, based on a review of projected roadway conditions within a 3-mile radius of the site;
- d. If no modifications to the network are required, then no further analysis for the long range horizon is necessary. If modifications are necessary, DOT staff will determine the scope and cost of those modifications and the effect on the financial feasibility of the plan;
- e. An inability to accommodate the necessary modifications within the financially feasible limits of the plan will be a basis for denial of the requested land use change;
- f. If the proposal is based on a specific development plan, then the site plan should indicate how facilities from the current adopted Financially Feasible Plan and/or the Official Trafficways Map will be accommodated.

Short Range – 5-year CIP horizon:

- a. Besides the 20-year analysis, for those plan amendment proposals that include a specific and immediated development plan, identify the existing

- roadways serving the site and within a 3-mile radius (indicate laneage, functional classification, current LOS, and LOS standard);
  - b. Identify the major road improvements within the 3-mile study area funded through the construction phase in adopted CIP's (County or Cities) and the State's adopted Five-Year Work Program;  
Projected 2030 LOS under proposed designation (calculate anticipated number of trips and distribution on roadway network, and identify resulting changes to the projected LOS);
  - c. For the five-year horizon, identify the projected roadway conditions (volumes and levels of service) on the roads within the 3-mile study area with the programmed improvements in place, with and without the proposed development project. A methodology meeting with DOT staff prior to submittal is required to reach agreement on the projection methodology;
  - d. Identify the additional improvements needed on the network beyond those programmed in the five-year horizon due to the development proposal.
2. Provide an existing and future conditions analysis for (see Policy 95.1.3):
- a. Sanitary Sewer
  - b. Potable Water
  - c. Surface Water/Drainage Basins
  - d. Parks, Recreation, and Open Space
  - e. Public Schools.

Analysis should include (but is not limited to) the following (see the Lee County Concurrency Management Report):

- Franchise Area, Basin, or District in which the property is located;
- Current LOS, and LOS standard of facilities serving the site;
- Projected 2030 LOS under existing designation;
- Projected 2030 LOS under proposed designation;
- Existing infrastructure, if any, in the immediate area with the potential to serve the subject property.
- Improvements/expansions currently programmed in 5 year CIP, 6-10 year CIP, and long range improvements; and
- Anticipated revisions to the Community Facilities and Services Element and/or Capital Improvements Element (state if these revisions are included in this amendment).
- Provide a letter of service availability from the appropriate utility for sanitary sewer and potable water.

In addition to the above analysis for Potable Water:

- Determine the availability of water supply within the franchise area using the current water use allocation (Consumptive Use Permit) based on the annual average daily withdrawal rate.
- Include the current demand and the projected demand under the existing designation, and the projected demand under the proposed designation.

- Include the availability of treatment facilities and transmission lines for reclaimed water for irrigation.
  - Include any other water conservation measures that will be applied to the site (see Goal 54).
3. Provide a letter from the appropriate agency determining the adequacy/provision of existing/proposed support facilities, including:
    - a. Fire protection with adequate response times;
    - b. Emergency medical service (EMS) provisions;
    - c. Law enforcement;
    - d. Solid Waste;
    - e. Mass Transit; and
    - f. Schools.

*In reference to above, the applicant should supply the responding agency with the information from Section's II and III for their evaluation. This application should include the applicant's correspondence to the responding agency.*

**C. Environmental Impacts**

Provide an overall analysis of the character of the subject property and surrounding properties, and assess the site's suitability for the proposed use upon the following:

1. A map of the Plant Communities as defined by the Florida Land Use Cover and Classification system (FLUCCS).
2. A map and description of the soils found on the property (identify the source of the information).
3. A topographic map depicting the property boundaries and 100-year flood prone areas indicated (as identified by FEMA).
4. A map delineating the property boundaries on the Flood Insurance Rate Map effective August 2008.
5. A map delineating wetlands, aquifer recharge areas, and rare & unique uplands.
6. A table of plant communities by FLUCCS with the potential to contain species (plant and animal) listed by federal, state or local agencies as endangered, threatened or species of special concern. The table must include the listed species by FLUCCS and the species status (same as FLUCCS map).

**D. Impacts on Historic Resources**

List all historic resources (including structure, districts, and/or archeologically sensitive areas) and provide an analysis of the proposed change's impact on these resources. The following should be included with the analysis:

1. A map of any historic districts and/or sites, listed on the Florida Master Site File, which are located on the subject property or adjacent properties.
2. A map showing the subject property location on the archeological sensitivity map for Lee County.

**E. Internal Consistency with the Lee Plan**

1. Discuss how the proposal affects established Lee County population projections, Table 1(b) (Planning Community Year 2030 Allocations), and the total population capacity of the Lee Plan Future Land Use Map.
2. List all goals and objectives of the Lee Plan that are affected by the proposed amendment. This analysis should include an evaluation of all relevant policies under each goal and objective.
3. Describe how the proposal affects adjacent local governments and their comprehensive plans.
4. List State Policy Plan and Regional Policy Plan goals and policies which are relevant to this plan amendment.

**F. Additional Requirements for Specific Future Land Use Amendments**

1. Requests involving Industrial and/or categories targeted by the Lee Plan as employment centers (to or from)
  - a. State whether the site is accessible to arterial roadways, rail lines, and cargo airport terminals,
  - b. Provide data and analysis required by Policy 2.4.4,
  - c. The affect of the proposed change on county's industrial employment goal specifically policy 7.1.4.
2. Requests moving lands from a Non-Urban Area to a Future Urban Area
  - a. Demonstrate why the proposed change does not constitute Urban Sprawl. Indicators of sprawl may include, but are not limited to: low-intensity, low-density, or single-use development; 'leap-frog' type development; radial, strip, isolated or ribbon pattern type development; a failure to protect or conserve natural resources or agricultural land; limited accessibility; the loss of large amounts of functional open space; and the installation of costly and duplicative infrastructure when opportunities for infill and redevelopment exist.
3. Requests involving lands in critical areas for future water supply must be evaluated based on policy 2.4.2.
4. Requests moving lands from Density Reduction/Groundwater Resource must fully address Policy 2.4.3 of the Lee Plan Future Land Use Element.



G. Justify the proposed amendment based upon sound planning principles. Be sure to support all conclusions made in this justification with adequate data and analysis.

**Item 1: Fee Schedule**

Map Amendment Flat Fee	\$2,000.00 each
Map Amendment > 20 Acres	\$2,000.00 and \$20.00 per 10 acres
Small Scale Amendment (10 acres or less)	\$1,500.00 each
Text Amendment Flat Fee	\$2,500.00 each

**AFFIDAVIT**

I, Katherine Kreinbrink, certify that I am the owner or authorized representative of the property described herein, and that all answers to the questions in this application and any sketches, data, or other supplementary matter attached to and made a part of this application, are honest and true to the best of my knowledge and belief. I also authorize the staff of Lee County Community Development to enter upon the property during normal working hours for the purpose of investigating and evaluating the request made through this application.

Katherine Kreinbrink  
Signature of owner or owner-authorized agent

Sept. 23, 2008  
Date

Katherine Kreinbrink  
Typed or printed name

STATE OF FLORIDA )  
COUNTY OF LEE )

The foregoing instrument was certified and subscribed before me this 23 day of Sept 192008,  
by Katherine Kreinbrink, who is personally known to me or who has produced \_\_\_\_\_ as identification.

(SEAL)



Rebecca J. Rockow  
Signature of notary public  
Rebecca J. Rockow  
Printed name of notary public

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SEP 30 2008

2008-00003

## Lee Plan FLUM Amendment Supplemental Data and Analysis

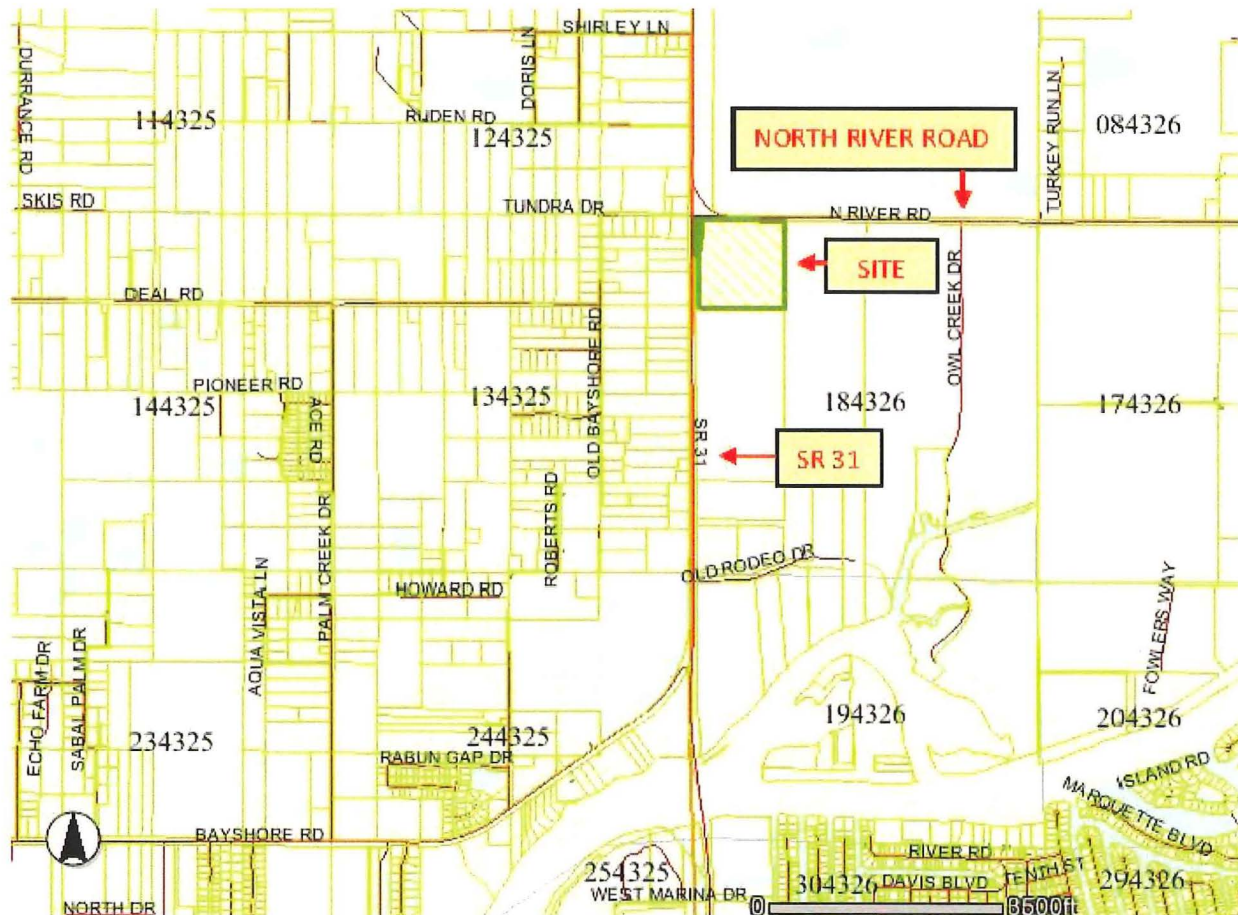
Property: 18-43-26-00-00001.0040  
 Owner of Record: Kreinbrink Katherine TR  
 12100 N. River Road  
 Alva, FL 33920

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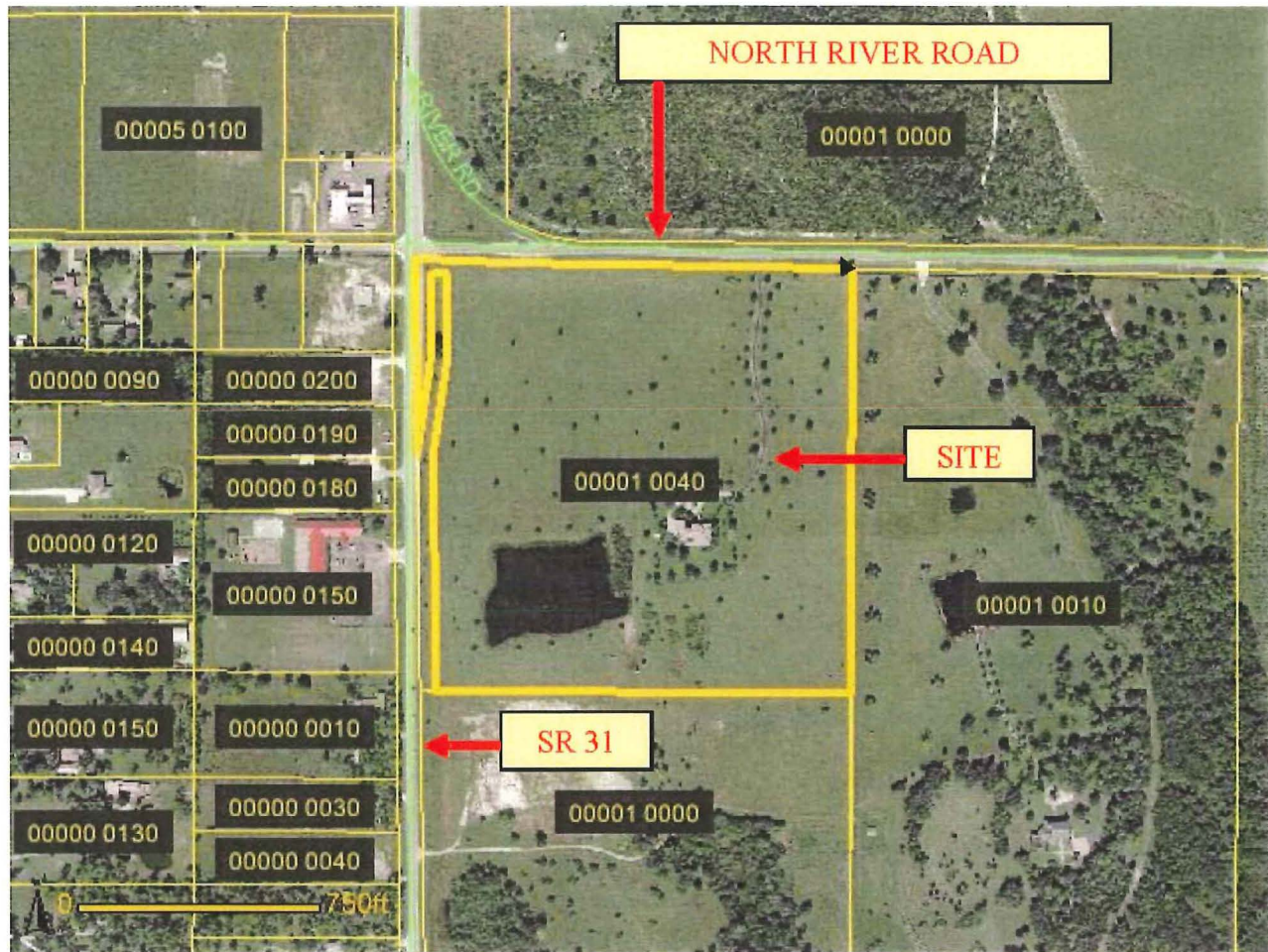
### Background

The proposed Lee Plan FLUM amendment is to change a property of +/- 40 acres from Rural to Suburban with a Neighborhood Center. The subject property is located southeast of the intersection of SR 31 and North River Road in Alva, Florida



Property Location Map





**Aerial Photograph of Subject Property**

Currently, the subject property contains an estimated 40 acres of Rural designated property. At maximum development options, this translates into the following development potentials:

**A. Rural Option (Current)**

**Residential Development:**

1. 29.75 acres (Rural) X 1 dwelling units/acre = 30 dwelling units
2. 0.25 acres (Wetlands) X 1 dwelling units/20 acre = 0 dwelling units
3. 10.0 acres commercial development
4. Total residential units = 30 dwelling units
5. Total rural commercial SF = 100,000 SF

**B. Suburban Option: (Proposed)**

**Residential with a Neighborhood Center Development**

- 1.) 29.75 acres (Suburban) X 6 dwelling units/acre = 179 dwelling units
- 2.) 0.25 acres (Wetlands) X 1 dwelling units/20 acre = 0 dwelling units
- 3.) 10 acres - Neighborhood Center = 100,000 square feet
- 4.) Total potential residential development = 179 dwelling units

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2008-00003

### **Impact Analysis**

According to the Florida Administrative Code (64E-6.008, FAC), wastewater treatment demand for residential use ranges between 100 and 400 gallons per day (GPD), depending upon the number of bedrooms in a dwelling unit. Assuming that the residential units which could be constructed on the subject property will average 3 bedrooms per dwelling unit, wastewater treatment demand will be 300 GPD per unit. In the pre-amendment situation, with an estimated development capacity of 30 dwelling units, there is an estimated demand of 9,000 GPD of wastewater treatment capacity associated with full development of the subject property. Post amendment, with 179 dwelling units, demand for wastewater treatment will amount to 53,700 GPD.

According to a study performed by Stearns and Wheler, LLC, for the Mashpee Sewer Commission (Mashpee, MA, April, 2007), potable water use for commercial activities are estimated at 81.5 GPD per 1,000 SF of floor area. Based upon this estimate, potable water demand for 100,000 SF of commercial floor area will be 8,150 GPD.

Using a calculation of 90% of the potable water demand for the calculation of wastewater treatment demand for the commercial component, it is estimated that a 100,000 SF commercial development will generate demand for 7,335 GPD of wastewater treatment.

Since the commercial wastewater treatment demand is the same in the pre-amendment situation as the post-amendment scenario, total demand for wastewater treatment as a result of the proposed amendment is 61,035 GPD (7,335 GPD + 53,700 GPD = 61,035 GPD). This compares to an estimated wastewater treatment demand of 17,150 GPD in the pre-amendment situation.

Demand for wastewater treatment service is estimated at 90% of the demand for potable water in residential developments. Using 17,150 GPD as an estimate of wastewater generation in the pre-amendment case, a projected demand of 19,055 GPD of potable water demand is generated for the combined development parameters. In the post-amendment situation, estimated potable water demand is 67,817 GPD. This represents an anticipated demand of an additional 48,762 GPD of potable water and 43,885 GPD of additional wastewater treatment demand.

The open space requirements for the development (post-amendment) were calculated as follows:

1. 29.75 Acres Residential x 40% open space requirement = 11.9 Acres or 518,364 SF;
2. 10 Acres Neighborhood Center x 30% open space requirement = 3 Acres or 130,680 SF; and
3. This will total 14.9 Acres or 649,044 SF of open space as required by Lee County.

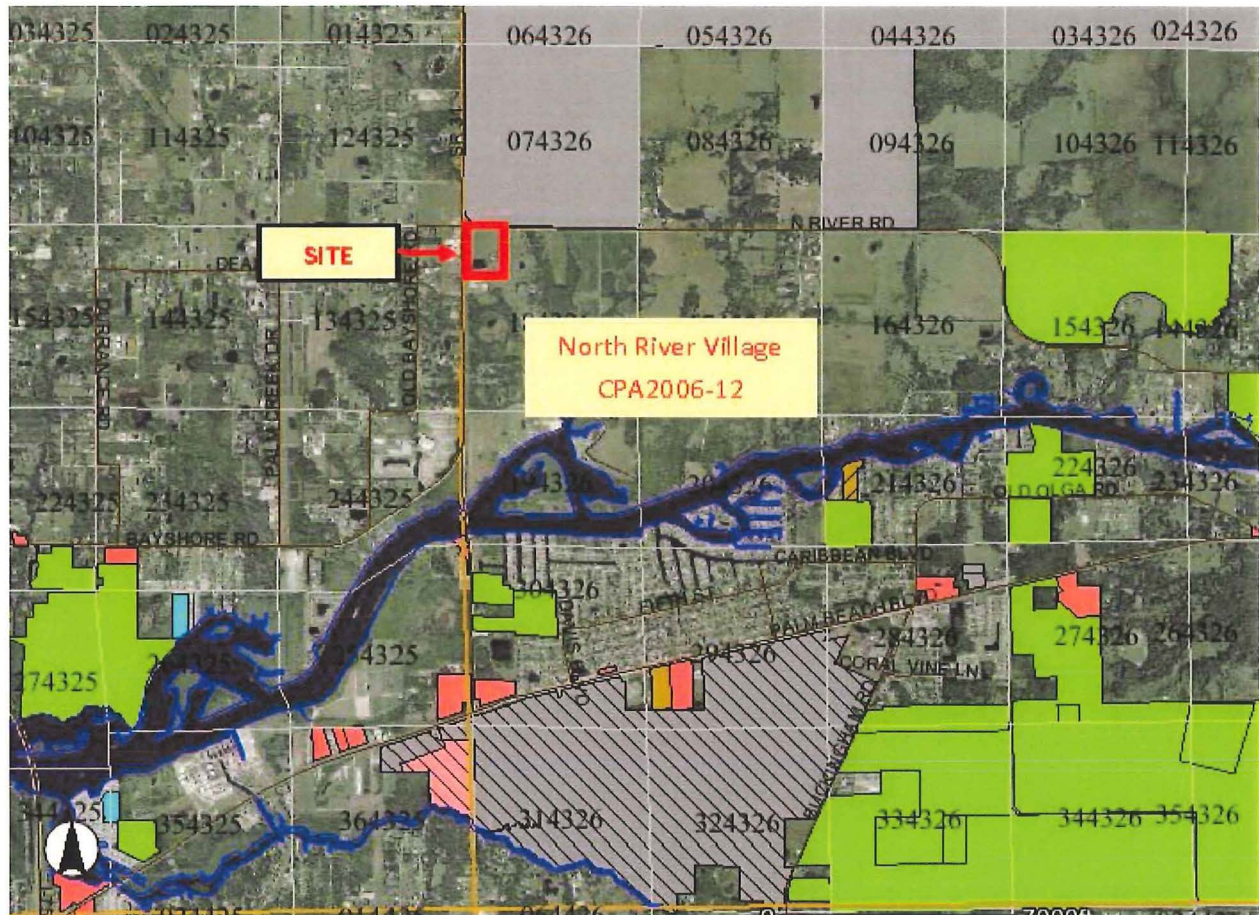
In the pre-amendment situation, open space for the commercial component would be the same (+/- 3 acres), but the residential subdivision would not be required to provide any additional open space other than that which would normally exist on individual lots. Demand for parks and recreational services would increase as a result of the increased density in the post-amendment scenario, as would impact fees associated with the provision of such facilities.



### Lee Plan Consistency

As a residential development, it is estimated that 465 additional people (179 DU x 2.6 PPH) would be accommodated at maximum FLUM build-out should the amendment be approved. It is anticipated that the change in population accommodation is small enough that overall projections will not be affected.

In the Alva planning community, there are 33,463 total acres with 1,400 acres of rural designated property. At the present time there are no acres designated for suburban uses.



**Subject Property with Surrounding Development Map**

As described in the Vision Statement of the Lee County Plan, the Alva Planning Community “is located in the northeast corner of the county and is focused around the rural community of Alva. This community roughly includes lands in Township 43 South/Range 27 East, lands north of the Caloosahatchee River in Township 43 South/Range 26 East and lands north of the Caloosahatchee River in Sections 1, 2, 11-14, and 23-27 of Township 43 South/Range 26 East. The majority of this area is designated as Rural, Open Lands, or Density Reduction/Groundwater Resource. The lands surrounding the Alva “Center”, which lie north and south of the

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Caloosahatchee River at the intersections of Broadway (bridge at Alva) and SR 78 and SR 80, are designated as Urban Community. There are some lands designated as Outlying Suburban within the Alva Planning Community, most of which are located south of Bayshore Road west of DR 31. The Bayshore area has characteristics of both the Alva and the North Fort Myers Community. The division between these communities was drawn to reflect census geography. If this geography is altered, this community boundary should also be reviewed. This area currently has a rural character similar to the rest of the Alva Planning Community; however its locations/accessibility to I-75 may, in the future, render it more closely related to the North Fort Myers Community.

While the Alva community does offer some commercial opportunities, residents satisfy most of their commercial needs outside of this community in the more urbanized communities to the west and south. For the most part, these conditions are expected to remain through the life of this plan. The population of Alva is expected to grow through the life of this plan. Commercial activity is expected to continue to increase to the year 2030. The Alva community will remain largely rural/agricultural in nature with over half of its total acreage being used for this purpose. The Alva Community will also strive to protect its historic resources.

There are no distinct sub-communities within the Alva Community (Added by Ordinance No. 99-15, Amended by Ordinance No. 07-12)

As noted in the vision statement, the Alva Planning Community is expected to grow through 2030, therefore, the change in the subject property's current designation of Rural to the proposed designation of Suburban would be consistent with the Plan's vision for this area, especially with the location of the proposed Babcock Ranch property adjacent to the northern boundary of the subject parcel and the North River Village Comprehensive Plan Amendment Development CPA2006-12 located to its east and south.

An analysis has been undertaken (see above) related to the Acreage Allocation Table found in the Lee Plan. Policy 1.7.6 states, "The Planning Communities Map and Acreage Allocation Table (see Map 16 and Table 1(b) and Policies 1.1.1 and 2.2.2) depicts the proposed distribution, extent, and location of generalized land uses for the year 2030. Acreage totals are provided for land in each Planning Community in unincorporated Lee County. No final development orders or extensions to final development orders will be issued or approved by Lee County which would allow the acreage totals for residential, commercial or industrial uses contained in Table 1(b) to be exceeded." As noted above the modifications to the land use designation of the subject property along with the North River Village Comprehensive Plan Amendment CPA2006-12, if approved, make this area in Alva an excellent location for a future residential development with a commercial neighborhood center. The subject parcel is located at the intersection of two arterial roads and has a fairly close proximity/accessibility to I-75. A revision to the Allocation Table for the Alva Planning Community will be required.

Objective 2.1 suggests that, "Contiguous and compact growth patterns will be promoted through the rezoning process to contain urban sprawl, minimize energy costs, conserve land, water, and natural resources, minimize the cost of services, prevent development patterns where large tracts of land are by-passed in favor of development more distant from services and existing

communities.” Utilization of the +/- 39.75 acres of developable uplands on the site will serve to promote the establishment of an urban boundary, and assist in preventing sprawl patterns from developing in the North Olga community.

Objective 2.2 indicates that Lee County will, “Direct new growth to those portions of the Future Urban Areas where adequate public facilities exist or are assured and where compact and contiguous development patterns can be created. Development orders and permits (as defined in F.S.163.3164(7)) will be granted only when consistent with the provisions of Sections 163.3202(2)(g) and 163.3180, Florida Statutes and the county's Concurrence Management Ordinance.” Urban services are, or will be, available to the subject property when required for development. The property is located at the intersection of two arterial roadways and will serve to protect both the existing and/or emerging residential neighborhoods and will assist in the promotion of compact development patterns and containment of urban sprawl. The subject parcel will bridge the existing residential developments on the west with the proposed new residential developments of the New River Village Comprehensive Plan Amendment CPA2006-12 located to the south and east and the proposed Babcock Ranch Property located to the north.

Objective 2.4 indicates that Lee County will, on a regular basis, examine the Future Land Use Map in light of new information and changed conditions. When changed or changing conditions suggest adjustments are needed, necessary modifications are made. As residential demand for housing increases this will ultimately force an adjustment to the FLUM. The subject property as described is an excellent solution to provide much needed residential housing with a commercial neighborhood center and is in an ideal location with respect to the adjacent properties probable future development and the proximity to I-75 which would facilitate daily commuting as well as hurricane evacuation needs for residents and/or future labor needs.

Goal 11 of the Lee Plan was adopted to insure that appropriate water, sewer, traffic, and environmental review standards are considered in reviewing rezoning applications and are met prior to issuance of a county development order. Urban services are or will be available to the subject property at the time of development, and the environmental values will not be developed or disturbed in respect to the wetlands designation on the southern portion of the property. This will serve to protect and preserve the environmental values associated with that portion of the site.

The subject property is within the Bayshore Fire Rescue District located on 17350 Nalle Road, North Fort Myers, FL 33917. The Lee County Sheriff Department will provide police protection. LeeTran does not currently provide service to this site due to the current rural designation of the property and the surrounding properties. Lee County Solid Waste Division can provide solid waste collection service for the proposed residential units and neighborhood center and has long term disposal capacity at the Lee County Resource Recovery Facility and the Lee-Hendry Regional Landfill. The proposed development will be located in the East Choice Zone of the Lee County School District. Emergency Medical Service would be provided by the Lee County Emergency Medical Services Department.

## **Sprawl Analysis**

A comprehensive plan that promotes urban sprawl will promote, allow, or designate for development, substantial areas to develop as low-intensity, low-density, or single-use development or uses in excess of demonstrated need. Development of the subject property, must be considered in conjunction with the recognition that residential and commercial development is anticipated in close proximity to the subject property.

The second criteria of urban sprawl in a plan is that it promotes, allows, or designates significant amounts of urban development to occur in rural areas at substantial distances from existing urban areas while leaping over undeveloped lands which are available and suitable for development. A review of the larger aerial photograph above is sufficient to demonstrate that urban development has occurred in the vicinity of the subject property most notably east of the subject property. Further, it is clear that there are major efforts for additional residential and commercial development with the proposed Babcock Ranch and North River Village Communities. The proposed land use designation is clearly compatible with the land uses surrounding it and will bridge the North River Village Development and proposed Babcock Ranch areas helping to alleviate urban sprawl by eliminating the leap-frog scenario between these two properties.

Sprawl also is characterized by policies that promote, allow, or designate urban development in radial, strip, isolated or ribbon patterns generally emanating from existing urban developments. Development of the subject property would establish a commercial node, protect existing or emerging residential neighborhoods, protect open space and natural resources, and concentrate development in areas most suitable for its location. Radial, strip, isolated, or ribbon development patterns would not be consistent with the application of Lee Plan provisions to the subject property or to the adopted community-based Goals, Objectives, and Policies.

Sprawl also, is a result of premature or poorly planned conversion of rural land to other uses, fails adequately to protect and conserve natural resources, such as wetlands, floodplains, native vegetation, environmentally sensitive areas, natural groundwater aquifer recharge areas, lakes, rivers, shorelines, beaches, bays, estuarine systems, and other significant natural systems. The applicable Lee Plan provisions, as applied to the subject property, include mandates for the protection of natural systems, including setbacks, buffers, use restrictions, open space requirements, preservation and conservation provisions, and design regulations. Thus, this sprawl indicator is inapplicable to the proposed amendment.

Policies promoting urban sprawl fail to adequately protect adjacent agricultural areas and activities, including silviculture, and including active agricultural and silvicultural activities as well as passive agricultural activities and dormant, unique and prime farmlands and soils. As noted above, setbacks, buffers, and performance criteria have been incorporated into the Lee Plan development parameters in order to provide protection to adjoining uses. The proposed amendment will assist with the prevention of urban sprawl by conforming to the current and proposed uses surrounding the subject parcel.

The proposed amendment will maximize use of existing public facilities and services and will maximize use of future public facilities and services. As noted above, all urban services are or will be available to the subject property at the time of development. The establishment of the neighborhood center will service the surrounding residential development, providing the

necessary diversity for the North Olga community.

Related to the question of infrastructure extension is the sprawl indicator that states urban sprawl policies allow for land use patterns or timing which disproportionately increase the cost in time, money and energy, of providing and maintaining facilities and services, including roads, potable water, sanitary sewer, stormwater management, law enforcement, education, health care, fire and emergency response, and general government. The Bayshore Fire District will provide fire protection to the site but would require the installation of hydrants. Police protection is currently available as well as Emergency Medical Services although at this time the site is approximately one minute outside the core response time of 10 minutes. The development would be in the East Choice Zone for the Lee County School District and the Lee County Solid Waste Division has the

capability to provide collection services. All major services are available on some level currently except for Lee County Transit which currently does not provide a route due to the current rural nature of the area. Common sense dictates this may change at some point in time as future development continues.

According to the Rule, the future land use map and policies will promote sprawl if they fail to provide a clear separation between rural and urban uses. However, the subject property clearly delineates the buffers, setbacks, and use limitations required for maintaining a boundary between properties so designated and adjoining parcels with different uses. The subject property is uniquely positioned to deal with the separation between rural and urban uses. If the proposed Babcock Ranch and North River Village Developments are approved the subject property will be consistent with those developments. If those developments are not approved our subject parcel will help to provide a clear separation between those rural uses and the current development to the east.

Sprawl also tends to discourage or inhibit infill development or the redevelopment of existing neighborhoods and communities. This particular subject property would be an infill parcel if the proposed Babcock Ranch and North River Village Developments are approved providing a means of joining these three properties together. This would provide a consistent land use in this area assisting with the discouragement of urban sprawl.

The Rule also states that sprawl policies fail to encourage an attractive and functional mix of uses. The applicant is proposing a 10 acre neighborhood center of approximately 100,000 square feet located in the center of the development with residential densities between one and six dwelling units per acre situated on approximately 29.75 acres of the 40 acre site. There are also existing commercial land uses adjacent to the subject property at the intersection of SR31 and North River Road.

Finally, sprawl policies are those that result in poor accessibility among linked or related land uses and result in the loss of significant amounts of functional open space. Part of the specific elements of the current designation proposal include the existing and the establishment of rights of way connecting S. R. 80 with South Olga Drive. One of the adjacent existing road corridors is State Road 31 which is a north/south two-lane undivided arterial roadway that extends from Palm Beach Boulevard north into Charlotte County with a posted speed limit of 60mph and is

under the jurisdiction of the Florida Department of Transportation (FDOT). The other adjacent existing road corridor is North River Road which is an east/west two-lane undivided arterial roadway that extends from State Route 31 west into Hendry County with a posted speed limit of 55 mph and is under the jurisdiction of the Florida Department of Transportation (FDOT). These corridors provide connections to the State highway network and provide alternate routes to existing facilities. Further, the subject property will provide provisions for preservation of functional open space, preservation and conservation of regionally significant natural resources, comply with open space requirements to demonstrate that these sprawl indicators do not apply to the current proposed amendment.

It is also noted that 9J-5.006(h) states, "The comprehensive plan must be reviewed in its entirety to make the determinations in (5)(g) above. Plan amendments must be reviewed individually and for their impact on the remainder of the plan. However, in either case, a land use analysis will be the focus of the review and constitute the primary factor for making the determinations. Land use types cumulatively (within the entire jurisdiction and areas less than the entire jurisdiction, and in proximate areas outside the jurisdiction) will be evaluated based on density, intensity, distribution and functional relationship, including an analysis of the distribution of urban and rural land uses." When such an analysis is undertaken (as it has herein) it is clear that the proposed designation is not sprawl, but rather part of a continuing effort on the part of Lee County to accommodate the demand for community based residential and accompanying support development. The subject property designation for the subject properties serves to further advance the adopted Goals, Objectives, and Policies of the County's Comprehensive Plan.

9J5.006(i) goes on to state that, "Each of the land use factors in (5)(h) above will be evaluated within the context of features and characteristics unique to each locality. These include:

1. Size of developable area.
2. Projected growth rate (including population, commerce, industry, and agriculture).
3. Projected growth amounts (acres per land use category).
4. Facility availability (existing and committed).
5. Existing pattern of development (built and vested), including an analysis of the extent to which the existing pattern of development reflects urban sprawl.
6. Projected growth trends over the planning period, including the change in the overall density or intensity of urban development throughout the jurisdiction.
7. Costs of facilities and services, such as per capita cost over the planning period in terms of resources and energy.
8. Extra-jurisdictional and regional growth characteristics.
9. Transportation networks and use characteristics (existing and committed).
10. Geography, topography and various natural features of the jurisdiction."

As demonstrated in this analysis, when each of these factors are considered, in the context of the full range of applicable Lee Plan Goals, Objectives, and Policies, the subject property is not sprawl, but rather the logical extension of the County's ongoing development efforts undertaken for its localized communities.

Further, 9J5.006(j) states, "Development controls in the comprehensive plan may affect the determinations in (5)(g) above. The following development controls, to the extent they are

included in the comprehensive plan, will be evaluated to determine how they discourage urban sprawl:

1. Open space requirements.
2. Development clustering requirements.
3. Other planning strategies, including the establishment of minimum development density and intensity, affecting the pattern and character of development.
4. Phasing of urban land use types, densities, intensities, extent, locations, and distribution over time, as measured through the permitted changes in land use within each urban land use category in the plan, and the timing and location of those changes.
5. Land use locational criteria related to the existing development pattern, natural resources and facilities and services.
6. Infrastructure extension controls, and infrastructure maximization requirements and incentives.
7. Allocation of the costs of future development based on the benefits received.
8. The extent to which new development pays for itself.
9. Transfer of development rights.
10. Purchase of development rights.
11. Planned unit development requirements.
12. Traditional neighborhood developments.
13. Land use functional relationship linkages and mixed land uses.
14. Jobs-to-housing balance requirements.
15. Policies specifying the circumstances under which future amendments could designate new lands for the urbanizing area.
16. Provision for new towns, rural villages or rural activity centers.
17. Effective functional buffering requirements.
18. Restriction on expansion of urban areas.
19. Planning strategies and incentives which promote the continuation of productive agricultural areas and the protection of environmentally sensitive lands.
20. Urban service areas.
21. Urban growth boundaries.
22. Access management controls.”

A review of the provisions of the subject property, in conjunction with the Plan as a whole, demonstrates that all of the applicable 22 factors referenced are addressed. And, as 9J-5.006(k) indicates that these 22 land use types and land use combinations will be evaluated within the context of the features and characteristics of the locality, it is clear that the proposed designation is not urban sprawl. Additionally, the Rule notes that if a local government has in place a comprehensive plan already found to be in compliance, as is the case with the County, the Department shall not find a plan amendment to be not in compliance on the issue of discouraging urban sprawl solely because of pre-existing indicators if the amendment does not exacerbate existing indicators of urban sprawl within the jurisdiction.

### **Effect Upon Adjoining Local Governments**

There should be no appreciable impacts upon any adjoining local government as a result of the proposed change.

### **Consistency with State and Regional Policy Plans**


As proposed, the amendment will serve to implement State Policy Plan provisions, as applicable, including Sections 187.201(9)(b)1, 187.201(9)(b)3, 187.201(9)(b) 7, 187.201(15)(a), 187.201(15)(b)3, 187.201(15)(b)6, 187.201(17)(b)(1), 187.201(19)(b)2, & 15. These policies relate to preservation of environmental values, efficient provision of infrastructure, protection of highway capacity, and implementation of adopted policies related to land use and growth management. For a more detailed discussion, please see the applicable sections above.

Goal 4 of the Regional Policy Plan, Natural Resources section indicates that local governments will support, “Livable communities designed to improve quality of life and provide for the sustainability of our natural resources.” The provision of a neighborhood center surrounded by the proposed residential development, located at the intersection of two arterial highways and between two emerging residential mixed-use developments will create some a limited opportunity for retail, service, and employment activities for the residents but will more importantly provide convenient essential services that will help to diminish automobile trips otherwise made to the nearest appropriate commercial node.

### **Conclusion**

The proposed amendment is consistent with all applicable Lee Plan Goals, Objectives and Policies. Additionally, the basis for adopting this amendment is supported by the State Comprehensive Plan and the Regional Policy Plan. The conversion of the property from a Rural, single family residential use to a Suburban, planned development use with a mix of uses will enable the applicant to establish a development with more open space and options for supporting neighborhood retail, service, and employment activities. The subject parcel will also be a valuable infill piece between the proposed Babcock Ranch and North River Village (Large Scale Comprehensive Plan Amendment CPA2006-12).



 <b>Community Development</b>		<b>E-Connect</b> Online Permitting		
<b>R e s i d e n t i a l  U s e  A c c r e a g e r y</b>	<b>Alva</b>	<b>Allocation</b>	<b>Existing</b>	<b>Remaining</b>
	Intensive Development	0	0	0
	Central Urban	0	0	0
	Urban Community	520	494	26
	Suburban	0	0	0
	Outlying Suburban	30	5	25
	Sub-Outlying Suburban	0	0	0
	Commercial	0	0	0
	Industrial Development	0	0	0
	Public Facilities	0	0	0
	University Community	0	0	0
	Industrial Interchange	0	0	0
	General Interchange	0	0	0
	General/Commercial Interchange	0	0	0
	Industrial/Commercial Interchange	0	0	0
	University Village Interchange	0	0	0
	New Community	0	0	0
	Airport	0	0	0
	Tradeport	0	0	0
	Rural	1,948	1,312	636
	Rural Community Preserve	0	0	0
	Coastal Rural	0	0	0
	Outer Islands	5	1	4
	Open Lands	250	94	156
	Density Reduction/Groundwater Resource	711	49	662
	Conservation Lands Upland	0	0	0
	Wetlands	0	0	0
	Conservation Lands Wetland	0	0	0
<b>Total Residential</b>		<b>3,464</b>	<b>1,955</b>	<b>1,509</b>
<b>Commercial</b>		<b>57</b>	<b>32</b>	<b>25</b>
<b>Industrial</b>		<b>26</b>	<b>15</b>	<b>11</b>
<b>Non Regulatory Allocations</b>				
<b>Public</b>		<b>7,100</b>	<b>6,448</b>	<b>652</b>
<b>Active Agriculture</b>		<b>5,100</b>	<b>6,817</b>	<b>(1,717)</b>
<b>Passive Agriculture</b>		<b>13,549</b>	<b>13,049</b>	<b>500</b>
<b>Conservation (wetlands)</b>		<b>2,214</b>	<b>2,216</b>	<b>(2)</b>
<b>Vacant</b>		<b>1,953</b>	<b>2,932</b>	<b>(979)</b>
<b>Total</b>		<b>33,463</b>	<b>33,465</b>	<b>(2)</b>
<b>Population Distribution</b>		<b>5,090</b>	<b>3,404</b>	<b>1,686</b>

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TABLE I  
For System Design  
ESTIMATED SEWAGE FLOWS

TYPE OF GALLONS

ESTABLISHMENT PER DAY

COMMERCIAL:

Airports, bus terminals, train stations,  
port & dock facilities, Bathroom  
waste only

(a) Per passenger 4

(b) Add per employee per 8 hour shift 15

Barber & beauty shops per service chair 75

Bowling alley bathroom waste 50

only per lane

Country club

(a) Per resident 100

(b) Add per member or patron 25

(c) Add per employee per 8 hour shift 15

Doctor and Dentist offices

(a) Per practitioner 250

(b) Add per employee per 8 hour shift 15

Factories, exclusive of industrial wastes

gallons per employee per 8 hour shift

(a) No showers provided 15

(b) Showers provided 25

Flea Market open 3 or less days per week

(a) Per non-food service vendor space 15

(b) Add per food service establishment using single service articles only per 50

100 Square feet of floor space

(c) Per limited food service establishment 25

(d) For flea markets open more than 3 days per week estimated flows shall  
be doubled

Food operations

(a) Restaurant operating 16 hours or less per day per seat 40

(b) Restaurant operating more than 16 hours per day per seat 60

(c) Restaurant using single service articles only and operating 16 hours or  
less per day per seat 20

(d) Restaurant using single service articles only and operating more than 16  
hours per day per seat 35

(e) Bar and cocktail lounge per seat 20

add per pool table or video game 15

(f) Drive-in restaurant per car space 50

(g) Carry out only, including caterers

1. Per 100 square feet of floor space 50

2. Add per employee per 8 hour shift 15

(h) Institutions per meal 5

(i) Food Outlets excluding deli's, bakery, or meat department per 100 square  
feet of floor space 10

1. Add for deli per 100 square feet of deli floor space 40

2. Add for bakery per 100 square feet of bakery floor space 40

3. Add for meat department per 100 square feet of meat department floor  
space 75

4. Add per water closet 200

Hotels & motels

(a) Regular per room 100

(b) Resort hotels, camps, cottages per  
room 200

(c) Add for establishments with self  
service laundry facilities per machine 750

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Mobile Home Park	
(a) Per single wide mobile home space, less than 4 single wide spaces connected to a shared onsite system	250
(b) Per single wide mobile home space, 4 or more single wide spaces are connected to a shared onsite system	225
(c) Per double wide mobile home space, less than 4 double wide mobile home spaces connected to a shared onsite system	300
(d) Per double wide mobile home space, 4 or more double wide mobile home spaces connected to a shared onsite system	275
Office building	15
per employee per 8 hour shift or	
per 100 square feet of floor space,	15
whichever is greater	
Transient Recreational Vehicle Park	
(a) Recreational vehicle space for overnight stay, without water and sewer hookup per vehicle space	50
(b) Recreational vehicle space for overnight stay, with water and sewer hookup per vehicle space	75
Service stations per water closet	
(a) Open 16 hours per day or less	250
(b) Open more than 16 hours per day	325
Shopping centers without food or laundry	0.1
per square foot of floor space	
Stadiums, race tracks, ball parks per seat	4
Stores per bathroom	100
Swimming and bathing facilities, public	10
per person	
Theatres and Auditoriums, per seat	4
Veterinary Clinic	
(a) Per practitioner	250
(b) Add per employee per 8 hour shift	15
(c) Add per kennel, stall or cage	20
Warehouse	
(a) Add per employee per 8 hour shift	15
(b) Add per loading bay	100
(c) Self-storage, per unit (up to 200 units)	1
INSTITUTIONAL:	
Churches per seat which includes kitchen wastewater flows unless meals prepared on a routine basis	3
If meals served on a regular basis	5
add per meal prepared	
Hospitals per bed which does not include kitchen wastewater flows	200
add per meal prepared	5
Nursing, rest homes, adult congregate living facilities per bed which does not include kitchen wastewater flows	100
add per meal prepared	5
Parks, public picnic	
(a) With toilets only per person	4
(b) With bathhouse, showers & toilets per person	10
Public institutions other than schools and hospitals per person which does not include kitchen wastewater flows	100
add per meal prepared	5
Schools per student	
(a) Day-type	10
(b) Add for showers	4

(c) Add for cafeteria	4
(d) Add for day school workers	15
(e) Boarding-type	75
Work/construction camps, semi-permanent per worker	50

#### RESIDENTIAL:

##### Residences

(a) Single or multiple family per dwelling unit	
1 Bedroom with 750 sq. ft. or less of building area	100
2 Bedrooms with 751-1200 sq. ft. of building area	200
3 Bedrooms with 1201-2250 sq. ft. of building area	300
4 Bedrooms with 2251-3300 sq. ft. of building area	400

For each additional bedroom or each additional 750 square feet of building area or fraction thereof in a dwelling unit, system sizing shall be increased by 100 gallons per dwelling unit.

(b) Other per occupant	50
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#### Footnotes to Table I:

1. For food operations, kitchen wastewater flows shall normally be calculated as 66 percent of the total establishment wastewater flow.

2. Systems serving high volume establishments, such as restaurants, convenience stores and service stations located near interstate type highways and similar high-traffic areas, require special sizing consideration due to expected above average sewage volume. Minimum estimated flows for these facilities shall be 3.0 times the volumes determined from the Table I figures.

3. For residences, the volume of wastewater shall be calculated as 50 percent blackwater and 50 percent graywater.

4. Where the number of bedrooms indicated on the floor plan and the corresponding building area of a dwelling unit in Table II do not coincide, the criteria which will result in the greatest estimated sewage flow shall apply.

5. Convenience store estimated sewage flows shall be determined by adding flows for food outlets and service stations as appropriate to the products and services offered.

6. Estimated flows for residential systems assumes a maximum occupancy of two persons per bedroom. Where residential care facilities will house more than two persons in any bedroom, estimated flows shall be increased by 50 gallons per each additional occupant.

(2) Minimum effective septic tank capacity shall be determined from Table II. However, where multiple family dwelling units are jointly connected to a septic tank system, minimum effective septic tank capacities specified in the table shall be increased 75 gallons for each dwelling unit connected to the system. With the exception noted in Rule 64E-6.013(2)(a), all septic tanks shall be multiple chambered or shall be placed in series to achieve the required effective capacity. The use of an approved outlet filter device shall be required. Outlet filters shall be installed within or following the last septic tank or septic tank compartment before distribution to the drainfield. The outlet filter device requirement includes blackwater tanks, but does not include graywater tanks or grease interceptors or laundry tanks. Outlet filter devices shall be placed to allow accessibility for routine maintenance. Utilization and sizing of outlet filter devices shall be in accordance with the manufacturers' recommendations. The approved outlet filter device shall be installed in accordance with the manufacturers' recommendations. The Bureau of Onsite Sewage Programs shall approve outlet filter devices per the department's Policy on Approval Standards For Onsite Sewage Treatment And Disposal Systems Outlet Filter Devices, August 1999, which is herein incorporated by reference.

TABLE II  
SEPTIC TANK AND PUMP TANK CAPACITY

AVERAGE SEWAGE FLOW GALLONS/DAY	SEPTIC TANK	PUMP TANK	
	MINIMUM EFFECTIVE CAPACITY	MINIMUM EFFECTIVE CAPACITY	
	GALLONS	GALLONS	
		Residential	Commercial
0-200	900	150	225
201-300	900	225	375
301-400	1050	300	450
401-500	1200	375	600
501-600	1350	450	600
601-700	1500	525	750
701-800	1650	600	900
801-1000	1900	750	1050
1001-1250	2200	900	1200
1251-1750	2700	1350	1900
1751-2500	3200	1650	2700
2501-3000	3700	1900	3000



3001-3500	4300	2200	3000
3501-4000	4800	2700	3000
4001-4500	5300	2700	3000
4501-5000	5800	3000	3000

(3) Where a separate graywater tank and drainfield system is used, the minimum effective capacity of the graywater tank shall be 250 gallons with such system receiving not more than 75 gallons of flow per day. For graywater systems receiving flows greater than 75 gallons per day, minimum effective tank capacity shall be based on the average daily sewage flow plus 200 gallons for sludge storage. Design requirements for graywater tanks are described in Rule 64E-6.013(2). Where separate graywater and blackwater systems are utilized, the size of the blackwater system can be reduced, but in no case shall the blackwater system be reduced by more than 25 percent. However, the minimum capacity for septic tanks disposing of blackwater shall be 900 gallons.

(4) Where building codes allow separation of discharge pipes of the residence to separate stubouts and where lot sizes and setbacks allow system construction, the applicant may request a separate laundry waste tank and drainfield system. Where an aerobic treatment unit is used, all blackwater, graywater and laundry waste flows shall be consolidated and treated by the aerobic treatment unit. Where a residential laundry waste tank and drainfield system is used:

(a) The minimum laundry waste trench drainfield absorption area for slightly limited soil shall be 75 square feet for a one or two bedroom residence with an additional 25 square feet for each additional bedroom. If an absorption bed drainfield is used the minimum drainfield area shall be 100 square feet with an additional 50 square feet for each additional bedroom over two bedrooms. The DOH county health department shall require additional drainfield area based on moderately limited soils and other site specific conditions, which shall not exceed twice the required amount of drainfield for a slightly limited soil.

(b) The laundry waste interceptor shall meet requirements of Rule 64E-6.013(2) and (9).

(c) The drainfield absorption area serving the remaining wastewater fixtures in the residence shall be reduced by 25 percent.

(5) The minimum absorption area for standard subsurface drainfield systems, graywater drainfield systems, and filled systems shall be based on estimated sewage flows and Table III so long as estimated sewage flows are 200 gallons per day or higher. When estimated sewage flows are less than 200 gallons per day, system size shall be based on a minimum of 200 gallons per day.

TABLE III  
For Sizing of Drainfields Other Than Mounds

U.S. DEPARTMENT OF AGRICULTURE SOIL TEXTURAL CLASSIFICATION	SOIL TEXTURE LIMITATION (PERCOLATION RATE)	MAXIMUM SEWAGE LOADING RATE TO TRENCH & BED ABSORPTION SURFACE IN GALLONS PER SQUARE FOOT PER DAY RENCH BED	
Sand; Coarse Sand not associated with a seasonal water table of less than 48 inches; and Loamy Coarse Sand	Slightly limited (Less than 2 min/inch)	1.20	0.80
Loamy Sand; Sandy Loam; Coarse Sandy Loam; Fine Sand	Slightly limited (2-4 min/inch)	0.90	0.70
Loam; Fine Sandy Loam; Silt Loam; Very Fine Sand; Very Fine Sandy Loam; Loamy Fine Sand; Loamy Very Fine Sand; Sandy Clay Loam	Moderately limited (5-10 min/inch)	0.65	0.35
Clay Loam; Silty Clay Loam; Sandy Clay; Silty Clay; Silt	Moderately limited (Greater than 15 min/inch but not exceeding 30 min/inch)	0.35	0.20
Clay; Organic Soils; Hardpan; Bedrock	Severely limited (Greater than 30 min/inch)	Unsatisfactory for standard subsurface system	

Coarse Sand with an estimated wet season high water table within 48 inches of the bottom of the proposed drainfield; Gravel or Fractured Rock or Oolitic Limestone	Severely limited (Less than 1 min/inch and a water table less than 4 feet below the drainfield)	Unsatisfactory for standard subsurface system
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Footnotes to Table III:

1. U.S. Department of Agriculture major soil textural classification groupings and methods of field identification are explained in Rule 64E-6.016. Laboratory sieve analysis of soil samples may be necessary to confirm field evaluation of specific soil textural classifications. The USDA Soil Conservation Service "Soil Textural Triangle" shall be used to classify soil groupings based on the proportion of sand, silt and clay size particles.

2. The permeability or percolation rate of a soil within a specific textural classification may be affected by such factors as soil structure, cementation and mineralogy. Where a percolation rate is determined using the falling head percolation test procedure described in the United States Environmental Protection Agency Design Manual for Onsite Wastewater Treatment and Disposal Systems, October, 1980, incorporated by reference into this rule, the calculated percolation test rate shall be used with Table III and evaluated by the DOH county health department with other factors such as history of performance of systems in the area in determining the minimum sizing for the drainfield area.

3. When all other site conditions are favorable, horizons or strata of moderately or severely limited soil may be replaced with slightly limited soil or soil of the same texture as the satisfactory slightly limited permeable layer lying below the replaced layer. The slightly limited permeable layer below the replaced layer shall be identified within the soil profile which was submitted as part of the permit application. The resulting soil profile must show complete removal of the moderately or severely limited soil layer being replaced and must be satisfactory to a minimum depth of 54 inches beneath the bottom surface of the proposed drainfield. The width of the replacement area shall be at least 2 feet wider and longer than the drain trench and for absorption beds shall include an area at least 2 feet wider and longer than the proposed bed. Drainfields shall be centered in the replaced area. Where at least 33 percent of the moderately limited soils at depths greater than 54 inches below the bottom of the drainfield have been removed to the depth of slightly limited soil, drainfield sizing shall be based on the following sewage loading rates. Where severely limited soils are being removed at depths greater than 54 inches below the bottom of the drainfield, 100 percent of the severely limited soils at depths greater than 54 inches shall be removed down to the depth of an underlying slightly limited soil. Maximum sewage loading rates for standard subsurface systems installed in replacement areas shall be 0.90 gallons per square foot per day for trench systems and 0.70 gallons per square foot per day for absorption beds in slightly limited soil textures. Where moderately limited soil materials are found beneath the proposed drainfield, and where system sizing is based on that moderately limited soil, soil replacements of less than 33% may be permitted.

4. Where coarse sand, gravel, or oolitic limestone directly underlies the drainfield area, the site shall be approved provided a minimum depth of 42 inches of the rapidly percolating soil beneath the bottom absorption surface of the drainfield and a minimum 12 inches of rapidly percolating soil contiguous to the drainfield sidewall absorption surfaces, is replaced with slightly limited soil material. Where such replacement method is utilized, the drainfield size shall be determined using a maximum sewage application rate of 0.80 gallons per square foot per day of drainfield in trenches and 0.70 gallon per square foot per day for drainfield absorption beds.

5. Where more than one soil texture classification is encountered within a soil profile and it is not removed as part of a replacement, drainfield sizing for standard subsurface drainfield systems and fill drainfield systems shall be based on the most restrictive soil texture encountered within 24 inches of the bottom of the drainfield absorption surface.

(6) All materials incorporated herein may be obtained by contacting the department.

*Specific Authority 381.0011(4), (13), 381.006, 381.0065(3)(a), 489.553 F.S. Law Implemented 154.01, 381.001(2), 381.0011(4), 381.0012, 381.0025, 381.0061, 381.0065, 381.0067, 386.041, 489.553 F.S. History—New 12-22-82, Amended 2-5-85, Formerly 10D-6.48, Amended 3-17-92, 1-3-95, Formerly 10D-6.048, Amended 11-19-97, 3-22-00, 9-5-00.*

#### 64E-6.009 Alternative Systems.

When approved by the DOH county health department, alternative systems may, at the discretion of the applicant, be utilized in circumstances where standard subsurface systems are not suitable or where alternative systems are more feasible. Unless otherwise noted, all rules pertaining to siting, construction, and maintenance of standard subsurface systems shall apply to alternative systems. In addition, the DOH county health department may, using the criteria in Section 64E-6.004(4), require the submission of plans prepared by an engineer registered in the State of Florida, prior to considering the use of any alternative system. The DOH county health department shall require an engineer registered in the state of Florida to design a system having a total absorption area greater than 1000 square feet and shall require the design engineer to certify that the installed system complies with the approved design and installation requirements.

The means for reducing these concentrations and ultimately the TN loadings to the coastal embayments will be discussed in subsequent reports.

The MEP analysis generated wastewater flow estimates using average water use data for the years 1997 through 1999 (for Mashpee), 2000 (for Falmouth), or 1998-2000 (for Sandwich and Barnstable). The same data was used for the purposes of the WNMP analysis. However, the relevant data was obtained for *all* parcels in the Town of Mashpee. The same analysis methods used by MEP were followed for the WNMP analysis in order to obtain consistent flow and loading estimates PPA-wide. The following discussion describes the data and estimates used.

#### A. Development of Existing Wastewater Flows

- For properties with water consumption data, 90 percent of a property's water use is estimated to become wastewater.
- Properties without water consumption data were assigned an average water use based on either MEP assumptions or the land use type. The MEP reports used the following assumptions in their analysis:

TABLE 7-1  
MEP WATER USE ASSUMPTIONS <sup>(1)</sup>

Land Use Type	Water Use	Wastewater Flow
Residential	154 gpd	90% of water use
Commercial/Industrial	81.5 gpd/1000 sq. ft. of building	90% of water use
(1) From Table IV-4 of the MEP technical reports.		

The following table summarizes the water use estimates used in this Report for the wastewater analysis. These averages are based on existing water users in Town. Obtaining an average for a commercial use category was desirable to obtain a more accurate estimate of nitrogen loading within the Town.





### Chapter 3: Establishing treatment system performance requirements

- 3.1 Introduction
- 3.2 Estimating wastewater characteristics
- 3.3 Estimating wastewater flow
- 3.4 Wastewater quality
- 3.5 Minimizing wastewater flows and pollutants
- 3.6 Integrating wastewater characterization and other design information
- 3.7 Transport and fate of wastewater pollutants in the receiving environment
- 3.8 Establishing performance requirements

#### 3.1 Introduction

This chapter outlines essential steps for characterizing wastewater flow and composition and provides a framework for establishing and measuring performance requirements. Chapter 4 provides information on conventional and alternative systems, including technology types, pollutant removal effectiveness, basic design parameters, operation and maintenance, and estimated costs. Chapter 5 describes treatment system design and selection processes, failure analysis, and corrective measures.

This chapter also describes methods for establishing and ensuring compliance with wastewater treatment performance requirements that protect human health, surface waters, and ground water resources. The chapter describes the characteristics of typical domestic and commercial wastewaters and discusses approaches for estimating wastewater quantity and quality for residential dwellings and commercial establishments. Pollutants of concern in wastewaters are identified, and the fate and transport of these pollutants in the receiving environment are discussed. Technical approaches for establishing performance requirements for onsite systems, based on risk and environmental sensitivity assessments, are then presented. Finally, the chapter discusses performance monitoring to ensure sustained protection of public health and water resources.

#### 3.2 Estimating wastewater characteristics

Accurate characterization of raw wastewater, including daily volumes, rates of flow, and associated pollutant load, is critical for effective treatment system design. Determining treatment system performance requirements, selecting appropriate treatment processes, designing the treatment system, and operating the system depends on an accurate assessment of the wastewater to be treated. There are basically two types of onsite system wastewaters—residential and nonresidential. Single-family households, condominiums, apartment houses, multifamily households, cottages, and resort residences all fall under the category of residential dwellings. Discharges from these dwellings consist of a number of individual waste streams generated by water-using activities from a variety of plumbing fixtures and appliances. Wastewater flow and quality are influenced by the type of plumbing fixtures and appliances, their extent and frequency of use, and other factors such as the characteristics of the residing family, geographic location, and water supply (Anderson and Siegrist, 1989; Crites and Tchobanoglous, 1998; Siegrist, 1983).

A wide variety of institutional (e.g., schools), commercial (e.g., restaurants), and industrial establishments and facilities fall into the nonresidential wastewater category. Wastewater generating activities in some nonresidential establishments are similar to those of residential dwellings. Often, however, the wastewater from nonresidential establishments is quite different from that from residential dwellings and should be characterized carefully before Onsite Wastewater Treatment System (OWTS) design. The characteristics of wastewater generated in some types of nonresidential establishments might prohibit the use of conventional systems without changing wastewater loadings through advanced pretreatment or accommodating elevated organic loads by increasing the size of the subsurface wastewater infiltration system (SWIS). Permitting agencies should note that some commercial and large-capacity septic systems (systems serving 20 or more people, systems serving commercial facilities such as automotive repair shops) might be regulated under USEPA's Class V Underground Injection Control Program (see <http://www.epa.gov/safewater/uic/classv.html>).

In addition, a large number of seemingly similar nonresidential establishments are affected by subtle and often intangible influences that can cause significant variation in wastewater characteristics. For example, popularity, price, cuisine, and location can produce substantial variations in wastewater flow and quality among different restaurants (University of Wisconsin, 1978). Nonresidential wastewater characterization criteria that are easily applied and accurately predict flows and pollutant loadings are available for only a few types of establishments and are difficult to develop on a national basis with any degree of confidence. Therefore, for existing facilities the wastewater to be treated should be characterized by metering and sampling the current wastewater stream. For many existing developments and for almost any new development, however, characteristics of nonresidential wastewaters should be estimated based on available data. Characterization data from similar facilities already in use can provide this information.

#### 3.3 Estimating wastewater flow

The required hydraulic capacity for an OWTS is determined initially from the estimated wastewater flow. Reliable data on existing and projected flows should be used if onsite systems are to be designed properly and cost-effectively. In situations where onsite wastewater flow data are limited or unavailable, estimates should be developed from water consumption records or other information. When using water meter readings or other water use records, outdoor water use should be subtracted to develop wastewater flow estimates. Estimates of outdoor water use can be derived from discussions with residents on car washing, irrigation, and other outdoor uses during the metered period under review, and studies conducted by local water utilities, which will likely take into account climatic and other factors that affect local outdoor use.

Accurate wastewater characterization data and appropriate factors of safety to minimize the possibility of system failure

are required elements of a successful design. System design varies considerably and is based largely on the type of establishment under consideration. For example, daily flows and pollutant contributions are usually expressed on a per person basis for residential dwellings. Applying these data to characterize residential wastewater therefore requires that a second parameter, the number of persons living in the residence, be considered. Residential occupancy is typically 1.0 to 1.5 persons per bedroom; recent census data indicate that the average household size is 2.7 people (U.S. Census Bureau, 1998). Local census data can be used to improve the accuracy of design assumptions. The current onsite code practice is to assume that maximum occupancy is 2 persons per bedroom, which provides an estimate that might be too conservative if additional factors of safety are incorporated into the design.

For nonresidential establishments, wastewater flows are expressed in a variety of ways. Although per person units may also be used for nonresidential wastewaters, a unit that reflects a physical characteristic of the establishment (e.g., per seat, per meat served, per car stall, or per square foot) is often used. The characteristic that best fits the wastewater characterization data should be employed (University of Wisconsin, 1978).

When considering wastewater flow it is important to address sources of water uncontaminated by wastewater that could be introduced into the treatment system. Uncontaminated water sources (e.g., storm water from rain gutters, discharges from basement sump pumps) should be identified and eliminated from the OWTS. Leaking joints, cracked treatment tanks, and system damage caused by tree roots also can be significant sources of clear water that can adversely affect treatment performance. These flows might cause periodic hydraulic overloads to the system, reducing treatment effectiveness and potentially causing hydraulic failure.

### 3.3.2 Nonresidential wastewater flows

For nonresidential establishments typical daily flows from a variety of commercial, institutional, and recreational establishments are shown in tables 3-4 to 3-6 (Crites and Tchobanoglous, 1998; Tchobanoglous and Burton, 1991). The typical values presented are not necessarily an average of the range of values but rather are weighted values based on the type of establishment and expected use. Actual monitoring of specific wastewater flow and characteristics for nonresidential establishments is strongly recommended. Alternatively, a similar establishment located in the area might provide good information. If this approach is not feasible, state and local regulatory agencies should be consulted for approved design flow guidelines for nonresidential establishments. Most design flows provided by regulatory agencies are very conservative estimates based on peak rather than average daily flows. These agencies might accept only their established flow values and therefore should be contacted before design work begins.

**Table 3-4. Typical wastewater flow rates from commercial sources<sup>a,b</sup>**

Facility	Unit	Flow, gallons/unit/day		Flow, liters/unit/day	
		Range	Typical	Range	Typical
Airport	Passenger	2-4	3	8-15	11
Apartment house	Person	40-80	50	150-300	190
Automobile service station <sup>c</sup>	Vehicle served	8-15	12	30-57	45
	Employees	9-15	13	34-57	49
Bar	Customer	1-5	3	4-19	11
	Employees	10-16	13	38-61	49
Boarding house	Person	25-60	40	95-230	150
Department store	Toilet room	400-600	500	1,500-2,300	1,900
	Employee	8-15	10	30-57	38
Hotel	Guest	40-60	50	150-230	190
	Employee	8-13	10	30-49	38
Industrial building (sanitary waste only)	Employee	7-16	13	26-61	49
Laundry (self-service)	Machine	450-650	550	1,700-2,500	2,100
	Wash	45-55	50	170-210	190
Office	Employee	7-16	13	26-61	49
Public lavatory	User	3-6	5	11-23	19
Restaurant (with toilet)	Meal	2-4	3	8-15	11
	Conventional Customer	8-10	9	30-38	34
	Short order Customer	3-8	6	11-30	23
	Bar/cocktail lounge Customer	2-4	3	8-15	11
Shopping center	Employee	7-13	10	26-49	38
	Parking Space	1-3	2	4-11	8
Theater	Seat	2-4	3	8-15	11

<sup>a</sup>Some systems serving more than 20 people might be regulated under USEPA's Class V Underground Injection Control (UIC) Program. See <http://www.epa.gov/safewater/uic.html> for more information.

<sup>b</sup>These data incorporate the effect of fixtures complying with the U.S. Energy Policy Act (EPACT) of 1994.

<sup>c</sup>Disposal of automotive wastes via subsurface wastewater infiltration systems is banned by Class V UIC regulations to protect ground water. See <http://www.epa.gov/safewater/uic.html> for more information.

Source: Crites and Tchobanoglous, 1998.



**Table 5-2:  
Guide for Non-Residential Water Demand**

Type of Establishment	Water Used (gpd)
Airport (per passenger)	3 - 5
Apartment, multiple family (per resident)	50
Bathhouse (per bather)	10
Boardinghouse (per boarder)	50
Additional kitchen requirements for nonresident boarders	10
Camp:	
Construction, semipermanent (per worker)	50
Day, no meals served (per camper)	15
Luxury (per camper)	100 - 150
Resort, day and night, limited plumbing (per camper)	50
Tourist, central bath and toilet facilities (per person)	35
Cottage, seasonal occupancy (per resident)	50
Club:	
Country (per resident member)	100
Country (per nonresident member present)	25
Factory (gallons per person per shift)	15 - 35
Highway rest area (per person)	5
Hotel:	
Private baths (2 persons per room)	50
No private baths (per person)	50
Institution other than hospital (per person)	75 - 125
Hospital (per bed)	250 - 400
Lawn and Garden (per 1000 sq. ft.)	600
Assumes 1-inch per day (typical)	
Laundry, self-serviced (gallons per washing [per customer])	50
Livestock Drinking (per animal):	
Beef, yearlings	20
Brood Sows, nursing	6
Cattle or Steers	12
Dairy	20
Dry Cows or Heifers	15
Goat or Sheep	2
Hogs/Swine	4
Horse or Mules	12
Livestock Facilities	
Dairy Sanitation (milkroom)	500
Floor Flushing (per 100 sq. ft.)	10
Sanitary Hog Wallow	100
Motel:	
Bath, toilet, and kitchen facilities (per bed space)	50
Bed and toilet (per bed space)	40
Park:	
Overnight, flush toilets (per camper)	25
Trailer, individual bath units, no sewer connection (per trailer)	25
Trailer, individual baths, connected to sewer (per person)	50
Picnic:	
Bathhouses, showers, and flush toilets (per picnicker)	20
Toilet facilities only (gallons per picnicker)	10

Type of Establishment	Water Used (gpd)
Poultry (per 100 birds):	
Chicken	5 - 10
Ducks	22
Turkeys	10 - 25
Restaurant:	
Toilet facilities (per patron)	7 - 10
No toilet facilities (per patron)	2-1/2 - 3
Bar and cocktail lounge (additional quantity per patron)	2
School:	
Boarding (per pupil)	75 - 100
Day, cafeteria, gymnasiums, and showers (per pupil)	25
Day, cafeteria, no gymnasiums or showers (per pupil)	20
Day, no cafeteria, gymnasiums or showers (per pupil)	15
Service station (per vehicle)	10
Store (per toilet room)	400
Swimming pool (per swimmer)	10
Maintenance (per 100 sq. ft.)	
Theater:	
Drive-in (per car space)	5
Movie (per auditorium seat)	5
Worker:	
Construction (per person per shift)	50
Day (school or offices per person per shift)	15

Source: Adapted from *Design and Construction of Small Water Systems: A Guide for Managers*, American Water Works Association, 1984, and *Planning for an Individual Water System*. American Association for Vocational Instructional Materials, 1982.

**Appendix C****Industrial and Commercial Water Use:****Glossary, Data, and Methods of Analysis**

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COMMUNITY DEVELOPMENT

This Appendix presents a glossary of water-conservation technologies available in the commercial, institutional, and industrial sectors, our analysis of the data on industrial water use collected by the CDWR and others, and background on our methods of analysis for this group of water users. More details on specific end-uses and methods can be found in Appendix D and E.

The glossary in this Appendix is not a comprehensive list of every water conservation technology in existence – it is a compilation of technologies that are common across several industry groups. The technologies are classified by end use. For each technology, we present a brief discussion and list the industry groups (as defined in Appendices D and E) to which it applies. The manner in which these technologies are implemented will vary among industries.

We also describe our analysis of the extensive data of industrial water use collected by the California Department of Water Resources in the 1990s (DWR 1995a) and shows the data we collected on commercial water use from various other sources. To use these data, errors had to be identified and corrected, data gaps filled, and some entries updated. Below we describe the corrections and modifications applied to these data.

**Restrooms****Ultra-Low Flush Toilet (ULFT). (Type: Efficiency. Industry Groups: All)**

Prior to 1978, toilets used 5 to 7 gallons per flush (gpf). A 1977 state law required that all new residential toilets use 3.5 gpf or fewer starting on January 1, 1980. In 1992, the state updated this law, mandating that all new residential toilets use 1.6 gpf. These laws shifted the state's toilet stock toward more efficient toilets. And in 1992, the transition gained momentum when the federal government passed the National Energy Policy Act, which mandated that all toilets produced in the United States use 1.6 gpf or less. These 1.6 gpf toilets are commonly referred to as ultra-low-flush toilets or ULFTs.

**Ultra-Low Flush Urinals (ULFU). (Type: Efficiency. Industry Groups: All)**

Low-volume urinals use 1.0 gpf or less. These urinals operate the same way as high-volume urinals except that the orifice in the valve is small. Moderate to high-volume urinals in commercial establishments have flush rates of 2.0 to 5.0 gpf (Vickers 2001).

**Faucet Aerators. (Type: Efficiency. Industry Groups: All)**

eration, flow-control restrictors, or spray features achieve reduced flow in low-flow restroom and kitchen faucets. Low flow faucets use about 1.0 gpm compared to



traditional faucet use of 1.3 to 3.5 gpm (Vickers 2001). Note that these are actual flow volumes, which are much lower than the rated flow volumes because people rarely run the faucets at the maximum volume.

**Low-Flow Showerheads. (Type: Efficiency. Industry Groups: Hospitals and Hotels)**

Low-volume showerheads use less water through improved spray patterns, aeration, and narrower spray areas. Actual flow rates in showers are at about 67 percent of rated flows. Low-flow showerheads use about 1.7 gpm (actual) while traditional showerheads use from 2.2 to 4.0 gpm (Vickers 2001).

**Cooling and Cooling Towers**

**Conductivity Controllers. (Type: Efficiency. Industry Groups: Most Industrial Industries; Offices; Hotels; and Hospitals)**

Improving water efficiency in cooling towers generally involves increasing the concentration ratio (CR) by installing a conductivity controller to measure the salt concentration in the cooling water (see Section 4). The technically achievable CR depends on the quality of the make-up water and varies among regions. In the Bay Area, which receives high-quality snowmelt from the Sierra Nevada, a CR of 6 to 8 is easily achievable, whereas in areas that use groundwater (high in salts), a CR of 2.5 to 3 is the maximum achievable (Lelic 2002). Table C-1 shows the percent of make-up water that can be saved with different concentration ratios.

**Table C-1**

Percent of Make-up Water Saved									
Old CR	New CR								
	CR	3	4	5	6	7	8	9	10
	2	25%	33%	38%	40%	42%	43%	44%	45%
	3		7%	11%	14%	17%	18%	20%	21%
	4			6%	10%	13%	14%	16%	17%

Source: NCDENR 1998

**Improvement of Concentration Ratio Using Chemical Treatments. (Type: Efficiency. Industry Groups: Most Industrial Industries; Offices; Hotels; and Hospitals)**

Concentration ratios of cooling towers can be boosted to as high as 12 to 15 percent using various types of chemical treatments. Some common treatments (NCDENR 1998) include:

- Sulfuric Acid Treatment - Dissolves scale on cooling towers but is potentially hazardous and needs careful handling and skilled workers.
- Side-stream Filtration – Uses a sand or cartridge filter to remove suspended solids.
- Ozonation – Oxidizes some of the metals and precipitates them in the form of sludge.

**Improving the energy efficiency of fans, pumps etc. Type: Efficiency. Industry Groups: Most Industrial Industries; Offices; Hotels; and Hospitals)**

A cooling tower is part of a heat transfer system that typically includes coils, fan, chiller, compressor and condenser. Increasing the energy efficiency of any component of the system will increase the overall energy efficiency. Increasing the overall energy efficiency will reduce evaporation losses. Reducing evaporation losses will reduce the cooling tower make up water requirements.

**Reused/Reclaimed Water for Cooling Tower Make-up. (Type: Efficiency and Reclamation. Industry Groups: Most Industrial Industries; Office Buildings; Hotels; and Hospitals)**

A recent trend in cooling tower water conservation involves reusing waste streams from processes in cooling towers. Some streams, such as those from reverse osmosis, reject water when creating ultra-pure water and require no additional treatment. Other waste streams may need to pass through one or more stages of filtration before they are usable in cooling towers.

Some industries are also substituting reclaimed water for cooling tower make-up. Typically, a denitrification plant must treat reclaimed water before it is used in cooling towers, but because some industries, such as refineries, use large quantities of cooling water, it is economical to set up a denitrification plant at each facility. In the future, reclaimed water use should increase for cooling at refineries and industrial parks where these economies of scale can be exploited.

**Equipment Cooling. (Type: Efficiency. Industry Groups: Hospitals and Several Industrial Industries)**

Many facilities use once-through cooling to cool small heat generating equipment including x-ray film processors, welders, vacuum pumps, air-compressors, etc. In most cases it is possible to connect the equipment to a recirculating cooling system or to install a cooling tower. Recirculating systems typically consume only two to three percent of the water used by single-pass systems.

**X-Ray Film Processors. (Type: Efficiency. Industry Groups: Hospitals and Dental Offices)**

X-ray film processors use a stream of rinse water as a part of the film-developing process. An audit of 38 x-ray units in southern California revealed that the units used from 3.2 AF to as much as 7.5 AF annually. Past conservation recommendations have included installing a sensor to interrupt the flow when the unit is not in use and adjusting the flow to the optimal flow rate. A recent development has been the introduction of units produced by a Southern California company that recirculate what has traditionally been "once-through" flow. These units, called Water Saver/Plus<sup>TM</sup>, can save 98 percent of water use (CUWCC 2001).

**Vacuum Pumps. (Type: Efficiency. Industry Groups: Hospitals; Paper and Pulp; and Others)**

Vacuum pumps are widely used in a variety of facilities, including hospitals, research labs, and food processing plants, to create sterile environments or to remove moisture through a dehydrating process. Liquid water-ring pumps still use single-pass water for cooling and sealing. In many applications, such as hospitals and research facilities, it is desirable as well as efficient to replace water-ring pumps by air-cooled oil-ring or oil-less pumps and, consequently, these pumps have become increasingly common. In other industries, such as paper and pulp, water-based vacuum pumps remain appropriate, but their efficiencies can be considerably improved (Britain 2002).

**Irrigation****Auto-Shutoff Nozzles. (Type: Efficiency. Industry Groups: Most)**

Nozzles designed to shut off automatically (when not in use) can be installed on hoses and save 5 to 10 percent (or more) of water use (Vickers 2001).

**Drip Irrigation. (Type: Efficiency. Industry Groups: Most)**

Drip irrigation systems can be used on non-turf areas of landscaping. These systems use plastic tubes and small nozzles to deliver water to plant roots. These systems are often considered the most water-efficient of irrigation system (Vickers 2001).

**Moisture Sensors. (Type: Efficiency. Industry Groups: Most)**

Soil-moisture sensors and controllers measure soil moisture and control irrigation based on how much water the vegetation needs. These sensors reduce water use compared to simple timers that provide water whether or not it is needed.

**Reclaimed Water. (Type: Reclaimed. Industry Groups: Schools; Hotels; Golf Courses; Office Buildings; and Some Industrial Industries)**

Overall withdrawals of water can be reduced by replacing freshwater use with the use of partially treated water from a reclaimed water plant. This water is particularly appropriate for irrigating landscapes.

**Reused Water. (Type: Efficiency. Industry Groups: Most)**

Overall withdrawals of water can be reduced by replacing freshwater use with the use of wastewater from other on-site uses, such as washing clothes. This water is particularly appropriate for irrigating landscapes.

**Reducing Water-intensive Vegetation. (Type: Efficiency. Industry Groups: All)**

Although reducing water-intensive vegetation often involves planting vegetation native to a region or climate, we only consider replacing turf with a typical mix of "other" vegetation. While the "other" vegetation may not be as efficient as native vegetation, it is still more efficient than turf (see Appendix D).

## Kitchen

### **Low-Flow Pre-Rinse Nozzles. (Type: Efficiency. Industry Groups: All with kitchens)**

Pre-rinse nozzles are used in kitchens to dislodge food particles from dishes before putting them into a dishwasher. Typical pre-rinse nozzles use 1.8 to 2.5 gpm for manual nozzles and 3.0 to 6.0 gpm for automatic nozzles. Efficient pre-rinse nozzles use a fan-like spray pattern that generates the same cleaning action but uses only 1.6 gpm.

### **Efficient Ice makers. (Type: Efficiency. Industry Groups: All with kitchens)**

Water-cooled machines typically use ten times more water than air-cooled machines but use less energy and generate less heat, which reduces air-conditioning load. Whether a water-cooled or air-cooled icemaker is more appropriate depends on the individual site. Water conservation measures in icemakers involve retrofitting once-through water-cooled refrigeration units and ice machines by using temperature controls and a recirculating chilled-water loop system (Pike et al. 1995).

### **Efficient Dishwashers. (Type: Efficiency. Industry Groups: All with kitchens)**

Small establishments use rack or under-the-counter machines that are similar to dishwashers found in the home while larger restaurants use either conveyor-type or flight-type machines. Conveyor-type machines have a conveyor belt with racks moving along this belt and a hook-type mechanism that lifts the racks and loads then into a larger machine that can usually hold four racks. Flight-type machines, which are much bigger and used in hotels or large catering establishments, have pegs onto which the dishes are loaded.

All of these dishwashers come in efficient and inefficient models. Studies indicate that efficient dishwashers typically use 50 to 70 percent less water and energy compared to inefficient machines (Sullivan and Parker 1999). Water efficiency features in the efficient models include recirculating the final rinse water, electric eye sensors, and extra-wide conveyers (NCDENR 1998).

## Laundry

### **Closed-loop Laundry Systems. (Type: Efficiency. Industry Groups: Hotels; Hospitals; and Laundries)**

Closed-loop laundries use membrane-filtration systems that can recycle 80 to 90 percent of the water used at the facility. The main purpose of the membrane system is to remove suspended solids (TSS), oil, and grease from the laundry effluent.

### **Recycling Laundry Rinse Water. (Type: Efficiency. Industry Groups: Hotels; Hospitals; and Laundries)**

One or more pre-treatment processes may be used to recycle part of the laundry wastewater. The steps followed include:

Stream Splitting - Segregation of wastewater streams into high and low pollutant loading streams so that relatively clean streams can be reused.



Gravity Setting – Leaving the wastewater to stand in a basin for some period of time to allow the settling of suspended solids.

Chemical Removal – Removal of various organic solids and oils using emulsion, precipitation etc.

**Ozone Cleaning Systems. (Type: Efficiency. Industry Groups: Hotels; Hospitals; and Laundries)**

These systems generate ozone gas, which is injected into the wash water. As an unstable gas, ozone decomposes to release elemental oxygen, a powerful cleaning agent. At 100 degrees F, ozone systems provide an equivalent cleaning of 160 degrees F, eliminating the need for steam and hot water. These systems thus save energy and water. Ozone cleaning systems use 30 percent less water than conventional systems and can use up to 80 percent less with recycling.

**Membrane Treatment and Recycling. (Type: Efficiency. Industry Groups: Hotels; Hospitals; and Laundries)**

A number of laundries are experimenting with recycling laundry wash water with membrane systems. Laundries in California and Seattle have recently implemented a “Vibratory Shear Enhanced Processing” system that filters suspended and dissolved solids and also removes BOD, COD, and color. The system provides a vibratory shear force ten times greater than convention cross-filtration and produces a clear reusable water stream and a concentrated sludge. An added advantage of the system is that the effluent water is soft, a desirable quality in the laundry industry.

**Resource-Efficient Clothes Washers. (Type: Efficiency. Industry Groups: Coin Laundries; Hotels; and Hospitals)**

Since the early 1990s, manufacturers, energy and water utilities, and public interest groups have been promoting more efficient washer technologies as a means of pursuing water and energy savings. The Horizontal-Axis (H-Axis) washer has been a popular model. These washers use a washtub that spins about a horizontal axis and cleaning action is accomplished by tumbling the clothes in and out of the water that fills half the tub. In contrast, traditional clothes washers have a vertical axis and spin the clothes around in a full tub of water. Since most of the energy use in washers is for heating water, conserving water also greatly reduces energy use. Recently some manufacturers have sold water- and energy-conserving washers that are based on the standard vertical-axis design. They use spray rinses, lowered temperatures, and innovative agitation systems to achieve savings comparable to H-Axis washers (Pope et al. 2000). Typical savings in water and energy are about 40 percent. We refer to all efficient models as resource-efficient clothes washers.

**Guest Laundry Cards. (Type: Efficiency. Industry Groups: Hotels)**

Some hotels ask guests staying more than one night to consider not having their bed linens changed every day. Participating hotels reported saving five percent on utility

costs along with 70 to 80 percent guest participation by using this option (Green Hotels Association 2002).

## Process

### **Rinse Optimization. (Type: Efficiency. Industry Groups: Most Industrial Industries)**

Optimizing rinse cycles can save water in several industries. This approach was originally developed and tested by the semiconductor industry and has since been transferred to other industries as well. Typical measures involve reducing the number of rinse cycles and rinse time as well as recycling water from dilute rinses. Optimization of rinses involves collecting and utilizing data on:

1. Water flow rates for process and idle flows, transfer speeds from chemical baths to rinse baths, and fluid dynamics.
2. Detailed conductivity, pH, mass-spectrometry measurements to determine the quantity and type of contaminants.
3. Device electrical characteristics to determine the effect that optimized rinse processes have on yield.

### **Auto-shutoff Valves. (Type: Efficiency, Industry Groups: Most Industrial)**

Automatic shutoff valves use solenoid valves to stop the flow of water when production stops, sometimes by tying the valves to drive motor controls. Other related water-efficiency measures include adjusting flow in sprays and other lines to meet minimum requirements, providing surge tanks for each system to avoid overflow, and turning off all flows during shutdowns (unless flows are essential for cleanup).

### **Cascading Rinses. (Type: Efficiency. Industry Groups: High Technology; Metal Finishing; and Textiles)**

Not all rinses require the same quality water. By cascading rinses it is possible to use rinse water from a "critical" rinse (requiring highly pure water) in a less critical rinse, reducing overall water withdrawals.

### **Reactive Rinses. (Type: Efficiency. Industry Groups: Metal Finishing and Printed Circuit Board Manufacturing)**

In some processes it is possible to reuse acid rinse effluent as influent for the alkaline rinse tank.

### **Counter-current Rinses. (Type: Efficiency. Industry Groups: Food Processing; Textiles; Metal Finishing; and High Tech)**

This measure is employed frequently on continuous production rinsing lines for water and energy savings. Clean city water enters at the final wash box and flows counter to the movement of the product through the wash boxes. Thus, the cleanest water contacts the cleanest product, and the more contaminated wash water contacts the product immediately as it enters the actual process. This method of water reuse differs from the traditional washing method, which supplies clean water at every stage of the washing. Water and energy savings are related to the number of boxes provided with counter flow.

Counter-current rinsing is a common practice in a number of industries where the product goes through successive baths or wash boxes. In the Food Processing industry, for example, it is used to clean fresh produce.

**Recycling Dilute Rinse Water. (Type: Efficiency. Industry Groups: Most Industrial)**

If recycling all rinse water is found to be impractical, some industries may consider diverting only the last few rinses, which are relatively uncontaminated, to a membrane filtration system to generate a clean stream of water. This type of system is useful in “clean-in-place” systems where the rinse water usually flows directly to the drain.

**Bubbled Accelerated Floatation (BAF). (Type: Efficiency. Industry Groups: Food Processing)**

This technology is used to pre-treat effluent water before passing it through a membrane system. Air is bubbled into the effluent from a lower level and the bubbles bring solid particles to the surface, which are then removed. BAF systems are an improvement over earlier Dissolved Air Flotation (DAF) systems since they allow removal of suspended solids, fats, and greases and thus prevent fouling of membranes.

**Ozone Cleaning. (Type: Efficiency. Industry Groups: Food Processing)**

In the Food Processing industry, ozone can reduce or eliminate the need for chemical or high-temperature disinfection processes during clean-in-place (CIP) cycles, reducing water requirements, downtime, and chemical costs. Ozone CIP is far superior to any other cleaning method because of the high oxidation power of ozone.

**Reusing Evaporator Condensate. (Type: Efficiency. Industry Groups: Dairy and Fruit and Vegetable Processing)**

In many Food Processing plants, fruits, vegetables, or milk are evaporated to condense or dry them. This process produces evaporator condensate, a mixture of water and some volatile organic solids, that may be reused in applications such as cooling towers, boilers, and irrigation. Some dairy plants generate so much excess water that some of it is sent to the drain. The Dairy industry has been experimenting with passing this excess water through a reverse osmosis membrane to remove the volatile organic compounds. The process generates pure water, which can replace fresh water in all processes. To date, this process has not proven cost-effective.

**Reusing Reverse Osmosis Backwash From Ultra-pure Water Production. (Type: Efficiency. Industry Groups: High Tech and Hospitals)**

Many industries use extremely pure water, called ultra-pure water (UPW), for critical applications. UPW is produced by running potable city water through a reverse osmosis membrane to remove impurities. The waste stream that is left behind after passing the potable water through a reverse osmosis membrane (the “retentate”) is fairly clean and can be reused in cooling towers or landscaping.

**Reducing Drag-out. (Type: Efficiency. Industry Groups: Metal Finishing and High Tech)**

Drag-out is the residual chemical that sticks to the component, which must be removed through rinsing. By employing techniques that reduce drag-out, less water is needed in rinsing. Typical techniques involve using agents to decrease surface tension, racking parts to drain them out, optimizing the temperature of the baths to reduce viscosity, and increasing "drip time" (when the component is placed on a draining panel).

**Caustic Recovery. (Type: Efficiency. Industry Groups: Food Processing)**

The Food Processing industry's sanitation standards require that all equipment in contact with a fluid food product must be cleaned every 24 hours. Cleaning-in-Place (CIP) technologies using caustic and phosphate-based cleaning agents are commonly used to sanitize equipment. These technologies produce effluent that cannot be reused because of high chemical concentrations. Recent developments in membrane filtration technologies, however, have made it possible to recover some of the cleaning chemicals from the effluent stream. The resulting permeate is a relatively clean stream of water that can be reused in other processes.

**Reused or Reclaimed Water in Scrubbers. (Type: Efficiency. Industry Groups: Metal Finishing; High Tech; and Textiles)**

Many industries have scrubbers that spray water through exhaust air to strip it of pollutants before it leaves the facility. Wastewater from other processes can potentially be used as scrubber water make-up (Anderson 1993).

**Maximize Efficiencies of Sterilizers. (Type: Efficiency. Industry Groups: Hospitals)**

Many hospitals and research labs use autoclaves to sterilize equipment. Autoclaves use steam for sterilization and then freshwater to cool and recondense the steam. Typical measures for improving the water efficiency of autoclaves include: installing auto-shutoff valves to interrupt the flow when the unit is not in use; running the autoclave with full loads only; and reusing steam condensate and non-contact cooling water in cooling towers or boilers.

**Digital X-Ray Machines. (Type: Efficiency. Industry Groups: Hospitals)**

Digital x-ray machines are increasing in popularity because images can be stored on computers, digitally transmitted, or manipulated. Unlike conventional x-ray machines, the operation of digital machines requires almost no chemicals which significantly reduces the need for freshwater. Although digital x-ray machines are still very expensive and it will take several years before the conventional machines are replaced entirely, hospitals are gradually replacing their old machines with these more efficient models.

**Future Conservation Technologies**



**Real-time Sensing of Contaminants. (Type: Recycling. Industry Groups: High Tech)**

The High Tech industry has been a pioneer in developing water conservation technologies, but because most of its processes are extremely sensitive to water purity, recycling water has not gained widespread acceptance in this industry. Indeed, the mere suspicion that water may be contaminated may result in the destruction of an entire batch of components worth thousands of dollars. To address this issue, SEMATECH, a semiconductor industry association, has been researching use of real-time sensors, which can detect rinse water containing organic contaminants and then divert it away from the recycling loop. SEMATECH estimates that incorporation of such technology will decrease water consumption by 50 percent (SEMATECH 1994).

**Dry Cleaning Technologies. (Type: Efficiency. Industry Groups: High Tech)**

Researchers are exploring the possibility of using dry cleaning technologies, such as lasers or high-pressure gases, instead of chemical cleaning agents, in the High Tech industry. These processes will eliminate the need for ultra-pure water to rinse out chemicals.

**Advanced Reverse Osmosis Treatments. (Type: Recycling. Industry Groups: High Tech; Food Processing; Metal Finishing; and Paper and Pulp)**

A number of studies evaluating advanced reverse osmosis use on effluent are being conducted. While these systems appear to be in the demonstration stage, considerable potential exists for establishing closed-loop facilities that completely recycle process water.

## Corrections and Modifications Performed on Data, Method A

Below we describe our analysis of the extensive data on industrial water use collected by the California Department of Water Resources in the 1990s (CDWR 1995a, b) and show the data we collected on commercial water use from various other sources. To use these data, errors had to be identified and corrected, data gaps filled, and some entries updated. Below we describe the corrections and modifications applied to these data. We thank Charlie Pike and other current and former CDWR employees, as well as a wide range of California water experts (listed in the Acknowledgements Section of the Report) for their help and diligence in both collecting and trying to understand these water-use data.

1. The average number of employees for the year was compared with the number of employees in any one month. Firms with any unusual deviations were checked visually for data entry errors and corrected.
2. Rows with zero water use or zero employees were eliminated.
3. Rows with coefficients of gallons per employee per day (GED)  $> 400,000$  or  $< 5$  were eliminated. A ceiling of 400,000 gallons was chosen because firms with higher GEDs did not exist in the literature or other surveys. The five-gallon minimum was selected based on the assumption that this is the minimum amount of water used for sanitary purposes for each employee.
4. All firms with GED coefficients greater than 10,000 were examined individually. Each firm's location, SIC code, and description were taken into consideration and if we had additional corroborating data from the firm's water supplier, then the water use was crosschecked. The following possibilities were examined: the data for the firm were erroneous and should be discarded; the firm's GED was representative of firms in that 3-digit SIC code and should be included in the sample; or the data could be correct, but the firm was not representative of the industry in general (in such cases, the firm was eliminated from the sample when computing the GED coefficient average but its water use was added to the industry total).

**Table C-1**  
**Water Use Coefficients by SIC Code, Industrial Sector**

<u>SIC</u>	<u>Description</u>	<u>Gallons per employee per day (GED)<sup>1</sup></u>
20	Food and kindred products	1,967
21	Tobacco manufactures	N/A
22	Textile mill products	1,530
23	Apparel and other textile products	37
24	Lumber and wood products	2,144
25	Furniture and fixtures	53
26	Paper and allied products	1,000
27	Printing and publishing	98
28	Chemicals and allied products	833
29	Petroleum and coal products	11,399
30	Rubber and misc. plastics products	120
31	Leather and leather products	32

32	Stone, clay, glass, and concrete prod.	1,304
33	Primary metal industries	1,318
34	Fabricated metal products	738
35	Industrial machinery and equipment	110
36	Electrical and electronic equipment	284
37	Transportation equipment	228
38	Instruments and related products	142
39	Misc. manufacturing industries	86

<sup>1</sup> Based on a 225-day year

**Table C-2**  
**Water Use Coefficients by SIC Code or Establishment Type in the Commercial Sector**  
**gallons per employee per day (ged)**

SIC	Description	Method A, Dziegielewski et al. 1990 <sup>1</sup>	Davis et al. 1988 <sup>1</sup>	Establishment Type <sup>2</sup>	Dziegielewski et al. 2000
41	Local and interurban passenger transit	32.6	42.2	O	221
42	Motor freight transportation and warehousing	470.9	137.2	O	221
43	U.S. Postal Service	8.3	8.3	O	221
44	Water transportation	993.6	573.9		
45	Transportation by air	326.7	278.4	O	221
46	Pipelines, except natural gas	0.0	0.0	O	221
47	Transportation services	105.0	64.6	O	221
48	Communications	79.3	76.7	O	221
49	Electric, gas, and sanitary services	52.4	82.7		
50	Wholesale trade--durable goods	32.3	47.0	W	
51	Wholesale trade--nondurable goods	389.5	140.6	W	
52	Building materials, hardware, garden supply, mobile	91.7	56.1	R	
53	General merchandise stores	57.6	75.9	R	
54	Food stores	213.0	158.8	S	284
55	Automotive dealers and gasoline service stations	101.6	79.3		
56	Apparel and accessory stores	87.6	109.8	R	
57	Furniture, home furnishings and equipment stores	128.8	67.6	R	
58	Eating and drinking places	331.3	253.4	R	
59	Miscellaneous retail	449.5	214.5	R	
60	Depository institutions	72.8	95.5	O	221

<sup>1</sup> Figures were converted into 225 days per year. Most of method 1 data came from Dziegielewski et al. (1990) with the exception of information on state and federal government employees.

<sup>2</sup> O=Office, E=School, R=Retail, W=Wholesale, M=Motel/Hotel, L=Laundromat, S=Supermarket, H=Hospital.

61	Nondepository credit institutions	169.0	253.7	O	221
62	Security, commodity brokers, and services	221.1	221.1	O	221
63	Insurance carriers	212.8	212.8	O	221
64	Insurance agents, brokers, and service	162.1	144.2	O	221
65	Real estate	987.9		O	221
66	Combined real estate and insurance			O	221
67	Holding and other investment offices			O	221
70	Hotels, rooming houses, camps, and other lodging	301.7	373.6	M	1083
72	Personal services	1,090.5	749.6	L	
73	Business services	161.7	93.9	O	221
74	Automotive repair, services, and parking	0.0	351.4		
75	Miscellaneous repair services	255.8	114.7		
78	Motion pictures	126.9	183.1		
79	Amusement and recreational services	732.8	692.9		
80	Health services	155.2	147.0	H	
81	Legal services	123.8	123.8	O	221
82	Educational services	236.5	187.9	E	553
83	Social services	341.2	172.6	O	221
84	Museums, art galleries, botanical & zoological garden	342.8	337.4		
86	Membership organizations	670.5	344.4		
87	Engineering and management services	0.0	141.3	O	221
88	Private households	0.0			
89	Miscellaneous services	178.1		O	221
90*	State govt. employees	171.5	171.5	O	221
91*	Federal govt. employees	171.5	171.5	O	221

**Table C-3**  
**Comparison of Estimated Statewide CII Water Use to Other Studies, 1995 (TAF)**

Source	Commercial/ Institutional	Industrial	Total
Method A	2.002	675	2,677
Method B	2.203	763	2,966
DWR <sup>1</sup>	1.843	619	2,462
USGS <sup>2</sup>	1.544	919	2,463

<sup>1</sup> DWR 1994

<sup>2</sup> Solley et al. 1998

Note: We also compared our estimates to a statewide industrial use estimate from 1979 (CDWR 1982) and CII water use estimate for the South Coast region (MWD 2000) to resolve specific questions we had about our calculations.



## Uncertainties Inherent in the Data

The full report extensively discusses uncertainties in the data, especially CII data. We add here some specific data issues related to the two approaches taken in this report.

### Method A

**Geographical Bias:** Each industry's average GED was applied to all hydrologic regions in both the industrial and commercial sectors. This approach ironed out regional differences in industrial mix, price elasticity of demand, and aggressiveness of conservation programs, but it produces a lower degree of confidence in the regional estimates. This was particularly relevant in the commercial sector where the estimates are based on studies of the South Coast region, which we suspect to be more efficient than inland regions (see Section Four of the full report). Thus, there may be greater conservation potential than our results show.

**GED Issues:** The CDWR survey was biased toward more water-intensive facilities. Although this problem was corrected to some extent by estimating GEDs at the three-digit level, considerable variability was found within three-digit SIC codes in some cases. In the commercial sector, the sample sizes were fairly small and, therefore, the GED estimates have a higher degree of uncertainty than the industrial estimates. Moreover, the GED estimates were based on surveys collected in the late 1980s mostly from Southern California and may not accurately reflect the state average in 1995.

### Method B

**Sampling Issues.** The sample used in Method B was small for several regions and may not have accurately represented a region's overall CII use per capita.

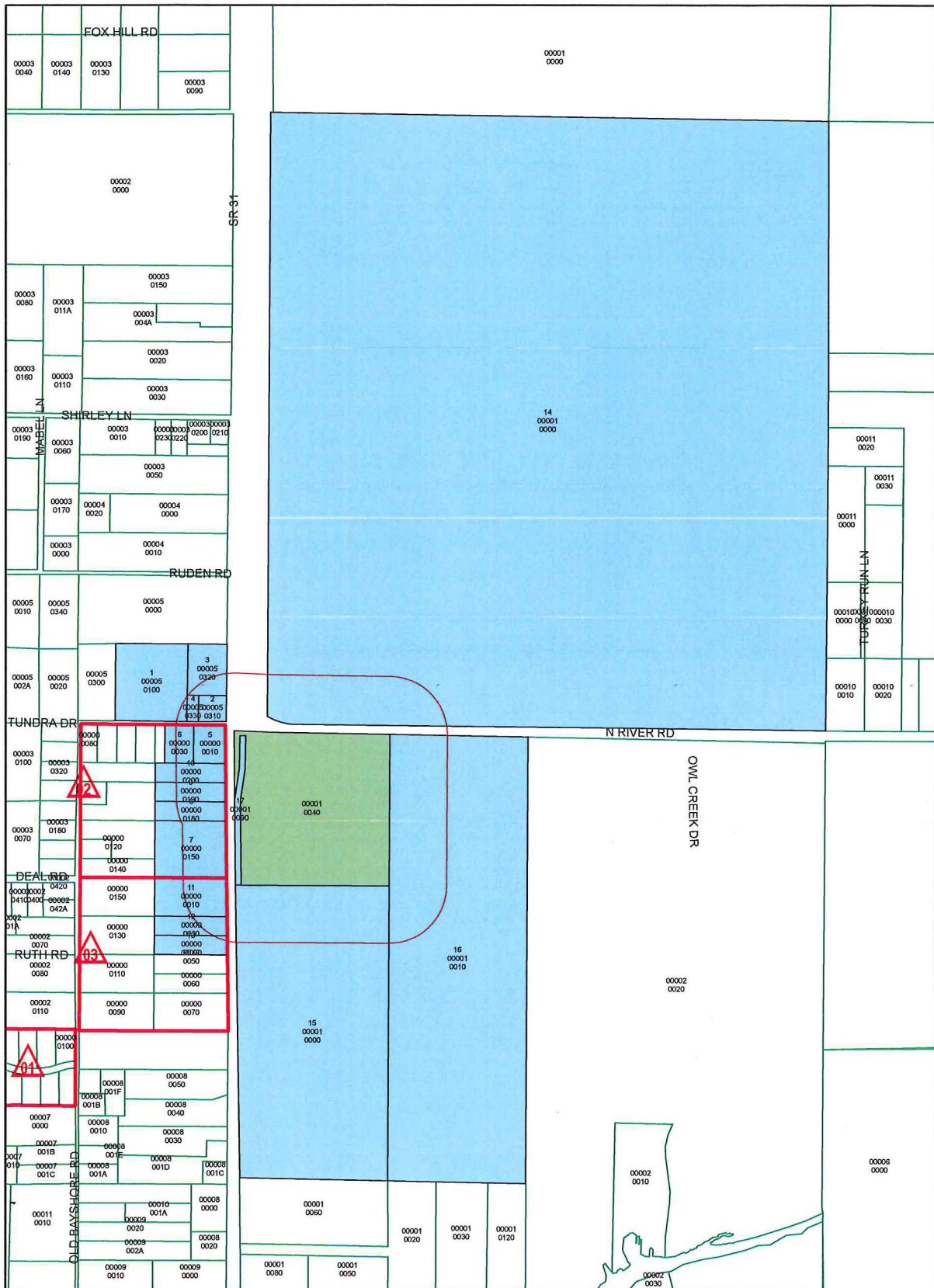
**Self-Supplied Water:** In the absence of survey data for the commercial sector, we applied the commercial estimate of self-supplied water recorded in the USGS report "Estimated Water Use in the United States in 1995" (Solley et al. 1998). Since we did not have access to other primary source data, we are less confident in our estimate of self-supplied water for the commercial sector.

**Extrapolation:** We extrapolated agency data to the state level based on population served. Population may be a fairly accurate indicator of commercial water use, but we are less confident about how well it reflects industrial use since "population served" data are known to be less reliable.

# VARIANCE REPORT

9/26/2008

Subject Parcels : 1 Affected Parcels : 17 Buffer Distance : 500 ft



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18-43-26-00-00001.0040  
SEP 30 2008

1,400 700 0 1,400 Feet

COMMUNITY DEVELOPMENT

2008-00003



# Lee County Property Appraiser

Kenneth M. Wilkinson, C.F.A.

GIS Department / Map Room

Phone: (239) 533-6159 • Fax: (239) 533-6139 • eMail: MapRoom@LeePA.org

## VARIANCE REPORT

Date of Report: September 26, 2008  
Buffer Distance: 500 ft  
Parcels Affected: 17  
Subject Parcel: 18-43-26-00-00001.0040

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2008-00003

<u>OWNER NAME AND ADDRESS</u>	<u>STRAP AND LOCATION</u>	<u>LEGAL DESCRIPTION</u>	<u>Map Index</u>
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MERIT PETROLEUM CO 77.10% + PO BOX 816 LABELLE FL 33975	12-43-25-00-00005.0310 18981 OLD BAYSHORE RD NORTH FORT MYERS FL 33917	PARL LOC IN SE 1/4 OF THE SE 1/4 DESC IN OR 2904 PG 2310	2
ATCO INC 18.61% + 3815 N OSPREY AVE SARASOTA FL 34234	12-43-25-00-00005.0320 19151 SR 31 NORTH FORT MYERS FL 33917	PARL LOC IN SE 1/4 OF THE SE 1/4 AS DESC IN OR 2904 PG 2314	3
ATCO INC 72.7% + PO BOX 816 LABELLE FL 33975	12-43-25-00-00005.0330 18951 OLD BAYSHORE RD NORTH FORT MYERS FL 33917	PARL LOC IN SE 1/4 OF THE SE 1/4 DESC IN OR 2904 PG 2323	4
SNOWLICK MOUNTAIN RANCH LLC 9200 BONITA BEACH RD #105 BONITA SPRINGS FL 34135	13-43-25-02-00000.0010 18971 SR 31 NORTH FORT MYERS FL 33917	NE 1/4 OF NE 1/4 OF NE 1/4 OF NE 1/4 LESS RD R/W	5
VANROEKEL DENNIS + DEBRA K TR 18321 N OLGA DR ALVA FL 33920	13-43-25-02-00000.0030 18930 OLD BAYSHORE RD NORTH FORT MYERS FL 33917	PARL IN N W 1/4 OF N E 1/4 OF N E 1/4 OF N E 1/4 DESC IN OR 1405 PG 0527	6
TEMPLE BAPTIST CHURCH OF 18841 SR 31 NORTH FORT MYERS FL 33917	13-43-25-02-00000.0150 18841 SR 31 NORTH FORT MYERS FL 33917	S 3/4 OF SE 1/4 OF NE 1/4 OF NE 1/4 AKA LTS 15-17 LAZY R RANCHETTES UNREC	7
CARY GLEN TR + 18871 SR 31 N FT MYERS FL 33917	13-43-25-02-00000.0180 18871 SR 31 NORTH FORT MYERS FL 33917	N 1/2 OF N 1/2 OF SE 1/4 OF NE 1/4 OF NE 1/4 LESS SR 31	8
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ACUFF JERRY + JANNIE 18751 SR 31 NORTH FORT MYERS FL 33917	13-43-25-03-00000.0010 18751 SR 31 NORTH FORT MYERS FL 33917	N 1/2 OF NE 1/4 OF SE 1/4 OF NE 1/4 LESS RD R/W AKA LOTS 1 + 2 PINECONE ACRES UNREC	11
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TUTTLE KELLY 18151 LEETANA RD NORTH FORT MYERS FL 33917	13-43-25-03-00000.0040 18671 SR 31 NORTH FORT MYERS FL 33917	S1/2 OF S1/2 OF NE1/4 OF SE1/4 OF NE1/4 LESS RD R/W AKA LOT 4 PINECONE ACRES UNREC	13
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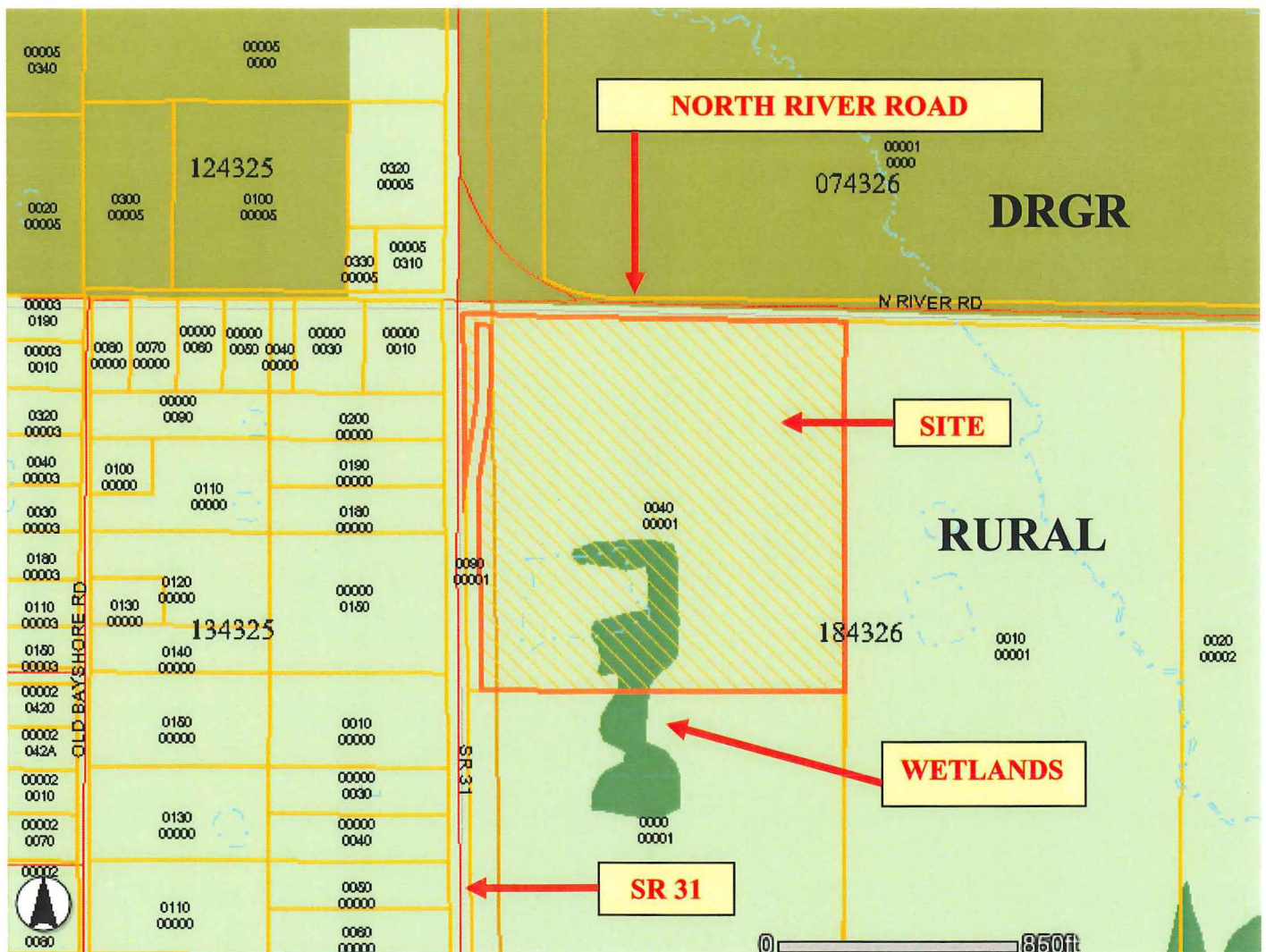
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FLORIDA GAS TRANSMISSION CO BRICKLEMYER SMOLKER + BOLVES PO BOX 4967 HOUSTON TX 77210	<b>18-43-26-00-00001.0090</b> RIGHT OF WAY FL	PARCEL IN NW 1/4 OF NW 1/4 AS DESC IN OR 3247 PG 2951	17

**17 RECORDS PRINTED**



# Current FLU Map

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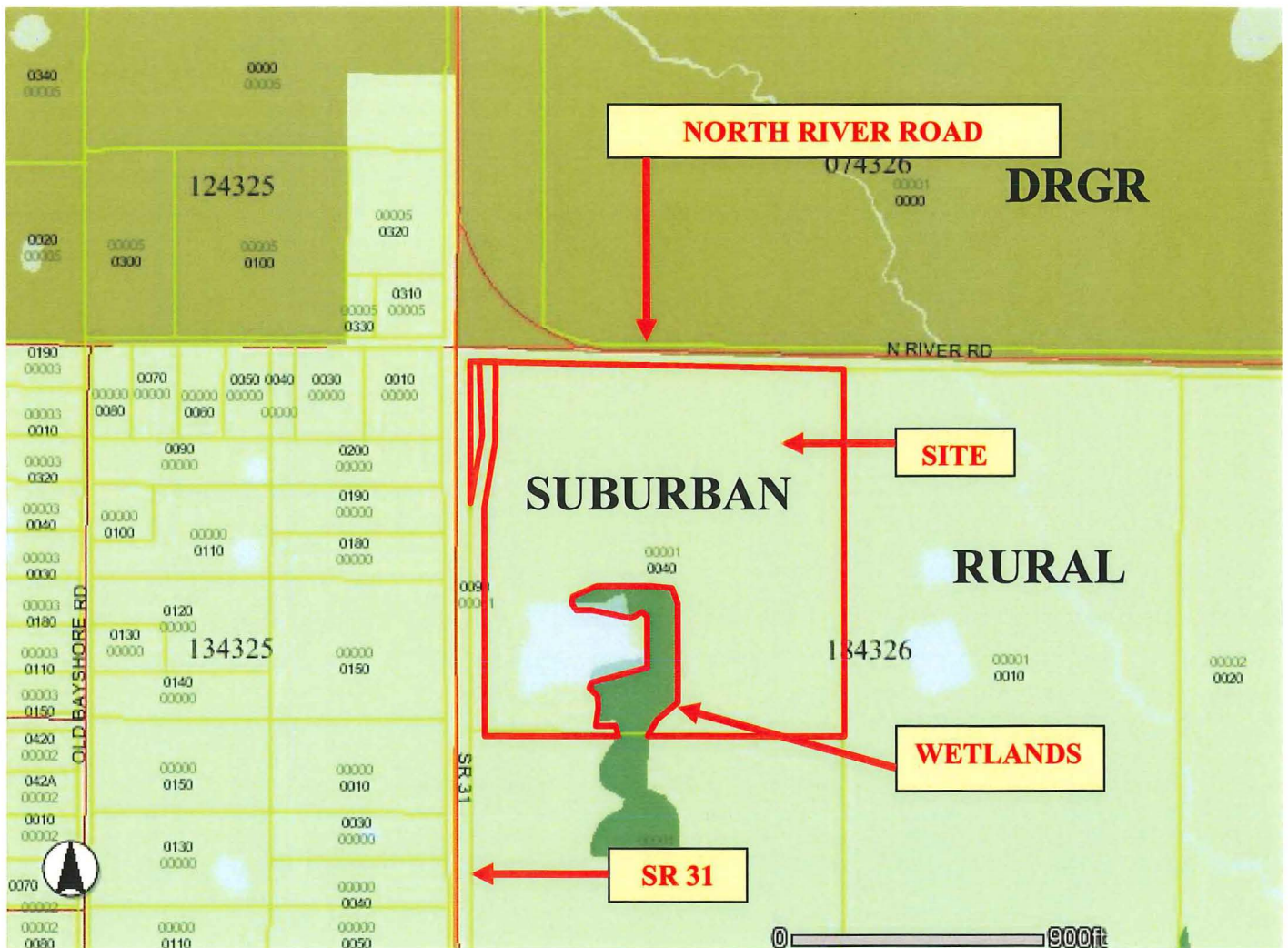


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# **Future FLU Map** Strap # 18-43-26-00-00001.0040





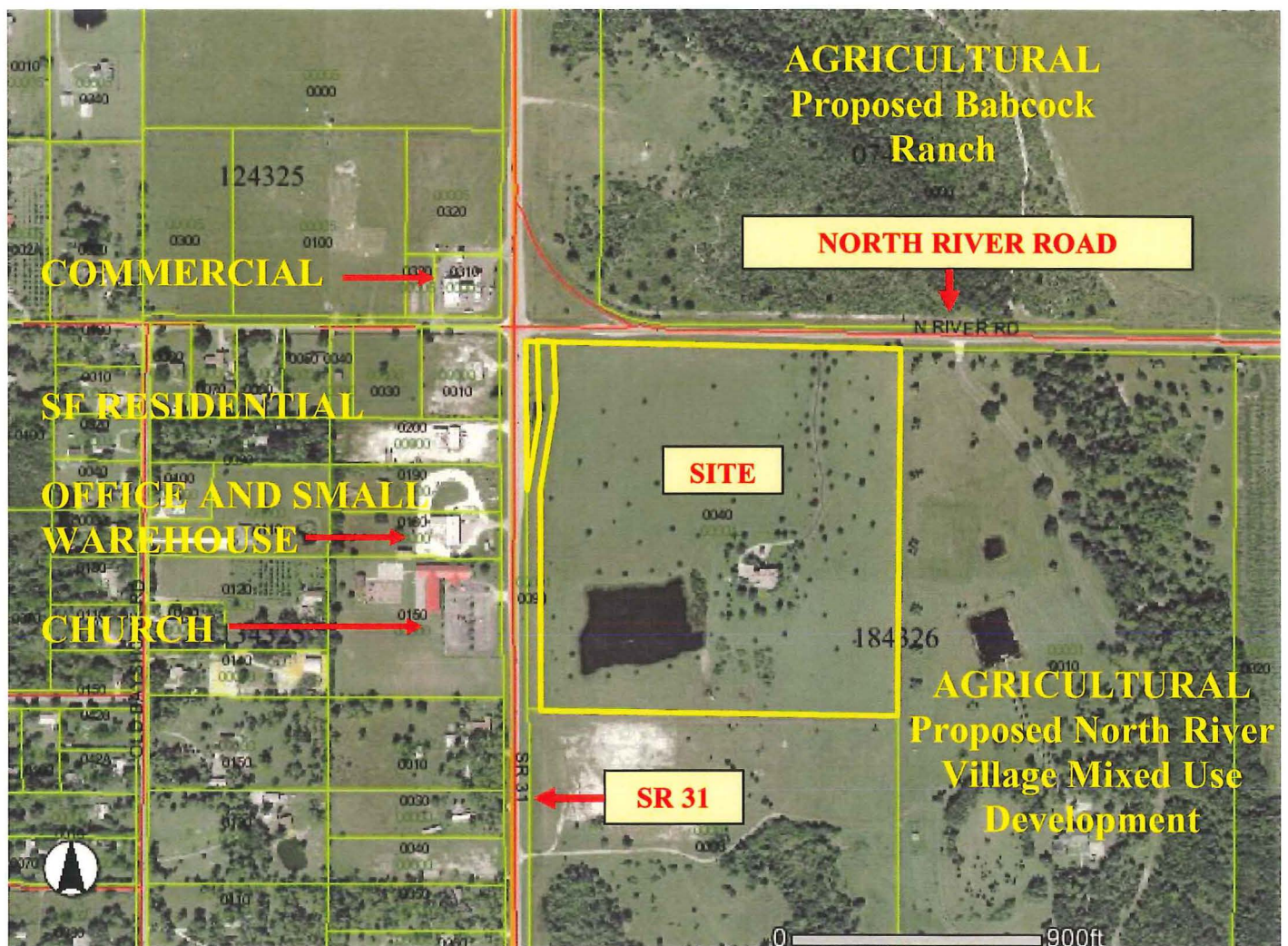
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# Existing Land Uses Map

Strap # 18-43-26-00-00001.0040





## Existing Land Uses Narrative

Strap # 18-43-26-00-00001.0040

The subject property identified as Strap# 18-43-26-00-00001.0040 located at 12100 N. River Road, Alva, FL 33920 has an existing land use of single family residential. The surrounding property to the north is agricultural and a part of the proposed Babcock Ranch. The properties to the south and east are currently agricultural uses and are part of the North River Comprehensive Plan Amendment CPA2006-12 which proposes to change the FLU designations from Rural to River Village and Conservation. The adjacent properties to the west are single family residential, vacant commercial and residential, office and a small warehouse distribution use. The Temple Baptist Church is directly across from the subject property on the west side of SR31 along with a service station at the intersection of North River Road and SR 31.

These existing land uses surrounding the subject site would complement a land use change from Rural to Suburban with a neighborhood center. The Lee Plan definition for the Suburban Future Land Use states in Section 2, Policy 1.1.5 that "The Suburban areas are or will be predominantly residential areas on the fringe of the Central Urban or Urban Community areas **or in areas where it is appropriate to protect existing or emerging residential neighborhoods.** Our proposed change will in fact protect the existing single family residential units to the west while also being compatible with the proposed North River Village Comprehensive Plan CAP2006-12 currently under review by Lee County. The subject property would in effect be surrounded by residential development on three sides if the North River Village Comp Plan is approved.

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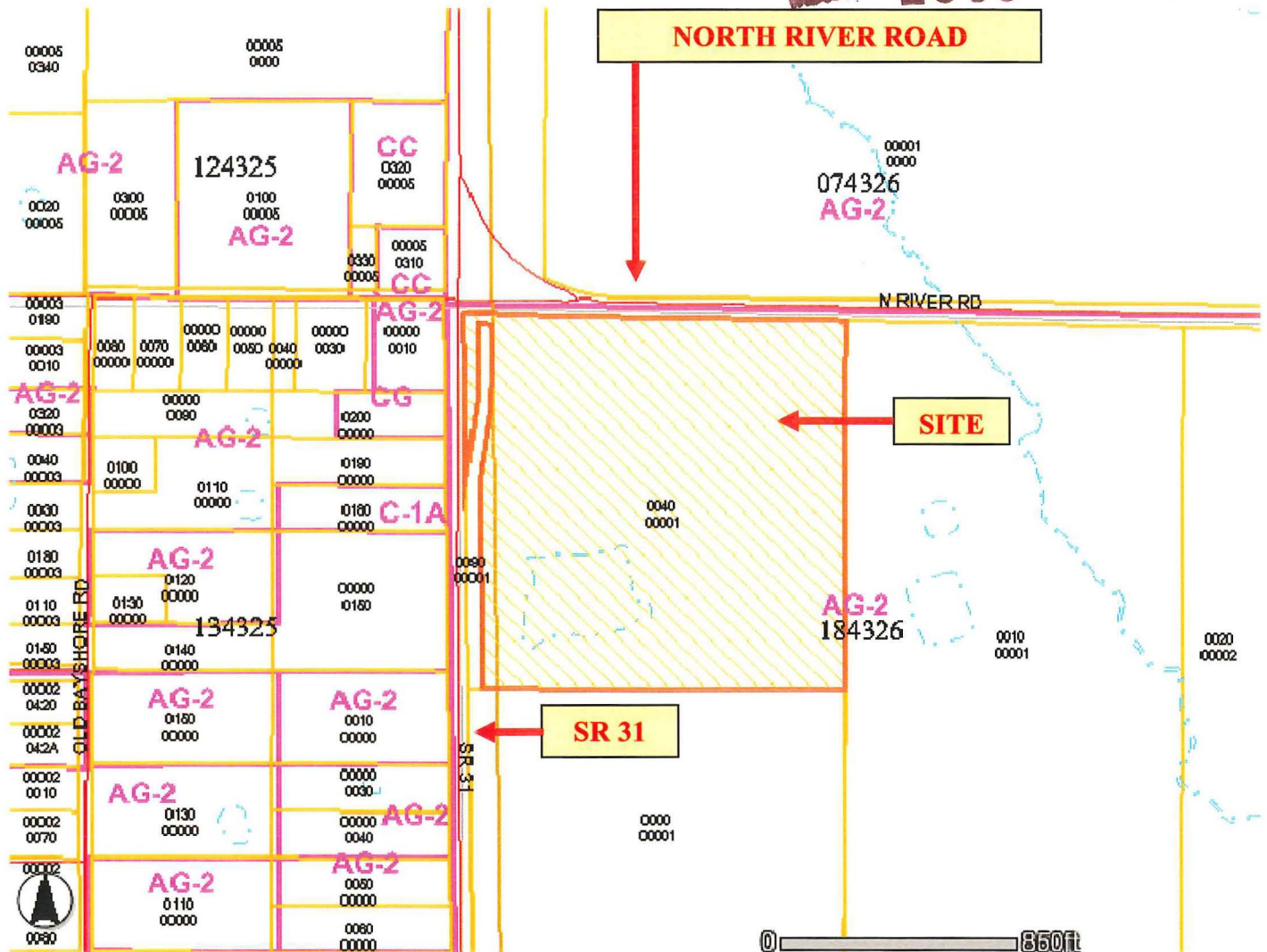


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COMMUNITY DEVELOPMENT

# **Zoning Map** Strap # 18-43-26-00-00001.0040

2008-00003





## Zoning Map Narrative

The subject property described as Strap # 18-43-26-00-00001.0040 located at 12100 N. River Road, Alva, FL 33920 has an existing zoning designation of Agricultural (AG-2) per the current Lee County Spatial District Query Report. The adjacent properties to the north, west and south of the site are zoned Agricultural (AG-2) and to the east there is currently a mixture of Agricultural (AG-2), Commercial (C-1A), Commercial General (CG) and Community Commercial (CC).

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2008-00003



1" = 200'

CURVE 1

C 1

LINE

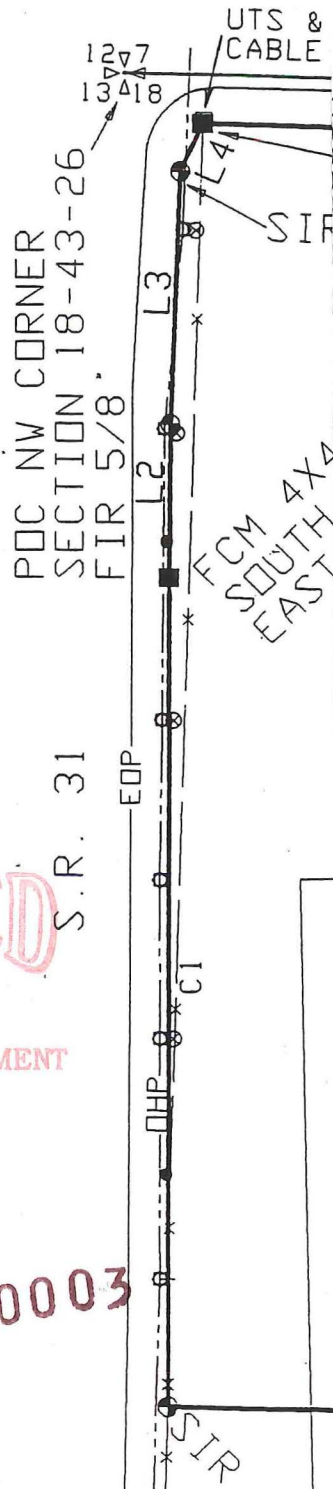
L 1

L 2

L 3

L 4

LEGEND  
● = BURIED CABLE MARKER  
EOP = EDGE OF PAYEMENT  
FCM = FOUND CONCRETE MONUMENT  
FIR = FOUND IRON ROD  
⊗ = GUY WIRE  
OHP = OVERHEAD POWER LINES  
POB = POINT OF BEGINNING  
POC = POINT OF COMMENCEMENT  
○ = POWER POLE  
SIR = SET 5/8" IRON ROD & CAP STAMPED RKB LS 4603  
UTS = UNITED TELEPHONE SERVICES  
\* = FENCE



NOTES:  
DIMENSIONS ARE IN FEET AND DECIMALS THEREOF.  
UNDERGROUND UTILITIES WERE NOT FIELD LOCATED.  
ONLY INTERIOR IMPROVEMENTS SHOWN WERE LOCATED  
PARCEL WAS SURVEYED FROM INFORMATION FURNISHED  
BY THE CLIENT  
PARCEL LIES IN FLOOD ZONE AE BASE ELEVATION  
17', 13' & 9' (FIRM 125124 0225 C 3-15-94).  
PARCEL SUBJECT TO EASEMENTS, RESTRICTIONS,  
RESERVATIONS AND RIGHT-OF-WAYS OF RECORD.  
REVISED CERTIFICATION 5-2-95. L.B.

LEGAL DESCRIPTION:  
SHEET 1 OF 2

CERTIFIED TO:

NIEL W. & KATHERINE G. KREINBRINK  
OOT, ADAMS, EDWARDS & GREEN, P.A.  
ICAGO TITLE INSURANCE COMPANY

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SEP 30 2008

COMMUNITY DEVELOPMENT

2008-00003

*Robert K. Burns* Date: 5-2-95  
Robert K. Burns P.L.S.# 4603

This sketch meets the minimum technical standards  
set forth by the Florida Board of Professional  
Land Surveyors pursuant to Section 472.027,  
Florida Statutes, and Chapter 61G17-6, Florida  
Administrative Code.

NOTE: THIS CERTIFICATION IS ONLY FOR THE LAND  
DESCRIBED. IT IS NOT A CERTIFICATION OF  
TITLE, ZONING, EASEMENT, FREEDOM OF  
ENCUMBRANCE OR RIGHT-OF-WAYS. THIS  
CERTIFICATION IS NOT VALID UNLESS SIGNED  
BY THE SURVEYOR AND SEALED WITH THE  
SURVEYOR'S EMBOSSED SEAL.

TRACT NOT REVIEWED

DRAWN BY: SAB 04/14/95

INS SURVEYING, INC.

ney Drive  
Florida 33901  
0 Business  
3267 Fax

SPECIFIC PURPOSE  
SKETCH  
April 14, 1995 SHEET 2 OF 2



15.00 Recording  
.70 Documentary Stamps

4651703

Prepared by:  
Stephen W. Buckley, Esquire  
GOLDSTEIN, BUCKLEY, CECHEMAN,  
RICE & PURTZ, P.A.  
Post Office Box 2366  
Fort Myers, Florida 33902-2366  
98-1099

Property Appraiser's  
Parcel Identification No. 18-43-26-00-00001.0040

RECORDED BY  
KAREN CARTWRIGHT, D.C.

Documentary Tax Pd. \$ 1.70  
Intangible Tax Pd

CHARLIE GREEN, CLERK, LEE COUNTY

By Karen Cartwright Deputy Clerk

[Space above this line for recording data.]

OR3129 P62190

### WARRANTY DEED TO TRUSTEE UNDER LIVING TRUST

THIS WARRANTY DEED made this 8<sup>TH</sup> day of June, 1999, by DANIEL W. KREINBRINK and KATHERINE G. KREINBRINK, husband and wife, as GRANTOR\*, whose address is 12100 River Road, Alva, Florida 33920, and KATHERINE G. KREINBRINK, Trustee of the KATHERINE G. KREINBRINK TRUST dated October 27, 1998, (hereinafter referred to as "Trustee") with full power and authority to protect, conserve and to sell, or to lease or to encumber, or to otherwise manage and dispose of the property hereinafter described, and whose address is 12100 River Road, Alva, Florida 33920;

and with DANIEL W. KREINBRINK to be successor trustee of the KATHERINE G. KREINBRINK TRUST upon death, disability or resignation of KATHERINE G. KREINBRINK. The written acceptance by DANIEL W. KREINBRINK recorded among the public records in the county where the real property described below is located, together with evidence of KATHERINE G. KREINBRINK'S death, disability or resignation, shall be deemed conclusive proof that the successor trustee provisions of the aforesaid Living Trusts have been complied with. Evidence of KATHERINE G. KREINBRINK'S death shall consist of a certified copy of her death certificate. Evidence of her disability shall consist of a licensed physician's affidavit establishing that KATHERINE G. KREINBRINK is incapable of performing her duties as Trustee of the aforesaid Living Trust. Evidence of KATHERINE G. KREINBRINK'S resignation shall consist of a resignation, duly executed and acknowledged by her. The successor trustee shall have the same powers granted to the original Trustee as set forth above.

#### WITNESSETH:

That Grantor, for and in consideration of the sum of TEN AND NO/100'S DOLLARS (\$10.00), and other good and valuable consideration, receipt whereof is hereby acknowledged, hereby grants, bargains, sells, aliens, remises, releases, conveys and confirms unto Trustee, all that certain land situate in Lee County, Florida, to-wit:

See Exhibit A attached hereto and by reference incorporated herein.

#### PREPARED WITHOUT EXAMINATION OF TITLE

TO HAVE AND TO HOLD the above-described real estate in fee simple with the appurtenances upon the trust and for the purposes set forth in this Deed and in the Katherine G. Kreinbrink Trust dated October 27, 1998.

GRANTEE, as TRUSTEE, is hereby granted full power and authority, pursuant to the provisions of Florida Statute 689.071, to protect, conserve, sell, convey, lease, encumber and to otherwise manage and deal with the property herein conveyed. No person dealing with such Trustee(s) shall be privileged or required to inquire of the proceeds from any sale of the property. The interest of the beneficiaries under such Trust(s) is hereby declared to be personal property.

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SEP 30 2008


2008-00003

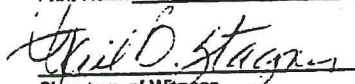
COMMUNITY DEVELOPMENT



IN WITNESS WHEREOF, Grantor has hereunto set Grantor's hand and seal the day and year first above written.

Signed, sealed and delivered in our presence:

  
Signature of Witness  
Print Name LINDA R. MINTZ

  
Signature of Witness  
Print Name GAIL B. STAGNER

  
DANIEL W. KREINBRINK

  
KATHERINE G. KREINBRINK

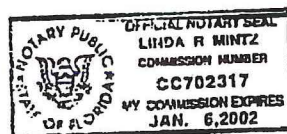
0R3129 P62191

STATE OF FLORIDA  
COUNTY OF LEE

The foregoing instrument was acknowledged before me this 24 day of June, 1999, by DANIEL W. KREINBRINK and KATHERINE G. KREINBRINK,

- ☒ who are personally known to me, or  
☐ who produced \_\_\_\_\_ as identification.

My Commission Expires:



  
NOTARY PUBLIC  
(Seal)

Exhibit A

A parcel of land lying in Section 18, Township 43 South, Range 26 East, Lee County, Florida, more particularly described as follows:

Commencing at the Northwest corner of said Section 18, run S.88°52'38"E. along the North line of said Section 18 for 1377.37 feet; thence run S.00°16'25"W. for 50.00 feet to the Southerly right-of-way of State Road 78 (100 feet wide) and the Point of Beginning of said parcel of land; from said Point of Beginning run S.00°16'25"W. for 1314.85 feet; thence run N.88°51'56"W. for 1322.57 feet to the Easterly right-of-way of State Road 31 (100 feet wide); a non-tangent point on a curve concave to the East with a radius of 68,704.96 feet, a central angle of 00°42'23", and a chord of 847.10 feet that bears N.00°07'31"W.; thence run Northerly along said curve and along said Easterly right-of-way of State Road 31 for 847.11 feet to a point of tangency; thence continue along said Easterly right-of-way of State Road 31 N.00°24'05"E. for 158.26 feet; thence N.02°08'14"E. along said Easterly right-of-way of State Road 31 for 259.79 feet; thence run N.24°26'09"E. along said Easterly right-of-way of State Road 31 for 53.94 feet to a point on the Southerly right-of-way of said State Road 78; thence run S.88°52'38"E. along said Southerly right-of-way of State Road 78 for 1297.58 feet to the Point of Beginning.

Bearings are based on the North line of Section 18 as bearing S.88°52'38"E.

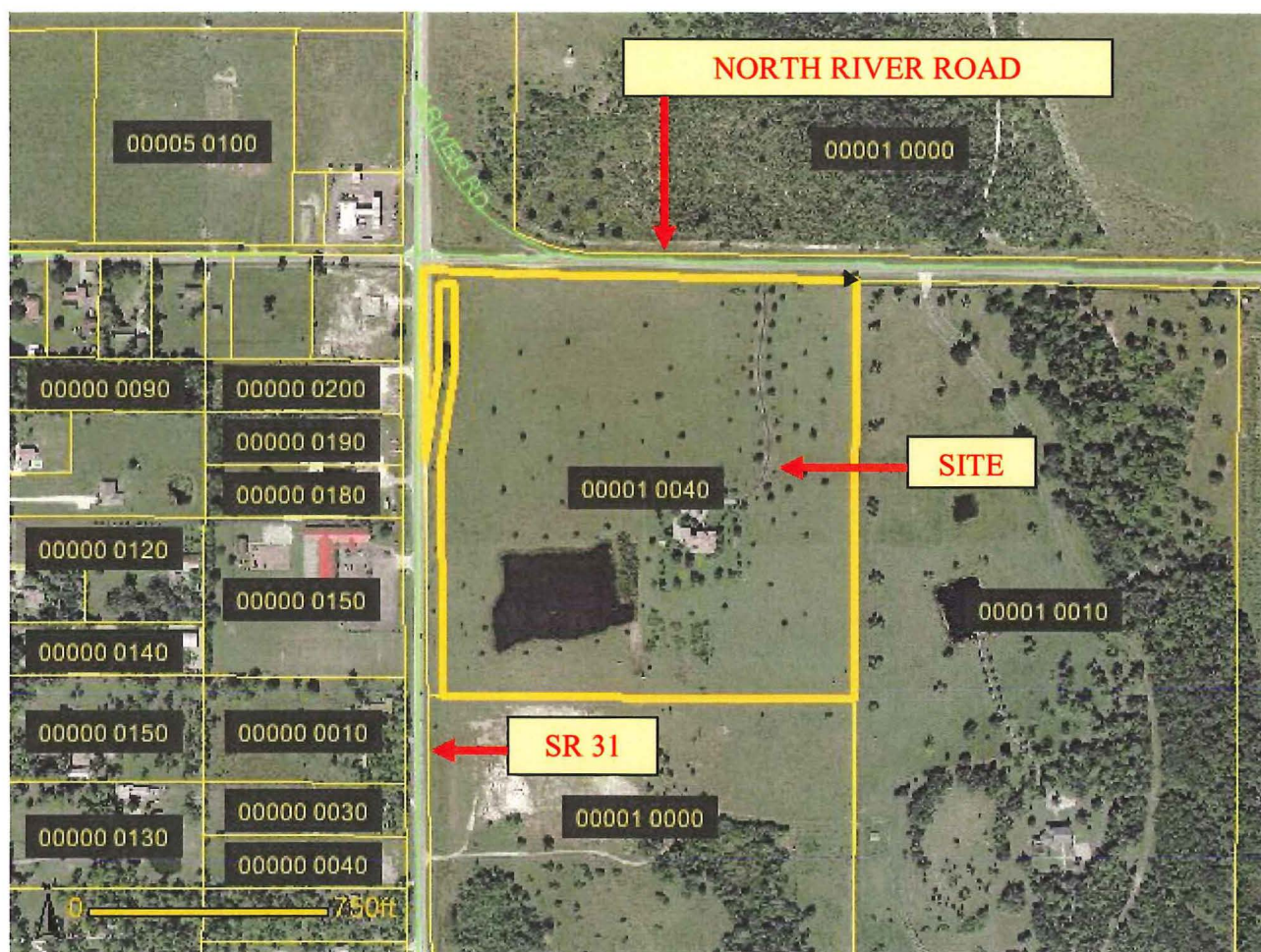
Subject to easements, restrictions, reservations and right-of-ways of record.

OK3129 PG2192

CHARLIE GREEN, CLERK  
LEE COUNTY, FL  
1999 JUN 10 PM 3:26

# Aerial Map

Strap # 18-43-26-00-00001.0040



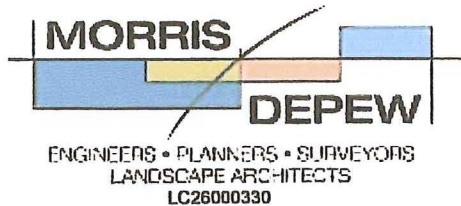
RECEIVED  
 SEP 30 2008

COMMUNITY DEVELOPMENT

Kreinbrink CPA Amendment  
 August 28, 2008

2008-00003





## LETTER OF AUTHORIZATION

TO WHOM IT MAY CONCERN:

PLEASE BE ADVISED THAT I (WE) AM (ARE) THE FEE SIMPLE PROPERTY OWNER(S) OF THE PROPERTY DESCRIBED BELOW AND THAT MORRIS-DEPEW ASSOCIATES, INC. HAS BEEN AUTHORIZED TO REPRESENT ME (US) FOR THE BELOW REFERENCED PARCEL(S) IN ALL MATTERS PERTAINING TO REZONING OR DEVELOPMENT PERMITS. THIS AUTHORITY TO REPRESENT MY (OUR) INTEREST INCLUDES ANY AND ALL DOCUMENTS REQUIRED BY THE REZONING, PLANNING OR PERMITTING REQUESTS SUBMITTED ON MY (OUR) BEHALF BY MORRIS-DEPEW ASSOCIATES, INC.

STRAP NUMBER OR LEGAL DESCRIPTION:

STRAP# : 18-43-26-00-00001.0040

RECEIVED  
SEP 30 2008  
COMMUNITY DEVELOPMENT

Katherine Kreinbrink Trust

OWNER NAME

Katherine Kreinbrink

SIGNATURE

STATE OF Florida

COUNTY OF Lee

2008-00003

The foregoing instrument was acknowledged before me this 23 day of Sept, 2008 by KATHERINE KREINBRINK, who is personally known to me or has produced \_\_\_\_\_ as identification and did not take an oath.

My Commission Expires:

Rebecca J Rockow  
Notary Public



Rebecca J Rockow  
Notary Printed Name



**TRAFFIC CIRCULATION ANALYSIS**  
**PREPARED FOR A**  
**COMPREHENSIVE PLAN AMENDMENT**  
**FOR THE**  
**KREINBRINK PROPERTY**

**PROJECT NO. F0606.07**

**RECEIVED**  
JUL 24 2006  
**COMMUNITY DEVELOPMENT**

**2008-00003**

**PREPARED BY:**  
**TR Transportation Consultants, Inc.**  
12730 Commonwealth Drive, Suite 4  
Fort Myers, Florida 33913  
(239) 278-3090

**July 24, 2006**

## CONTENTS

- I. INTRODUCTION
- II. EXISTING CONDITIONS
- III. PROPOSED PLAN AMENDMENT
- IV. IMPACTS OF PROPOSED PLAN AMENDMENT
- V. CONCLUSION

## **I. INTRODUCTION**

TR Transportation Consultants, Inc. has conducted a traffic circulation analysis pursuant to the requirements outlined in the application document for Comprehensive Plan Amendment requests. The analysis will examine the impact of the requested land use change from Rural to Suburban. The approximately 40 acre property is located on the east side of State Route 31 just south of its intersection with North River Road in Lee County, Florida.

The following report will examine the impacts of changing the future land use category from the existing land use, Rural, to Suburban.

## **II. EXISTING CONDITIONS**

The subject site currently contains a single-family dwelling unit. The subject site is bordered by North River Road to the north and S.R. 31 to the west. To the east of the subject site are existing residential uses and vacant land. To the south of the subject site is vacant land.

**State Route 31** is a north/south two-lane undivided arterial roadway that extends from Palm Beach Boulevard (S.R. 80) north into Charlotte County. S.R. 31 has a posted speed limit of 60 mph adjacent to the subject site and is under the jurisdiction of the Florida Department of Transportation (FDOT).

**North River Road** is an east/west two-lane undivided arterial roadway that extends from State Route 31 west into Hendry County. North River Road has a posted speed limit of 55 mph adjacent to the subject site and is under the jurisdiction of the Lee County Department of Transportation.

**Palm Beach Boulevard (S.R. 80)** is a four-lane divided arterial roadway that extends through central Lee County on the south side of the Caloosahatchee River. Palm Beach Boulevard has a posted speed limit of 55 mph adjacent to the subject site and is under the jurisdiction of the Florida Department of Transportation (FDOT). Palm Beach Boulevard has been designated by FDOT as a Federal Intrastate Highway System (FIHS) route. FDOT is currently reclassifying all FIHS routes to be called Strategic Intermodal System routes, or SIS routes. Due to this designation, the adopted Level of Service for this roadway is higher pursuant to Florida Administrative Code. This is also adopted in the Lee County Comprehensive Plan (Lee Plan). Currently, the adopted Level of Service on Palm Beach Boulevard east of Buckingham Road to the Lee County/Hendry County line is LOS “B”. West of Buckingham Road, the LOS standard is LOS “C”.

### **III. PROPOSED PLAN AMENDMENT**

The proposed Comprehensive Plan Amendment would change the future land use designation on the subject site from Rural to Suburban. Based on the permitted uses within the Lee Plan for these land use designations, the change would result in the subject site being permitted to be developed with approximately 180 more residential dwelling units than would be permitted under the existing land use designation. In addition, the change would permit the development of commercial uses on the subject site.

With the proposed land use change, the residential density would be increased to 6.0 units per acre. The current zoning on the Kreinbrink Property would permit the construction of up to one (1) residential dwelling unit per acre on the approximately 40 acre property. With the proposed Comprehensive Plan change request, the property could be developed with up to six (6) residential dwelling units per acre as well as commercial uses.

**Table 1** highlights the intensity of uses that could be constructed under the existing land use designation and the intensity of uses under the proposed land use designation.



**Table 1  
Kreinbrink Property  
Land Uses**

Existing/ Proposed	Land Use Category	Intensity
Existing	Rural	40 residential units
Proposed	Suburban	180 residential units
		100,000 sq. ft. commercial

#### **IV. IMPACTS OF PROPOSED PLAN AMENDMENT**

The transportation related impacts of the proposed comprehensive plan amendment were evaluated pursuant to the criteria in the application document. This included an evaluation of the long range impact (20-year horizon) and short range (5-year horizon) impact the proposed amendment would have on the existing and future roadway infrastructure.

##### **Long Range Impacts (20-year horizon)**

The Lee County Metropolitan Planning Organization's (MPO) long range transportation travel model was reviewed to determine the impacts the amendment would have on the surrounding area. The subject site lies within Traffic Analysis Zone (TAZ) 1289. The model has both productions and attractions included in this zone. The productions include both single-family and multi-family residential uses. The attractions include some but very little industrial and service employment. **Table 3** identifies the land uses currently contained in the long range travel model utilized by the MPO and Lee County for the Long Range Transportation Analysis.

**Table 3  
TAZ 1289  
Land Uses in Existing Travel Model (2030)**

Land Use Category	Intensity
Single Family Homes	21 Units
Multi-Family Homes	1 Unit
Industrial Employees	1 Employees
Service Employees	8 Employees

The proposed amendment would add an additional 180 residential dwelling units as well as commercial development to the Kreinbrink Property. For the purposes of this analysis, it was assumed that a maximum of approximately 100,000 square feet of commercial uses would be developed on the subject site. **Table 4** indicates the revised TAZ data for zone 1289 with the proposed density requested with this Map Amendment. The population data for TAZ 1289 is included in the Appendix for reference.

**Table 4  
Based on Proposed Map Amendment within TAZ 1289  
Land Uses in Modified Travel Model (2030)**

Land Use Category	Intensity
Single Family Homes	201 Units
Multi-Family Homes	1 Unit
Industrial Employees	1 Employees
Commercial Employees	250 Employees
Service Employees	8 Employees

The modifications made to the TAZ data, including ZDATA1 and ZDATA2 files, are attached to the Appendix for reference. The Long Range Transportation model (FSUTMS) was run with the data shown in Table 3 then compared to runs with the data from Table 4 to indicate what additional improvements, if any, that would be needed in order to support the change in the existing land use designation. Based on this analysis, the segment of SR 80 between SR 31 and Buckingham Road is the only segment shown to operate below the adopted Level of Service standard in the year 2030. This condition will exist with or without the proposed comprehensive plan amendment. The analysis based on the 2030 traffic conditions without the proposed development indicated that this

segment of SR 80 will need to be widened to six lanes in order to support the growth anticipated from projects already approved. The proposed comprehensive plan amendment for the Kreinbrink Property will only increase the daily trips on this link by approximately 30 trips, or approximately 1.5% of the adopted Level of Service standard (LOS "C").

The future roadway network included evaluation of the Financially Feasible Plan. Based on the current 2030 Financially Feasible Plan, there are no roadway improvements planned within the study area for the proposed Kreinbrink Property Comprehensive Plan Amendment.

#### **Short Range Impacts (5-year horizon)**

The Lee County Capital Improvement Program for Fiscal Year 2005/2006 to 2009/2010 was reviewed, as well as the FDOT Work Program for Fiscal Year 2005/2006 to 2009/2010 to determine the short term impacts the proposed land use change would have on the surrounding roadways.

There are no roadway improvements in the FDOT Work program or the Lee County work program that provide additional capacity in the next five years in the area of the subject site.

#### **Recommendations to the Long Range Transportation Plan**

Based on the analysis, the segment of SR 80 between SR 31 and Buckingham Road will need to be six lanes to support the development that has previously been approved. However, Palm Beach Boulevard (S.R. 80) between S.R. 31 and Buckingham Road is currently included in the 2030 Long Range Transportation Plan and is designated as contingent upon funding. It is recommended that this improvement be placed on the 2030 Financially Feasible Plan due to the fact that the improvement is shown to be

needed in 2030 both with and without the proposed development.

## **V. CONCLUSION**

The proposed Kreinbrink Property Comprehensive Plan Amendment is to modify the future land use from Rural to Suburban on the approximately 40 acre site located on the east side of S.R. 31 just south of its intersection with North River Road in Lee County, Florida. An analysis of the Long Range Transportation Plan indicated that the segment of S.R. 80 between S.R. 31 and Buckingham Road will operate below the adopted Level of Service standard in 2030. However, Palm Beach Boulevard (S.R. 80) between S.R. 31 and Buckingham Road is currently included in the 2030 Long Range Transportation Plan and is designated as contingent upon funding. It is recommended that this improvement be placed on the 2030 Financially Feasible Plan due to the fact that the improvement is shown to be needed in 2030 both with and without the proposed development. Based on an analysis of the short-term Capital Improvement Plan for both Lee County and FDOT, no changes to either plan will be required.



# APPENDIX

2030 TRAFFIC CONDITIONS  
WITH/WITHOUT THE PROPOSED  
LAND USE CHANGE

**2030 Traffic Conditions with Existing Density at Kreinbrink Property**  
**Existing Plus Programmed Road Network**

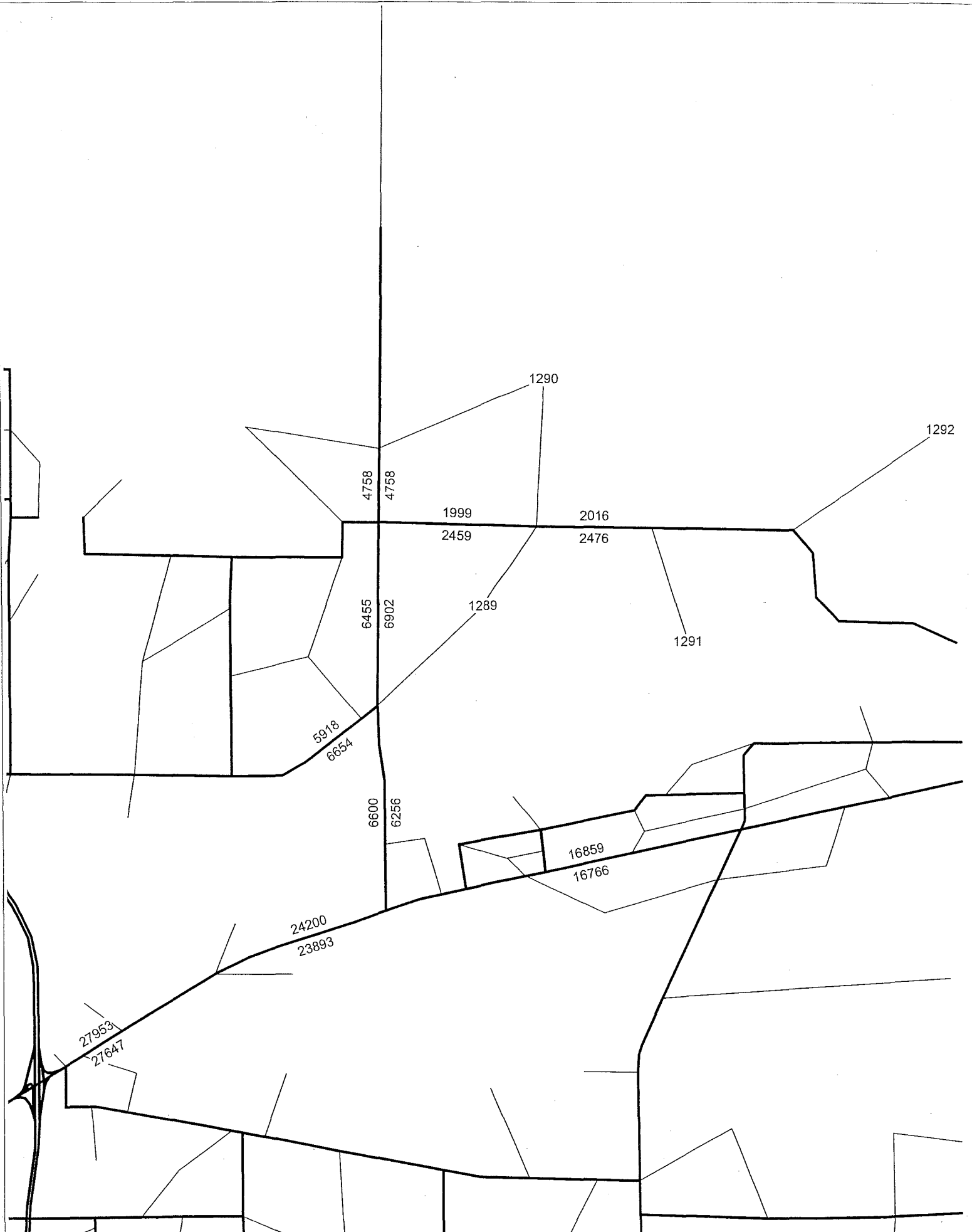
<u>ROADWAY</u>	<u>SEGMENT</u>	# OF	LOS	RAW FSUTMS	PSWDT/AADT		2030	K-100	D	TOTAL TRAFFIC	LOS SERVICE	LOS
		LANES	STANDARD	PSWDT	P.C.S. #	FACTOR	AADT	FACTOR	FACTOR	PK DIRECTION	VOLUME	
State Route 31	N. of Palm Beach Blvd.	2LN	E	12,856	5	1.060	12,128	0.102	0.60	742	920	C
	N. of Bayshore Rd.	2LN	E	13,357	5	1.060	12,601	0.102	0.60	771	920	D
	N. of North River Rd.	2LN	E	9,516	4	1.093	8,706	0.094	0.51	417	920	C
North River Rd. (S.R. 80)	E. of State Route 31	2LN	E	4,458	5	1.060	4,206	0.102	0.60	257	920	B
	E. of Site	2LN	E	4,492	5	1.060	4,238	0.102	0.60	259	920	B
Bayshore Rd. (S.R. 78)	W. of State Route 31	2LN	E	12,572	4	1.093	11,502	0.094	0.51	551	920	C
Palm Beach Blvd (S.R. 80)	W. of State Route 31	6LN	C	48,093	5	1.060	45,371	0.102	0.60	2,777	2,920	C
	E. of State Route 31	4LN	B	33,625	5	1.060	31,722	0.102	0.60	1,941	1,950	D

**2030 Traffic Conditions with Proposed Density at Kreinbrink Property  
Existing Plus Programmed Road Network**

<u>ROADWAY</u>	<u>SEGMENT</u>	# OF	LOS	RAW FSUTMS	PSWDT/AADT		2030	K-100	D	TOTAL TRAFFIC	LOS SERVICE	LOS
		LANES	STANDARD	PSWDT	P.C.S. #	FACTOR	AADT	FACTOR	FACTOR	PK DIRECTION	VOLUME	
State Route 31	N. of Palm Beach Blvd.	2LN	E	13,843	5	1.060	13,059	0.102	0.60	799	920	D
	N. of Bayshore Rd.	2LN	E	13,227	5	1.060	12,478	0.102	0.60	764	920	D
	N. of North River Rd.	2LN	E	9,340	4	1.093	8,545	0.094	0.51	410	920	C
North River Rd.	E. of State Route 31	2LN	E	4,471	5	1.060	4,218	0.102	0.60	258	920	B
(S.R. 80)	E. of Site	2LN	E	4,802	5	1.060	4,530	0.102	0.60	277	920	B
Bayshore Rd. (S.R. 78)	W. of State Route 31	2LN	E	13,467	4	1.093	12,321	0.094	0.51	591	920	C
Palm Beach Blvd	W. of State Route 31	6LN	C	48,612	5	1.060	45,860	0.102	0.60	2,807	2,920	C
(S.R. 80)	E. of State Route 31	4LN	B	33,241	5	1.060	31,359	0.102	0.60	1,919	1,950	D



FSUTMS DATA PLOTS BOTH  
WITH/WITHOUT THE PROPOSED  
LAND USE CHANGE



2030 Network



2030 W/Modified TAZ Data

# ZDATA FILE INFORMATION

# EXISTING 2030 FINANCIALLY FEASIBLE PLAN

## Z-DATA 1 File

TAZ	Single Family Data								Multi-Family Data								Hotel	
1 0	1289	21	6	4	52	0	14	86	1	13	13	2	0	42	58	0	99	0

Population:

TAZ 1289

Single Family: 2.5 persons/unit

Multi Family: 2.0 persons/unit

## Z\_DATA 2 file

	TAZ	Indust. Emp.	Comm. Emp.	Serv. Emp.	Tot Emp	School Enr.
2	1289	1	0	8	9	0 0 0



MODIFIED 2030 FINANCIALLY FEASIBLE PLAN  
WITH PROPOSED COMP PLAN CHANGE

Z-DATA 1 File

TAZ	Single Family Data	Multi-Family Data	Hotel
1 0 1289	201 6 4 497 0 14 86	1 13 13 2 0 42 58	0 99 0

Population:

TAZ 1289

Single Family: 2.5 persons/unit

Multi Family: 2.0 persons/unit

Z\_DATA 2 file

	Indust.	Comm.	Serv.	Tot	School
TAZ	Emp.	Emp.	Emp.	Emp	Enr.
2 1289	1	250	8	259	0 0 0

2030 FDOT ADOPTED 2030  
HIGHWAY ELEMENT

# Adopted Year 2030 HIGHWAY ELEMENT

Adopted December 7th, 2005 with Amendments on January 20th, & March 17th, 2006

ROAD SEGMENT: Name of new road or road to be improved FROM: Start of segment to be added or improved TO: End of segment to be added or improved			E + C EXISTING roadway network plus COMMITTED roadway projects to be built by FY 04/05 IMPROVEMENT: Description of facility following proposed improvement			FINANCIAL FEASIBILITY STATUS				
FDOT							Feasible			
190	Alico Rd	U.S. 41	Dusty Rd	21	SIS	0.48	Last two years of SIB payoff	\$2,442,699	\$2,442,699	Feasible
	Arterial roads & expressways	Lee & Collier Counties			Travel speed & flow		Half of capital cost of expanding the bicoounty system to monitor travel speed in real time by using vehicles equipped with toll transponders as probes	\$3,450,000	-	Contingent
	Caloosahatchee bridges	Cape Coral, Mid Point, U.S. 41, & Edison Bridges & their approaches			Incident management system		Stage II implementation	\$5,800,000	\$5,800,000	Feasible
	Computerized traffic signal system	Countywide			Upgrade to ATMS			\$27,600,000	\$27,600,000	Feasible
	Drawbridges	On S.R. 31 (Ardadia Rd) & Broadway (C.R. 78A) @ Caloosahatchee River, Pine Island Rd @ Matlacha Pass, & C.R. 865 @ Big Carlos Pass			Security system		Motion & object sensors; video & audio surveillance to monitor for potential threats from terrorist attacks, acts of God, or other incidents	\$600,000	-	Contingent
	Intermodal freight terminal	State Farmers Market, S.R. 75, or Alico Rd			TOFC/COFC terminal and team track			\$6,505,333	-	Contingent
191	I-75 approach roads	Collier County line	Charlotte County line	21	SIS		SIS	\$3,290,000	-	Contingent
192	I-75 detour routes	Collier County line	Charlotte County line	21	SIS		SIS; dynamic and/or static trailblazer signs	\$5,810,000	-	Contingent
193	I-75	Collier County line	Bonita Beach Rd	61	SIS	1.05	SIS	\$13,322,400	-	Contingent
194	I-75		@ Bonita Beach Rd	61	SIS	0.50	SIS	\$68,029,900	-	Contingent
195	I-75		@ Coconut Rd	61	SIS		Allocation is from \$10,000,000 federal earmark. See NOTE #1 b.	-	-	Feasible
196	I-75		Bonita Beach Rd	61	SIS	11.65	12 lanes; SIS and/or toll; 4 lanes may be toll-express lanes	\$221,722,800	-	Contingent
197	I-75		@ Corkscrew Rd	61	SIS	0.50	SIS; construction only	\$23,461,000	-	Feasible
198	I-75		Bonita Beach Rd	61	SIS			\$2,630,000	-	Contingent
199	I-75		Alico Rd	61	SIS	9.90	10 lanes; SIS and/or toll; 4 lanes may be toll-express lanes	\$204,019,200	-	Contingent
200	I-75 collector-distributor roads	Alico Rd	North of airport interchange	Non	SIS	3.16	SIS Connector; construction only	\$101,000,000	-	Feasible
201	I-75 collector-distributor roads	Alico Rd	Alico Expy	21	SIS	0.34	Second stage, if / when Alico Expy is built; SIS connector	\$2,157,137	-	Contingent
202	I-75		@ Colonial Blvd	21	SIS	0.59	SIS; construction only	\$42,324,000	-	Feasible
203	I-75		@ S.R. 82 (Dr Martin Luther King Jr Blvd)	21	SIS	0.50	SIS	\$57,346,000	-	Feasible
204	I-75		@ Luckett Rd	21	SIS	0.50	SIS	\$3,770,000	-	Contingent
205	I-75		S.R. 82 (Dr Martin Luther King Jr Blvd)	21	SIS	3.47	SIS	\$19,885,000	-	Contingent
206	I-75		S.R. 80 (Palm Beach Blvd)	41	SIS	2.69	SIS; construction only	\$80,342,000	-	Feasible
207	I-75		S.R. 78 (Bayshore Rd)	41	SIS	0.50	SIS	\$16,531,000	-	Feasible
208	I-75		@ S.R. 78 (Bayshore Rd)	41	SIS	0.50	SIS; 8L	\$4,235,000	-	Contingent
209	I-75		S.R. 78 (Bayshore Rd)	41	SIS	5.77	SIS	\$33,089,000	-	Feasible
210	I-75		Charlotte County line	61	SIS	5.77	SIS	\$64,026,920	-	Contingent
211	I-75		@ Del Prado Blvd Ext	61	SIS		SIS	\$9,000,000	-	Contingent
212	Kennesaw connector	Fowler St	Evans Ave	Non	SIS	0.22		\$3,511,960	\$3,511,960	Feasible
	LeeTran route 140				Bus replacement		\$1,500,000 each in FYs 2010/11 & 2011/12 \$2,000,000 in FY 2012/13	\$4,826,339	\$4,826,339	Feasible
	Regional traveler information system	Lee, Collier & Charlotte Counties			Traveler information broadcast capability		One third of the capital cost to disseminate real time traveller & traffic information for various modes from the 511 system, probe vehicle monitoring, and the SunGuide traffic management system to incident responders, other traveler information services, and the public	\$1,000,000	\$1,000,000	Feasible
213	S.R. 739 (Metro Pkwy)	U.S. 41	Six Mile Cypress Pkwy	21	SIS	1.25	CST only; includes interchange with Alico Road & railroad overpass. Dropped from FDOT's draft tentative work program	\$48,000,000	\$48,000,000	Feasible
214	S.R. 739 (Metro Pkwy)		@ Six Mile Cypress Pkwy	21	SIS	0.50	Includes \$1,700,000 for open road tolling of 4L overpass	-	-	Contingent
215	S.R. 739 (Metro Pkwy)		Daniels Pkwy	21	SIS	1.26	CST only. Dropped from FDOT's draft tentative work program	\$10,336,637	\$10,336,637	Feasible
216	S.R. 739 (Metro Pkwy)		1800' North of Winkler Ave	41	SIS	4.56		\$45,952,463	\$45,952,463	Feasible
217	S.R. 739 (Metro Pkwy)		Fowler St & Evans Ave	Non	SIS	1.06	Includes overpass over railroad	\$18,058,663	\$18,058,663	Feasible
218	S.R. 739 (Metro Pkwy)		S.R. 82 (Dr Martin Luther King Jr Blvd)	41	SIS	1.39		\$22,357,038	\$22,357,038	Feasible
219	S.R. 739 (Fowler St)		West of Chiquita Blvd	21	SIS	2.05	Remainder of right of way & construction	\$23,156,645	-	Feasible
220	S.R. 78 (Pine Island Rd)		300' West of Santa Barbara Blvd	41	SIS	1.40		\$6,790,132	-	Contingent
221	S.R. 78 (Pine Island Rd)		Cultural Park Blvd	41	SIS	2.40		\$5,092,599	-	Contingent
222	S.R. 78 (Pine Island Rd)		Del Prado Blvd	41	SIS	1.35		\$5,547,628	-	Contingent
223	S.R. 78 (Pine Island Rd)		@ Del Prado Blvd	41	SIS		Includes \$1,700,000 for open road tolling on 4L overpass	-	-	Contingent
224	S.R. 80 (Palm Beach Blvd)		Buckingham Rd	41	SIS	0.94		\$1,999,620	-	Contingent
225	S.R. 82 (Dr Martin Luther King Jr Blvd)		Park 82 Dr	41	SIS	2.49	SIS	\$18,056,122	-	Contingent
226	S.R. 82 (Dr Martin Luther King Jr Blvd)		Teter Rd	41	SIS	0.60	Emerging SIS connector	\$347,102	-	Contingent
227	S.R. 82 (Dr Martin Luther King Jr Blvd)		Wallace Ave	21	SIS	2.99	Included in I-75 interchange modification project	\$25,628,100	-	Contingent
228	S.R. 82 (Immoakalee Rd)		Hendry County line	21	SIS	13.91	Emerging SIS	\$87,175,286	-	Contingent
229	S.R. 865 (San Carlos Blvd)		Gladiolus Dr	21	SIS	1.50		\$7,590,880	-	Contingent
230	S.R. 867 (McGregor Blvd)		Cypress Lake Dr	41	SIS	0.67		\$9,912,593	-	Contingent
231	S.R. 867 (McGregor Blvd)		750' North of Colonial Blvd	21	SIS		Add 1 NB Lane	\$900,000	\$900,000	Feasible

LEE COUNTY GENERALIZED  
LEVEL OF SERVICE THRESHOLDS

Sept.. 2005

c:\input2

Uninterrupted Flow Highway						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	100	360	710	1,000	1,270
2	Divided	1,060	1,720	2,480	3,210	3,650
3	Divided	1,590	2,580	3,720	4,820	5,480

Arterials						
Class I (>0.00 to 1.99 signalized intersections per mile)						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	*	290	760	900	920
2	Divided	450	1,630	1,900	1,950	1,950
3	Divided	670	2,490	2,850	2,920	2,920
4	Divided	890	3,220	3,610	3,700	3,700

Class II (>2.00 to 4.50 signalized intersections per mile)						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	*	210	660	850	900
2	Divided	*	490	1,460	1,790	1,890
3	Divided	*	760	2,240	2,700	2,830
4	Divided	*	1,000	2,970	3,500	3,670

Class III (more than 4.50 signalized intersections per mile)						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	*	*	370	720	850
2	Divided	*	*	870	1,640	1,790
3	Divided	*	*	1,340	2,510	2,690
4	Divided	*	*	1,770	3,270	3,480

Controlled Access Facilities						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	120	740	930	960	960
2	Divided	270	1,620	1,970	2,030	2,030
3	Divided	410	2,490	2,960	3,040	3,040

Collectors						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	*	*	530	800	850
1	Divided	*	*	560	840	900
2	Undivided	*	*	1,180	1,620	1,720
2	Divided	*	*	1,240	1,710	1,800

Note: the service volumes for I-75 (freeway) should be from FDOT's most current version of LOS Handbook.



LEE COUNTY PEAK SEASON DATA  
FOR P.C.S. 4 AND P.C.S. 5

**PERMANENT COUNT STATION 4  
BAYSHORE RD (SR 78) W OF WILLIAMSBURG**

2005 AADT = 22300

K100 Factor = 0.094

Monthly ADT as a % of Annual ADT

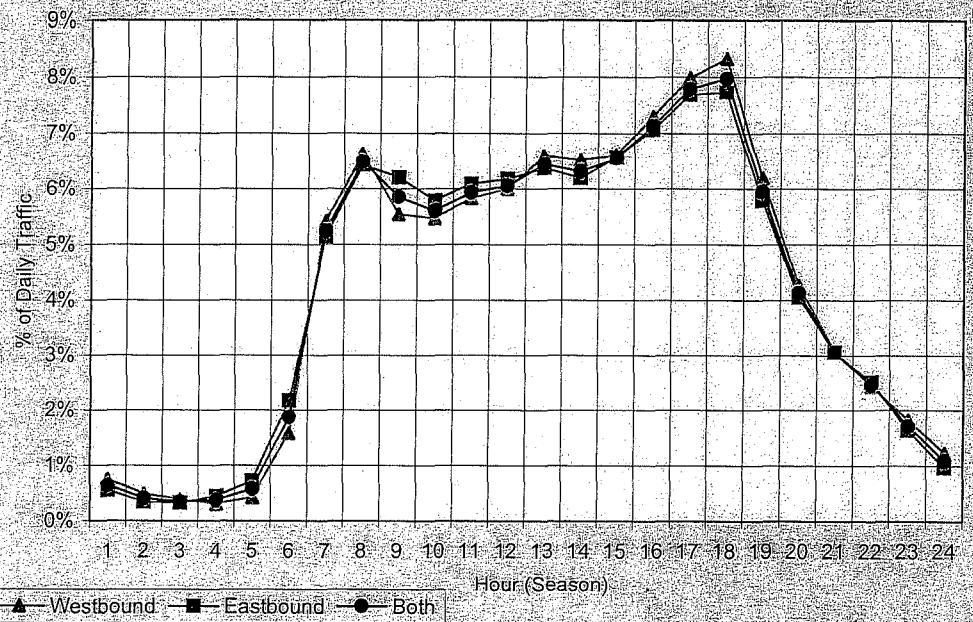
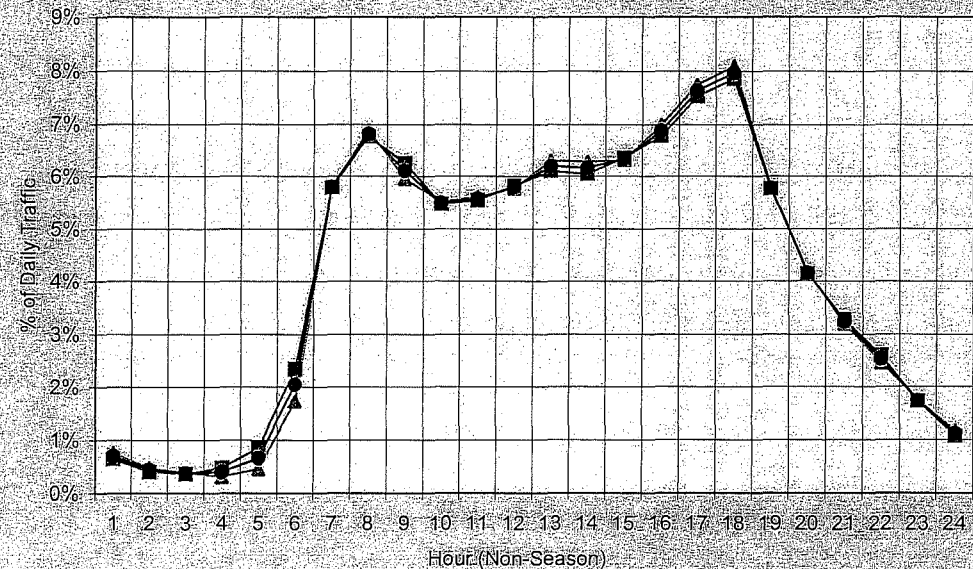
January	105%
February	112%
March	111%
April	104%
May	97%
June	94%
July	92%
August	97%
September	96%
October	94%
November	UNDER CONSTRUCTION
December	

Day of Week as a % of Annual ADT

Monday	101%
Tuesday	108%
Wednesday	109%
Thursday	109%
Friday	113%
Saturday	88%
Sunday	73%

Weekday Peak Flow Characteristics	Non-Season	Season
Peak Flow between 7 a.m. and 9 a.m.		
1) as a % of weekday traffic	6.5%	6.2%
2) directional Split (peak direction)	50%	51%
	Eastbound	Eastbound
Peak Flow between 4 p.m. and 6 p.m.		
1) as a % of weekday traffic	7.8%	7.9%
2) directional Split (peak direction)	51%	51%
	Westbound	Westbound

**PERMANENT COUNT STATION 4  
BAYSHORE RD (SR 78) W OF WILLIAMSBURG**



▲ Westbound ■ Eastbound ● Both

**PERMANENT COUNT STATION 5  
PALM BEACH BLVD (SR 80) W OF SR 31**

**2005 AADT = 23900**

K100 Factor = 0.102

Monthly ADT as a % of Annual ADT

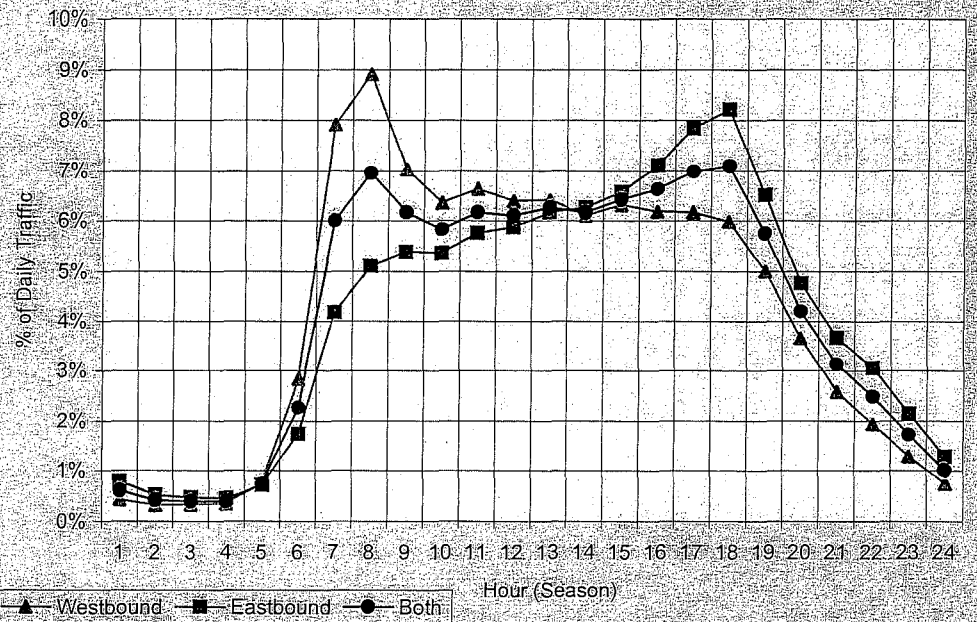
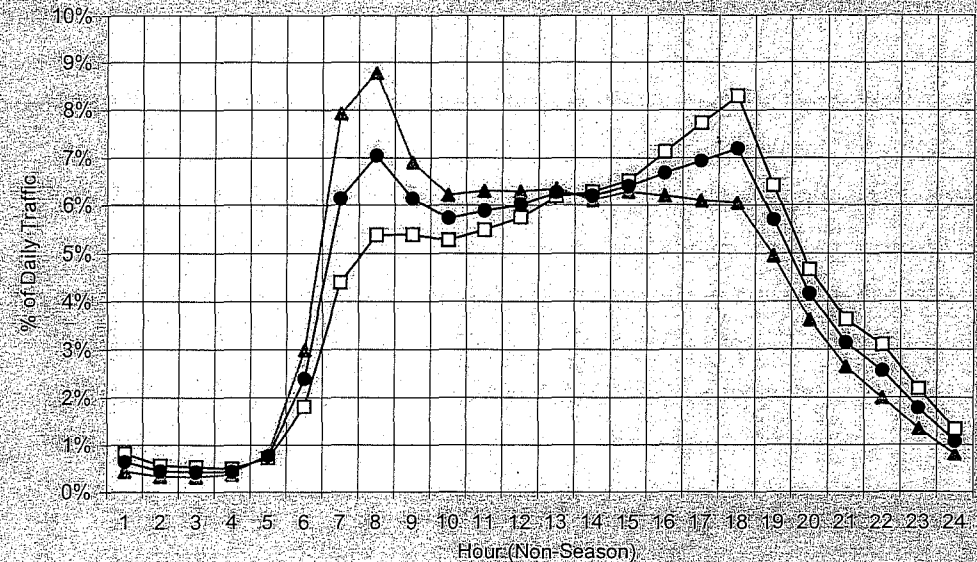
January	102%
February	106%
March	108%
April	104%
May	102%
June	93%
July	91%
August	99%
September	96%
October	93%
November	104%
December	104%

Day of Week as a % of Annual ADT

Monday	101%
Tuesday	105%
Wednesday	107%
Thursday	107%
Friday	115%
Saturday	91%
Sunday	76%

Weekday Peak Flow Characteristics	Non-Season	Season
Peak Flow between 7 a.m. and 9 a.m.		
1) as a % of weekday traffic	6.6%	6.6%
2) directional Split (peak direction)	59%	60%
	Westbound	Westbound
Peak Flow between 4 p.m. and 6 p.m.		
1) as a % of weekday traffic	7.1%	7.0%
2) directional Split (peak direction)	57%	57%
	Eastbound	Eastbound

**PERMANENT COUNT STATION 5  
PALM BEACH BLVD (SR 80) W OF SR 31**







## BOARD OF COUNTY COMMISSIONERS

Writer's Direct Dial Number: (239) 533-0333

Bob Jones  
District OneDouglas R. St. Cerny  
District TwoRay Judah  
District ThreeTammy Hall  
District FourJohn E. Albion  
District FiveDonald D. Stilwell  
County ManagerDavid M. Owen  
County AttorneyDiana M. Parker  
County Hearing  
Examiner

May 16, 2006

Mr. Pete Gousis, AICP  
Morris - DePew Associates, Inc.  
2216 Altamont Ave  
Fort Myers, FL 33901

## Re: Kreinbrink Comprehensive Plan Amendment

Mr. Gousis:

Lee County Transit received your fax on April 19, 2006 in reference to the Comprehensive Plan Amendment Application for the subject property located at the intersection of SR 31 and North River Road. Lee County does not currently provide public transportation services to the subject property and does not plan to extend service to the site anytime within the existing Lee County Transit Development Plan, which goes through 2013. Transit service to this site is also not identified in the transit element of the Lee County Long Range Transportation Plan, which goes through 2030.

Changing this location to the suburban land use with surrounding land uses remaining rural would make it difficult for us to add transit service to this location in future updates to these plans. Traveling through rural areas to get to and from a suburban service area is very cost prohibitive.

If you have any questions please contact me at the telephone number listed above or you can use [mhorsting@leegov.com](mailto:mhorsting@leegov.com) for e-mail correspondence.

Sincerely,

Michael Horsting, Planner  
Lee County TransitRECEIVED  
SEP 30 2008

COMMUNITY DEVELOPMENT

2008-00003

**Mike Scott**  
Office of the Sheriff



State of Florida  
County of Lee

Mr. Pete Gousis  
Morris – Depew Associates, Inc.  
2216 Altamont Avenue  
Fort Myers, FL. 33901

April 20, 2006

RECEIVED  
SEP 30 2008

COMMUNITY DEVELOPMENT

Dear Mr. Gousis:

The Sheriff's Office has reviewed that portion of the comprehensive plan amendment application for the 40 acre parcel of land located at the southeast intersection of State Road 31 and North River Road in North Fort Myers, Florida that it received from your office. According to my staff, the Kreinbrink project intends to develop the area for combined residential/commercial use and projects a build-out of 180 single family homes and approximately 100,000 square feet of commercial property.

If the proposed development follows that which you have discussed with my staff then the Sheriff's Office has no objection to this project and I am confident that we can provide an adequate "core" level of law enforcement services to the community. As is our policy, we evaluate from year to year the demand for law enforcement services based on a formula derived from our calls for service, size of the service population and optimal response times. As this community builds out we will factor their impact into our annual manpower review and make adjustments accordingly.

We look forward to further discussions on this matter as the development progresses. Please let us know if there are any significant changes in either the residential density or proposed commercial use of the project.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Scott".

Mike Scott  
Sheriff, Lee County Florida

2008-00003

RECEIVED  
APR 25 2006  
BY: *Nei 16* 1:10 PM

A rectangular stamp with the word "COPY" in bold, capital letters. To the left of the word is a small square icon containing the letter "C".







## Bayshore Fire Rescue District

17350 Nalle Road, North Fort Myers, Florida 33917

Office (239)543-3443 FAX (239)543-7075 Ops (239)567-2833

May 24, 2006

To: Pete Gousis, AICP

Fr: Chad Jorgensen, Bayshore Fire Chief.

Re: Kreinbrink Comp Plan Amendment

Mr. Gousis, based on the very limited information that you have provided referencing the proposed amendment, Bayshore Fire Rescue would require fire hydrants or their equivalent to be installed prior to development.

In addition depending on the exact nature of the development further modifications may be required. The exact requirements can be referenced through the Lee County Land Planning Code.

If I may be of any further assistance, or if you would simple like to discuss the issue further please do not hesitate to contact me at 543-3443.

RECEIVED  
SEP 30 2008

COMMUNITY DEVELOPMENT

Sincerely,

Chad Jorgensen  
Fire Chief Bayshore Fire/ Rescue

Office 239-543-3443

Fax 239-543-7075

2008-00003



**LEE COUNTY**  
SOUTHWEST FLORIDA

**BOARD OF COUNTY COMMISSIONERS**

(239) 338-3302

Writer's Direct Dial Number: \_\_\_\_\_

Bob Janes  
District One

Douglas R. St. Cerny  
District Two

Ray Judah  
District Three

Tammy Hall  
District Four

John E. Albion  
District Five

Donald D. Stilwell  
County Manager

David M. Owen  
County Attorney

Diana M. Parker  
County Hearing  
Examiner

April 24, 2006

Mr. Pete Gousis, AICP  
Morris-Depew Associates, Inc  
2216 Altamont Avenue  
Fort Myers, FL 33901

**SUBJECT: Kreinbrink Comprehensive Plan Amendment**

Dear Mr. Gousis:

The Lee County Solid Waste Division is capable of providing solid waste collection service for the residential and commercial units proposed for the 40 acre site located at the south east intersection of State Road 31 and North River Road in the Alva community through our franchised hauling contractors. Disposal of the solid waste from this proposed development will be accomplished at the Lee County Resource Recovery Facility and the Lee-Hendry Regional Landfill. Plans have been made, allowing for growth, to maintain long-term disposal capacity at these facilities.

The Solid Waste Ordinance (05-13, Section 21) has requirements for providing on-site space for placement and servicing of commercial solid waste containers. Please review these requirements when planning any commercial development at the location noted above. If you have any questions, please call me at (239) 338-3302.

Sincerely,

William T. Newman  
Operations Manager  
Solid Waste Division

**RECEIVED**

SEP 20 2008

COMMUNITY DEVELOPMENT

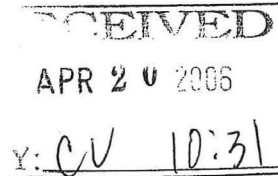
**2008-00003**

06015



# THE SCHOOL DISTRICT OF LEE COUNTY

2055 CENTRAL AVENUE • FORT MYERS, FLORIDA 33901 • (239) 334-1102 • TTD/TTY (239) 335-1512



STEVEN K. TEUBER, J.D.  
CHAIRMAN • DISTRICT 4

ELINOR C. SCRIPPA, PH.D.  
VICE CHAIRMAN • DISTRICT 5

ROBERT D. CHILMONIK  
DISTRICT 1

JEANNE S. DOZIER  
DISTRICT 2

JANE E. KUOKEL, PH.D.  
DISTRICT 3

JAMES W. BROWDER, Ed.D.  
SUPERINTENDENT

KEITH B. MARTIN  
BOARD ATTORNEY

April 20, 2006

Mr. Pete Gousis, AICP  
Morris-Depew Associates, Inc.  
2216 Altamont Ave.  
Fort Myers, FL 33901

Re: Kreinbrink Comp Plan Amendment

Dear Mr. Gousis:

This letter is in response to your request for the School District to review the proposed Kreinbrink Comp Plan Amendment located off of State Road 31 and North River Road in Lee County. This proposed project is located in the East Choice Zone of the School District.

Your letter stated a maximum number of 180 units but did not specify the type of dwelling units (single family or multi-family). Using the single family generation rate of 0.316, 180 units could generate up to 57 additional school aged children in the East Zone. If any or all of the units are multi-family that generation rate is 0.125 per dwelling unit.

If you have any further questions please give me a call.

Sincerely,

Ellen Lindblad, Long Range Planner  
Planning Department

RECEIVED  
SEP 30 2008

COMMUNITY DEVELOPMENT

2008-00003



**LEE COUNTY**  
SOUTHWEST FLORIDA**BOARD OF COUNTY COMMISSIONERS**Writer's Direct Dial Number: 239-335-1661Bob Janes  
District One

June 5, 2006

Douglas R. St. Cery  
District TwoRay Judah  
District ThreeTammy Hall  
District FourJohn E. Albion  
District FiveDonald D. Stilwell  
County ManagerDavid M. Owen  
County AttorneyDiana M. Parker  
County Hearing  
Examiner

Pete Gousis, AICP  
Morris-Depw Associates, Inc.  
2216 Altamont Avenue  
Fort Myers, FL 33901

**RE: Kreinbrink Comprehensive Amendment Plan**  
**18-43-26-00-00001.0040**

Dear Mr. Gousis:

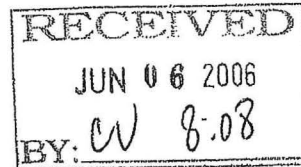
Lee County Emergency Medical Services has reviewed your letter dated May 24, 2006 in regards to the above listed project. The proposed project location (the southeast intersection of State Road 31 and North River Road) will result in response times in excess of the County's core level of service.

The average response time of our three (3) closest ambulances is ten (10) minutes. This does not meet our core service level response standards of 8:59 minutes or less in 90% of the total emergency responses. If you are interested, we would be happy to entertain a discussion with your representatives and other public safety agencies to seek ways to strategically locate a public safety station to improve response times to your proposed project.

Please feel free to contact me if you have any additional questions.

Sincerely,

Kim Dickerson, EMT-P, RN  
Operations Chief  
Lee County Emergency Medical Services  
[kdickerson@leegov.com](mailto:kdickerson@leegov.com)



COMMUNITY DEVELOPMENT

2008-00003

#### IV. AMENDMENT SUPPORT DOCUMENTATION

##### C. Environmental Impacts

**Provide an overall analysis of the character of the subject property and surrounding properties, and assess the site's suitability for the proposed use upon the following:**

- 1. A map of the Plant Communities as defined by the Florida Land Use Cover and Forms Classification System (FLUCCS).**

The vegetation communities on site were mapped according to the Florida Land Use, Cover and Forms Classification System (FLUCCS) (Florida Department of Transportation, 1985). The mapping utilized Level III FLUCCS. The site was inspected and the mapping superimposed on 2006 digital aerial photographs. Acreages were approximated using AutoCAD.

The following is a discussion of the existing land uses and vegetative associations found on site. The following table summarizes the FLUCCS communities discussed below. In general, the parcel consists of pasture lands.

**100 Residential (approximately 2.02 acres)**

This community includes the single family residence, adjacent lawn, and driveway.

**211 Improved Pasture (approximately 35.26 acres)**

This community consists of pasture lands that are dominated by bahia grass in the understory with scattered saw palmetto and live oak in the mid canopy.

**618 Willow - Cattails (approximately 0.25 acres)**

This community is dominated by Coastalplain willow in the midcanopy with cattails in the understory.

**742 Borrow Lake (approximately 2.47 acres)**

This community is a borrow lake.

FLUCCS	Description	Acreage	Percent of Total
100	Residential	2.02	5.0%
211	Improved Pasture	35.26	88.2%
618	Willow - Cattails	0.25	0.6%
742	Borrow Pit	2.47	6.2%
Total		40.0 acres	



**2. A map and description of the soils found on the property (identify the source of the information).**

See attached soil mappings based on NRCS soil survey for Lee County. The NRCS mapped the property as being underlain by Immokalee Sand, Oldsmar Sand, Copeland Sandy Loam Depressional, and Open Water.

**3. A topographic map with property boundaries and 100-year flood prone areas indicated (as identified by FEMA).**

See attached Topography and FEMA Flood Zone Map. The parcel is located in FEMA Flood Zone AE.

**4. A map delineating wetlands, aquifer recharge areas, and rare and unique uplands.**

See attached FLUCCS map. The parcel is not in an aquifer recharge area and does not contain any wetlands or rare and unique uplands.

**5. A table of plant communities by FLUCCS with the potential to contain species (plant and animal) listed by federal, state or local agencies as endangered, threatened or species of special concern. The table must include the listed species by FLUCCS and the species status (same as FLUCCS map).**

## ANIMALS

Listed wildlife species that have the potential to occur on the project site are listed in the following table. These potential occurrences were determined by referencing the Field Guide to Rare Animals of Florida (Florida Natural Areas Inventory 2000), Florida Atlas of Breeding Sites for Herons and Their Allies (Runde et. al. 1991), Lee County Eagle Technical Advisory Committee (ETAC) Active 2000-2001 Season map. The Florida Endangered Species, Threatened Species and Species of Special Concern; Official Lists, dated August 1997 was used to identify the status of the potentially occurring species.

<u>Name</u>	Scientific Name	Habitat	State & Fed Status	
			FWC	FWS
Florida Sandhill Crane	<i>Grus Canadensis pratensis</i>	211	T	No listing
Burrowing Owl	<i>Speotyto cunicularia</i>	211	SSC	No listing
American Alligator	<i>Alligator mississippiensis</i>	742	SSC	T(S/A)
Limpkin	<i>Aramus guarauna</i>	742	SSC	No listing
Little Blue Heron	<i>Egretta caerulea</i>	742	SSC	No listing
Reddish Egret	<i>Egretta rufescens</i>	742	SSC	No listing
Roseate Spoonbill	<i>Ajaia ajaja</i>	742	SSC	No listing
Snowy Egret	<i>Egretta thula</i>	742	SSC	No listing
Tricolored Heron	<i>Egretta tricolor</i>	742	SSC	No listing

FWC-Florida Fish and Wildlife Conservation Commission FWS-U.S. Fish and Wildlife Service

SSC-Species of Special Concern/T-Threatened/E-Endangered

T(S/A)-Threatened due to similarity of appearance

\* Included due to similarity to on-site community

## PLANTS

Listed plant species that were not observed but which have the potential to occur on the project site are listed in the following table. These potential occurrences were determined by referencing the Field Guide to Rare Plants of Florida (Florida Natural Areas Inventory 2000). The Florida Endangered Species, Threatened Species and Species of Special Concern; Official Lists, dated August 1997 was used to identify the status of the potentially occurring species.

<u>Name</u>	Scientific Name	Habitat	Status	
			FDA	FWS
None				

**D. Impacts on Historic Resources**

**List all historic resources (including structure, districts, and/or archaeologically sensitive areas) and provide an analysis of the proposed change's impact on these resources. The following should be included with the analysis:**

- 1. A map of any historic districts and/or sites, listed on the Florida Master Site File, which are located on the subject property or adjacent properties.**

According to the Division of Historical Resources, the Master Site File lists no previously recorded cultural resources on the parcel. The parcel contains no known structures, districts, or archaeologically sensitive areas.

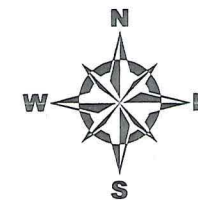
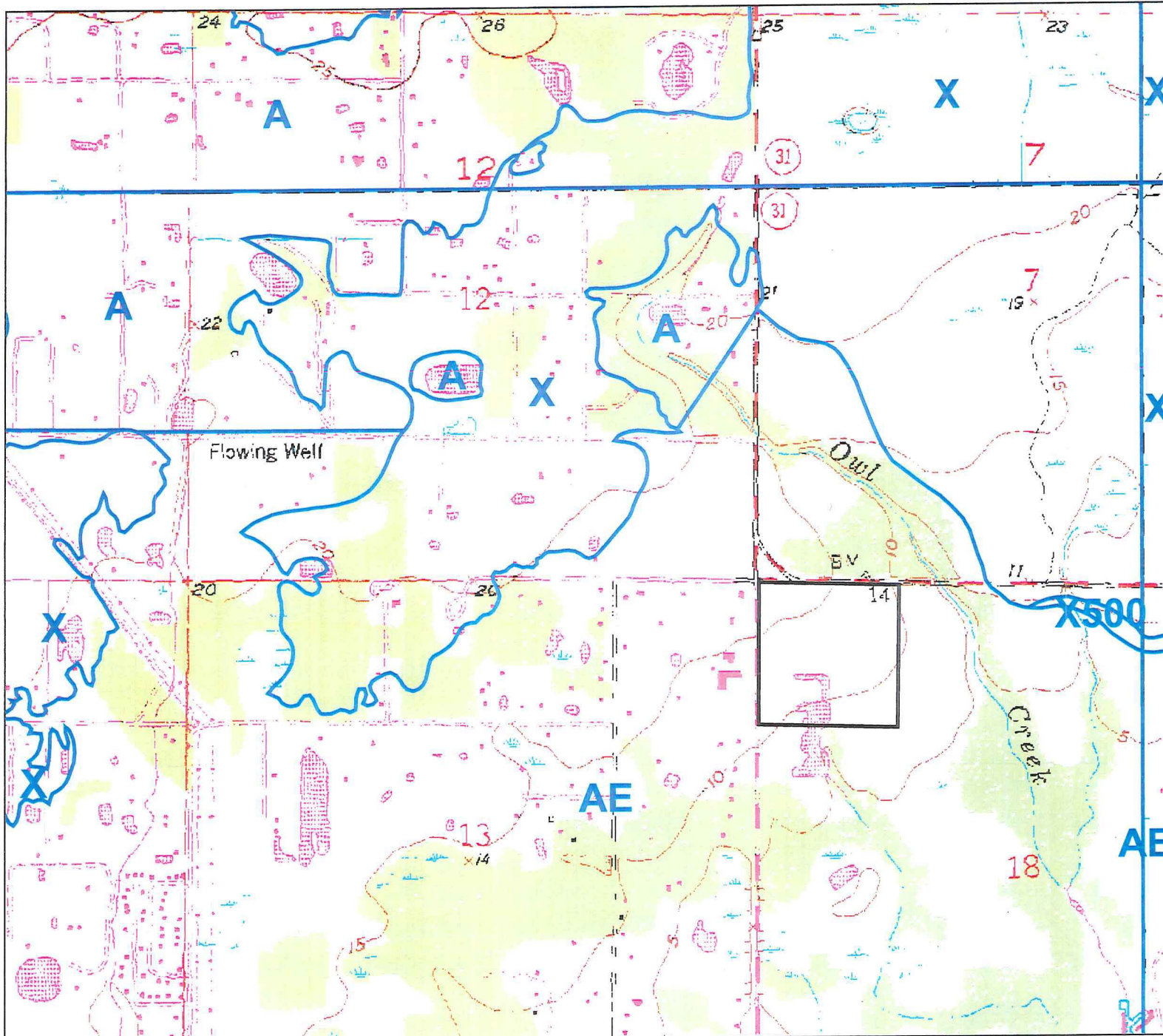
- 2. A map showing the subject property location on the archaeological sensitivity map for Lee County.**

See attached Archaeological Sensitivity Map. The parcel is not located within an archaeological sensitive area.









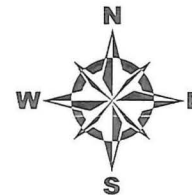
**RECEIVED**  
 SEP 30 2008  
 COMMUNITY DEVELOPMENT  
 2,400 Feet

**Boylan Environmental Consultants, Inc.**  
 Wetland & Wildlife Surveys, Environmental Permitting, & Impact Assessments  
 11000 Metro Parkway, Suite 4  
 Fort Myers, FL 33912  
 Office: (239)418-0671  
 Fax: (239)418-0672

KREINBRINK 40 AC  
 USGS TOPO MAP

Designed by:	Date:	SEC/TWP/RNG	Revisions	Date:	Exhibit Number
JDK	5/2/06	18/43S/26E			
Drawn by:	Date:	Category			
File Name:		County			
topo		Lee			





IMMOKALEE SAND

OLDSMAR SAND

WATER

COPELAND SANDY LOAM, DEPRESSIONAL

2008-00003

COMMUNITY DEVELOPMENT

SEP 30 2008

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500

Feet

COPELAND SANDY LOAM, DEPRESSIONAL

**Boylan**  
**Environmental**  
**Consultants, Inc.**  
Wetland & Wildlife Surveys, Environmental Permitting,  
& Impact Assessments



11000 Metro Parkway, Suite 4  
Fort Myers, FL 33912  
Office: (239)418-0671  
Fax: (239)418-0672

KREINBRINK 40 AC  
SCS SOILS MAP

Designed by:	Date:	SEC/TWP/RNG	Revisions	Date:	Exhibit Number
JDK	5/2/06	18/43S/26E			
Drawn by:	Date:	Category			
File Name		County			
soils		Lee			



FLORIDA DEPARTMENT OF STATE  
Sue M. Cobb  
Secretary of State  
DIVISION OF HISTORICAL RESOURCES

May 10, 2006

Jim Keltner  
Boylan Environmental Consultants, Inc.  
11000 Metro Parkway, Suite 4  
Fort Myers, FL 33912  
Fax: (239) 418-0672

Dear Mr. Keltner:

In response to your inquiry of May 9, 2006, the Florida Master Site File lists no previously recorded cultural resources in the following parcels:

T43S, R26E, Section 18

In interpreting the results of our search, please remember the following points:

- Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.
- As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

*Celeste Ivory*  
Marie Celeste Ivory  
Archaeological Data Analyst, Florida Master Site File  
Division of Historical Resources  
R. A. Gray Building  
500 South Bronough Street  
Tallahassee, Florida 32399-0250

Phone: 850-245-6440, Fax: 850-245-6439  
State SunCom: 205-6440  
Email: [msf@dos.state.fl.us](mailto:msf@dos.state.fl.us)  
Web: <http://www.dos.state.fl.us/dhr/msf/>

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

☐ Director's Office  
(850) 245-6300 • FAX: 245-6435

☐ Archaeological Research  
(850) 245-6444 • FAX: 245-6436

☐ Historic Preservation  
(850) 245-6333 • FAX: 245-6437

☐ Historical Museums  
(850) 245-6400 • FAX: 245-6433

☐ Palm Beach Regional Office  
(361) 279-1475 • FAX: 279-1476

☐ St. Augustine Regional Office  
(904) 825-5045 • FAX: 825-5044

☐ Tampa Regional Office  
(813) 272-3643 • FAX: 272-2340

TOTAL P.02


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SEP 30 2008

COMMUNITY DEVELOPMENT

2008-00003




# Legend


 Kreinbrink 40± Ac Parcel

## Archaeological Sensitivity

 1

 2

 Surveyed

 Lee County

2008-00003

COMMUNITY DEVELOPMENT

SEP 30 2008

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Archaeological Sensitivity Map was acquired from the Lee County property appraiser on 12/17/06.

SR 31

N. RIVER ROAD

BAYSHORE RD.

**Boylan Environmental Consultants, Inc.**  
  
 11000 Metro Parkway, Suite 4  
 Fort Myers, FL 33912  
 Office: (239)418-0671  
 Fax: (239)418-0672  
 Wetland & Wildlife Surveys, Environmental Permitting, & Impact Assessments

KREINBRINK 40± AC PARCEL

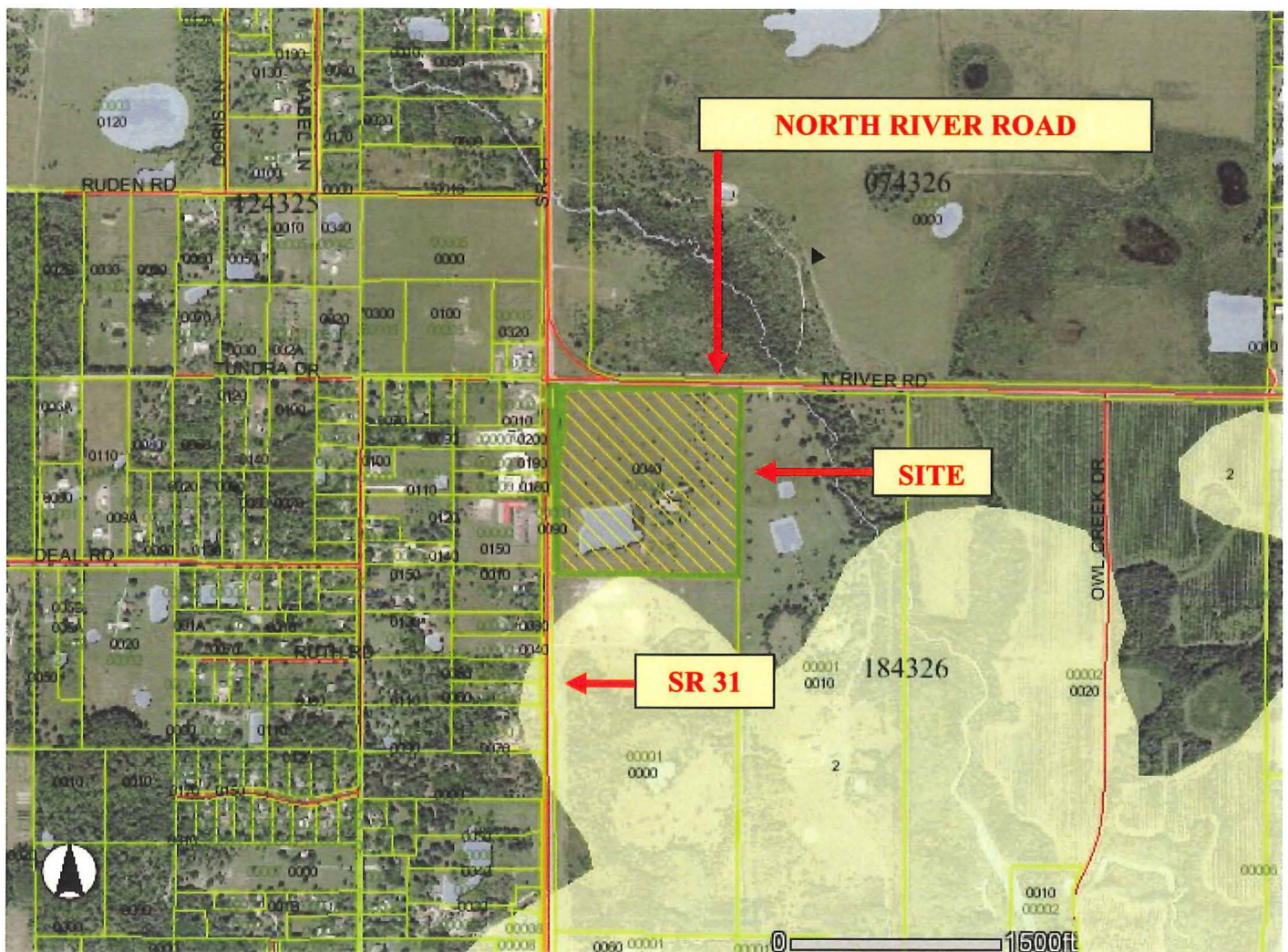
ARCHAEOLOGICAL SENSITIVITY MAP

Designed by:	Date:	SEC/TWP/RNG	Revisions	Date:	Exhibit Number
BKM	5/10/06	18/43S/26E			
Drawn by:	Date:	Category			
BKM	5/10/06	Archaeological Sensitivity			
File Name		County			
2006-70		Lee			



# Archeological Sensitivity Map

Strap # 18-43-26-00-00001.0040



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 SEP 30 2008



April 29, 2009

Mr. Chahram Badamtchian  
Senior Planner  
Department of Community Development  
P.O. Box 398  
Fort Myers, FL 33902-0398

**RE: CPA2008-03 Kreinbrink Amendment, Alva**

Dear Mr. Badamchian:

The purpose of this letter is to respond to the Comprehensive Plan Amendment checklist dated March 30, 2009.

*Comment:*

*Please provide a current Future Land Use Map of the area to an appropriate scale.*

**Response:**

**Please see revised current Future Land Use Map, attached.**

*Comment:*

*Please provide a proposed Future Land Use Map of the area to an appropriate scale.*

**Response:**

**Please see revised proposed Future Land Use Map, attached.**

*Comment:*

*Please provide a certified legal description and certified sketch of the description for the subject property.*

**Response:**

**Please see revised certified sketch and description from Starnes Surveying Inc.**

*Comment:*

*Please provide a copy of the deed for the subject property.*

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APR 29 2009

CPA 2008-00003





**Response:**

**Please see attached deed.**

**Comment:**

*Please provide the required Traffic Circulation Analysis for the commercial Land Use category that is being sought.*

**Response:**

**Please see traffic analysis prepared by TR Transportation.**

**Comment:**

*Please provide a map of the plant communities as defined by the Florida Land Use Cover and Classification System (FLUCCS).*

**Response:**

**Per discussion with Staff, a FLUCCS map meeting the listed criteria was previously submitted with application materials; additional copies are not required.**

**Comment:**

*Please provide a map and description of the soils found on the property and identify the source.*

**Response:**

**Per discussion with Staff, a soils map meeting the listed criteria was previously submitted with application materials; additional copies are not required.**

**Comment:**

*Please provide a topographic map depicting the property boundaries and 100 year flood prone areas indicated.*

**Response:**

**Per discussion with Staff, a topographic map meeting the listed criteria was previously submitted with application materials; additional copies are not required.**

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APR 29 2009

CPA 2008-00003



**Comment:**

*Please provide a map delineating wetlands located onsite.*

**Response:**

**Per discussion with Staff, a map delineating wetlands located onsite was previously submitted with application materials; additional copies are not required.**

**Comment:**

*Please provide a table of plant communities by FLUCCS with the potential to contain species (both plant and animal) listed by federal, state or local agencies as endangered, threatened or species of special concern. The table must include the listed species by FLUCCS and the species status.*

**Response:**

**Per discussion with Staff, this was previously submitted with application materials; additional copies are not required.**

**Comment:**

*Your application did not address all aspects of the urban sprawl analysis required under Florida Administrative Code 91-5.006(5) Review of Plans and Plan Amendments for Discouraging the Proliferation of Urban Sprawl.*

*Specifically, the Florida Administrative Code (FAC) Chapter 91 requires that plan amendments be evaluated to ensure consistency with the State Comprehensive Plan, Regional Policy Plans, and Chapter 163.*

*FAC 91-5.006(5) outlines several provisions pertaining to urban sprawl that must be addressed as part of the plan amendment process. The Krienbrink application addresses most of the provisions listed, but not the items in subsections 915.006(5)(h) Evaluation of land uses, 91-5.006(5)(i) Local conditions and 915.006(5)(j) Development controls. Please amend the analysis to address these items.*

**Response:**

**Please see revised Supplemental Data and Analysis dated April 29, 2009.**

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APR 29 2009

CPT 008-00002



**Comment:**

*Staff has not received all review agencies comment yet. Additional comments may be forthcoming.*

**Response:**

**To date, additional comments have not been received; therefore it is assumed that there were no further comments.**

If you have any additional questions or concerns, please do not hesitate to contact me.

Sincerely,

**MORRIS-DEPEW ASSOCIATES, INC.**

**David W. Depew, PhD, AICP, LEED AP  
President**

**DWD/smh**

**Attachments**

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APR 29 2009

CPT 2008-00003

**From:** Badamtchian, Chahram [CBADAMTCHIAN@leegov.com]  
**Sent:** Tuesday, April 07, 2009 11:47 AM  
**To:** Sheila Holland  
**Cc:** David W. Depew  
**Subject:** RE: Kreinbrink Comp Plan Amendment CPA2006-00006

Good morning Sheila,

For existing and proposed Comp Plan (A-2 and A-3), we don't have a preferred scale. We just want to be able to see the road network in the vicinity, so the location of the property in the County is easily identifiable. Whatever scale that can show some major roads and keep the subject property to an easily identifiable size on 8.5X11 size paper is fine.

Regarding your legal and sketch of legal; what we have received is 14 years old and the sketch does not match the Property Appraiser's site's land configuration. It appears that some land was sold to Florida Gas Transmission Company in year 2000. The sketch does not even show an easement for that. An updated and revised legal description and sketch is needed.

Regarding C-1 through C-5, you are absolutely correct. It was previously submitted and there is no need to resubmit.

Thank you very much,

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APR 29 2009

*Chahram Badamtchian, AICP*

Senior Planner

Lee County DCD/Zoning

Phone: 239. 533. 8372

Fax: 239. 485. 8344

CPA 2008-00003



[Cbadamtchian@leegov.com](mailto:Cbadamtchian@leegov.com)

---

**From:** Sheila Holland [mailto:sholland@M-DA.com]  
**Sent:** Tuesday, April 07, 2009 10:28 AM  
**To:** Badamtchian, Chahram  
**Cc:** David W. Depew  
**Subject:** FW: Kreinbrink Comp Plan Amendment CPA2006-00006

Good morning Chahram,

I am sending this e-mail in response to your letter dated March 30, 2009 requesting additional information. I have attached your letter for reference as well as our last two submittals but would just like some clarification.

A-2 and A-3 – What scale would you like us to use for the drawing?

A-6 and A7 – Exhibits turned in with original app.

C - 1, 2, 3 4 and 5 – Exhibits have already been turned in for this with the original submittal.

I just wanted to check with you to make sure you had reviewed the first application submitted. It was my impression from Matt Noble's e-mail below that we only needed to resubmit items that the revision to commercial would affect.

Anyway we will work on the other items and get them in to you as soon as possible.

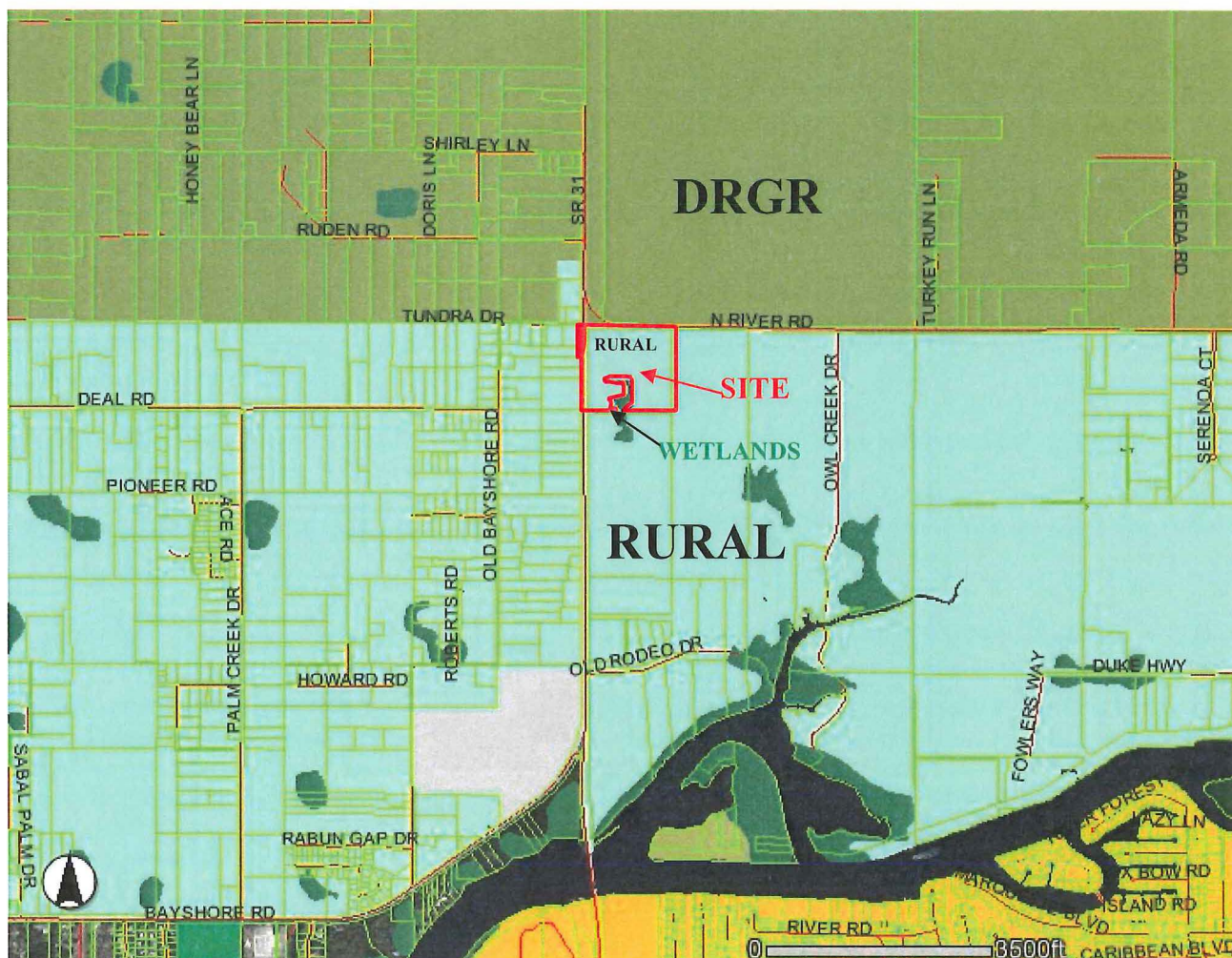
Thank you,

Sheila M. Holland

Planning Technician

# Current FLU Map

Strap # 18-43-26-00-00001.0040



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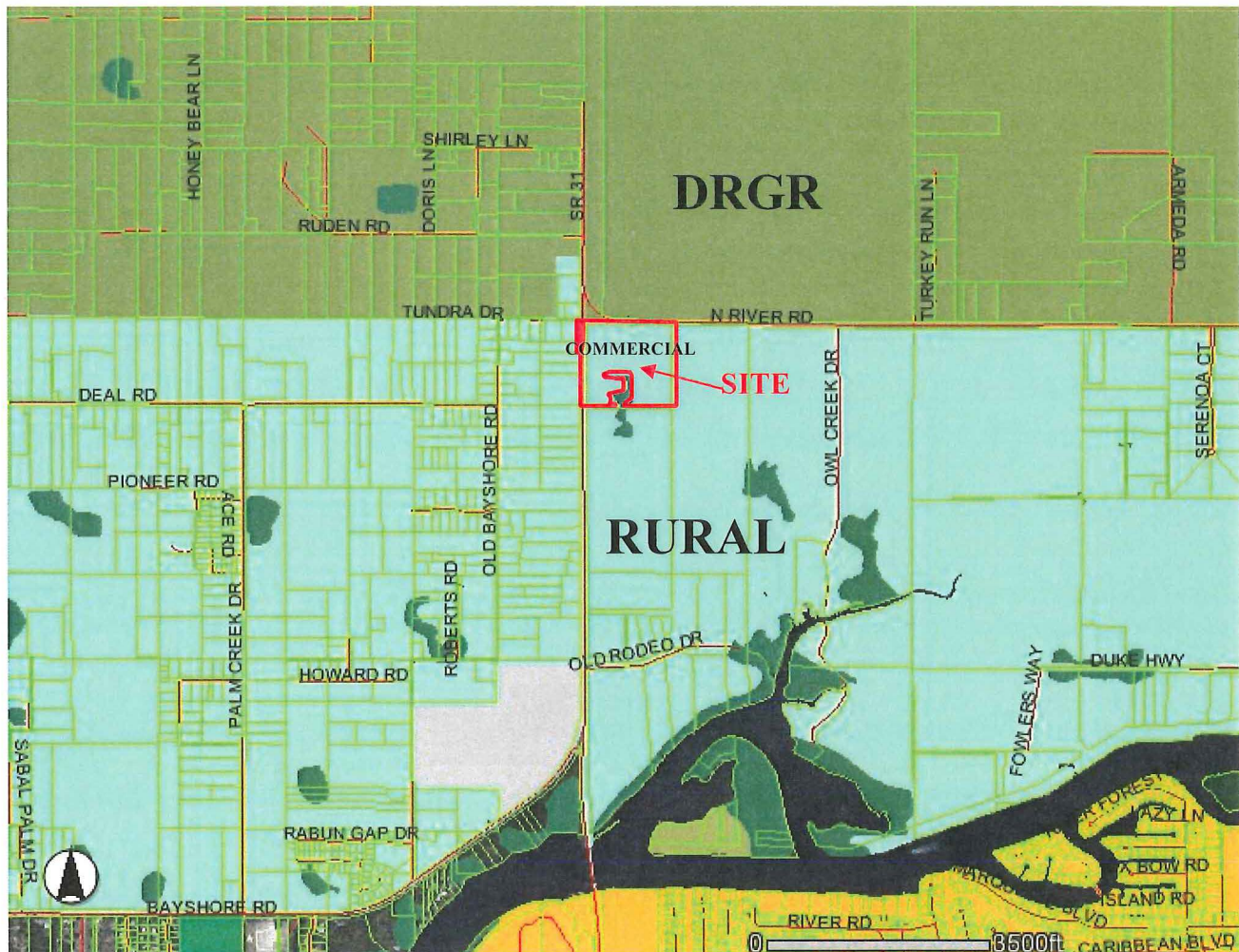
APR 29 2009

Kreinbrink CPA Amendment  
 April 29, 2009

2008-00003



# **Proposed FLU Map** Strap # 18-43-26-00-00001.0040



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APR 29 2009

CPA 2008-00003

## Lee Plan FLUM Amendment Supplemental Data and Analysis

Property: 18-43-26-00-00001.0040  
 Owner of Record: Kreinbrink Katherine TR  
 12100 N. River Road  
 Alva, FL 33920

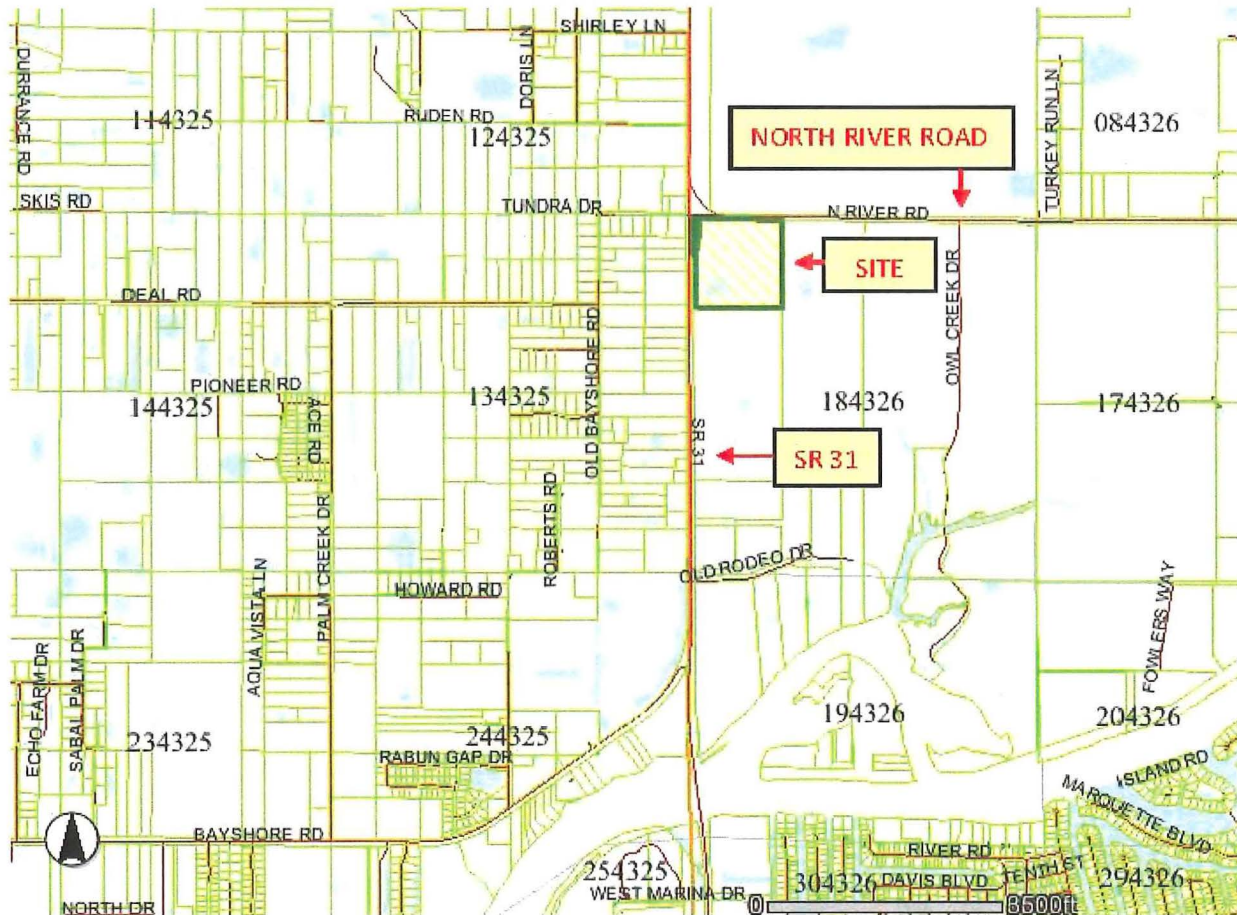
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APR 29 2009

*CPT* 2008-00003

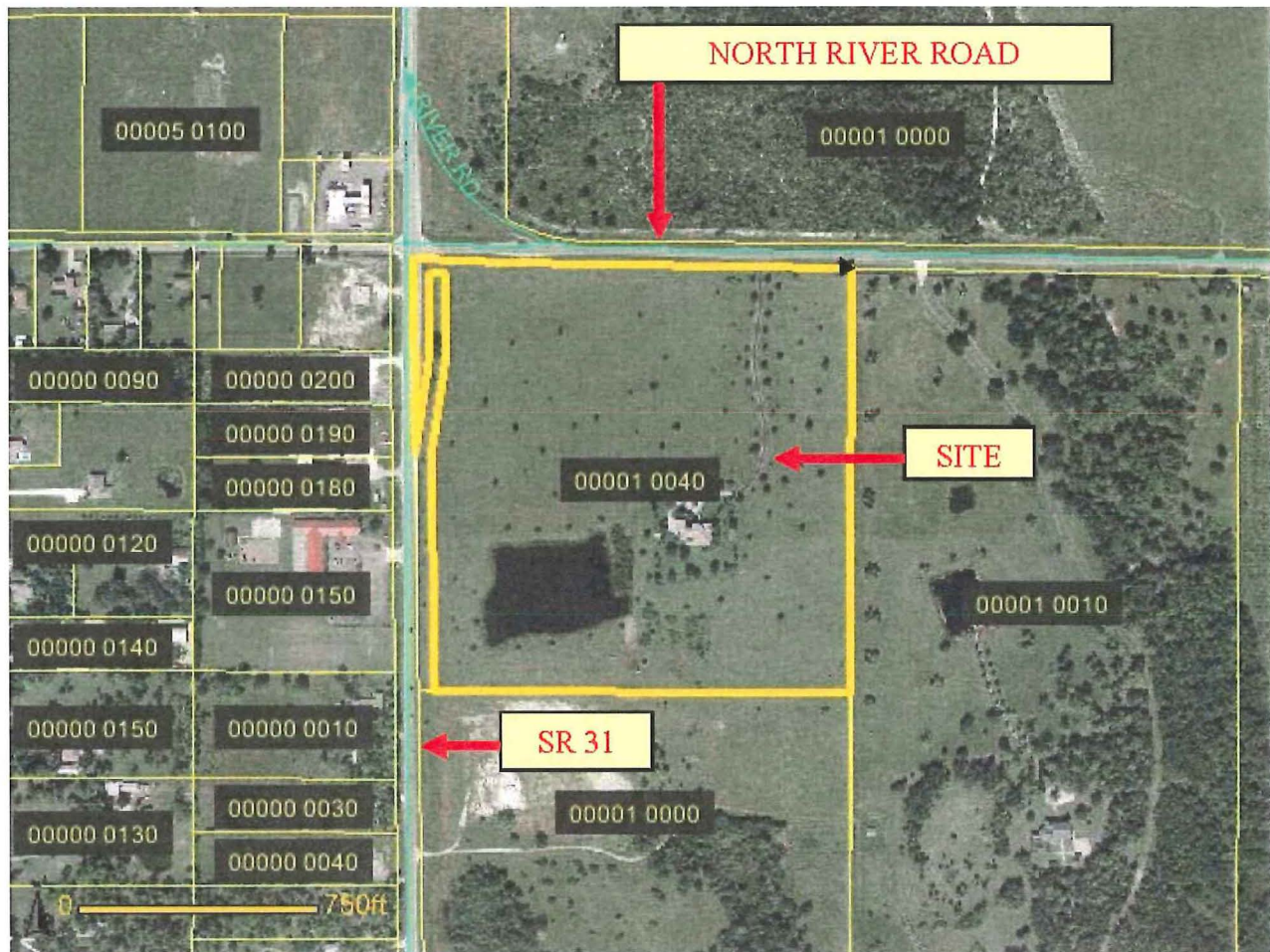
### Background

The proposed Lee Plan FLUM amendment is to change a property of +/- 40 acres from Rural to Commercial. The subject property is located southeast of the intersection of SR 31 and North River Road in Alva, Florida



Property Location Map





**Aerial Photograph of Subject Property**

Currently, the subject property contains an estimated 40 acres of Rural designated property. At maximum development options, this translates into the following development potentials:

**A. Rural Option (Current)**

**Residential Development:**

1. 29.75 acres (Rural) X 1 dwelling units/acre = 30 dwelling units
2. 0.25 acres (Wetlands) X 1 dwelling units/20 acre = 0 dwelling units
3. 10.0 acres commercial development
4. Total residential units = 30 dwelling units
5. Total rural commercial SF = 100,000 SF

**B. Commercial Option: (Proposed)**

**Commercial Development**

- 1.) 40 +/- acres (Commercial) = 1,742,400 SF
- 2.) Total potential commercial development = 350,000 SF (proposed maximum)

### **Impact Analysis**

According to the Florida Administrative Code (64E-6.008, FAC), wastewater treatment demand for residential use ranges between 100 and 400 gallons per day (GPD), depending upon the number of bedrooms in a dwelling unit. Assuming that the residential units which could be constructed on the subject property will average 3 bedrooms per dwelling unit, wastewater treatment demand will be 300 GPD per unit. In the pre-amendment situation, with an estimated development capacity of 30 dwelling units, there is an estimated demand of 9,000 GPD of wastewater treatment capacity associated with full development of the subject property under the current land use designation. Central wastewater treatment service is located at the SR78/SR31 intersection, south of the Lee County Arena. Absent an extension of that force main, it is likely that on-site wastewater treatment systems, septic tanks, would be used.

Wastewater demand is approximately 90% of potable water demand in residential land uses. For the current analysis, it is anticipated that potable water demand will average 325 GPD per dwelling unit or a total of 9,750 GPD for the entire development. Central water service is located on Old Bayshore Road, north of the Lee County Arena. Without an extension of the public facilities, it is likely that on-site potable water wells would be used for provision of potable water under a Rural development scenario.

According to a study performed by Stearns and Wheler, LLC, for the Mashpee Sewer Commission (Mashpee, MA, April, 2007), potable water use for commercial activities is estimated at 81.5 GPD per 1,000 SF of floor area. Based upon this estimate, potable water demand for 350,000 SF of commercial floor area will be 28,525 GPD. While this is significantly higher than the 9,000 GPD estimated for a residential option, the establishment of commercial use on the subject property would require the extension of the force main to the site and connection to a central wastewater treatment facility. This is deemed to be an improvement over the placement of 300 septic systems on the subject property.

Although commercial uses are generally calculated on a more specific basis, no users have yet been identified for the subject property that would allow such calculations. Again using an estimate that wastewater treatment demand is 90% of potable water demand, it is possible to estimate a potable water demand for 350,000 SF of commercial uses at 31,694 GPD. Again, while this is a substantial increase over the estimated 9,750 GPD for the residential demand, the establishment of a commercial designation on the subject property allows for the extension of the water main from its location on Old Bayshore Road, north of the Arena, to the subject property.

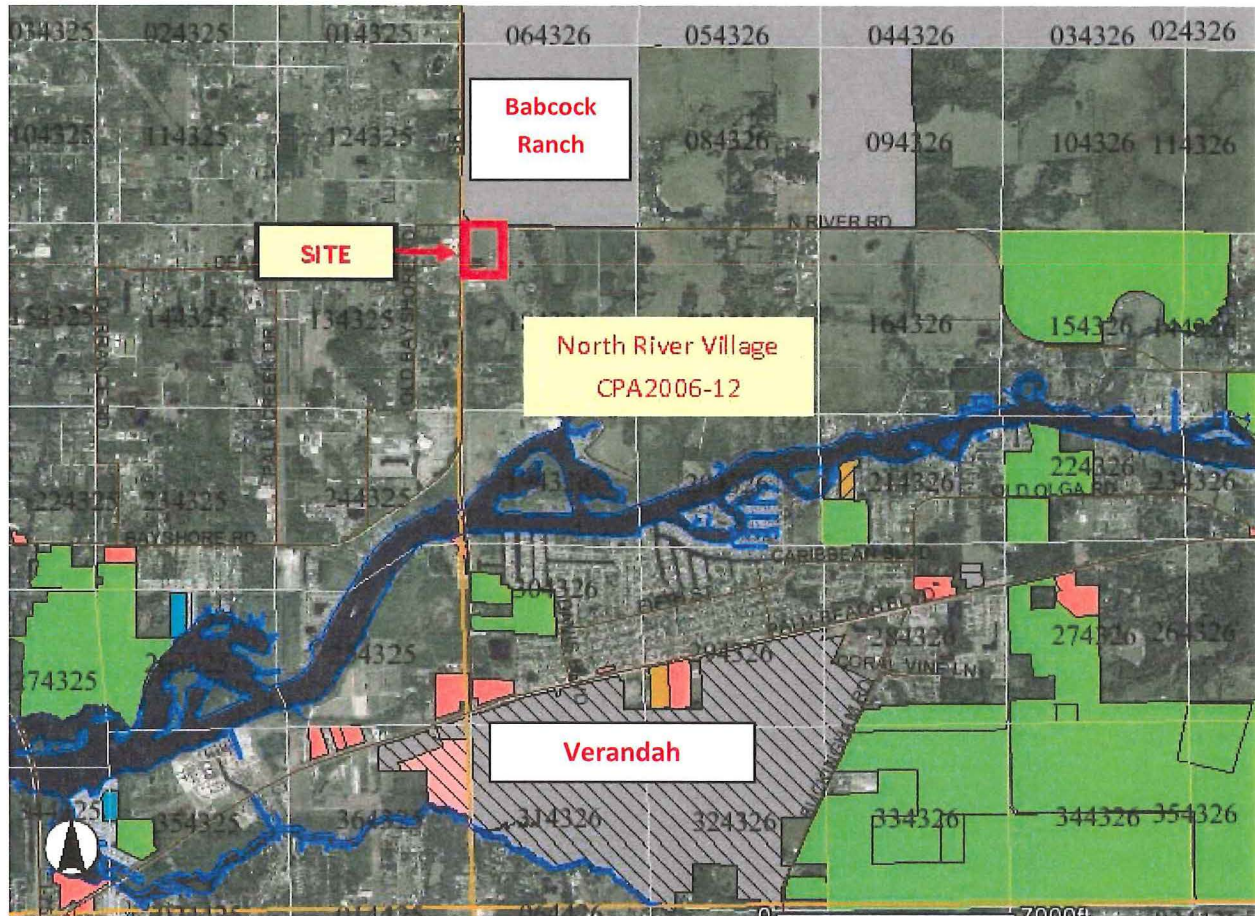
The open space requirements for the development (post-amendment) were calculated as follows: 40 +/- Acres Commercial x 30% open space requirement = 12 Acres or 522,720 square feet as required by Lee County. For the residential development, Lee County would not require any open space to be set aside other than that provided on each individual lot.

### **Lee Plan Consistency**

As a commercial development, it is estimated that the FLUM build-out, should the amendment be approved, would reduce the acreage devoted to residential uses by 30 acres and thus lessen the overall population projections for the Alva Planning Community. In the Alva planning community, there are 33,463 total acres with 1,948 acres of rural designated property. At the



present time there are 57 acres designated for commercial uses. Those figures would change if the proposed amendment were to be adopted, providing 1,918 acres of rural designated property and 87 acres of commercial uses.



**Subject Property with Surrounding Development Map**

As described in the Vision Statement of the Lee County Plan, the Alva Planning Community “is located in the northeast corner of the county and is focused around the rural community of Alva. This community roughly includes lands in Township 43 South/Range 27 East, lands north of the Caloosahatchee River in Township 43 South/Range 26 East and lands north of the Caloosahatchee River in Sections 1, 2, 11-14, and 23-27 of Township 43 South/Range 26 East. The majority of this area is designated as Rural, Open Lands, or Density Reduction/Groundwater Resource. The lands surrounding the Alva “Center”, which lie north and south of the Caloosahatchee River at the intersections of Broadway (bridge at Alva) and SR 78 and SR 80, are designated as Urban Community. There are some lands designated as Outlying Suburban within the Bayshore Planning Community, most of which are located south of Bayshore Road west of SR 31. The Bayshore area has characteristics of both the Alva and the North Fort Myers Community.

While the Alva community does offer some commercial opportunities, residents satisfy most of their commercial needs outside of this community in the more urbanized communities to the west and south. For the most part, these conditions are expected to remain through the life of this plan. The population of Alva is expected to grow through the life of this plan. Commercial activity is expected to continue to increase to the year 2030. The Alva community will remain largely rural/agricultural in nature with over half of its total acreage being used for this purpose. The Alva Community will also strive to protect its historic resources.

There are no distinct sub-communities within the Alva Community, although the area in which the subject property is located is more properly known as North Olga. The subject property is at the intersection of SR 31 and CR 78 (North River Road), and is in an area where rural, non-residential uses are extant.

As noted in the vision statement, the Alva Planning Community is expected to grow through 2030, therefore, the change in the subject property's current designation of Rural to the proposed designation of Commercial would be consistent with the Plan's vision for this area, especially with the location of the proposed Babcock Ranch property adjacent to the northern boundary of the subject parcel and the North River Village Comprehensive Plan Amendment Development CPA2006-12 located to its east and south. Per Policy 1.1.10, 'Commercial' areas are to be located in close proximity to existing commercial areas or corridors accommodating employment centers, tourist oriented areas, and where commercial services are necessary to meet the projected needs of the residential areas of the County. Policy 1.1.10 states, "The commercial designation is intended for use where residential development would increase densities in areas such as the Coastal High Hazard Areas of the County or areas such as Lehigh Acres where residential uses are abundant and existing commercial areas serving the residential needs are extremely limited.

An analysis has been undertaken (see above) related to the Acreage Allocation Table found in the Lee Plan. Policy 1.7.6 states, "The Planning Communities Map and Acreage Allocation Table (see Map 16 and Table 1(b) and Policies 1.1.1 and 2.2.2) depicts the proposed distribution, extent, and location of generalized land uses for the year 2030. Acreage totals are provided for land in each Planning Community in unincorporated Lee County. No final development orders or extensions to final development orders will be issued or approved by Lee County which would allow the acreage totals for residential, commercial or industrial uses contained in Table 1(b) to be exceeded." As noted above the modifications to the land use designation of the subject property along with the North River Village Comprehensive Plan Amendment CPA2006-12, if approved, make this area in Olga an excellent location for a commercial development. The subject parcel is located at the intersection of two arterial roads and has a close proximity/accessibility to I-75. A revision to the Allocation Table for the Alva Planning Community will be required.

Objective 2.1 suggests that, "Contiguous and compact growth patterns will be promoted through the rezoning process to contain urban sprawl, minimize energy costs, conserve land, water, and natural resources, minimize the cost of services, prevent development patterns where large tracts of land are by-passed in favor of development more distant from services and existing communities." Utilization of the +/- 39.75 acres of developable uplands on the site will serve to



promote the establishment of an urban boundary, and assist in preventing sprawl patterns from developing in the North Olga community.

Objective 2.2 indicates that Lee County will, “Direct new growth to those portions of the Future Urban Areas where adequate public facilities exist or are assured and where compact and contiguous development patterns can be created. Development orders and permits (as defined in F.S.163.3164(7)) will be granted only when consistent with the provisions of Sections 163.3202(2)(g) and 163.3180, Florida Statutes and the county's Concurrency Management Ordinance.” Urban services are, or will be, available to the subject property when required for development. The property is located at the intersection of two arterial roadways and will serve to protect both the existing and/or emerging residential neighborhoods and will assist in the promotion of compact development patterns and containment of urban sprawl. The subject parcel will provide much needed commercial services to the existing residential developments on the west with the proposed new residential developments of the New River Village Comprehensive Plan Amendment CPA2006-12 located to the south and east and the proposed Babcock Ranch Property located to the north.

Objective 2.4 indicates that Lee County will, on a regular basis, examine the Future Land Use Map in light of new information and changed conditions. When changed or changing conditions suggest adjustments are needed, necessary modifications are made. As residential demand for housing and commercial services increases this will ultimately force an adjustment to the FLUM. The subject property as described is an excellent solution to provide commercial services and has an ideal location with respect to the adjacent properties probable future development and the proximity to I-75 which would accommodate the traffic needs generated by such a development as well as hurricane evacuation needs for residents and/or future labor needs.

Goal 11 of the Lee Plan was adopted to insure that appropriate water, sewer, traffic, and environmental review standards are considered in reviewing rezoning applications and are met prior to issuance of a county development order. Urban services are or will be available to the subject property at the time of development, and the environmental values will not be developed or disturbed in respect to the wetlands designation on the southern portion of the property. This will serve to protect and preserve the environmental values associated with that portion of the site.

The subject property is within the Bayshore Fire Rescue District located on 17350 Nalle Road, North Fort Myers, FL 33917. The Lee County Sheriff Department will provide police protection. LeeTran does not currently provide service to this site due to the current rural designation of the property and the surrounding properties. Lee County Solid Waste Division can provide solid waste collection service for the proposed residential units and neighborhood center and has long term disposal capacity at the Lee County Resource Recovery Facility and the Lee-Hendry Regional Landfill. The proposed development will be located in the East Choice Zone of the Lee County School District. Emergency Medical Service would be provided by the Lee County Emergency Medical Services Department.

## **Sprawl Analysis**

A comprehensive plan that promotes urban sprawl will promote, allow, or designate for development, substantial areas to develop as low-intensity, low-density, or single-use development or uses in excess of demonstrated need. Development of the subject property, must be considered in conjunction with the recognition that significant residential and commercial development is anticipated in close proximity to the subject property.

The second criteria of urban sprawl in a plan is that it promotes, allows, or designates significant amounts of urban development to occur in rural areas at substantial distances from existing urban areas while leaping over undeveloped lands which are available and suitable for development. A review of the larger aerial photograph above is sufficient to demonstrate that urban development has occurred in the vicinity of the subject property most notably east of the subject property. Further, it is clear that there are major efforts for additional residential and commercial development with the proposed Babcock Ranch and North River Village Communities. The proposed land use designation is clearly compatible with the land uses surrounding it and will bridge the North River Village Development and proposed Babcock Ranch areas helping to alleviate urban sprawl by eliminating the leap-frog scenario between these two properties.

Sprawl also is characterized by policies that promote, allow, or designate urban development in radial, strip, isolated or ribbon patterns generally emanating from existing urban developments. Development of the subject property would establish a commercial node, protect existing or emerging residential neighborhoods, protect open space and natural resources, and concentrate development in areas most suitable for its location. Radial, strip, isolated, or ribbon development patterns would not be consistent with the application of Lee Plan provisions to the subject property or to the adopted community-based Goals, Objectives, and Policies. The subject property is located at the intersection of two arterial roadways, at an emerging commercial node. This indicator is not applicable to the proposed amendment.

Sprawl also, is a result of premature or poorly planned conversion of rural land to other uses, fails adequately to protect and conserve natural resources, such as wetlands, floodplains, native vegetation, environmentally sensitive areas, natural groundwater aquifer recharge areas, lakes, rivers, shorelines, beaches, bays, estuarine systems, and other significant natural systems. The applicable Lee Plan provisions, as applied to the subject property, include mandates for the protection of natural systems, including setbacks, buffers, use restrictions, open space requirements, preservation and conservation provisions, and design regulations. Thus, this sprawl indicator is inapplicable to the proposed amendment.

Policies promoting urban sprawl fail to adequately protect adjacent agricultural areas and activities, including silviculture, and including active agricultural and silvicultural activities as well as passive agricultural activities and dormant, unique and prime farmlands and soils. As noted above, setbacks, buffers, and performance criteria have been incorporated into the Lee Plan development parameters in order to provide protection to adjoining uses. The proposed amendment will assist with the prevention of urban sprawl by conforming to the current and proposed uses surrounding the subject parcel.

The proposed amendment will maximize use of existing public facilities and services and will

maximize use of future public facilities and services. As noted above, all urban services are, or will be, available to the subject property at the time of development. The establishment of the neighborhood center will service the surrounding residential development, providing the necessary diversity for the North Olga community.

Related to the question of infrastructure extension is the sprawl indicator that states urban sprawl policies allow for land use patterns or timing which disproportionately increase the cost in time, money and energy, of providing and maintaining facilities and services, including roads, potable water, sanitary sewer, stormwater management, law enforcement, education, health care, fire and emergency response, and general government. The Bayshore Fire District will provide fire protection to the site but would require the installation of hydrants. Police protection is currently available as well as Emergency Medical Services although at this time the site is approximately one minute outside the core response time of 10 minutes. The development would be in the East Choice Zone for the Lee County School District and the Lee County Solid Waste Division has the capability to provide collection services. All major services are available on some level currently except for Lee County Transit which currently does not provide a route due to the current rural nature of the area. Common sense dictates this may change at some point in time as future development continues, and Lee County has considered location of a transit support facility south of the subject property along SR 31.

According to the Rule, the future land use map and policies will promote sprawl if they fail to provide a clear separation between rural and urban uses. The subject property clearly delineates the buffers, setbacks, and use limitations required for maintaining a boundary between adjoining parcels with different uses. The subject property is uniquely positioned to deal with the separation between rural and urban uses. With the approval of Babcock Ranch and the proposed North River Village Development, the subject property will be consistent with those developments and part of the development node that is emerging at this intersection. If those developments are not approved our subject parcel will help to provide a clear separation between the emergent commercial node and the rural uses and current development to the east.

Sprawl also tends to discourage or inhibit infill development or the redevelopment of existing neighborhoods and communities. This particular subject property would be an infill parcel if the between Babcock Ranch and the proposed North River Village, providing a means of joining these three properties together. This would provide a consistent land use in this area assisting with the discouragement of urban sprawl.

The Rule also states that sprawl policies fail to encourage an attractive and functional mix of uses. The applicant is proposing a commercial center not greater than 350,000 square feet located on a 40 acre site. There are also existing commercial land uses adjacent to the subject property at the intersection of SR 31 and North River Road.

Finally, sprawl policies are those that result in poor accessibility among linked or related land uses and result in the loss of significant amounts of functional open space. Development of the subject property will provide provisions for preservation of functional open space, preservation of buffers and setbacks, and comply with open space requirements to demonstrate that these sprawl indicators do not apply to the current proposed amendment.

It is also noted that 9J-5.006(h) states, “The comprehensive plan must be reviewed in its entirety to make the determinations in (5)(g) above. Plan amendments must be reviewed individually and for their impact on the remainder of the plan. However, in either case, a land use analysis will be the focus of the review and constitute the primary factor for making the determinations. Land use types cumulatively (within the entire jurisdiction and areas less than the entire jurisdiction, and in proximate areas outside the jurisdiction) will be evaluated based on density, intensity, distribution and functional relationship, including an analysis of the distribution of urban and rural land uses.” When such an analysis is undertaken (as it has herein) it is clear that the proposed designation is not sprawl, but rather part of a continuing effort on the part of Lee County to accommodate the demand for community based residential and accompanying support development. The subject property designation for the subject properties serves to further advance the adopted Goals, Objectives, and Policies of the County’s Comprehensive Plan.

The subject property is located at the intersection of 2 arterial highways, with existing commercial uses proximate to its boundaries, and at a focal point for the local neighborhood. There is little in the way of supporting commercial use in the vicinity that would provide for the evolving commercial demand in the immediate area. The Alva Planning Community currently has 25 acres of commercial land uses undeveloped (out of a total of 57 acres), so it would appear that there is sufficient acreage left for the proposed development. Its location at the intersection of 2 arterials provides good accessibility, and will serve to intercept traffic that would otherwise need to travel outside of the existing neighborhoods to access commercial goods and services. The proposed intensity (350,000 SF) represents a 0.2 FAR, a ratio in keeping with the overall intensity of development anticipated in an area such as this. Given its location between the proposed North River Village, Babcock Ranch, and the residential, commercial, and public uses to the west and southwest, it would appear that the proposed change is compatible with adjoining properties. The lands comprising the subject property is upland pasture along with an existing residence. It has been graded and filled in the past, and has no significant environmentally sensitive areas, making it suitable for the proposed use. Overall the amendment provides a functional land use that will support the uses within the planning community along with the activities that are located to the west and southwest of the site. It is consistent with the demand for such uses as evidenced in the County’s projections for the Alva Planning Community, and thus meets the criteria found in 9J-5.006(5)(h).

9J5.006(i) goes on to state that, “Each of the land use factors in (5)(h) above will be evaluated within the context of features and characteristics unique to each locality. These include:

1. Size of developable area. *[The subject property is a +/- 40 acre parcel located at the intersection of 2 arterial highways. It is located between Babcock Ranch and the proposed North River Village, proximate to the County Civic Center and a variety of small commercial uses. It is an appropriate size and location for placing support commercial uses, and is consistent with planning community projections.]*
2. Projected growth rate (including population, commerce, industry, and agriculture). *[The request is consistent with planning community projections for the Alva Planning Community.]*
3. Projected growth amounts (acres per land use category). *[The request is*



*consistent with planning community projections for the Alva Planning Community.]*

4. Facility availability (existing and committed). *[Urban services are either available or anticipated by the time development will take place. Extension of central utilities is anticipated as part of adjoining development efforts.]*

5. Existing pattern of development (built and vested), including an analysis of the extent to which the existing pattern of development reflects urban sprawl. *[This parcel represents a small piece located between 2 large developments, Babcock Ranch and North River Village, and existing development to the west and southwest.]*

6. Projected growth trends over the planning period, including the change in the overall density or intensity of urban development throughout the jurisdiction. *[The request is consistent with planning community projections for the Alva Planning Community.]*

7. Costs of facilities and services, such as per capita cost over the planning period in terms of resources and energy. *[No increase in per capita costs associated with service provision is anticipated as a result of this development.]*

8. Extra-jurisdictional and regional growth characteristics. *[No extra-jurisdictional or regional impacts are anticipated.]*

9. Transportation networks and use characteristics (existing and committed). *[It is anticipated that this development would serve the surrounding community, serving to intercept trips that would otherwise travel further in search of goods and services.]*

10. Geography, topography and various natural features of the jurisdiction. *[The subject property contains no environmentally sensitive areas and is not anticipated to have a negative impact upon any significant ecological features.]*

As demonstrated in this analysis, when each of these factors are considered, in the context of the full range of applicable Lee Plan Goals, Objectives, and Policies, the subject property is not sprawl, but rather the logical extension of the ongoing development efforts undertaken within Lee County's localized communities.

Further, 9J5.006(j) states, "Development controls in the comprehensive plan may affect the determinations in (5)(g) above. The following development controls, to the extent they are included in the comprehensive plan, will be evaluated to determine how they discourage urban sprawl:

1. Open space requirements. *[In the pre-amendment situation, a residential subdivision would not be required to provide any additional open space other than that which would normally exist on individual lots. As a result of the amendment, not less than 12 acres of the subject property will need to be set aside for open space. This will serve to mandate provision of additional open space with the approval of the requested amendment.]*

2. Development clustering requirements. *[Development parameters for the proposed amendment will establish minimum open space requirements that will have the effect of clustering development and increasing open space. There are no environmentally significant areas on the subject property.]*

3. Other planning strategies, including the establishment of minimum

development density and intensity, affecting the pattern and character of development. *[Minimum intensity and density standards are already a part of the requested category, encouraging a cost effective use of infrastructure.]*

4. Phasing of urban land use types, densities, intensities, extent, locations, and distribution over time, as measured through the permitted changes in land use within each urban land use category in the plan, and the timing and location of those changes. *[The subject property is located between Babcock Ranch and the proposed North River Village developments. Approval of the requested amendment is consistent with the evolving development patterns. Located at the intersection of the 2 primary arterial highways in the area, the subject property is part of a logical development pattern, consistent with anticipated growth within the Alva Planning Community.]*

5. Land use locational criteria related to the existing development pattern, natural resources and facilities and services. *[The location of the subject property is consistent with the adopted standards for the type of commercial intensity proposed. The proposed development is consistent with providing a transition between the uses at the intersection and other uses proximate to the site.]*

6. Infrastructure extension controls, and infrastructure maximization requirements and incentives. *[Infrastructure is available and capacity exists to service any future development on this site.]*

7. Allocation of the costs of future development based on the benefits received. *[Development of the subject property under the proposed amendment will result in payment of all impact fees, permitting fees, and any other applicable infrastructure extension fees, property taxes, and sales taxes as applicable.]*

8. The extent to which new development pays for itself. *[The proposed development is anticipated to generate enough fees, tax revenues, and other monies to fully offset any costs associated with provision of services.]*

9. Transfer of development rights. *[There are no TDR elements associated with the proposed amendment.]*

10. Purchase of development rights. *[There are no development rights purchase elements associated with the proposed amendment.]*

11. Planned unit development requirements. *[It is anticipated that any development of the subject property will be undertaken under the provisions of the Lee County land development regulations that would require commercial development greater than 10 acres to be done as a planned development.]*

12. Traditional neighborhood developments. *[TND is an option that will be available to the applicant at the time development permits are requested.]*

13. Land use functional relationship linkages and mixed land uses. *[The proposed amendment establishes a location for supporting retail and service activities for the westerly extents of the Alva Planning Community.]*

14. Jobs-to-housing balance requirements. *[According to a 1995 survey by the US Dept. of Energy, there is 1 retail or service worker for each 945 square feet of floor area. This translates into an estimated 370 full-time employment equivalencies that would be created through the adoption of this amendment once the project is completed.]*

15. Policies specifying the circumstances under which future amendments could

designate new lands for the urbanizing area. *[The requested amendment is consistent with the evolving growth patterns for the Alva Planning Community.]*

16. Provision for new towns, rural villages or rural activity centers. *[The subject property is located at the intersection of 2 arterial roadways, and is situated between the proposed North River Village and Babcock Ranch.]*

17. Effective functional buffering requirements. *[Setbacks and buffers are required during the permitting process, consistent with the planned development requirements.]*

18. Restriction on expansion of urban areas. *[The requested amendment is consistent with the evolving growth patterns for the Alva Planning Community.]*

19. Planning strategies and incentives which promote the continuation of productive agricultural areas and the protection of environmentally sensitive lands. *[The subject property, although zoned for agriculture and consisting of pasture, is not a significant agricultural asset.]*

20. Urban service areas. *[The requested amendment is consistent with the evolving growth patterns for the Alva Planning Community.]*

21. Urban growth boundaries. *[The requested amendment is consistent with the evolving growth patterns for the Alva Planning Community.]*

22. Access management controls. *[Access will be consistent with all County and State access management requirements.] ”*

A review of the provisions of the subject property, in conjunction with the Plan as a whole, demonstrates that all of the applicable 22 factors referenced are addressed. And, as 9J-5.006(k) indicates that these 22 land use types and land use combinations will be evaluated within the context of the features and characteristics of the locality, it is clear that the proposed designation is not urban sprawl. Additionally, the Rule notes that if a local government has in place a comprehensive plan already found to be in compliance, as is the case with the County, the Department shall not find a plan amendment to be not in compliance on the issue of discouraging urban sprawl solely because of pre-existing indicators if the amendment does not exacerbate existing indicators of urban sprawl within the jurisdiction.

### **Effect Upon Adjoining Local Governments**

There should be no appreciable impacts upon any adjoining local government as a result of the proposed change.

### **Consistency with State and Regional Policy Plans**

As proposed, the amendment will serve to implement State Policy Plan provisions, as applicable, including Sections 187.201(9)(b)1, 187.201(9)(b)3, 187.201(9)(b) 7, 187.201(15)(a), 187.201(15)(b)3, 187.201(15)(b)6, 187.201(17)(b)(1), 187.201(19)(b)2, & 15. These policies relate to preservation of environmental values, efficient provision of infrastructure, protection of highway capacity, and implementation of adopted policies related to land use and growth management. For a more detailed discussion, please see the applicable sections above.

Goal 4 of the Regional Policy Plan, Natural Resources section indicates that local governments will support, “Livable communities designed to improve quality of life and provide for the sustainability of our natural resources.” The provision of a commercial development surrounded by the proposed residential development, located at the intersection of two arterial highways and

between two emerging residential mixed-use developments will create an opportunity for retail, service, and employment activities for the residents but will more importantly provide convenient essential services that will help to diminish automobile trips otherwise made to the nearest appropriate commercial node.

### **Conclusion**

The proposed amendment is consistent with all applicable Lee Plan Goals, Objectives and Policies. Additionally, the basis for adopting this amendment is supported by the State Comprehensive Plan and the Regional Policy Plan. The conversion of the property from a Rural, single family residential use to a commercial, planned development use will enable the applicant to establish a development with more options for supporting neighborhood retail, service, and employment activities. The subject parcel will also provide valuable commercial services to the proposed Babcock Ranch and North River Village (Large Scale Comprehensive Plan Amendment CPA2006-12).



**TRAFFIC CIRCULATION ANALYSIS**  
**PREPARED FOR A**  
**COMPREHENSIVE PLAN AMENDMENT**  
**FOR THE**  
**KREINBRINK PROPERTY**

**PROJECT NO. F0904.05**

RECEIVED

APR 29 2009

CPA 2008-00003

**PREPARED BY:**  
**TR Transportation Consultants, Inc.**  
13881 Plantation Road, Suite 11  
Fort Myers, Florida 33912  
(239) 278-3090

April 28, 2009

## **CONTENTS**

- I. INTRODUCTION
- II. EXISTING CONDITIONS
- III. PROPOSED PLAN AMENDMENT
- IV. IMPACTS OF PROPOSED PLAN AMENDMENT
- V. CONCLUSION

## **I. INTRODUCTION**

TR Transportation Consultants, Inc. has conducted a traffic circulation analysis pursuant to the requirements outlined in the application document for Comprehensive Plan Amendment requests. The analysis will examine the impact of the requested land use change from Rural to Commercial. The approximately 40 acre property is located on the east side of State Route 31 just south of its intersection with North River Road in Lee County, Florida.

The following report will examine the impacts of changing the future land use category from the existing land use, Rural, to Commercial.

## **II. EXISTING CONDITIONS**

The subject site currently contains a single-family dwelling unit. The subject site is bordered by North River Road to the north and S.R. 31 to the west. To the east of the subject site are existing residential uses and vacant land. To the south of the subject site is vacant land.

**State Route 31** is a north/south two-lane undivided arterial roadway that extends from Palm Beach Boulevard (S.R. 80) north into Charlotte County. S.R. 31 has a posted speed limit of 60 mph adjacent to the subject site and is under the jurisdiction of the Florida Department of Transportation (FDOT). Pursuant to the Lee County Comprehensive Plan, the adopted Level of Service on S.R. 31 is LOS "E".

**North River Road** is an east/west two-lane undivided arterial roadway that extends from State Route 31 west into Hendry County. North River Road has a posted speed limit of 55 mph adjacent to the subject site and is under the jurisdiction of the Lee County Department of Transportation. Currently, the adopted Level of Service on North River Road is LOS "E".

**Palm Beach Boulevard (S.R. 80)** is an arterial roadway that extends through central Lee County on the south side of the Caloosahatchee River. East of the intersection of S.R. 31, Palm Beach Boulevard is a five-lane roadway, two travel lanes in each direction with a center paved median. West of S.R. 31, Palm Beach Boulevard is a seven lane roadway, three through lanes in each direction with a paved center median. Palm Beach Boulevard has a posted speed limit of 55 mph and is under the jurisdiction of the Florida Department of Transportation (FDOT). Palm Beach Boulevard has been designated by FDOT as a Federal Intrastate Highway System (FIHS) route. FDOT is currently reclassifying all FIHS routes to be called Strategic Intermodal System routes, or SIS routes. Due to this designation, the adopted Level of Service for this roadway is higher pursuant to Florida Administrative Code. This is also adopted in the Lee County Comprehensive Plan (Lee Plan). Currently, the adopted Level of Service on Palm Beach Boulevard east of Werner Road to the Lee County/Hendry County line is LOS "C". West of Werner Road, the LOS standard is LOS "C". Werner Road is approximately two (2) miles east of the Buckingham Road intersection.

### **III. PROPOSED PLAN AMENDMENT**

The proposed Comprehensive Plan Amendment would change the future land use designation on the subject site from Rural to Commercial. Based on the permitted uses within the Lee Plan for these land use designations, the change would result in the subject site being permitted to be developed with commercial land uses as opposed to residential land uses.

The current zoning on the Kreinbrink Property would permit the construction of up to one (1) residential dwelling unit per acre on the approximately 40 acre property. With the proposed Comprehensive Plan change request, the property could be developed with commercial uses, including retail and office uses. Since there are no adopted floor area ratios (FAR's) for commercial uses in the Lee County Comprehensive Plan, a development intensity was assumed that would be a realistic build-out on the subject site



based on other development parameters that are enforced in Lee County, such as parking requirements, open space requirements, etc.

**Table 1** highlights the intensity of uses that could be constructed under the existing land use designation and the intensity of uses under the proposed land use designation.

**Table 1  
Kreinbrink Property  
Land Uses**

Existing/ Proposed	Land Use Category	Intensity
Existing	Rural	40 residential units
Proposed	Commercial	350,000 sq. ft.

#### **IV. IMPACTS OF PROPOSED PLAN AMENDMENT**

The transportation related impacts of the proposed comprehensive plan amendment were evaluated pursuant to the criteria in the application document. This included an evaluation of the long range impact (20-year horizon) and short range (5-year horizon) impact the proposed amendment would have on the existing and future roadway infrastructure.

##### **Long Range Impacts (20-year horizon)**

The Lee County Metropolitan Planning Organization's (MPO) long range transportation travel model was reviewed to determine the impacts the amendment would have on the surrounding area. The subject site lies within Traffic Analysis Zone (TAZ) 1289. The model has both productions and attractions included in this zone. The productions include both single-family and multi-family residential uses. The attractions include some but very little industrial and service employment. **Table 3** identifies the land uses currently contained in the long range travel model utilized by the MPO and Lee County for the Long Range Transportation Analysis.

**Table 3  
TAZ 1289  
Land Uses in Existing Travel Model (2030)**

<b>Land Use Category</b>	<b>Intensity</b>
Single Family Homes	21 Units
Multi-Family Homes	1 Unit
Industrial Employees	1 Employees
Service Employees	8 Employees

The proposed amendment would add additional attractions to the subject site in the form of employment, etc. **Table 4** indicates the revised TAZ data for zone 1289 with the proposed density requested with this Map Amendment. The population data for TAZ 1289 is included in the Appendix for reference.

**Table 4  
Based on Proposed Map Amendment within TAZ 1289  
Land Uses in Modified Travel Model (2030)**

<b>Land Use Category</b>	<b>Intensity</b>
Single Family Homes	21 Units
Multi-Family Homes	1 Unit
Industrial Employees	1 Employees
Commercial Employees	875 Employees
Service Employees	8 Employees

The modifications made to the TAZ data, including ZDATA1 and ZDATA2 files, are attached to the Appendix for reference. The Long Range Transportation model (FSUTMS) was run with the data shown in Table 3 then compared to runs with the data from Table 4 to indicate what additional improvements, if any, that would be needed in order to support the change in the existing land use designation. Based on this analysis, the segment of SR 80 between SR 31 and Buckingham Road is the only segment shown to operate below the adopted Level of Service standard in the year 2030. This condition will exist with or without the proposed comprehensive plan amendment. The analysis based on the 2030 traffic conditions without the proposed development indicated that this segment of SR 80 will need to be widened to six lanes in order to support the growth

anticipated from projects already approved. The proposed comprehensive plan amendment for the Kreinbrink Property will only increase the daily trips on this link by approximately 280 trips, or less than one-half ( $\frac{1}{2}$ ) of a percent (**0.5%**) of the total projected 2030 traffic volume.

The future roadway network included evaluation of the Financially Feasible Plan. Based on the current 2030 Financially Feasible Plan, there are no roadway improvements planned within the study area for the proposed Kreinbrink Property Comprehensive Plan Amendment.

#### **Short Range Impacts (5-year horizon)**

The Lee County Capital Improvement Program for Fiscal Year 2008 to 2012 was reviewed, as well as the FDOT Adopted Work Program for Fiscal Year 2008/2009 to 2012/2013 to determine the short term impacts the proposed land use change would have on the surrounding roadways.

There are no roadway capacity improvements in the FDOT Work program or the Lee County work program that provide additional capacity in the next five years in the area of the subject site.

Based on the current traffic volumes and Concurrency levels on the surrounding roadways, a short term Level of Service analysis was completed for those roadways within the study area. Table 1A and 2A, attached in the Appendix for reference, indicate the short term Level of Service analysis with the proposed project. Table 2A indicates that all roadways within the study are projected to operate within the adopted Level of Service standards in the five year window.

**Recommendations to the Long Range Transportation Plan**

Based on the analysis, the segment of SR 80 between SR 31 and Buckingham Road will need to be six lanes to support the development that has previously been approved. However, Palm Beach Boulevard (S.R. 80) between S.R. 31 and Buckingham Road is currently included in the 2030 Long Range Transportation Plan and is designated as "contingent upon funding". It is recommended that this improvement be placed on the 2030 Financially Feasible Plan due to the fact that the improvement is shown to be needed in 2030 both with and without the proposed development.

**V. CONCLUSION**

The proposed Kreinbrink Property Comprehensive Plan Amendment is to modify the future land use from Rural to Commercial on the approximately 40 acre site located on the east side of S.R. 31 just south of its intersection with North River Road in Lee County, Florida. An analysis of the Long Range Transportation Plan indicated that the segment of S.R. 80 between S.R. 31 and Buckingham Road will operate below the adopted Level of Service standard in 2030. However, Palm Beach Boulevard (S.R. 80) between S.R. 31 and Buckingham Road is currently included in the 2030 Long Range Transportation Plan and is designated as contingent upon funding. It is recommended that this improvement be placed on the 2030 Financially Feasible Plan due to the fact that the improvement is shown to be needed in 2030 both with and without the proposed development. Based on an analysis of the short-term Capital Improvement Plan for both Lee County and FDOT, no changes to either plan will be required.



# APPENDIX

2030 TRAFFIC CONDITIONS  
WITH/WITHOUT THE PROPOSED  
LAND USE CHANGE

**2030 Traffic Conditions with Existing Density at Kreinbrink Property  
Existing Plus Programmed Road Network**

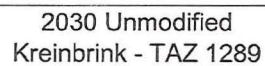
<u>ROADWAY</u>	<u>SEGMENT</u>	# OF	LOS	RAW FSUTMS	PSWDT/AADT		2030	K-100	D	TOTAL TRAFFIC	LOS SERVICE	LOS
		LANES	STANDARD	PSWDT	P.C.S. #	FACTOR	AADT	FACTOR	FACTOR	PK DIRECTION	VOLUME	
State Route 31	N. of Palm Beach Blvd.	2LN	E	13,588	11	1.11	12,241	0.104	0.52	662	920	C
	N. of Bayshore Rd.	2LN	E	13,363	11	1.11	12,039	0.104	0.52	651	920	C
	N. of North River Rd.	2LN	E	9,510	34	1.10	8,672	0.095	0.63	519	920	C
North River Rd.	E. of State Route 31	2LN	E	4,463	11	1.11	4,021	0.104	0.52	217	920	B
(S.R. 80)	E. of Site	2LN	E	4,497	11	1.11	4,051	0.104	0.52	219	920	B
Bayshore Rd. (S.R. 78)	W. of State Route 31	2LN	E	13,983	34	1.10	12,750	0.095	0.63	763	920	D
Palm Beach Blvd	W. of State Route 31	6LN	C	48,087	5	1.13	42,555	0.091	0.57	2,207	2,850	B
(S.R. 80)	E. of State Route 31	4LN	C	46,934	11	1.11	42,283	0.104	0.52	2,287	1,950	F

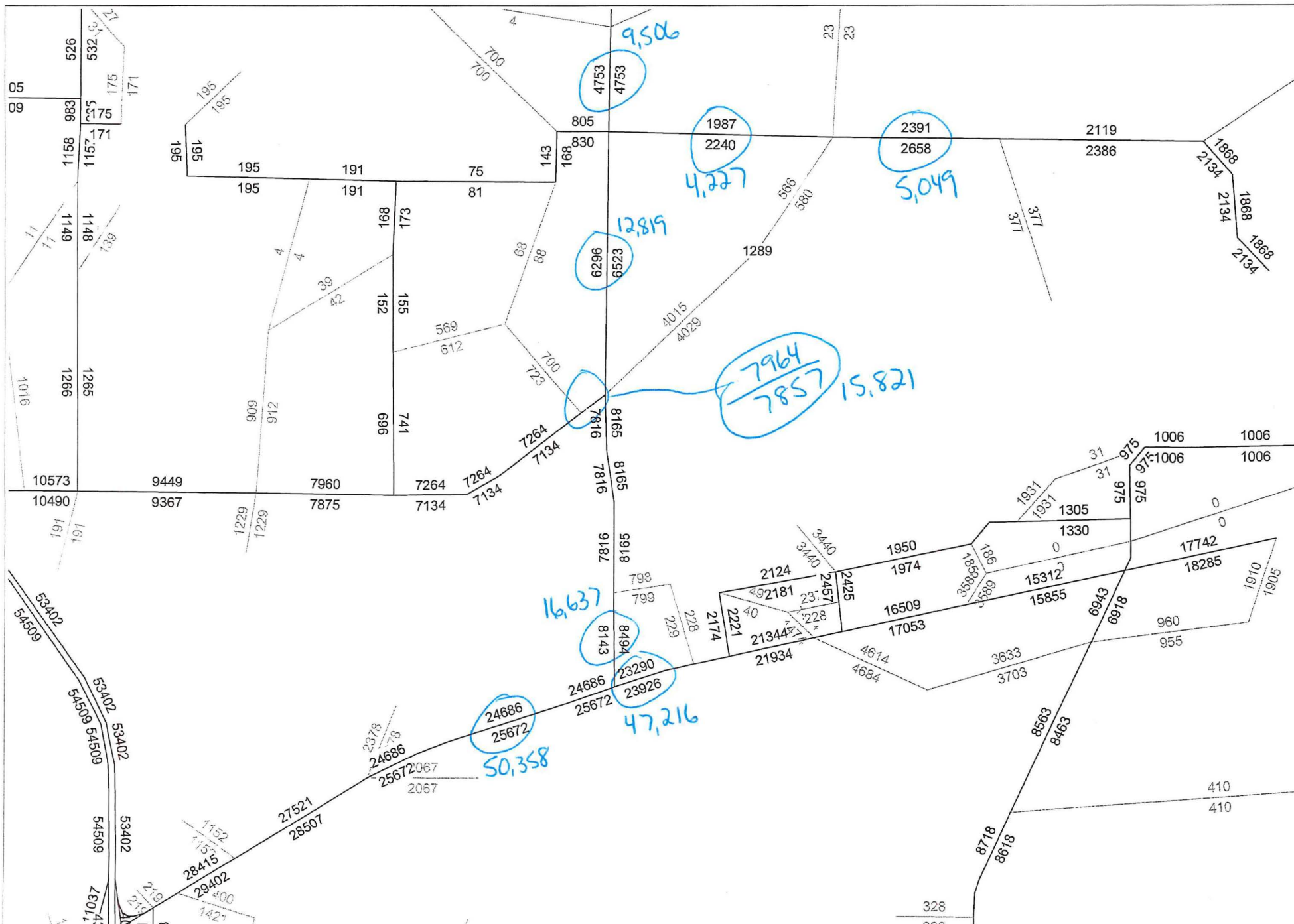
**2030 Traffic Conditions with Proposed Density at Kreinbrink Property  
Existing Plus Programmed Road Network**

<u>ROADWAY</u>	<u>SEGMENT</u>	# OF	LOS	RAW FSUTMS	PSWDT/AADT		2030	K-100	D	TOTAL TRAFFIC	LOS SERVICE	LOS
		LANES	STANDARD	PSWDT	P.C.S. #	FACTOR	AADT	FACTOR	FACTOR	PK DIRECTION	VOLUME	
State Route 31	N. of Palm Beach Blvd.	2LN	E	16,637	11	1.11	14,988	0.104	0.52	811	920	D
	N. of Bayshore Rd.	2LN	E	12,819	11	1.11	11,549	0.104	0.52	625	920	C
	N. of North River Rd.	2LN	E	9,506	34	1.10	8,668	0.095	0.63	519	920	C
North River Rd. (S.R. 80)	E. of State Route 31	2LN	E	4,227	11	1.11	3,808	0.104	0.52	206	920	B
	E. of Site	2LN	E	5,049	11	1.11	4,549	0.104	0.52	246	920	B
Bayahore Rd. (S.R. 78)	W. of State Route 31	2LN	E	15,821	34	1.10	14,426	0.095	0.63	863	920	D
Palm Beach Blvd (S.R. 80)	W. of State Route 31	6LN	C	50,358	5	1.13	44,565	0.091	0.57	2,312	2,850	B
	E. of State Route 31	4LN	C	47,216	11	1.11	42,537	0.104	0.52	2,300	1,950	F

FSUTMS DATA PLOTS BOTH  
WITH/WITHOUT THE PROPOSED  
LAND USE CHANGE







2030 Modified  
Kreinbrink - TAZ 1289

# ZDATA FILE INFORMATION

# EXISTING 2030 FINANCIALLY FEASIBLE PLAN

## Z-DATA 1 File

TAZ	Single Family Data	Multi-Family Data	Hotel
1 0 1289	21 6 4 52 0 14 86	1 13 13 2 0 42 58	0 99 0

Population:

TAZ 1289

Single Family: 2.5 persons/unit

Multi Family: 2.0 persons/unit

## Z\_DATA 2 file

	Indust.	Comm.	Serv.	Tot	School
TAZ	Emp.	Emp.	Emp.	Emp	Enr.
2 1289	1	0	8	9	0

**MODIFIED 2030 FINANCIALLY FEASIBLE PLAN  
WITH PROPOSED COMP PLAN CHANGE**

**Z-DATA 1 File**

TAZ	Single Family Data	Multi-Family Data	Hotel
1 0 1289	21 6 4 52 0 14 86	1 13 13 2 0 42 58	0 99 0

Population:

TAZ 1289

Single Family: 2.5 persons/unit

Multi Family: 2.0 persons/unit

**Z\_DATA 2 file**

	Indust.	Comm.	Serv.	Tot	School
TAZ	Emp.	Emp.	Emp.	Emp	Enr.
2 1289	1	875	8	884	0



2030 FDOT ADOPTED 2030  
HIGHWAY ELEMENT

# Adopted Year 2030 HIGHWAY ELEMENT

Adopted December 7th, 2005 with Amendments on January 20th, & March 17th, 2006

ROAD SEGMENT: Name of new road or road to be improved FROM: Start of segment to be added or improved TO: End of segment to be added or improved				E = C EXISTING roadway network plus COMMITTED roadway projects to be built by FY 04/05 IMPROVEMENT: Description of facility following proposed improvement		FINANCIAL FEASIBILITY STATUS Contingent: Projects whose feasibility is contingent upon additional funding Feasible: Projects that public agencies have determined to be cost feasible based upon their projected revenues				
FDOT										
190	Alico Rd	U.S. 41	Dusty Rd	2L	6L	0.48	Last two years of SIB payoff	\$2,442,699	\$2,442,699	Feasible
	Arterial roads & expressways		Lee & Collier Counties		Travel speed surveillance capability		Half of capital cost of expanding the bicounty system to monitor travel speed in real time by using vehicles equipped with toll transponders as probes	\$3,450,000	-	Contingent
	Caloosahatchee bridges		Cape Coral, Mid Point, U.S. 41, & Edison Bridges & their approaches		Incident management system		Stage II implementation	\$5,800,000	\$5,800,000	Feasible
	Computerized traffic signal system		Countywide		Upgrade to ATMS			\$27,600,000	\$27,600,000	Feasible
	Drawbridges		On S.R. 31 (Ardadia Rd) & Broadway (C.R. 78A) @ Caloosahatchee River, Pine Island Rd @ Matlacha Pass, & C.R. 865 @ Big Carlos Pass		Security system		Motion & object sensors, video & audio surveillance to monitor for potential threats from terrorist attacks, acts of God, or other incidents	\$600,000	-	Contingent
	Intermodal freight terminal		State Farmers Market, S.R. 78, or Alico Rd		Rail/truck terminal		TOFC/COFC terminal and team track	\$6,505,333	-	Contingent
	L-75 approach roads	Collier County line	Charlotte County line		Dynamic message signs		SIS	\$3,280,000	-	Contingent
	L-75 detour routes	Collier County line	Charlotte County line		Trailblazer signing		SIS, dynamic and/or static trailblazer signs	\$5,810,000	-	Contingent
183	L-75	Collier County line	Bonita Beach Rd	6L	10L	1.05	SIS	\$13,322,400	-	Contingent
185	L-75		@ Bonita Beach Rd		Interchange modification	0.50	SIS	\$68,029,000	-	Contingent
185	L-75		@ Coconut Rd		New interchange		Allocation is from \$10,000,000 federal earmark. See NOTE #1 b	-	-	Feasible
187	L-75	Bonita Beach Rd	Alico Rd	6L	12L	11.65	12 lanes; SIS and/or toll; 4 lanes may be toll express lanes	\$221,722,800	-	Contingent
191	L-75		@ Corkscrew Rd		Interchange modification	0.50	SIS; construction only	\$23,461,000	-	Feasible
184	L-75	Bonita Beach Rd	Daniels Pkwy		Ramp metering			\$2,630,000	-	Contingent
184	L-75	Alico Rd	S.R. 82 (Dr Martin Luther King Jr Blvd)	6L	10L	9.90	10 lanes; SIS and/or toll; 4 lanes may be toll express lanes	\$204,019,200	-	Contingent
186	L-75 collector-distributor roads	Alico Rd	North of airport interchange	None	2L each side, + new airport interchange	3.16	SIS Connector; construction only	\$101,000,000	-	Feasible
186	L-75 collector-distributor roads	Alico Rd	Alico Expwy	2L each side	3L each side	0.34	Second stage, if / when Alico Expwy is built; SIS connector	\$2,157,137	-	Contingent
192	L-75		@ Colonial Blvd		Interchange modification	0.50	SIS; construction only	\$42,324,000	-	Feasible
193	L-75		@ S.R. 82 (Dr Martin Luther King Jr Blvd)		Interchange modification	0.50	SIS	\$57,396,000	-	Feasible
194	L-75		@ Luckett Rd		Interchange modification	0.50	SIS	\$3,770,000	-	Contingent
185	L-75	S.R. 82 (Dr Martin Luther King Jr Blvd)	S.R. 80 (Palm Beach Blvd)	6L	8L	3.47	SIS	\$19,885,000	-	Contingent
185	L-75	S.R. 80 (Palm Beach Blvd)	S.R. 78 (Bayshore Rd)	4L	6L	2.59	SIS; construction only	\$80,342,000	-	Feasible
185	L-75		@ S.R. 78 (Bayshore Rd)		Interchange modification	0.50	SIS	\$16,531,000	-	Feasible
	L-75				Interchange modification	0.50	SIS, 8L	\$4,235,000	-	Contingent
185	L-75	S.R. 78 (Bayshore Rd)	Charlotte County line	4L	6L	5.77	SIS	\$33,089,000	-	Feasible
195	L-75		@ Del Prado Blvd Ext		New interchange	5.77	SIS	\$64,026,920	-	Contingent
92	Kennesaw connector	Fowler St	Evans Ave	None	3L	0.22	Bus replacements	\$9,000,000	-	Contingent
	LeeTran route 140						Bus replacements	\$3,511,960	\$3,511,960	Feasible
	Regional traveler information system		Lee, Collier & Charlotte Counties		Traveler information broadcast capability		One third of the capital cost to disseminate real time traveller & traffic information for various modes from the 511 system, probe vehicle monitoring, and the SunGuide traffic management system to incident responders, other traveler information services, and the public	\$1,000,000	\$1,000,000	Feasible
184	S.R. 739 (Metro Pkwy)	U.S. 41	Six Mile Cypress Pkwy	2L	6L	1.25	CST only, includes interchange with Alico Road & railroad overpass. Dropped from FDOT's draft tentative work program	\$48,000,000	\$48,000,000	Feasible
1229	S.R. 739 (Metro Pkwy)		@ Six Mile Cypress Pkwy		Grade separation	0.50	Includes \$1,700,000 for open road tolling of 4L overpass	-	-	Contingent
199	S.R. 739 (Metro Pkwy)	Six Mile Cypress Pkwy	Daniels Pkwy	2L	6L	1.26	CST only. Dropped from FDOT's draft tentative work program	\$10,336,637	\$10,336,637	Feasible
107	S.R. 739 (Metro Pkwy)	Daniels Pkwy	1800' North of Winkler Ave	4L	6L	4.56	CST only. Dropped from FDOT's draft tentative work program	\$45,952,463	\$45,952,463	Feasible
70	S.R. 739 (Metro-Fowler connector)	Metro Pkwy 1800' North of Winkler Ave	Fowler St & Evans Ave	None	6L	1.06	Includes overpass over railroad	\$18,058,663	\$18,058,663	Feasible
68	S.R. 739 (Fowler St)	Metro-Fowler Connector	S.R. 82 (Dr Martin Luther King Jr Blvd)	4L/2 way	3L/1 way	1.39	Remainder of right of way & construction	\$22,357,038	\$22,357,038	Feasible
148	S.R. 78 (Pine Island Rd)	Burnt Store Rd	West of Chiquila Blvd	2L	4L	2.05	Remainder of right of way & construction	\$23,156,645	\$23,156,645	Feasible
125	S.R. 78 (Pine Island Rd)	Skyline Blvd	300' West of Santa Barbara Blvd	4L/2 way	6L/2 way	1.40		\$6,790,132	-	Contingent
125	S.R. 78 (Pine Island Rd)	300' West of Santa Barbara Blvd	Cultural Park Blvd	4L/2 way	6L/2 way	2.40		\$5,092,599	-	Contingent
123	S.R. 78 (Pine Island Rd)	Cultural Park Blvd	Del Prado Blvd	4L/2 way	6L/2 way	1.35		\$6,547,628	-	Contingent
158	S.R. 78 (Pine Island Rd)		@ Del Prado Blvd		Urban interchange		Includes \$1,700,000 for open road tolling on 4L overpass	-	-	Contingent
125	S.R. 78 (Pine Island Rd)	Del Prado Blvd	Pondella Rd	4L/2 way	6L/2 way	0.91		\$4,599,620	-	Contingent
123	S.R. 80 (Palm Beach Blvd)	S.R. 31 (Arcadia Rd)	Buckingham Rd	4L/2 way	6L/2 way	2.49	SIS	\$18,056,122	-	Contingent
193	S.R. 82 (Dr Martin Luther King Jr Blvd)	Monaghan Link	Park 82 Dr	5L/2 way	6L/2 way	4.44	Emerging SIS connector	\$347,102	-	Contingent
123	S.R. 82 (Dr Martin Luther King Jr Blvd)	Park 82 Dr	Teller Rd	4L/2 way	6L/2 way	0.60	Included in I-75 interchange modification project	-	-	Contingent
132	S.R. 82 (Dr Martin Luther King Jr Blvd)	Teller Rd	Wallace Ave	4L/2 way	6L/2 way	2.99	Emerging SIS	\$25,628,100	-	Contingent
132	S.R. 82 (Immaculate Rd)	Wallace Ave	Hendry County line	2L/2 way	6L/2 way	13.91	Emerging SIS	\$87,175,286	-	Contingent
134	S.R. 865 (San Carlos Blvd)	Summerlin Rd	Gladiolus Dr	2L/2 way	4L/2 way	1.50	Emerging SIS	\$7,590,880	-	Contingent
105	S.R. 867 (McGregor Blvd)	A & W Bulb Rd	Cypress Lake Dr	4L/2 way	6L/2 way	0.67	Add 1 NB Lane	\$9,912,593	-	Contingent
182	S.R. 867 (McGregor Blvd)	500' South of Davis Dr	750' North of Colonial Blvd	2L	3L			\$900,000	\$900,000	Feasible

LEE COUNTY GENERALIZED  
LEVEL OF SERVICE THRESHOLDS

**Lee County**  
**Generalized Peak Hour Directional Service Volumes**  
**Urbanized Areas**

Sept., 2005

c:\input2

<b>Uninterrupted Flow Highway</b>						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	100	360	710	1,000	1,270
2	Divided	1,060	1,720	2,480	3,210	3,650
3	Divided	1,590	2,580	3,720	4,820	5,480

<b>Arterials</b>						
Class I (>0.00 to 1.99 signalized intersections per mile)						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	*	290	760	900	920
2	Divided	450	1,630	1,900	1,950	1,950
3	Divided	670	2,490	2,850	2,920	2,920
4	Divided	890	3,220	3,610	3,700	3,700

Class II (>2.00 to 4.50 signalized intersections per mile)						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	*	210	660	850	900
2	Divided	*	490	1,460	1,790	1,890
3	Divided	*	760	2,240	2,700	2,830
4	Divided	*	1,000	2,970	3,500	3,670

Class III (more than 4.50 signalized intersections per mile)						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	*	*	370	720	850
2	Divided	*	*	870	1,640	1,790
3	Divided	*	*	1,340	2,510	2,690
4	Divided	*	*	1,770	3,270	3,480

<b>Controlled Access Facilities</b>						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	120	740	930	960	960
2	Divided	270	1,620	1,970	2,030	2,030
3	Divided	410	2,490	2,960	3,040	3,040

<b>Collectors</b>						
Level of Service						
Lane	Divided	A	B	C	D	E
1	Undivided	*	*	530	800	850
1	Divided	*	*	560	840	900
2	Undivided	*	*	1,180	1,620	1,720
2	Divided	*	*	1,240	1,710	1,800

Note: the service volumes for I-75 (freeway) should be from FDOT's most current version of LOS Handbook.

TABLE 1A & 2A  
SHORT TERM LEVEL OF SERVICE  
ANALYSIS



**TABLE 1A**  
**PEAK DIRECTION PROJECT TRAFFIC VS. 10% LOS C LINK VOLUMES**

TOTAL AM PEAK HOUR PROJECT TRAFFIC = 225 VPH      IN= 140      OUT= 85  
TOTAL PM PEAK HOUR PROJECT TRAFFIC = 1030 VPH      IN= 505      OUT= 525

<u>ROADWAY</u>	<u>SEGMENT</u>	<u>ROADWAY</u> <u>CLASS</u>	<u>LOS A</u> <u>VOLUME</u>	<u>LOS B</u> <u>VOLUME</u>	<u>LOS C</u> <u>VOLUME</u>	<u>LOS D</u> <u>VOLUME</u>	<u>LOS E</u> <u>VOLUME</u>	PERCENT	<u>PROJECT</u> <u>TRAFFIC</u>	<u>PROJECT</u> <u>TRAFFIC</u>	<u>PROJ/</u> <u>LOS C</u>
N. River Rd.	E. of S.R. 31	2LN	0	290	760	900	920	15%	79		10.4%
S.R. 31	N. of N. River Rd.	2LN	100	360	710	1,000	1,270	15%	79		11.1%
	S. of N. River Rd.	2LN	100	360	710	1,000	1,270	70%	368		51.8%
	S. of S.R. 78	2LN	100	360	710	1,000	1,270	50%	263		37.0%
S.R. 80	W. of S.R. 31	6LN	670	2,490	2,850	2,920	2,920	25%	131		4.6%
	E. of S.R. 31	4LN	450	1,630	1,900	1,950	1,950	15%	79		4.1%
	E. of Buckingham Rd.	4LN	450	1,630	1,900	1,950	1,950	10%	53		2.8%
S.R. 78 (Bayshore)	W. of S.R. 31	2LN	0	290	760	900	920	20%	105		13.8%

\* Level of Service Thresholds were obtained from the Lee County Generalized Service Volumes on Arterials

**TABLE 2A**  
**LEE COUNTY TRAFFIC COUNTS AND CALCULATIONS**  
**5-year CIP ANALYSIS**

TOTAL PROJECT TRAFFIC AM = 225 VPH IN = 140 OUT= 85  
TOTAL PROJECT TRAFFIC PM = 1030 VPH IN= 505 OUT= 525

<u>ROADWAY</u>	<u>SEGMENT</u>	<u>PCS</u>	<u>ADT</u>	<u>ADT</u>	<u>GROWTH</u>	<u>RATE</u>	2008	2013	<u>PERCENT</u>	<u>AM PROJ</u>	<u>PM PROJ</u>	2013	2013
							PK HR	PK HR				BCKGRND	BCKGRND
							PK SEASON	PK SEASON				+ AM PROJ	+ PM PROJ
							<u>PEAK DIR.</u>	<u>PEAK DIR.<sup>2</sup></u>	<u>TRAFFIC</u>	<u>TRAFFIC</u>	<u>TRAFFIC</u>	<u>TRAFFIC</u>	<u>TRAFFIC</u>
N. River Rd.	E. of S.R. 31	5	1800	2100	8	1.95%	135	149	15%	21	79	170	227
S.R. 31	N. of N. River Rd.	11	7200	7500	9	0.45%	309	316	15%	21	79	337	395
	S. of N. River Rd.	11	7200	7500	9	0.45%	309	316	70%	98	368	414	684
	S. of S.R. 78	11	7200	7500	9	0.45%	478	489	50%	70	263	559	751
S.R. 80	W. of S.R. 31	5	24500	27100	9	1.13%	1453	1537	25%	35	131	1572	1668
	E. of S.R. 31	11	35200	34200	3	2.00%	1661	1834	15%	21	79	1855	1913
	E. of Buckingham Rd.	11	15400	16400	9	0.70%	1106	1145	10%	14	53	1159	1198
S.R. 78 (Bayshore)	W. of S.R. 31	34	8900	8700	9	2.00%	560	618	20%	28	105	646	723

<sup>2</sup> The 2008 peak hour peak season peak direction volumes were obtained from the 2007/2008-2008/2009 Lee County Concurrency Management Report, dated October 2008

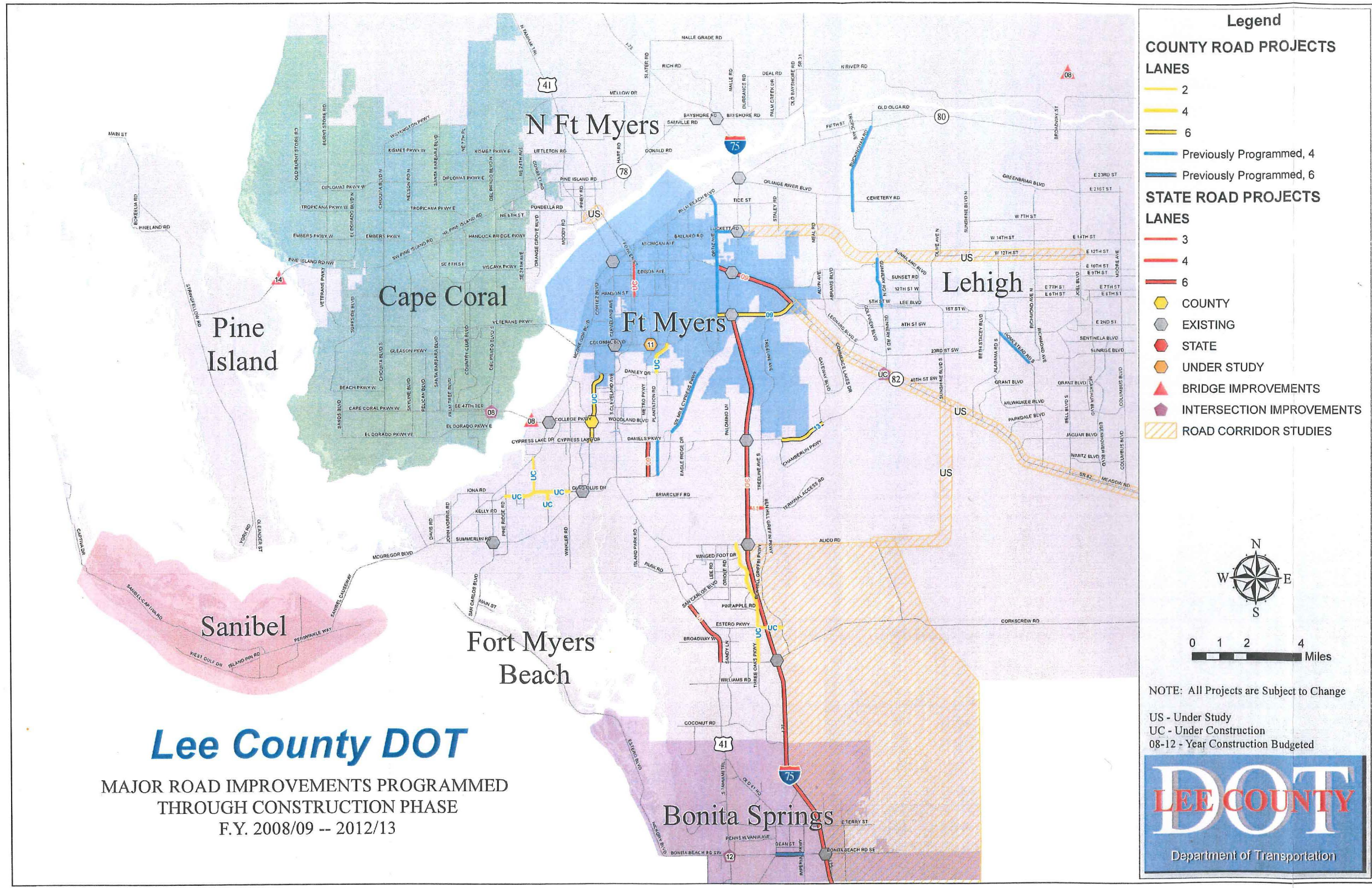
A minimum of 2% annual growth rate was used where a negative growth rate was shown

#### 100th Highest Hour LOS Analysis

		2013	2013	2013
		BCKGRND	BCKGRND	BCKGRND
		PK HOUR	+ AM PROJ	+ PM PROJ
		<u>LOS</u>	<u>LOS</u>	<u>LOS</u>
N. River Rd.	E. of S.R. 31	B	B	B
S.R. 31	N. of N. River Rd.	B	B	C
	S. of N. River Rd.	B	C	C
	S. of S.R. 78	C	C	D
S.R. 80	W. of S.R. 31	B	B	B
	E. of S.R. 31	C	C	D
	E. of Buckingham Rd.	B	B	B
S.R. 78	W. of S.R. 31	C	C	C

LEE COUNTY/FDOT 5-YEAR  
PLANNED IMPROVEMENTS







**PERMANENT COUNT STATION 34  
PONDELLA RD E OF BETMAR**

2008 AADT = 19800

K100 Factor - 0.0952

Monthly ADT as a % of Annual ADT

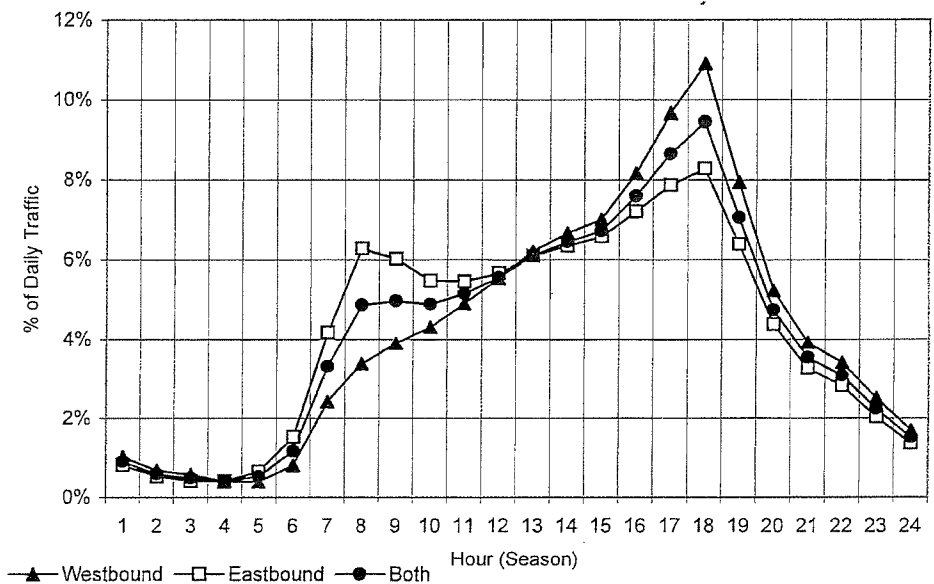
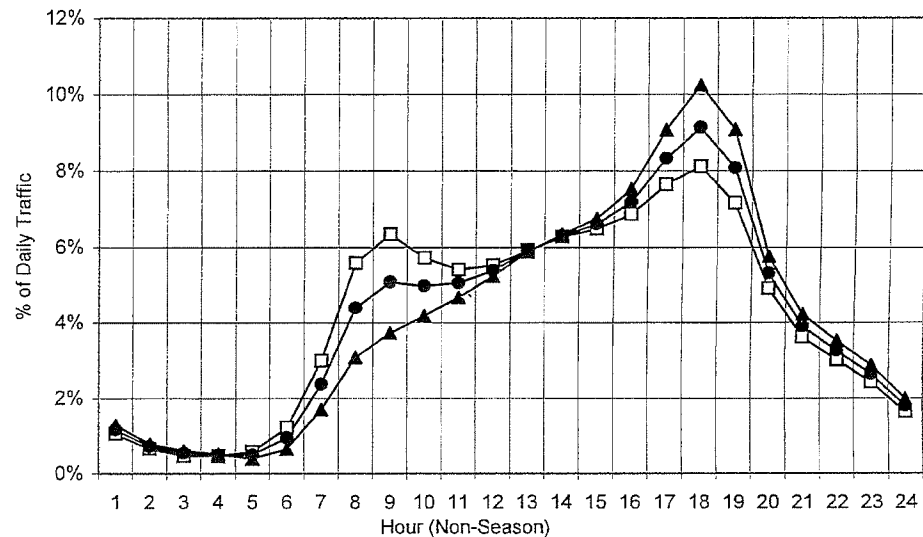
January	105%
February	113%
March	108%
April	108%
May	101%
June	96%
July	92%
August	92%
September	93%
October	99%
November	95%
December	99%

Day of Week as a % of Annual ADT

Monday	106%
Tuesday	107%
Wednesday	112%
Thursday	111%
Friday	116%
Saturday	83%
Sunday	64%

Weekday Peak Flow Characteristics	Non-Season	Season
Peak Flow between 7 a.m. and 9 a.m.		
1) as a % of weekday traffic	4.7%	4.9%
2) directional Split (peak direction)	64%	63%
	Eastbound	Eastbound
Peak Flow between 4 p.m. and 6 p.m.		
1) as a % of weekday traffic	8.7%	9.1%
2) directional Split (peak direction)	55%	56%
	Westbound	Westbound

**PERMANENT COUNT STATION 34  
PONDELLA RD E OF BETMAR**



2008 LLTCR



## P.C.S DATA

**PERMANENT COUNT STATION 5  
PALM BEACH BLVD (SR 80) W OF SR 31**

**2008 AADT = 27100**

K100 Factor - 0.0908

Monthly ADT as a % of Annual ADT

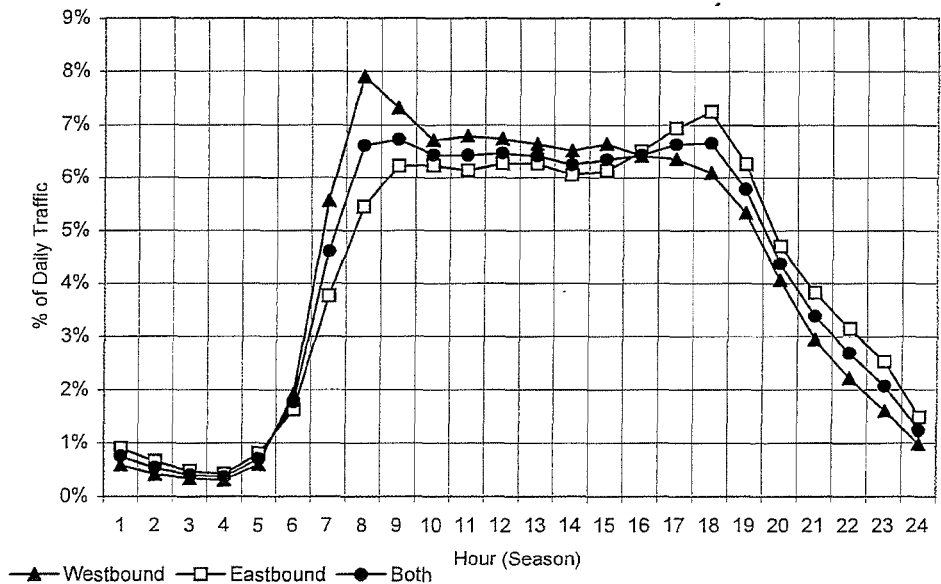
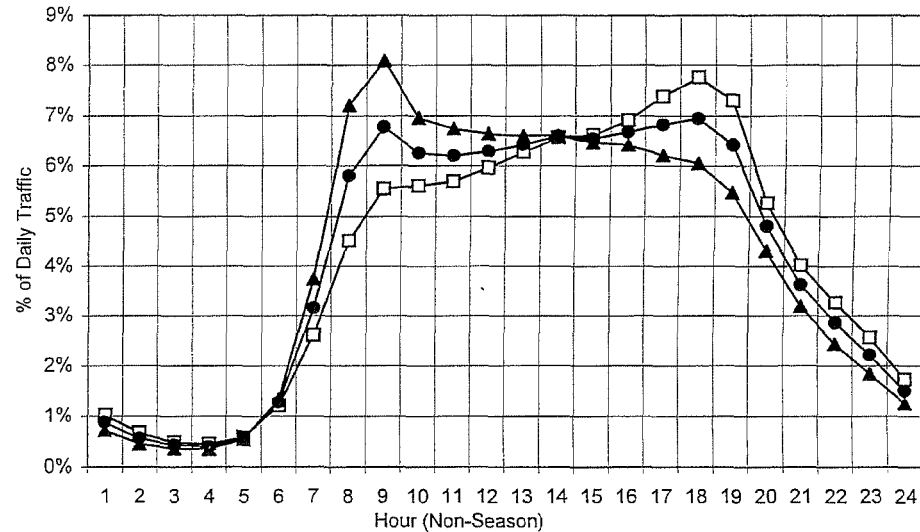
January	
February	119%
March	113%
April	107%
May	99%
June	92%
July	88%
August	88%
September	91%
October	97%
November	103%
December	105%

Day of Week as a % of Annual ADT

Monday	102%
Tuesday	102%
Wednesday	106%
Thursday	107%
Friday	115%
Saturday	91%
Sunday	78%

Weekday Peak Flow Characteristics	Non-Season	Season
Peak Flow between 7 a.m. and 9 a.m.		
1) as a % of weekday traffic	6.3%	6.7%
2) directional Split (peak direction)	60%	57%
	Westbound	Westbound
Peak Flow between 4 p.m. and 6 p.m.		
1) as a % of weekday traffic	6.9%	6.6%
2) directional Split (peak direction)	55%	53%
	Eastbound	Eastbound

**PERMANENT COUNT STATION 5  
PALM BEACH BLVD (SR 80) W OF SR 31**



2008 LC TCR

**PERMANENT COUNT STATION 11  
BUCKINGHAM RD S OF PALM BEACH BLVD**

**2008 AADT = 8000**

K100 Factor - 0.0996

Monthly ADT as a % of Annual ADT

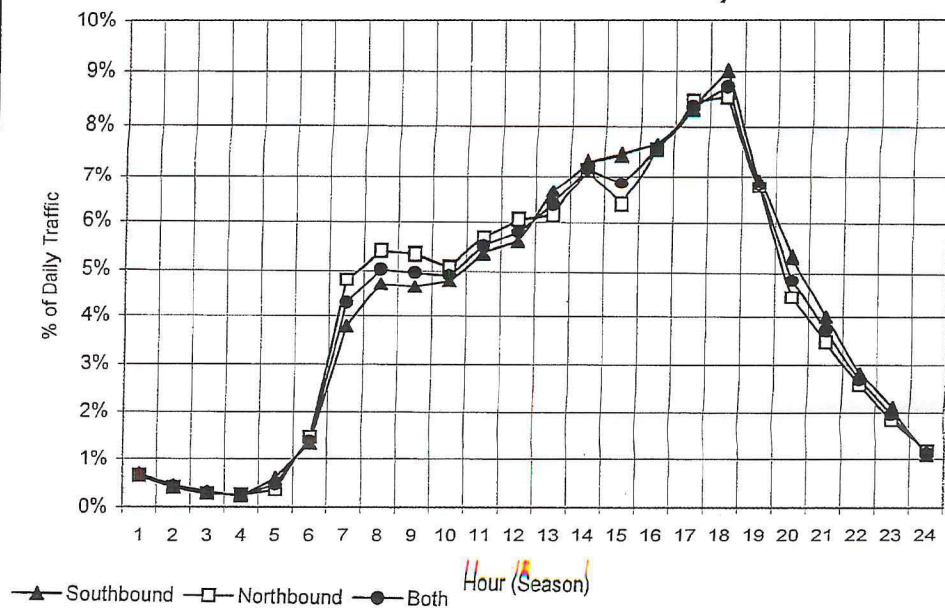
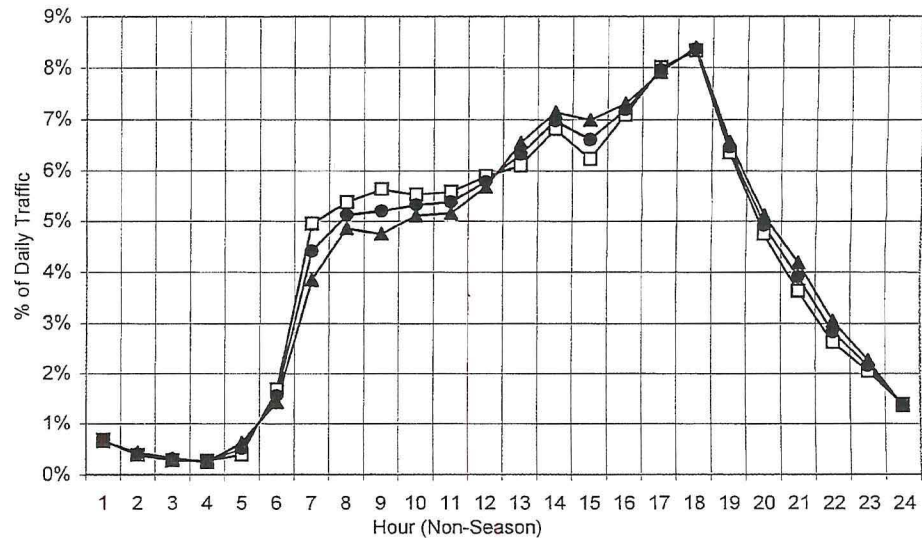
January	104%
February	
March	
April	103%
May	102%
June	100%
July	89%
August	102%
September	103%
October	107%
November	95%
December	99%

Day of Week as a % of Annual ADT

Monday	105%
Tuesday	98%
Wednesday	104%
Thursday	107%
Friday	114%
Saturday	93%
Sunday	76%

Weekday Peak Flow Characteristics	Non-Season	Season
Peak Flow between 7 a.m. and 9 a.m.		
1) as a % of weekday traffic	5.2%	5.0%
2) directional Split (peak direction)	53%	53%
	Northbound	Northbound
Peak Flow between 4 p.m. and 6 p.m.		
1) as a % of weekday traffic	8.2%	8.5%
2) directional Split (peak direction)	50%	51%
	Northbound	Southbound

**PERMANENT COUNT STATION 11  
BUCKINGHAM RD S OF PALM BEACH BLVD**



2008 LCPCR

**PERMANENT COUNT STATION 11  
BUCKINGHAM RD S OF PALM BEACH BLVD**

2007 AADT = 9600

K100 Factor - 0.104

Monthly ADT as a % of Annual ADT

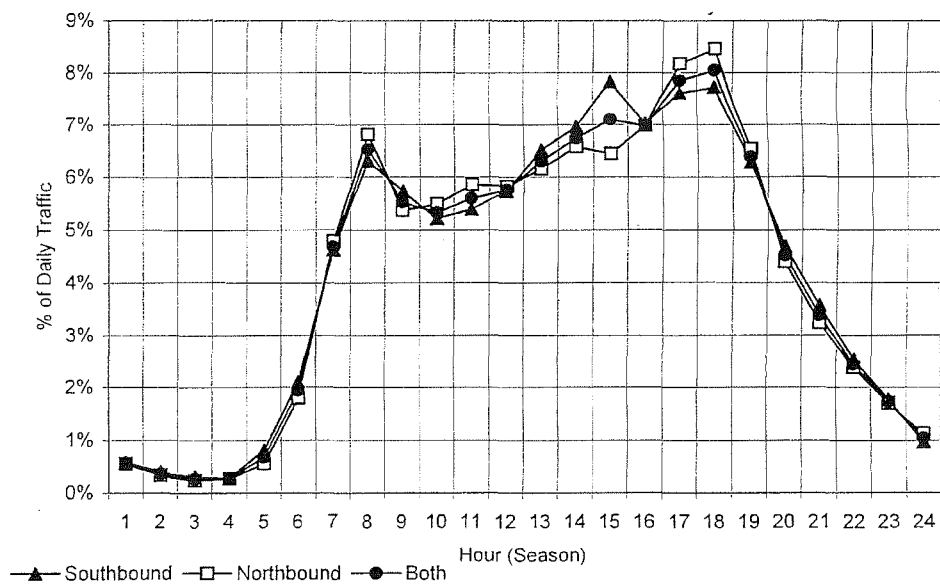
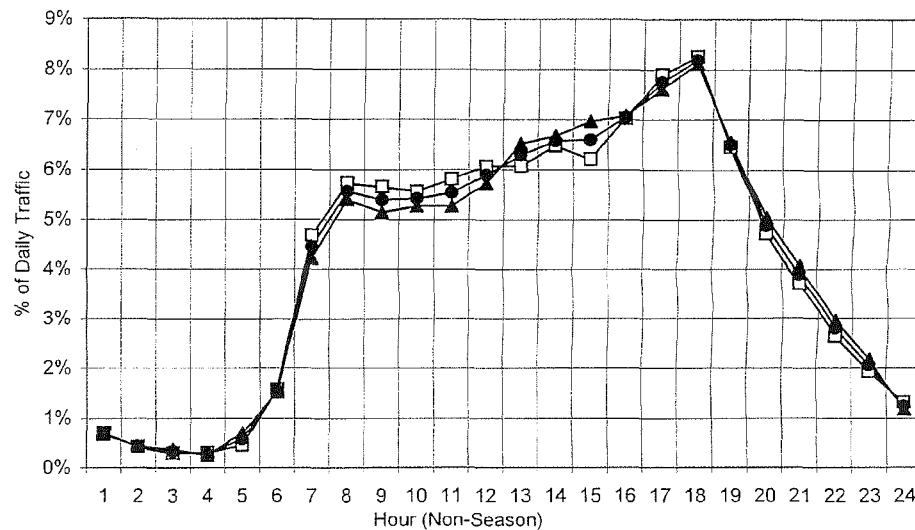
January	106%
February	113%
March	114%
April	106%
May	105%
June	91%
July	84%
August	96%
September	96%
October	100%
November	97%
December	93%

Day of Week as a % of Annual ADT

Monday	101%
Tuesday	107%
Wednesday	108%
Thursday	110%
Friday	114%
Saturday	87%
Sunday	73%

Weekday Peak Flow Characteristics	Non-Season	Season
Peak Flow between 7 a.m. and 9 a.m.		
1) as a % of weekday traffic	5.5%	6.0%
2) directional Split (peak direction)	52%	50%
	Northbound	Northbound
Peak Flow between 4 p.m. and 6 p.m.		
1) as a % of weekday traffic	8.0%	8.0%
2) directional Split (peak direction)	51%	52%
	Northbound	Northbound

**PERMANENT COUNT STATION 11  
BUCKINGHAM RD S OF PALM BEACH BLVD**



2007 LCTCR

RECEIVED

APR 29 2009

15.00 Recording  
.70 Documentary Stamps

CPA 2008-00003  
4651703

0R3 / 29 Pg 2 / 90

Prepared by:  
Stephen W. Buckley, Esquire  
GOLDSTEIN, BUCKLEY, CECHEMAN,  
RICE & PURTZ, P.A.  
Post Office Box 2366  
Fort Myers, Florida 33902-2366  
98-1099

Property Appraiser's  
Parcel Identification No. 18-43-26-00-00001.0040

RECORDED BY  
KAREN CARTWRIGHT, D.C.

Documentary Tax Pd. \$ 1.70  
\$ Intangible Tax Pd

CHARLIE GREEN, CLERK, LEE COUNTY  
By Karen Cartwright Deputy Clerk

[Space above this line for recording date.]

### WARRANTY DEED TO TRUSTEE UNDER LIVING TRUST

THIS WARRANTY DEED made this 8<sup>TH</sup> day of June, 1999, by DANIEL W. KREINBRINK and KATHERINE G. KREINBRINK, husband and wife, as GRANTOR, whose address is 12100 River Road, Alva, Florida 33920, and KATHERINE G. KREINBRINK, Trustee of the KATHERINE G. KREINBRINK TRUST dated October 27, 1998, (hereinafter referred to as "Trustee") with full power and authority to protect, conserve and to sell, or to lease or to encumber, or to otherwise manage and dispose of the property hereinafter described, and whose address is 12100 River Road, Alva, Florida 33920;

and with DANIEL W. KREINBRINK to be successor trustee of the KATHERINE G. KREINBRINK TRUST upon death, disability or resignation of KATHERINE G. KREINBRINK. The written acceptance by DANIEL W. KREINBRINK recorded among the public records in the county where the real property described below is located, together with evidence of KATHERINE G. KREINBRINK'S death, disability or resignation, shall be deemed conclusive proof that the successor trustee provisions of the aforesaid Living Trusts have been complied with. Evidence of KATHERINE G. KREINBRINK'S death shall consist of a certified copy of her death certificate. Evidence of her disability shall consist of a licensed physician's affidavit establishing that KATHERINE G. KREINBRINK is incapable of performing her duties as Trustee of the aforesaid Living Trust. Evidence of KATHERINE G. KREINBRINK'S resignation shall consist of a resignation, duly executed and acknowledged by her. The successor trustee shall have the same powers granted to the original Trustee as set forth above.

#### WITNESSETH:

That Grantor, for and in consideration of the sum of TEN AND NO/100'S DOLLARS (\$10.00), and other good and valuable consideration, receipt whereof is hereby acknowledged, hereby grants, bargains, sells, aliens, remises, releases, conveys and confirms unto Trustee, all that certain land situate in Lee County, Florida, to-wit:

See Exhibit A attached hereto and by reference incorporated herein.

#### PREPARED WITHOUT EXAMINATION OF TITLE

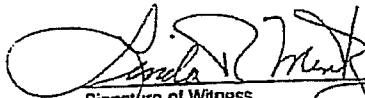
TO HAVE AND TO HOLD the above-described real estate in fee simple with the appurtenances upon the trust and for the purposes set forth in this Deed and in the Katherine G. Kreinbrink Trust dated October 27, 1998.

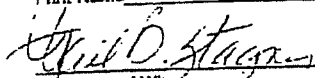
GRANTEE, as TRUSTEE, is hereby granted full power and authority, pursuant to the provisions of Florida Statute 689.071, to protect, conserve, sell, convey, lease, encumber and to otherwise manage and deal with the property herein conveyed. No person dealing with such Trustee(s) shall be privileged or required to inquire of the proceeds from any sale of the property. The interest of the beneficiaries under such Trust(s) is hereby declared to be personal property.



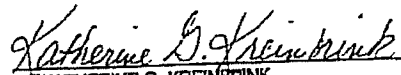
IN WITNESS WHEREOF, Grantor has hereunto set Grantor's hand and seal the day and year first above written.

Signed, sealed and delivered in our presence:

  
Signature of Witness  
Print Name LINDA R. MINTZ

  
Signature of Witness  
Print Name GAIL P. STAGNER

  
DANIEL W. KREINBRINK

  
KATHERINE G. KREINBRINK

0R3129 P62191

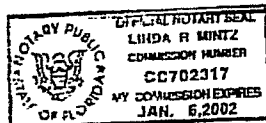
STATE OF FLORIDA  
COUNTY OF LEE

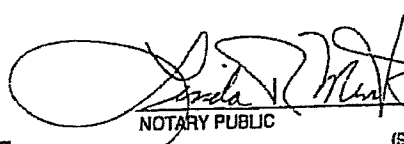
The foregoing instrument was acknowledged before me this 26 day of June, 1999, by DANIEL W. KREINBRINK and KATHERINE G. KREINBRINK,

☒ who are personally known to me, or

☐ who produced \_\_\_\_\_ as Identification.

My Commission Expires:



  
NOTARY PUBLIC (Seal)

FOR: KREINBRINK  
DATE: 4-24-09  
PHONE: (239) 543-3335

Starnes Surveying, Inc. L.B. 6766  
SURVEYING-ENGINEERING-LAND PLANNING  
18571 DURRANCERD., N. FT. MYERS, FL. 33917

CERTIFIED SKETCH  
FIELD BOOK \_\_\_\_\_ W.O. NUMBER  
PAGE \_\_\_\_\_ 4306

SHEET 1 OF 2

I HEREBY CERTIFY THAT THIS SKETCH AS SHOWN IS A TRUE REPRESENTATION OF THE PARCEL HEREON DESCRIBED AS TO THE BEST OF MY KNOWLEDGE AND BELIEF.

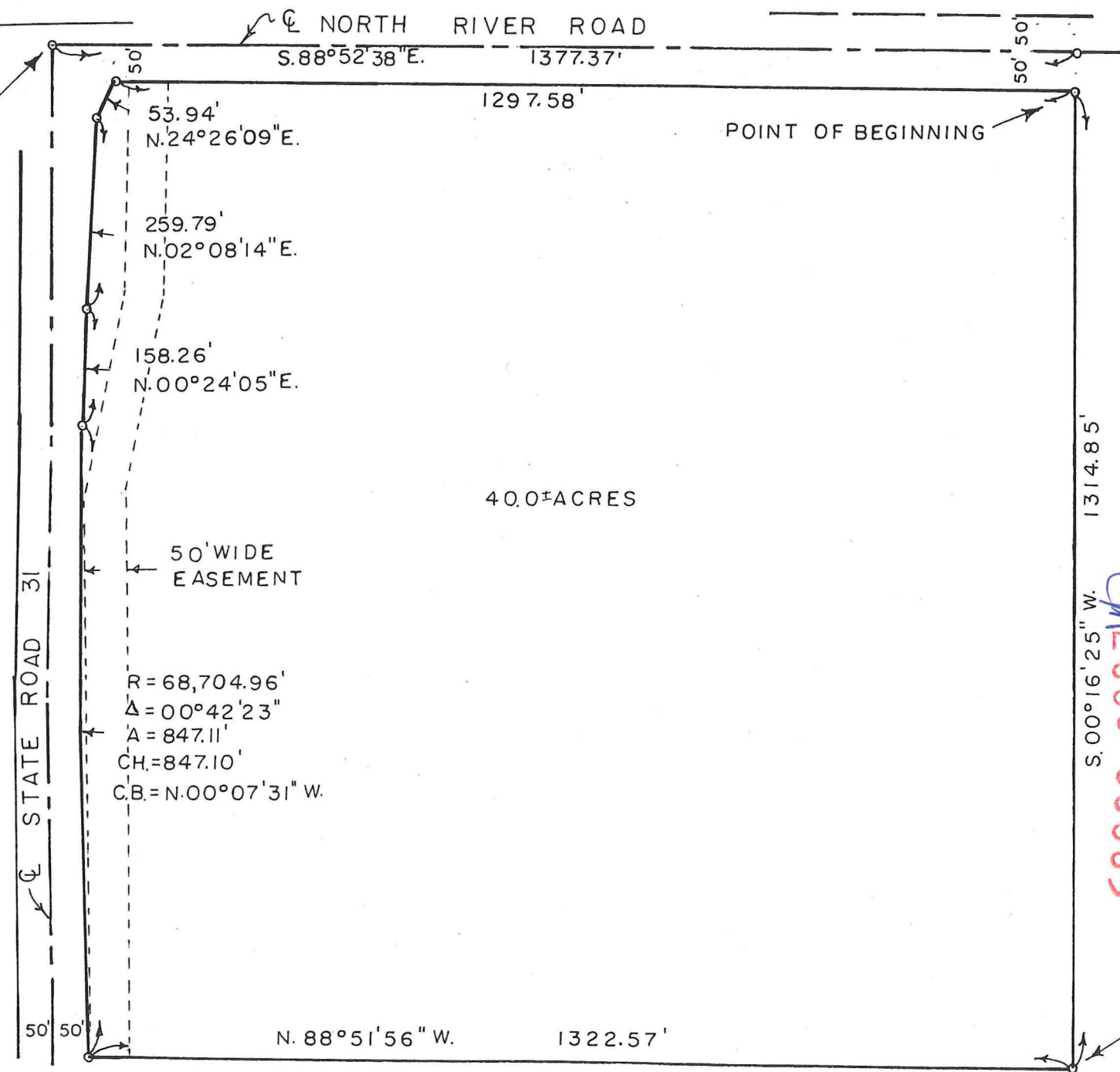
*James R. Starnes*  
JAMES R. STARNES P.L.S. 4869  
PROFESSIONAL LAND SURVEYOR  
STATE OF FLORIDA.

POINT OF COMMENCEMENT  
THE N.W. CORNER SECTION 18  
874,843.72  
734,163.86

THE BEARINGS AS SHOWN  
HEREON ARE BASED ON THE  
CENTERLINE OF NORTH RIVER RD.  
AS BEING S.88°52'38"E.

THE COORDINATES AS SHOWN  
HEREON ARE BASED ON THE  
STATE PLANE COORDINATE  
SYSTEM FOR THE FLORIDA WEST  
ZONE NORTH AMERICAN DATUM  
1983/1999 ADJUSTMENT.

NOTE: (1). THIS SKETCH IS NOT A SURVEY.  
(2). THIS SKETCH IS NOT VALID WITHOUT THE SIGNATURE AND  
THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED  
SURVEYOR AND MAPPER.



SCALE: 1" = 200'

RECEIVED  
APR 29 2009

CM 2008-00003


FOR: KREINBRINK  
DATE: 4-24-09  
PHONE: (239) 543-3335

Starnes Surveying, Inc. L.B. 6766  
SURVEYING-ENGINEERING-LAND PLANNING  
18571 DURRANCERD. N. FT. MYERS, FL. 33917

CERTIFIED SKETCH  
FIELD BOOK PAGE W.O. NUMBER  
4306

SHEET 2 OF 2

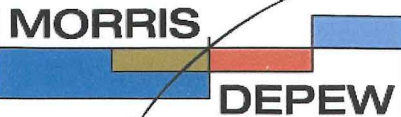
I HEREBY CERTIFY THAT THIS SKETCH AS SHOWN IS A TRUE REPRESENTATION OF THE PARCEL HEREON DESCRIBED AS TO THE BEST OF MY KNOWLEDGE AND BELIEF.

  
JAMES R. STARNES P.L.S. 4869  
PROFESSIONAL LAND SURVEYOR  
STATE OF FLORIDA.

NOTE: (1). THIS SKETCH IS NOT A SURVEY.  
(2). THIS SKETCH IS NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

LEGAL DESCRIPTION AS PER O.R. 3129 P. 2192

A PARCEL OF LAND LYING IN SECTION 18, TOWNSHIP 43 SOUTH, RANGE 26 EAST, LEE COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:  
COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 18, RUN S.88°52'38"E. ALONG THE NORTH LINE OF SAID SECTION 18 FOR 1377.37 FEET; THENCE RUN S.00°16'25"W. FOR 50.00 FEET TO THE SOUTHERLY RIGHT-OF-WAY OF STATE ROAD 78 (100 FEET WIDE) AND THE POINT OF BEGINNING OF SAID PARCEL OF LAND; FROM SAID POINT OF BEGINNING RUN S.00°16'25"W. FOR 1314.85 FEET; THENCE RUN N.88°51'56"W. FOR 1322.57 FEET TO THE EASTERLY RIGHT-OF-WAY OF STATE ROAD 31 (100 FEET WIDE); A NON-TANGENT POINT ON A CURVE CONCAVE TO THE EAST WITH A RADIUS OF 68,704.96 FEET, A CENTRAL ANGLE OF 00°42'23", AND A CHORD OF 847.10 FEET THAT BEARS N.00°07'31"W.; THENCE RUN NORTHERLY ALONG SAID CURVE AND ALONG SAID EASTERLY RIGHT-OF-WAY OF STATE ROAD 31 FOR 847.11 FEET TO A POINT OF TANGENCY; THENCE CONTINUE ALONG SAID EASTERLY RIGHT-OF-WAY OF STATE ROAD 31 N.00°24'05"E. FOR 158.26 FEET; THENCE N.02°08'14"E. ALONG SAID EASTERLY RIGHT-OF-WAY OF STATE ROAD 31 FOR 259.79 FEET; THENCE RUN N.24°26'09"E. ALONG SAID EASTERLY RIGHT-OF-WAY OF STATE ROAD 31 FOR 53.94 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY OF STATE ROAD 78; THENCE RUN S.88°52'38"E. ALONG SAID SOUTHERLY RIGHT-OF-WAY OF STATE ROAD 78 FOR 1297.58 FEET TO THE POINT OF BEGINNING.



**MORRIS-DEPEW ASSOCIATES, INC.**  
ENGINEERS • PLANNERS • SURVEYORS  
LANDSCAPE ARCHITECTS  
2914 Cleveland Avenue • Fort Myers, FL 33901  
(239) 337-3993 Office • (239) 337-3994 Fax  
#LC26000330

### LETTER OF TRANSMITTAL

**TO:** Lee County Community Development  
1500 Monroe Street  
Fort Myers, FL 33901

**RECEIVED**  
JAN 30 2009  
COMMUNITY DEVELOPMENT

**DATE:** January 30, 2009

**MDA PROJECT NO.:** 06015.p3

**ATTENTION:** Mr. Matt Noble

**RE:** Kreinbrink Comp Plan Amendment Revisions

We are sending you ☐ Attached ☐ Under separate cover VIA Hand Delivery the following items:

Copies	Date	No.	Description
6	1-30-09		Kreinbrink Comp Plan Amendment Revisions

These are transmitted as checked below:

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> For approval | <input type="checkbox"/> Approved as submitted    | <input type="checkbox"/> Resubmit _____ copies for approval   |
| <input type="checkbox"/> For your use            | <input type="checkbox"/> Approved as noted        | <input type="checkbox"/> Submit _____ copies for distribution |
| <input type="checkbox"/> As requested            | <input type="checkbox"/> Returned for corrections | <input type="checkbox"/> Return _____ corrected prints        |
| <input type="checkbox"/> For review and comment  |   | <input type="checkbox"/> _____                                |
| <input type="checkbox"/> For bids due _____      |   | <input type="checkbox"/> Prints returned after loan to M-DA   |

**REMARKS:** Mr. Noble please be advised we are still working on revisions regarding the Traffic and will submit those to you in the very near future. Should you have any questions or concerns please contact me.

Thank you.

**COPY TO:** File

**SIGNED:** \_\_\_\_\_

\_\_\_\_\_  
DWD/SH

\_\_\_\_\_  
David W. Depew, PhD, AICP President



2914 Cleveland Avenue | Fort Myers, FL 33901  
(239) 337-3993 | FAX: (239) 337-3994  
Toll Free: (866) 337-7341  
www.morris-depew.com  
LUC2000330

RECEIVED  
JAN 30 2009  
*She*  
COMMUNITY DEVELOPMENT

---

**From:** Noble, Matthew A. [mailto:NOBLEMA@leegov.com]  
**Sent:** Wednesday, December 17, 2008 10:22 AM  
**To:** Sheila Holland; Mudd, James P.  
**Subject:** RE: CPA2008-00003 - Kreinbrink Comp Plan Amendment

Yes that is fine, and the fee has already been paid....

---

**From:** Sheila Holland [mailto:sholland@M-DA.com]  
**Sent:** Wednesday, December 17, 2008 10:20 AM  
**To:** Mudd, James P.; Noble, Matthew A.  
**Subject:** CPA2008-00003 - Kreinbrink Comp Plan Amendment

Good morning,

As previously discussed we would like to make a change to the comp plan application regarding the future land use designation. How do I need to process this. Do I just bring in revised copies and turn them into the zoning counter? Also I want to verify that there is no fee associated with this.

Thank you,

Sheila M. Holland

Planning Technician