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Land Use Planning & Water Policy

Mr. Brandon Dunn
Principal Planner
Lee County Community Development
1500 Monroe Street
Fort Myers, FL 33901

May 11, 2023

Re: The Preserve Sporting Club and Residences Text and Map Amendments
CPA2022-00014 and CPA2022-00015
Sufficiency #1 Submittal

Mr. Dunn,

In response to the comment letter dated April 4, 2023, enclosed are the following items for your review:

1. Revised Text Amendment
2. Lee Plan Analysis
3. Water Resources Report
4. Transportation Impact Study
5. Legal Description and Sketch

1. Staff had difficulty reviewing the proposed text amendments. It may have been inadvertent, but the Exhibit T-4 does not reflect existing Lee Plan language. Please provide a strike through/underline version of Exhibit T-4 showing all language that is proposed to be added and deleted in strikethrough and underlined formatting.

Please see the attached Text Amendment.

2. Please amend the analysis of Lee Plan policy 123.3.1. It references policy 107.3.1 which was renumbered to 123.3.1.

Please see the attached revised Lee Plan Analysis.

3. Please provide an analysis of Lee Plan policies 61.1.6, 123.2.10, 126.1, 126.1.1, and 126.1.4.

Please see the attached revised Lee Plan Analysis.

4. Please expand on the analysis of Lee Plan Policies 13.2.10, 13.2.11, and 123.2.10 and Objective 123.4. Part of the proposed recreational club's attraction is the firearm and hunting activities offered. How will the increase in frequency and intensity of firearm and hunting activities affect the surrounding area? Particularly the conservation lands to the south and the residential properties to the north as well as endangered and threatened species that have been identified nearby.

The only proposed hunting is limited to imported bobwhite quail (Colinus virginianus). This species is native to the southeastern United States, eastern Mexico, and the Caribbean. They typically live and feed on the ground and live in habitats such as flatwoods, prairies, scrub, and upland pine. They nest, roost, forage, and escape predators by using a mosaic of different vegetation structure. In 2007 FWC published a document titled Strategic plan for northern bobwhite restoration in Florida that encouraged management practices that would help restore bobwhite and their habitat in Florida. Hunting will only take place in the designated hunting areas. Strict guidelines will be in place and there will be zero tolerance for the hunting of any listed endangered and threatened species. This type of hunting is compatible with the hunting that takes place on the CREW land east of the site. This is consistent with objective 123.4, as the onsite conservation lands that will be hunted for quail will also provide habitat for many of Florida's native wildlife species.

The hunting that will occur is located more than 500 feet from the nearest residential property line, much farther than the distance of any round from a shotgun. The hunting experience is a minimal activity, meaning that hunts only occur a few times per week at most. The distance and separation from the closest residential will minimize sound such that it will be within the County's noise ordinance. No hunting will occur in non-daylight hours. Further, the residential properties to the north of the subject site are separated from any hunting activity by restoration/preservation lands and on-site residential units. The separation and intervening uses will greatly diminish any occasional noise that occurs from hunting.

ENVIRONMENTAL COMMENTS

5. General Environmental Comment: In December 2016, the Florida Forever Plan added property which included section 27 and 34 of this project. These sections are still part of the most recent Florida Forever Plan publication dated May 26, 2022. Please provide an analysis demonstrating how the inclusion of the property on the Private Recreation Facilities Overlay, Map 1-F, is consistent with Lee Plan policy 13.1.1(1).

Florida Forever is a willing seller program. The subject property is not identified as a strategic area for land acquisition, but pieced together at the request, or with the consent of specific property owners who may wish to sell their land to the State. Since this property was added to the Florida Forever Plan, it has not been ranked as a priority acquisition and no offers were made for the property's purchase. The Text amendment has been revised accordingly to reflect the intent of the amendment. Please see the attached revised text amendment.

6. Water Resources Comments as required by Policies 1.4.5, 13.4.6.2, and 33.1.7.

a. Please include any reports associated with the existing integrated surface/ground water (SLC) model by Lago Consulting & Services, LLC & CHNEP in the appendix. Please provide the source for all model input parameters such as topography, Manning's M values, rainfall, evapotranspiration (ET), etc. if the information is not provided in a report for the SLC model.

The report section Integrated Surface/Ground Water Modeling is the report resulting from the modeling work. All parameters that were modified from the SLC model were described in the report.

b. Please further explain the reasoning for choosing a 150 ft x 150 ft grid, and why a smaller grid size was not used for this project.

The 150x150 ft grid was selected based on the size of the lakes proposed for the project. The model domain includes 15,564 cells, which is more than enough for a project of this size.

c. Please analyze and compare existing and proposed conditions for the 25 year 3 day and 100 year 3 day SFWMD design storms, to demonstrate no offsite adverse surface water impacts.

*A sub-section entitled **Design Storm Analysis** was added to the Integrated Surface/Ground Water Modeling section. That section provides a discussion of the 25- and 100-year design storm analysis.*

d. Page 25 of the Water Resource Report states that wet season water levels west of the large wetland are not increased during the wet season, but Figures 15, 16, and 17 indicate a rise in surface water elevations in several locations, including near Carter Road. Please explain how this is not an adverse impact and analyze for the 25 year 3 day and 100 year 3 day SFWMD design storms.

*Please see the discussion in the **Design Storm Analysis** sub-section. There are no significant adverse impacts from the 100-year Design Storm associated with the proposed project.*

e. Please discuss any surface water level impacts to the residential area west of the project, adjacent to and including Carter Road in the conclusion section.

***The following text was added to the first bullet of the Conclusions section**: Slightly longer hydroperiods are predicted for wetland areas in the rural residential area for the Future Condition scenario, however the hydroperiod increases are generally less than one month. The 100-year design storm analysis indicated slightly higher peak flood depths in the vicinity of two houses in*

the southeastern portion of the rural residential area (see Figure 28). The 100-year Design Storm peak elevations for the Future Condition for the two houses rebounds by 0.11 – 0.14 feet, and the peak stage is below the estimated edge of the building lot footprint.

f. Please provide more details and visual aids regarding the future drainage conveyance area discussed on page 12 of the Water Resources Report. The future drainage conveyance is not depicted on the MCP. The Sufficiency Response states that the project will be designed to accommodate proposed drainage capacity as identified in the Southern Lee County Flood Mitigation Plan but additional details were not provided.

The future drainage conveyance area mentioned on page 12 of the Water Resources Report is a flow-way that is currently being evaluated as part of a project with a separate study. No details are available at this point in time regarding that conveyance.

g. Please further explain how surface water pumping was simulated in the existing condition model, as mentioned on page 20 of the Water Resources Report. Please provide more details on the pumps such as pump horsepower, flow rate, and operation parameters.

We have no information on the capacity of this drainage pump. We have ASSUMED that the pump capacity is 31 cfs, and that it turns on when agricultural field ditch elevations exceed 22 ft-NAVD and reaches maximum capacity when the ditch elevation is 23 ft-NAVD. Existing elevations in the agricultural fields east of the wetland are in the range of 25 ft-NAVD.

h. Please indicate if existing berms will be removed within the preserve areas? If so, please provide more detail in the Water Resources Report and Concept Plans, such as typical sections and plan view location callouts.

The modeling team does not have any information regarding berms within the preserve areas.

i. Regarding the existing berm along the North property line near Structure 6, please show the extents that were reviewed and please provide dates. Was the berm surveyed? Do surface water elevations exceed the berm TOB for a 25 year 3 day design storm anywhere?

Modeling staff conducted a field visit to the area in the vicinity of Structure 6. There is no visible structure at this location. The berm does not have any gaps. Due to the water level at the time of the site visit, it was not possible to determine if a structure exists below water line, however it is believed that no such structure exists. A berm elevation of 30 ft-NAVD was estimated based on inconclusive LiDAR data, and the peak 25-yr 3-day elevation is predicted to be less than 27 ft-NAVD.

j . Please explain what happens to Structure 2 in Figure 10 "Existing Conditions Structures". Structure 2 is not shown to remain in Figure 12 "MIKE 11 Network, Structures, and Surface Water Bodies for Proposed Pepper Place". How will the offsite flows from the existing ditch system be continued or improved, thru or around the site?

A berm was identified during a field visit that had a relatively low section which was approximately one foot higher than adjacent land east of the berm. It is ASSUMED that water can flow over this low portion of the berm during peak wet season conditions. The modeling team does not have any information on how this area may change in the future.

k. Please further explain on page 17, the modifications to structure 16 on the Titan Mine property. What changes were made, and how was the new information obtained? Was the structure surveyed?

The dimensions of that structure were determined during a field visit conducted as part of a separate project. No licensed survey was conducted during that field visit. Photographs were taken, field measurements using rods and a measuring tape, and elevations were estimated based on old permit file drawings and top of berm elevations extracted from LiDAR data.

l. As discussed on page 22 of the Water Resources Report, please further explain how the proposed surface DEM was created and merged with the existing surface DEM for the proposed conditions model. Please provide figures of each surface {at original and 150'x150' grid size) in the report.

Appendix B describes the topographic analysis resulting from the transect surveying. Marsh land cover polygons were imported into the MIKE SHE editor, and the topographic cells within this polygon were lowered by 4 feet. Cypress land cover areas were lowered by 0.5 feet.

m. Please explain how the Mike 11 cross sections were obtained.

For the Existing Condition Scenario, MIKE 11 cross sections were cut from the LiDAR 5-ft DEM, and channel/ditch dimensions were estimated based on best engineering judgement. Information from the field visit provided information to support best engineering judgement. For the Future Condition simulation, MIKE 11 cross sections were based on the proposed site plans.

n. Please explain how Structures 1 and 2, shown in figure 12 and described on page 22, were sized? How were the invert elevations decided?

*See answers provided above for comments **h** and **k**.*

o. Please provide a letter from Panther Island Mitigation Bank stating that additional flow and longer hydroperiods are acceptable. Include this letter in the report appendix.

This statement was based on consulting work that Water Science has conducted for Audubon.

p. Please provide the historical wetland elevations? Please detail how were those elevations determined? How do the historical elevations compare to existing and proposed elevations in the continuous model run? Please provide graphs for each onsite and adjacent wetland showing the historic, existing, and proposed elevations.

There are no measurements of historic or existing elevations in the on-site wetlands. Elevations in Panther Island Mitigation Bank were obtained from Audubon.

7. Comments about the MIKE SHE model as required by Policy 1.4.S and 33.1.7:

a. Please simulate the 25 year 3 day and 100 year 3 day SFWMD design storms, to demonstrate no offsite adverse surface water impacts.

Please see the attached revised Water Resources Report from Water Sciences and Associates.

b. Please explain why only one culvert was modeled under Corkscrew Road on the CorkCrossE branch near the NE property corner? County records indicate there are three (3) pipes in this location.

During a field visit conducted by the modeling team, only one culvert was identified. Since this ditch does not enter the Pepper Place property under existing and proposed conditions, the capacity of this culvert is irrelevant to this analysis.

8. Comments addressing impacts to groundwater as required by Policies 1.4.5, 13.8.9, and 33.1.7

a. Staff was not able to identify a dry season monitoring discussion in the provided Water Resources Report. Please update the Water Resources Report to include dry season monitoring specifications.

The monitoring plan was revised to describe dry season monitoring.

b. Please identify all surface water and groundwater monitoring locations on a site plan or aerial.

A figure was added that identifies the surface and groundwater monitoring locations.

c. Please provide further discussion and quantify the groundwater recharge discussed on page 15 of the Water Resources Report. Where is the recharge occurring?

The text shown below was added to Section F that provides additional information on groundwater recharge.
Recharge within the project's water management system will occur within the proposed 34.6 acres of detention basins shown on the site plans. In addition, there are over 380 acres of open space on the project site that will be reserved for outdoor activities. These areas will not be drained to adjacent ditches as is the case with the existing agricultural activities. Therefore, rainfall not lost to evapo-transpiration will be recharged to the surficial aquifer.

d. While the overall irrigation demand is being reduced, the demand per acre is increasing. How many irrigation wells are proposed in the new development? Please identify the location, and aquifer constructed to, for all proposed new wells.

Future Condition simulated water table elevations at two locations in the rural residential area west of Pepper Place were compared to Existing Conditions water table elevations. Figures 28 and 29 in the Water Resources Report demonstrate that Future Conditions dry season water table elevations are similar to or higher than Existing Conditions water levels. Hydroperiod maps indicate that Future Conditions water levels south of Pepper Place are either equivalent to or higher than Existing Conditions.

e. Please identify any existing wells that will be used or abandoned, along with their aquifer source.

Figure 3 of the WRR identifies the existing wells on the site. A detailed evaluation of each well's age, condition, and pumping capacity will be conducted to determine which wells will be retained and which will be abandoned.

f. Please demonstrate that the new use will not impact adjacent property owner's existing wells.

The proposed groundwater withdrawals will be less than historic pumpage on the site, which will therefore only be a benefit to adjacent property owner's existing wells.

g. The project's irrigation systems must be computerized per Lee Plan policy 13.8.9. Please update the statement on page 14 of the Water Resources Report (below table 1) that states "the proposed project will also explore the use of computerized irrigation systems .... "

Please see the attached revised Water Resources Report from Water Sciences and Associates.

PUBLIC FACILITIES COMMENTS

9. Please confirm whether the 7,500 square foot restaurant, within the clubhouse is open to the general public or not.

Any dining facility that is south of the gate will not be open to the public. This includes any anticipated clubhouse dining within any of the residential or private recreational buildings.

10. Please amend Appendix D (D1RPM Inputs and Outputs) of the TIS to align with the proposed land use intensity outlined in March 2, 2023 resubmittal. The current model input data does not correspond to the proposed land use intensity. Please correct. Furthermore, please update the following items in the report: Appendix D, Figure 2, Table 2, Table 5, Table 6, Table 7, and Table 8.

Trip Distribution and all results including project traffic, intersection and site access analyses have been updated with the distribution pattern resulting from the proposed external traffic generators.

LEGAL REVIEW

11. Please update the legal description and sketch so that they are 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.

Please see the attached revised sketch and description.

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

DeLisi, Inc.

Daniel DeLisi, AICP

cc. Neale Montgomery, Pavese Law Firm

PROPOSED TEXT AMENDMENT AND JUSTIFICATION
EXHIBIT T-4

Lee Plan Definitions

Recreational Resort Center - A recreational resort center is an internally oriented private membership multi-recreational use center that may include equestrian facilities and riding trails, golf courses and practice facilities, hunting, fishing, tennis, pools and lazy river courses, pickleball, archery, indoor gun ranges, skeet shooting, hiking trails and similar outdoor activities, as well as education and training associated with those uses. Recreational Resort Centers may contain lodging facilities and condominium units for members only, in either single or multi-family structures, as well as ancillary clubhouse and clubhouse amenity activities. Uses that are for private club members and typically found in clubhouse amenities, including indoor recreational activities, health spas, fitness centers, dining facilities, food and beverage service, consumption on premises, administrative offices, are not limited but must be ancillary to the principal outdoor private recreational activities. Commercial uses that are open to the public are limited to 40,000 square feet.

Justification:

The proposed use has not been proposed or built before in Lee County. To date the only private recreational facility that has been constructed is a stand-alone golf course. The multi-use private club is unique in how it operates and the types of services and memberships it provides. The Recreational Resort Center concept provides for on-site dwelling for club members only but distinct from a golf course community, the proposed use is focused on the recreational experience primarily with the inclusion of some ancillary residential units to provide for a slightly different form of membership and the ability for club members to have a place to stay while visiting the recreational resort from all over the world. The ancillary clubhouse facilities are for club members only and do not need to be limited in the same way that clubhouse facilities may be limited elsewhere.

GOAL 13: PRIVATE RECREATIONAL FACILITIES IN THE DR/GR. To ensure that the development of Private Recreational Facilities in the DR/GR is compatible with the intent of this future land use category, including recharge to aquifers, development of future wellfields and the reduction of density.

OBJECTIVE 13.1: To ensure that Private Recreation Facilities are located in the most appropriate areas within the DR/GR future land use category.

POLICY 13.1.1: The Private Recreation Facilities Overlay, Map 1-F, shows those locations that are appropriate for the development of Private Recreation Facilities in the DR/GR future land use category. The areas depicted on Map 1-F are consistent with the application of the following locational criteria:

~~1. Located outside of those areas designated for public acquisition through~~ SFWMD's and DEP's ~~Florida Forever~~ programs, ~~the Corkscrew Regional Ecosystem Water Trust~~

~~(CREW), the SFWMD's Save Our Rivers Program, and the County's 20/20 Conservation Program;~~

Justification:

Both the Florida Forever Program and the County's 2020 program are willing seller programs. Neither identifies priority acquisition area, but rather rely on property owners to submit or consent to submittal of their individual properties for evaluation. The Florida Forever program is a 2-step process when an applicant submits their property and only after it is put in the plan does DEP staff evaluate the property for ranking and acquisition interest. The intent of 13.1.1 is to identify areas that are of particular environmental sensitivity. Identification in the Florida Forever Work Plan does not do this.

As a technical amendment, the CREW Trust is not a land acquisition program and the SFWMD's Save Our Rivers Program has long since been incorporated into the Florida Forever land acquisition program and no longer exists. The CREW Trust is an educational non-profit organization that advocates for land acquisition, but all land acquisition is done through the SFWMD, DEP, Lee County or Collier County. The CREW Trust, as a not-for-profit should not be confused with the CREW area, which is a defined area by the SFWMD.

~~2.~~1. Located in areas characterized as predominantly impacted with agricultural, mining or other permitted uses;
~~3.~~2. Located outside of areas depicted as 100 Year Flood Plains, as illustrated on Map 5-B as amended through June of 1990;
~~4.~~3. Located to minimize impact on "Hot Spots of Biological Resources and Rare Species Occurrence Records," from the Florida ~~Game and Freshwater~~ Fish and Wildlife Conservation Commission's, "Closing the Gaps in Florida Wildlife Habitat Conservation System" published in 1994;

This is a technical update and not substantive. The name of the government agency has long since changed to the "Florida Fish and Wildlife Conservation Commission".

~~5.~~4. Located in areas characterized by large lot single or limited ownership patterns; and,
~~6.~~5. Located in areas with direct access to existing roadways.

POLICY 13.1.2: Private Recreational Facilities within the DR/GR land use category will only be allowed, subject to the other requirements of this Goal, in the areas depicted on the Private Recreational Facilities Overlay, Map 1-F.

OBJECTIVE 13.2: GROWTH MANAGEMENT. Development of Private Recreation Facilities in the DR/GR must be consistent with the growth management principles and practices as provided in the following policies.

POLICY 13.2.1: PRIVATE RECREATION FACILITY PLANNED DEVELOPMENT (PRFPD). All Private Recreational Facilities proposed within the DR/GR future land use category must be reviewed as a PRFPD.

~~**POLICY 13.2.2:** Approved PRFPDs will automatically expire, reverting to the original zoning category, if a Lee County development order is not obtained within five years of zoning approval. (Ord. No. 99-16, 18-18)~~

Justification:

Planned Developments no longer contain an expiration date in Lee County. This Policy is no longer necessary.

~~**POLICY 13.2.3: RESIDENTIAL USES PRECLUDED.** Residential uses, other than a single bonafide caretaker's residence or a resident manager's unit, or those uses as listed in Policy 13.2.6 are not permitted in conjunction with a PRFPD. Residential density associated with land zoned as PRFPD will be extinguished and cannot be transferred, clustered or otherwise assigned to any property. (Ord. No. 99-16, 10-21, 18-18)~~

~~**POLICY 13.2.4:** Further, the approval of Private Recreational Facilities on any property within the DR/GR will not be considered as justification for approving an amendment to the Future Land Use Map series which would increase residential density in the DR/GR areas. (Ord. No. 99-16, 1818)~~
~~**POLICY 13.2.5:** The boundaries of the PRFPD may not be designed to allow out parcels or enclaves of residential units to be integrated into the golf course perimeter, except as allowed in Policy 13.2.6. (Ord. No. 99-16, 10-21, 18-18)~~

POLICY 13.2.2: RESIDENTIAL USES. Recreational Resort Centers with direct access to Corkscrew Road and greater than 1,000 acres in gross area, may include residential uses under the following conditions:

1. Residential uses are part of, directly associated with and only available to members of the Recreational Resort Center.
2. All development will be served by central water and sewer.
3. All other applicable requirements in Goal 13 are incorporated into the development plans.

Justification:

The PRFPD will continue to maintain a very low-density allowance, below that of the Rural land use category and below that of most of the prior approved EEPCO developments located along Corkscrew Road. Given the level of residential development along the entire PRFPD Overlay area there is no longer the same concern that the existence of a PRFPD will be used to justify residential uses and increased density. The residential uses that are proposed for the Recreational Resort Center are ancillary to the recreational use and provide a means to have club members have a place to stay when traveling to the resort from areas outside of Lee County and Florida.

POLICY 13.2.~~6~~3: Time share, fractional ownership units, and Bed and Breakfast establishments may be permitted if the property is designated as a Rural Golf Course Community (see Map 2-D). These uses must be ancillary to or in conjunction with uses within the Private Recreational Facility, including a Golf Training Center or similar facility, and must

be located adjacent to, or within 1,000 feet of, the principal use that is being supported. Through the PRFPD process, the applicant must demonstrate that external vehicular trips will be reduced from typical single-family residential units due to the ancillary nature of the use.

POLICY 13.2.~~7~~3.1: Time share, fractional ownership units, or bed and breakfast establishments may only be constructed through transferring density in accordance with the Southeast Lee County TDR Program. Each TDR credit that is eligible to be transferred to a Mixed-Use Community (see Map 2-D) can be redeemed for one timeshare unit, one fractional ownership unit, or two bed and breakfast bedrooms.

POLICY 13.2.~~8~~4: Private Recreational Facilities must have adequate fire protection, transportation facilities, wastewater treatment and water supply, and provided further that they have no adverse effects such as dust, noise, lighting, or odor on surrounding land uses and natural resources.

POLICY 13.2.~~9~~5: COMMERCIAL USES. Commercial uses may be permitted within PRFPDs as provided in Policy 13.3.9 when ancillary or in conjunction with Private Recreation Facilities, or when part of a Recreational Resort Center.

Justification:

Policy 13.2.5.1 allows for the ability to develop up to 40,000 square feet of commercial area without the commercial limitations in Goal 33. Anything above 40,000 sq. ft. would be subject to the limitations in Goal 33 up to 100,000 sq. ft. of total allowable floor area. The amount of commercial floor area is directly related to the recreational facilities on-site in content and area, but also open to the public so that those uses can be sustainable operations.

The specific uses contemplated from the Club at Pepperplace are an approximately 10,000 sq. ft. restaurant, which will primarily be used by members, but will also be open to the public, and a hunting and fishing store that is directly associated with the private recreational uses but will also be open to the public. The store is anticipated to be no larger than 30,000 square feet and will include fishing and camping equipment, gun sales, a tack shop for equestrian uses, as well as other recreational related retail sales. The amount of commercial is justifiable based on the needs of the club members, the diversity of recreational uses on-site and the unique recreational and retail experience that will be provided for residents in Lee County.

POLICY 13.2.~~10~~6: Applications for Private Recreational Facility development will be reviewed and evaluated as to their impacts on, and will not negatively affect, any adjacent, existing agricultural, mining or conservation activities.

POLICY 13.2.~~11~~7: Applications for Private Recreational Facility development will be reviewed and evaluated as to their impacts on, and must be compatible with any adjacent publicly owned lands.

OBJECTIVE 13.3: GENERAL DEVELOPMENT REGULATIONS. The protection of water quality, quantity, natural resources, and compatibility will be addressed by additional

development controls that regulate the permitted uses, parcel size, density, intensity and design of Private Recreational Facilities.

POLICY 13.3.1: Private Recreational Facilities will submit a Master Concept Plan at the time of planned development ~~submittal~~ that identifies the general location of proposed uses and structures, play fields and golf course routings. Minor adjustments to this Master Concept Plan may be made administratively at the discretion of the Director.

Justification:

The word "submittal" is redundant.

POLICY 13.3.2: Applications for Private Recreational Facilities must include an environmental assessment during the zoning approval process. The assessment must include, at a minimum, an analysis of the environment, historical and natural resources and a protected species survey as required by LDC, Chapter 10.

~~**POLICY 13.3.3:** In addition to an environmental assessment, the applicant must demonstrate compatibility with nearby land uses (by addressing such things as noise, odor, lighting and visual impacts), and the adequate provision of drainage, fire and safety, transportation, sewage disposal and solid waste disposal. (Ord. No. 99-16, 18-18)~~

Justification:

This policy is no longer relevant or applicable given the changed conditions of the Corkscrew Road corridor. This policy is also simply redundant as a demonstration of compatibility is a fundamental requirement of all rezoning applications, including all of the elements listed, regardless of location within the DR/GR or in an urban area next the Six Mile Cypress Slough.

POLICY 13.3.~~4~~3: The development will incorporate an Integrated Pest Management program for any managed recreational areas.

POLICY 13.3.~~5~~4: Where buildings or impervious development is located within twenty-five feet of the property boundary, a buffer 15 feet wide, with 5 trees per 100 linear feet, and a solid double row hedge must be provided, unless a more restrictive buffer is required during the planned development review.

POLICY 13.3.~~6~~5: No illumination may be used which creates glare on adjacent properties. All exterior lighting will be designed with downward deflectors to eliminate skyward glare. Parking areas, walkways and paths and maintenance areas may be illuminated for security purposes, provided that light poles do not exceed twelve feet in height.

POLICY 13.3.~~7~~6: Native and xeriscape vegetation will be encouraged, such that:

1. 100% of all required trees and 75% of all additional trees must be native.
2. 80% of all required shrubs and 50% of all additional shrubs must be native.
3. A minimum of 70% of all trees and shrubs must be xeriscape varieties.
4. The native and xeriscape requirements do not apply to turf areas.

5. No plant species included in the Florida Exotic Pest Plant Council, 1999 List of Florida's Most Invasive Species, will be planted.

POLICY 13.3.~~8~~7: The following site requirements, regulating lot size, setbacks and open space must be equaled or exceeded:

1. Principal uses, other than golf courses, and the ancillary uses listed in Policy 13.2.6, permitted under this subdivision must have a minimum lot size of ten acres.

2. Building Setbacks.
   a. 50 feet from an existing right-of-way line or right of way easement.
   b. 75 feet from any private property line under separate ownership and used for residential dwellings.
   c. 50 feet from any adjacent agricultural or mining operation.
   d. Greater setbacks may be required during the public hearing process to address unique site conditions.

3. Setbacks for accessory buildings or structures. All setbacks for accessory buildings or structures must be shown on the Master Concept Plan required as part of the planned development application. No maintenance area or outdoor storage area, irrigation pump or delivery area may be located less than 500 feet from any existing or future residential use outside of the PRFPD, as measured from the edge of the above-listed area to the property line of the residential use. For purposes of this policy, any off-site property that is 10 acres or less in size and is zoned to permit dwelling units will be considered a future residential property. Properties larger than 10 acres may be considered future residential based on the property's size, the ownership pattern of properties in the surrounding area, and the use, zoning and size of surrounding properties. To allow flexibility, the general area of any accessory buildings, structures and maintenance areas must be shown on the site plan with the appropriate setbacks as noted in this subsection listed as criteria for the final placement of these buildings, structures or facilities.

Justification:

The intent of this change is to recognize that there may be on-site residential areas within 500 feet of the maintenance facility or an irrigation pump. All residential areas on-site will not be platted. Therefore, the setback and the intent of the policy has little applicability to the proposed use. When this policy was originally drafted, residential areas were not permitted on site. Therefore, the proposed change does not change the intent of the policy, which was to protect off-site nearby residential uses from potential compatibility concerns from a PRFPD.

In addition to the other standards outlined in this policy, any maintenance area or outdoor storage area, irrigation pump or delivery area must meet one of the following standards:

a. be located 500 feet or more from any property line abutting an existing or planned public right-of-way; or

b. provide visual screening around such facilities, that provides complete opacity, so that the facilities are not visible from any public right-of-way; or
c. be located within a structure that meets or exceeds the current Lee County architectural standards for commercial structures.

4. Open Space. A minimum of 85% open space must be provided. However, natural and manmade bodies of water may contribute 100% to achieving the minimum requirements. To the extent possible, pervious paving and parking areas, and buildings elevated above ground level will exceed the 85% open space requirement.

5. Security. All entrances to non-commercial or non-residential portions of Private Recreational Facilities must be restricted from public access during non-use hours.

POLICY 13.3.~~9~~8: DENSITY/INTENSITY LIMITATIONS. Uses in a PRFPD are subject to the following limitations:

Clubhouse/ Administrative Area	20,000 SF/18 hole golf course
Golf Course Restrooms	Not to exceed two structures per 18 hole golf course, limited to 150 SF per structure
Maintenance Area	Not to exceed 25,000 SF of enclosed or semi-enclosed building area, on a maximum of 5 acres of land per 18 hole golf course
Fractional Ownership/ Time-share Units	• The maximum allowable units will be calculated based on 1 du/10 acres for the entire area of the PRFPD • All timeshare/fractional ownership units must be transferred in accordance with Goal 33
Bed and Breakfast Establishments	• The maximum number of Bed and Breakfast establishments will be limited to 1 per every 18 holes of golf. • Bedrooms within a Bed and Breakfast establishment will be limited to a maximum of 7 per unit, with a maximum of two adult occupants per bedroom
Recreational Resort Centers	• Limited to a density of 2 du/5 acres and a maximum of 40,000 square feet of commercial area that is open to the public.
Horse Stable	40,000 SF of stable building/10 acres
Camping Restrooms	• 1 toilet per four camp units, clustered in structures not to exceed 500 SF per structure • 1 shower per 4 toilets
Camping Area Office	1,000 SF per campground

Commercial Uses	• Limited to neighborhood commercial development with uses that are in compliance with the Wellfield Protection Ordinance without any exemptions[6] • Total commercial gross floor area for the entire area of the PRFPD may not exceed 100,000 SF, not including clubhouse square footage

6 No uses that would require the storage of any toxic, hazardous substances as identified in the Wellfield Protection Ordinance or sanitary hazards may be permitted.

Justification:

The residential density is justified at 2 dwelling units per 5 acres, or a total of 4 units on 10 acres. This is a density significantly lower than EEPCO developments while requiring nearly the same restoration/preservation and a significantly greater open space requirement. The benefits being provided are similar to EEPCO developments with the significant decrease in groundwater withdrawal and the significant reduction in nutrients discharging from the proposed development. The low density allowance is necessary for this unique recreational concept, which will offset the cost of the public benefits being provided.

DELISI
Land Use Planning & Water Policy

Lee Plan Consistency

Exhibit - M11

The proposed map amendments are consistent with the Lee Plan and are being submitted concurrent with a text amendment to Goal 13 to allow for a recreational development on the subject property with associated residential hotel and commercial uses. The map amendments designate the subject property within the PRFPD Overlay and within the Lee County Future Water and Sewer Service Areas. the An analysis of how the proposed amendment is consistent with the following Lee Plan policies is described below:

> **POLICY 1.4.5:** The Density Reduction/Groundwater Resource (DR/GR) future land use category includes upland areas that provide substantial recharge to aquifers most suitable for future wellfield development. These areas also are the most favorable locations for physical withdrawal of water from those aquifers. Only minimal public facilities exist or are programmed.
>
> 1. New land uses in these areas that require rezoning or a development order must demonstrate compatibility with maintaining surface and groundwater levels at their historic levels utilizing hydrologic modeling, the incorporation of increased storage capacity, and inclusion of green infrastructure. The modeling must also show that no adverse impacts will result to properties located upstream, downstream, as well as adjacent to the site. Offsite mitigation may be utilized, and may be required, to demonstrate this compatibility. Evidence as to historic levels must be submitted as part of the rezoning application and updated, if necessary, as part of the mining development order application.

In accordance with #1 above, a groundwater analysis has been submitted demonstrating that the proposed development is compatible with maintaining historic surface and groundwater levels. The analysis demonstrates there are no adverse impacts to properties located upstream and downstream. There is a projected rebound of water levels with the removal of agricultural activities. Green infrastructure will be incorporated into the surface water management design.

> 2. Permitted land uses include agriculture, natural resource extraction and related facilities, conservation uses, public and private recreation facilities, and residential uses at a maximum standard density of one dwelling unit per ten acres (1 du/10 acres). See Objectives 33.2 and 33.3 for potential density adjustments resulting from concentration or transfer of development rights.
>
> 3. Private Recreational Facilities may be permitted in accordance with the site locational requirements and design standards, as further defined in Goal 13. No

Private Recreational Facilities may occur within the DR/GR land use category without a rezoning to an appropriate Planned Development zoning category, and compliance with the Private Recreation Facilities performance standards, contained in Goal 13.

Private and public recreation facilities, along with residential, agricultural and conservation uses are allowed in the DR/GR land use category. The concurrent text amendment application is being submitted consistent with the PRFPD guidelines and performance standards and the overall intent of the Lee Plan. The proposed text amendment expands what is permitted on the subject property and is consistent with the locational criteria in Goal 13. Extending future water and sewer service to the subject property is consistent with the intent of Policy 1.4.5 in that it will help protect the area's groundwater resources. The attached application demonstrates a significant decrease in water withdrawals, a significant nutrient reduction and an increase in the overall wildlife/native habitat that will be on the subject property.

OBJECTIVE 1.5: WETLANDS. Designate on the Future Land Use Map those lands that are identified as Wetlands in accordance with F.S. 373.019(17) through the use of the unified state delineation methodology described in FAC Chapter 17-340, as ratified and amended in F.S. 373.4211.

The subject property has areas that have been designated as wetlands in accordance with F.S. 373.019(17) through the use of the unified state delineation methodology. The wetland areas are generally intended for preservation in accordance with the attached zoning application.

POLICY 1.5.1: Permitted land uses in Wetlands consist of very low density residential uses and recreational uses that will not adversely affect the ecological functions of wetlands. All development in Wetlands must be consistent with Goal 124. The maximum density is one dwelling unit per twenty acres (1 du/20 acre) except as otherwise provided in Table 1(a) and Chapter XIII.

The proposed development will need to obtain an environmental resource permit from the South Florida Water Management District. To the extent that wetland areas are impacted directly or have secondary impacts, which would be minimal, mitigation will be provided in accordance with State guidelines.

OJECTIVE 2.1: DEVELOPMENT LOCATION. 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.

The proposed rezoning is in a location where large-scale residential development is occurring or in place directly to or in close proximity to the west, east and north. There is proposed residential

development immediately contiguous to the east. The PRFPD proposed will conserve significant portions of existing natural vegetation, including wetlands, and promote lower impact recreational activities in this development. The proposed rezoning would allow for the development of an appropriate use for the subject property in an appropriate location.

> **OBJECTIVE 2.2: DEVELOPMENT TIMING.** 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.

The subject property is located in an area where public services already exist, or are planned for, to meet the demands of existing and future development. Utility service will be extended simultaneously with the development adjacent to the east of the subject property or as those facilities on the subject property get developed. Letters of availability are attached as part of this application.

> **POLICY 5.1.2:** Prohibit residential development where physical constraints or hazards exist, or require the density and design to be adjusted accordingly. Such constraints or hazards include but are not limited to flood, storm, or hurricane hazards; unstable soil or geologic conditions; environmental limitations; aircraft noise; or other characteristics that may endanger the residential community.

There are no physical hazards that exist on the subject property. The property is not in a flood zone or in the Coastal High Hazard Area. The property is also predominantly upland with upland soils. The only wetland areas on the subject property are being preserved.

> **POLICY 5.1.7:** Maintain development regulations that require that community facilities (such as park, recreational, and open space areas) in residential developments are functionally related to all dwelling units and easily accessible via pedestrian and bicycle pathways. These pathways must be interconnected with adjoining developments and public pathways whenever possible. Townhouses, condominiums, apartments, and other types of multi-family residential development must have directly accessible common open space.

The proposed PRFPD is a recreational facility primarily with the addition of a very low-density residential development to allow for on-site stays for members of the Club. Fundamentally, the purpose of the "Preserve at Pepperplace" is to create a resort destination recreation club. The limited residential uses on site are connected to, and related to, various recreational activities. On the south side of the Master Concept Plan is an area for hunting and fishing. The "residential units" at that location are for the "Hunting and Fishing Lodge", units that are for club members interested in those activities. There are other units integrated with the golf course. All areas of the property are interconnected via a trail system.

POLICY 6.1.4: Commercial development will be approved only when compatible with adjacent existing and proposed land uses and with existing and programmed public services and facilities.

The proposed commercial is located near Corkscrew Road, at the northern end of the property. The commercial uses are being developed in conjunction with the recreational facilities. There will be a restaurant for club members which will be open to the public. There will be retail facilities associated with the outdoor and indoor gun range and fishing lake, which will include other specialty items related to outdoor activity, such as camping and fishing equipment. The accessory retail uses are set back approximately 1,000 feet from Corkscrew Road and 300 feet from the eastern property line. To the east of the subject property is the Kingston Development, which includes a 500-foot perimeter buffer from any residential. The commercial uses therefore will be very distant from the residential to the east and the mining to the north. The commercial uses do not create any concerns of compatibility with surrounding uses. The use of central water and sewer service is anticipated for commercial uses on the property.

GOAL 13: PRIVATE RECREATIONAL FACILITIES IN THE DR/GR. To ensure that the development of Private Recreational Facilities in the DR/GR areas is compatible with the intent of this Future Land Use category, including recharge to aquifers, development of future wellfields and the reduction of density.

The proposed private recreational facility planned development submitted concurrently with this Plan Amendment meets the purpose and intent of Goal 13 while recognizing and being consistent with the changes that have occurred on east Corkscrew Road over the last 20 years. The proposal is for a large acreage, multi-recreational-uses, private membership recreational facility that incorporates very low density residential and overnight accommodations. All environmental design requirements of the RPFPD will continue to apply.

OBJECTIVE 13.1: To ensure that Private Recreation Facilities are located in the most appropriate areas within the DR/GR future land use category.

POLICY 13.1.1: The Private Recreation Facilities Overlay, Map 1-F, shows those locations that are appropriate for the development of Private Recreation Facilities in the DR/GR future land use category. The areas depicted on Map 1-F are consistent with the application of the following locational criteria:

The subject property is contiguous to the overlay on Map 1-F and meets the locational requirements of Policy 13.1.1 as follows:

1. Located outside of those areas designated for public acquisition through Florida Forever, the Corkscrew Regional Ecosystem Water Trust (CREW), the

SFWMD's Save Our Rivers Program, and the County's 20/20 Conservation Program;

The Florida Forever program and Lee County 20/20 are both volunteer land acquisition programs. The Save Our Rivers program no longer exists. The "Corkscrew Regional Ecosystem Water Trust" is an organization, not an acquisition program. The CREW watershed encompasses many areas on the existing Map 1-F, but the subject property is not targeted for acquisition by either Lee County or the South Florida Water Management District (the two entities that conduct land acquisition in the CREW watershed).

2. Located in areas characterized as predominantly impacted with agricultural, mining or other permitted uses;

The subject property is almost entirely being used for active agricultural operations. The only portion that is not in active agricultural use is a wetland that is designated for preservation through this application.

3. Located outside of areas depicted as 100 Year Flood Plains, as illustrated on Map 5-B as amended through June of 1990;

The subject property is not located on Map 5-B.

4. Located to minimize impact on "Hot Spots of Biological Resources and Rare Species Occurrence Records," from the Florida Game and Freshwater Fish Commission's, "Closing the Gaps in Florida Wildlife Habitat Conservation System" published in 1994;

A large portion of the site is currently an active agricultural operation consisting of vegetable row crops (565.52 ac.), citrus groves (117.38 ac.), a small tree nursery (8.88 ac.), and native habitats with varying degrees of exotic infestation. Please see the Vegetation Map for a complete list and locations of the FLUCCS habitats on site.

All of the proposed recreational facilities, residences, and amenities are within the active agricultural and citrus crop areas. The proposed project will retain all the onsite wetlands (148. 49 ac.). In addition, upland preserves (40.57 ac.), preserved other surface waters (6.28 ac.), created/preserved upland buffers (8.73 ac.), and Conservation Lands consisting of upland and wetland creation (347± ac.) will be incorporated into the development. The "Closing the Gaps in Florida Wildlife Habitat Conservation System" was published in 1994. Numerous FLUCCS habitats that support species identified in the 1994 report are found on the site. All the existing native habitats are being preserved and enhanced. Also, the proposed Conservation Lands being created within the site will increase the habitats that could be utilized by listed species. The Environmental Assessment survey transects were conducted in each habitat type within the development footprint or directly adjacent to survey for the occurrence of listed species likely to

occur in the specific habitat types. Areas slated to be preserved are not typically heavily surveyed but are given a cursory review.

Because all development impacts are within the agricultural areas, all of the existing native FLUCCS habitats will be preserved and enhanced, and additional areas of created/restored habitats will be provided, the project is consistent with Lee Plan policy 13.1.1(4).

> 5. Located in areas characterized by large lot single or limited ownership patterns; and,

There are large lot residential areas immediately to the west and north of the subject property.

> 6. Located in areas with direct access to existing roadways.

The subject property has direct access to Corkscrew Road.

> **POLICY 13.1.2:** Private Recreational Facilities within the DR/GR land use category will only be allowed, subject to the other requirements of this Goal, in the areas depicted on Map 1-F, Private Recreational Facilities Overlay Map.

The comp plan amendment application includes a map amendment to designate the property on Map 1-F, the Private Recreational Facilities Overlay Map.

> **OBJECTIVE 13.2: GROWTH MANAGEMENT.** Development of Private Recreation Facilities in the DR/GR areas must be consistent with the growth management principles and practices as provided in the following policies.

The proposed zoning is consistent with the following policies as described below.

> **POLICY 13.2.1: PRIVATE RECREATION FACILITY PLANNED DEVELOPMENT.** By the end of December, 2000, Lee County will amend the Lee County Land Development Code (LDC) to include provisions for a new Private Recreation Facilities Planned Development zoning category. All Private Recreational Facilities proposed within the Density Reduction Groundwater Resource land use category must be reviewed as a Development of County Impact, Private Recreation Facilities Planned Development.

Concurrent with the comprehensive plan amendment, the applicant is submitting a PRFPD rezoning request, consistent with this policy. The applicant will work with Lee County staff to process any required amendments to LDC Section 34, consistent with the concurrent text amendments.

POLICY 13.2.2: Approved Private Recreation Facilities Planned Developments will automatically expire, reverting to the original zoning category, if a Lee County development order is not obtained within five (5) years of zoning approval.

It is the applicant's intent to obtain a development order within the 5-year timeframe following the zoning approval (date the resolution is rendered to the Clerk).

POLICY 13.2.3: RESIDENTIAL USES PRECLUDED. Residential uses, other than a single bonafide caretaker's residence or a resident manager's unit, or those uses as listed in Policy 13.2.6 are not permitted in conjunction with a Private Recreational Facility Planned Development. Residential density associated with land zoned as Private Recreational Facility will be extinguished and cannot be transferred, clustered or otherwise assigned to any property.

The applicant is proposing to delete Policy 13.2.3 as part of the concurrent text amendment.

POLICY 13.2.4: Further, the approval of Private Recreational Facilities on any property within the DR/GR will not be considered as justification for approving an amendment to the Future Land Use Map series which would increase residential density in the DR/GR areas.

The applicant is proposing to delete Policy 13.2.4 as part of the concurrent text amendment.

POLICY 13.2.5: The boundaries of the Private Recreational Facility Planned Development may not be designed to allow out-parcels or enclaves of residential units to be integrated into the golf course perimeter, except as allowed in Policy 13.2.6.

The applicant is proposing to delete Policy 13.2.5 as part of the concurrent text amendment.

POLICY 13.2.6: Time share, fractional ownership units (meaning any dwelling unit for which ownership is shared among multiple entities for the primary purpose of creating short-term use or rental units rather than permanent full time residential units), and Bed and Breakfast establishments may be permitted if the property is included on Map 17 as Rural Golf Course Residential Overlay area. These uses must be ancillary to or in conjunction with uses within the Private Recreational Facility, including a Golf Training Center or similar facility and must be located adjacent to, or within 1,000 feet of, the principal use that is being supported. Through the PRFPD process, the applicant must demonstrate that external vehicular trips will be reduced from typical single-family residential units due to the ancillary nature of the use.

The proposed development does not include fractional ownership units.

POLICY 13.2.7: Time share, fractional ownership units, or bed and breakfast establishments will only be permitted in a designated Rural Golf Residential Overlay area as specified on Map 17 and may only be constructed through transferring density in accordance with the Southeast Lee County TDR Program. Each TDR credit that is eligible to be transferred to a Mixed-Use Community on Map 17 can be redeemed for one timeshare unit, one fractional ownership unit, or two bed and breakfast bedrooms.

The proposed development does not include fractional ownership units.

POLICY 13.2.8: Private Recreational Facilities must have adequate fire protection, transportation facilities, wastewater treatment and water supply, and provided further that they have no adverse effects such as dust, noise, lighting, or odor on surrounding land uses and natural resources.

The proposed amendment includes letters of service availability from Estero Fire District and Lee County Utilities. The transportation impact analysis demonstrates that the proposed development will not cause level of service issues on Corkscrew Road but may positively contribute to the expansion of capacity. The proposed recreational, residential and commercial uses do not create dust. The policies under Goal 13, as well as the land development code will protect surrounding land uses from light pollution. Given the surrounding uses, residential to the east, a mining operation to the north, conservation to the south and large lot residential to the west, as well as the site plan being submitted with the concurrent rezoning, noise and odor will not be a concern based on distance to adjacent uses, buffers and the nature of the uses themselves. Noise and lighting standards will also prevent impacts on nearby natural resources.

Policy 13.2.9: COMMERCIAL USES. Commercial uses may be permitted within Private Recreational Facility Planned Development as provided in Policy 13.3.9 when ancillary or in conjunction with Private Recreation Facilities.

The proposed amendment includes minor commercial development that will be ancillary or in conjunction with the proposed private recreation facilities and will be located internal to the property.

POLICY 13.2.10: Applications for Private Recreational Facility development will be reviewed and evaluated as to their impacts on, and will not negatively affect, any adjacent, existing agricultural, mining or conservation activities.

POLICY 13.2.11: Applications for Private Recreational Facility development will be reviewed and evaluated as to their impacts on, and must be compatible with any adjacent publicly owned lands.

Agricultural operations in the immediate area have nearly disappeared. The mining operation to the north is nearly complete. The proposed amendment will have no adverse or negative impact on either. The Master Concept Plan that is attached to the concurrent PRFPD application demonstrates a design that located the more passive recreational activities, hunting and fishing, along the southern area that is compatible with preserving and restoring naturally vegetated lands. These activities are consistent with conservation uses.

The hunting that will occur is over 500 feet from the nearest residential property line, much farther than the distance of any round used for hunting for quail. The residential properties to the north of the subject site are separated from any hunting activity by restoration/preservation lands, on-site residential units. The separation and intervening uses will greatly diminish any occasional noise that occurs from hunting. Further, it should be noted that hunting is a constitutional right. Hunting occurs now on the CREW lands to the south and east of the subject property and is allowed on both the subject property and the adjacent residential properties to the north.

OBJECTIVE 13.3: GENERAL DEVELOPMENT REGULATIONS. The protection of water quality, quantity, natural resources, and compatibility will be addressed by additional development controls that regulate the permitted uses, parcel size, density, intensity and design of Private Recreational Facilities.

Any proposed PRFPD development will need to comply with the development regulations in Objective 13.3, including maintaining the 85% open space requirement for the entire PRFPD and the associated indigenous preservation. As shown on the Master Concept Plan, the property is 1,052 acres in size and contains 173.28 acres of indigenous preservation (all of the existing 133.31 acres of indigenous wetlands and 33.69 acres of indigenous uplands and 6.28 acres of indigenous "other surface waters), 30.79 acres of restoration of non-indigenous vegetated areas and an additional 243 acres of area that is currently active agriculture and will be restored to mostly upland and with some wetland indigenous area. The restoration and the conversion of agricultural land uses creates the opportunity for significant water quality and quantity benefits for the Density Reduction/Groundwater Resource area. Additional open space from the golf course, lakes and other recreational activities will meet or exceed the 85% criteria.

POLICY 13.3.1: Private Recreational Facilities will submit a Master Concept Plan at the time of planned development submittal that identifies the general location of proposed uses and structures, play fields and golf course routings. Minor adjustments to this Master Concept Plan may be made administratively at the discretion of the Director.

The proposed Master Concept Plan that is attached to the concurrent PRFPD application shows the general location of proposed uses and recreational facilities.

POLICY 13.3.2: Applications for Private Recreational Facilities must include an environmental assessment during the zoning approval process. The assessment

must include, at a minimum, an analysis of the environment, historical and natural resources and a protected species survey as required by chapter 10 of the LDC.

An environmental assessment was submitted with the zoning amendment and should be considered part of the record.

POLICY 13.3.3: In addition to an environmental assessment, the applicant must demonstrate compatibility with nearby land uses (by addressing such things as noise, odor, lighting and visual impacts), and the adequate provision of drainage, fire and safety, transportation, sewage disposal and solid waste disposal.

The subject property is surrounded by an arterial road (with mining on the north), residential development on the east (with a large setback internal to the Kingston development), conservation to the south and rural residential homes to the west. The only use that could have impacts would be the residential to the west and the east.

The Master Concept Plan that is attached to the concurrent PRFPD application shows that the land uses proposed adjacent to the rural residential area that is to the west/north of the subject property will include preservation, restoration and residential on the subject property. The residential area is designed such that any units will be located on the south side of the road, nearly 200 feet from the property line at its closest point. In between the proposed residential units and the property lines to the north in this area will be in internal road, significant open space areas and a Type "f" Buffer in between.

The conversion of the property from active agriculture to recreational facilities and addition of 258 acres of restored conservation should expand the use of the property by wildlife and create new corridors for wildlife movement.

POLICY 13.3.4: The development will incorporate an Integrated Pest Management program for any managed recreational areas.

The developer will utilize an Integrated Pest, Disease, and Herbicide Management Plan and proposes to maintain and enhance those measures as outlined in the submitted hydrologic report.

POLICY 13.3.5: Where buildings or impervious development is located within twenty-five feet of the property boundary, a buffer 15 feet wide, with 5 trees per 100 linear feet, and a solid double row hedge must be provided, unless a more restrictive buffer is required during the planned development review.

The required buffers are being provided and shown on the Master Concept Plan that is attached to the concurrent PRFPD application.

POLICY 13.3.6: No illumination may be used which creates glare on adjacent properties. All exterior lighting will be designed with downward deflectors to

eliminate skyward glare. Parking areas, walkways and paths and maintenance areas may be illuminated for security purposes, provided that light poles do not exceed twelve feet in height.

Proposed development lighting will be evaluated at the time of local development order and will meet this standard based on the implementing criteria in the land development code.

POLICY 13.3.7: Native and xeriscape vegetation will be encouraged, such that:
1. 100% of all required trees and 75% of all additional trees must be native.
2. 80% of all required shrubs and 50% of all additional shrubs must be native.
3. A minimum of 70% of all trees and shrubs must be xeriscape varieties.
4. The native and xeriscape requirements do not apply to turf areas.
5. No plant species included in the Florida Exotic Pest Plant Council, 1999 List of Florida's Most Invasive Species, will be planted.

At the time of local development order, any proposed development will need to be compliance with Policies 13.3.7.

POLICY 13.3.8: The following site requirements, regulating lot size, setbacks and open space must be equaled or exceeded:

1. Principal uses, other than golf courses, and the ancillary uses listed in Policy 13.2.6, permitted under this subdivision must have a minimum lot size of ten acres.

There is no intent for the property to be subdivided into individual lots. The entire property will remain under single ownership. All residential units and the commercial area will either be owned and operated by the developer or sold as condo units. Most of the residential units will be included in a rental pool for club members.

2. Building Setbacks.
   a. 50 feet from an existing right-of-way line or easement.
   b. 75 feet from any private property line under separate ownership and used for residential dwellings.
   c. 50 feet from any adjacent agricultural or mining operation.
   d. Greater setbacks may be required during the public hearing process to address unique site conditions.

As demonstrated on the attached Master Concept Plan that is attached to the concurrent PRFPD application, the proposed development meets all required setbacks.

3. Setbacks for accessory buildings or structures.

As demonstrated on the Master Concept Plan that is attached to the concurrent PRFPD application, all accessory structures meet the required setbacks consistent with the proposed concurrent text amendment (the clarifies that these do not apply to on-site residential uses).

> 4. Open Space. A minimum of 85% open space must be provided. However, natural and man-made bodies of water may contribute 100% to achieving the minimum requirements. To the extent possible, pervious paving and parking areas, and buildings elevated above ground level will exceed the 85% open space requirement.

According to the Master Concept Plan that is attached to the concurrent PRFPD application, the minimum required open space required is 894 acres, with 896 acres provided. The proposed PRFPD amendment provides open space in excess of the required open space, meeting this policy.

> 5. Security. All entrances to Private Recreational Facilities must be restricted from public access during non-use hours.

The Proposed recreational facilities will be gated and restricted from public access as shown on the Master Concept Plan that is part of the concurrent PRFPD application.

> **POLICY 13.3.9: DENSITY/INTENSITY LIMITATIONS**. Proposed uses are subject to the following limitations:

The proposed PRFPD is being submitted concurrent with an amendment to Policy 13.3.9 will allow for residential development and a hotel on the subject property.

> **OBJECTIVE 13.4: WATER QUALITY, QUANTITY, AND SURFACE WATER RESOURCES.** Private Recreational Facilities must be located, designed and operated in such a way that they will not degrade the ambient surface or groundwater quality. These facilities must be located, designed and operated in such a way that they will not adversely impact the county's existing and future water supply. The location, design and operation of Private Recreational Facilities must maintain or improve the storage and distribution of surface water resources.

The golf course will be designed and developed as a Florida Audubon Certified golf course which ensures that the recreational facility results in no substantial adverse effects to surface and groundwater quality. The other recreational facilities on site will not require the type of managed and irrigated open space and will be operated to produce an overall significant decrease in water consumption. The subject property is located well outside the County's well field protection zones.

> **POLICY 13.4.1:** All applications and documentation for the planned development rezoning process must be submitted to the Lee County Department of Natural

Resources for their formal review and comment. The Department of Natural Resources Director must make a formal finding that the proposed uses will not have negative impacts on present and future water quality and quantity, and will review and approve modeling submitted to support the planned development. Applicant modeling efforts must be evaluated and approved by the Lee County Department of Natural Resources and the Lee County Utilities Department. Issues of well locations, easements and wastewater reuse must be evaluated and approved by the Lee County Department of Natural Resources and the Lee County Utilities Department during the planned development process. Formal agreements addressing these issues will be entered into prior to the issuance of a development order. Co-location of recreational and public facilities is encouraged.

The Applicant has provided supporting documents clearly demonstrating that the proposed recreational facility and related uses will not have negative impacts on present and future water quality and quantity of the DR/GR. As the provided documents illustrate, the proposed recreational development will improve the water resources.

In addition, in accordance with Policy 33.2.7, results of an integrated surface water and groundwater model are included. The integrated model demonstrates there are no adverse impacts to groundwater or surface water levels.

POLICY 13.4.2: Applications for Private Recreational Facilities in or near existing and proposed wellfields must be designed to minimize the possibility of contamination of the groundwater during construction and operation.

The Applicant has provided a detailed water resources report that outlines specific measures to protect the County's groundwater resources. However, the proposed recreational facility is not near any existing or proposed wellfield. Policy 13.4.2 is not applicable.

POLICY 13.4.3: Private Recreational Facilities must provide a monitoring program to measure impacts to surface and groundwater quality and quantity (see Objective 13.7).

The water resources report submitted by Water Science Associates includes a proposed monitoring program for the Private Recreational Facility Planned Development.

POLICY 13.4.4: As part of a rezoning request for a Private Recreational Facility in the DR/GR area, a pre-development groundwater and surface water analysis must be conducted and submitted to the county. This analysis is intended to establish baseline data for groundwater and surface water monitoring for the project area. The analysis must be designed to identify those nutrients and chemicals which are anticipated to be associated with the project. Prior to the applicant commencing this baseline study, the methodology of the study must be submitted for review, comment, and approval by the county.

The applicant has been coordinating with the Department of Natural Resources on the baseline modeling for the subject property. The attached Water Resources Report includes proposed monitoring of nutrients and chemicals.

> **POLICY 13.4.5:** Any Private Recreational Facility located in any wellfield protection zone must meet the requirements/criteria for protection zone 1, unless updated modeling is provided by the applicant and is approved by Lee County Department of Natural Resources and the Lee County Utilities Department.

The proposed recreational facility is not located in or near any well-field protection zone.

> **POLICY 13.4.6:** The surface water management system design must incorporate natural flowway corridors, cypress heads, natural lakes, and restore impacted natural flowway corridors.

The subject property does not contain any existing or historic flowways. The wetland system on site is being preserved and restored and included within a larger restoration plan for areas of the existing agricultural development.

> **POLICY 13.4.7:** Any Private Recreational Facilities proposed within the DR/GR land use category must cooperate with Lee County and SFWMD in implementing an overall surface water management plan as outlined in Objective 60.2 and 117.1. Compliance with these policies must be demonstrated during development order approval.

The proposed Private Recreational Facility will be required to obtain an environmental resource permit from the South Florida Water Management District prior to the commencement of any construction activities on site.

> **POLICY 13.4.8:** If a proposed Private Recreation Facilities falls within an area identified as an anticipated drawdown zone for existing or future public well development, the project must utilize an alternative water supply such as reuse or withdrawal from a different non-competing aquifer or show that adequate supply is available in excess of that being used for planned public water supply development.

The subject property is not within an area identified as an anticipated drawdown zone for any existing or future well site.

> **OBJECTIVE 13.5: WILDLIFE.** The location, design and operation of Private Recreational Facilities will incorporate preservation and/or management activities that restrict the unnecessary loss of wildlife habitat or impact on protected species, species of special concern, threatened or endangered species.

The proposed recreational facility will not cause an unnecessary loss of wildlife habitat or impact any protected species, species of special concern, threatened or endangered species as demonstrated in the protected species analysis within the Dex Bender report. The overall recreational facility consists of over 85% open space, in excess of code requirements, that may be utilized by wildlife, as well as preservation of all on site native vegetated areas and the restoration of 243 acres of active farmland to indigenous upland and wetland habitat.

POLICY 13.5.1: The development will not have an adverse impact on any existing, viable on-site occupied wildlife habitat for protected species, species of special concern, threatened or endangered species.

The proposed development will not have an adverse impact on any existing, viable onsite occupied wildlife habitat for protected species, species of special concern, threatened or endangered species as detailed above, and in the Dex Bender Environmental Report.

POLICY 13.5.2: All proposed fencing must be designed to permit wide-ranging animals to traverse the site.

Any fencing will be designed to permit wide-ranging animals to traverse the site.

POLICY 13.5.3: Through the development review process, Private Recreation Facilities will be designed and operated to conserve critical habitat of protected species. This will be accomplished through regulation, incentives and public acquisition.

The proposed recreational facility is preserving and recreating indigenous area in accordance with the PRFPD requirements. The post-developed state of the property will include more wildlife habitat on site than the current state of the property in active agricultural use.

OBJECTIVE 13.6: NATURAL RESOURCES. Private Recreational Facilities must be located, designed and operated to minimize environmental impacts, and where appropriate, protect, enhance and manage natural resources such as flow-ways, waterways, wetlands, natural water bodies, and indigenous uplands.

The PRFPD has been designed to incorporate the only wetland system on the property and enhance the on-site indigenous area with an additional 243 acres of restoration area.

POLICY 13.6.1: All retained onsite natural areas, must be perpetually managed by the owner(s), or their assignees, with accepted Best Management Practices. The type of management techniques will be determined by the specific plant community. A natural area land management plan must be submitted to the Lee County Department of Community Development prior to the approval of a final

local development order. Management techniques addressed in the plan must include, but not be limited to the following:…

The Applicant acknowledges the requirements of the Lee Plan. Detailed management techniques are included at the time of local development order as required by this policy.

POLICY 13.6.2: The development will minimize adverse effects on wetlands and riparian areas, and will result in no net reduction in functional wetland acreage as identified by the South Florida Water Management District Wetland Rapid Assessment Procedure (WRAP).

The Applicant has minimized adverse impacts to wetlands and acknowledges the requirements of the Lee Plan. All wetlands on-site are being preserved and will be enhanced by both exotic removal and by being included within a larger restoration plan for the property.

POLICY 13.6.3: Private Recreational Facilities must be designed to preserve a minimum of 50% of on-site, indigenous native upland habitat.

91% of the on-site indigenous native habitat is being preserved. The subject property contains approximately 37.09 acres of existing upland indigenous vegetation, of which 33.69 acres is being preserved. The preservation of on-site upland vegetation far exceeds the requirements of Policy 13.6.3.

POLICY 13.6.4: The development will incorporate energy and resource conservation devices, such as low flow water fixtures, and natural skylights.

The proposed recreational facility and related uses will meet all applicable Lee Plan requirements.

OBJECTIVE 13.7: MONITORING AND ENFORCEMENT. In order to ensure that Private Recreational Facilities do not degrade the ambient condition of water quality, water quantity, vegetation and wildlife, an ongoing monitoring program must be established by the developer.

The Water Resources Report includes a draft monitoring program to be implemented upon development of the subject property.

POLICY 13.7.1: Annual surface water and groundwater monitoring must continue in perpetuity. The monitoring requirements will be established utilizing those nutrients and chemicals that are anticipated to be associated with the proposed project that were identified by the pre-development groundwater and surface water analysis required by Policy 13.4.4. This surface and groundwater monitoring is to be conducted, at a minimum, on a quarterly basis by a qualified third party. This monitoring data must be submitted to the county as soon as it is available. A

summary report of this monitoring effort must be provided annually to Lee County Department of Natural Resources for their review.

The Applicant has provided a detailed Water Resources Report with a proposed groundwater quality monitoring program to be implemented post development.

POLICY 13.7.2: If surface and/or groundwater monitoring shows degradation of water quality the county will notify the property owner that a plan, to correct the identified problem(s), must be submitted. The property owner must submit a plan of action within 30 days after receipt of written notice from the county. The plan must identify actions that will correct the problem(s) within the shortest possible time frame. This plan will be reviewed and must be found to be acceptable by the county. If the plan is not submitted as required, or is found to be unacceptable by the county, the county will require that all activities on the property cease until a plan is submitted and approved. The approved plan must be implemented by the property owner. If the county determines that the approved plan is not being implemented properly, the county can require that all activities on the property cease until the property owner comes back into compliance.

The applicant has noted and understands the requirements of Policy 13.7.2.

POLICY 13.7.3: The approved Private Recreational Facility must submit an annual monitoring report for a period of five (5) years, addressing the interaction between the use and environment. This report must provide a discussion and documentation on the following activities:

The applicant has noted and understands the requirements of Policy 13.7.3 as detailed in the monitoring plan drafted as part of the Water Resources Report.

OBJECTIVE 13.8: GOLF COURSE PERFORMANCE STANDARDS. The location, design and operation of golf courses located within Private Recreational Facilities will minimize their impacts on natural resources, and incorporate Best Management Practices. A maximum of five (5) 18-hole golf courses, for a total of 90 golf holes, will be permitted through 2030.

To date there has only been one (1) of the five golf courses developed. The proposed recreational facility includes a golf course and is well within the limit of 5 total.

POLICY 13.8.1: Natural waterways located on the site of a proposed golf course must be left in a natural, unaltered condition. Channelization will not be performed.

There are no natural waterways on the subject property.

POLICY 13.8.2: An applicant must demonstrate, prior to the issuance of a local development order, that a golf course is designed to minimize adverse effects to waters and riparian areas through the use of such practices as integrated pest management, adequate stormwater management facilities, vegetated buffers, reduced fertilizer use, etc. The facility must have an adequate water quality management plan, such as a stormwater management facility constructed in uplands to ensure that the recreational facility results in no substantial adverse effect to water quality.

The Private Recreational Facility consists of a golf course, with additional recreational facilities that avoid on site wetland impacts and restore 243 acres of existing active farmland to natural upland and wetland area. The stormwater management system is being designed to meet SFWMD and all applicable water quality standards. There will only be a positive benefit to water quality as a result of the proposed development.

POLICY 13.8.3: If a waterway crossing is necessary, then it must be designed to minimize the removal of trees and other shading vegetation. Any crossings of existing natural flow-ways and water bodies must be bridged. Created or restored flow-ways and water bodies may be crossed by bridges or culverts or a combination as approved by Lee County and the South Florida Water Management District.

The only crossing of the on-site wetland system that is proposed is an existing pervious trail. The proposed PRFPD will simply maintain the existing trail. No new wetland crossing will be proposed.

POLICY 13.8.4: Waterway crossings by cart paths will be constructed of permeable material, no wider than 8-feet, and placed on pilings from edge of floodplain to edge of floodplain.

The applicant has noted and understands the requirements of Policy 13.8.4 and has incorporated this requirement into the design of the project.

POLICY 13.8.5: A new lake or pond should not be located within an existing natural waterway. Upland ponds must not expose stream channels to an increase in either the rate or duration of floodwater, unless required by the South Florida Water Management District for regional water management objectives.

There are no lakes proposed for any existing waterway.

POLICY 13.8.6: For golf course developments, all fairways, greens, and tees must be elevated above the 25 year flood level, and all greens must utilize underdrains. The effluent from these underdrains must be pre-treated prior to discharge into the balance of the project's water management system.

The Applicant acknowledges the requirements of the Lee Plan.

> **POLICY 13.8.7:** Where a golf course is proposed, it must comply with the Best Management Practices for Golf Course Maintenance Departments, prepared by the Florida Department of Environmental Protection, May 1995.

The Applicant acknowledges the requirements of the Lee Plan.

> **POLICY 13.8.8:** The owners will employ management strategies in and around any golf course to address the potential for pesticide/chemical pollution of the groundwater and surface water receiving areas. The owners will comply with the goals of the Audubon International Signature Program for Golf Courses. The management practices include:

The proposed Private Recreational Facility includes a golf course that will be designed and certified in accordance with the Audubon International Signature Program for Golf Courses.

> **POLICY 13.8.9:** Irrigation systems must utilize computerized irrigation based on weather station information, moisture sensing systems to determine existing soil moisture, evapotranspiration rates, and zone control, to ensure water conservation. For Private Recreation Facilities located outside of the depicted Wellfield Protection zones, reuse water, where available, will be utilized for irrigation. Reuse water within Wellfield Protection zones must be in compliance with the Wellfield Protection Ordinance.

The subject property is outside of any County wellfield protection zone. The applicant acknowledges the other requirements of Lee Plan Policy 13.8.9.

> **POLICY 13.8.10:** Golf courses must be designed, constructed, managed and certified in accordance with the Audubon International Signature Program.

The proposed Private Recreational Facility includes a golf course that will be designed and certified in accordance with the Audubon International Signature Program for Golf Courses.

> **POLICY 13.8.11:** It is the landowner(s) responsibility to notify the county within ten (10) working days if the status of certification from Audubon changes from being in full compliance…

The proposed Private Recreational Facility includes a golf course that will be designed and certified in accordance with the Audubon International Signature Program for Golf Courses.

> **POLICY 13.8.12: GOLF SITE REQUIREMENTS.**

1. The minimum number of golf holes is 18. The minimum size for an 18 hole golf course is 150 acres. In no instance may the golf course impacts exceed 150 acres per 18 holes. Allowable uses within the impact area are greens, tees, fairways, clubhouses, maintenance facilities, cart and pedestrian pathways, parking areas, i.e. all associated support uses.

The Master Concept Plan that is attached to the concurrent PRFPD application demonstrates compliance with these criteria. The Master Concept Plan shows that the impact area for the golf course is limited to 150 acres. Exact acreage will be evaluated at the time of local development order.

2. 200 acres of indigenous vegetation preserve is required for every 18 holes. The indigenous vegetation preserve requirement may be provided on-site or off-site. On-site preserves must be a minimum of 1-acre in size; minimum 75-foot wide with an average 100-foot width. Indigenous vegetation preserved on site may utilize a two to one (2:1) credit on a sliding scale based on minimum acreage and width criteria to be included in the LDC. However, the indigenous vegetation preserve requirement must be met with a minimum of 100 actual indigenous acres onsite. Indigenous vegetation preservation requirements must be met outside of the 150 acre golf course impact area.

The Master Concept Plan that is attached to the concurrent PRFPD application shows a total of 447.11 acres of preserve/restoration area, well in excess of the 200-acre requirement. This includes 167 acres of existing on-site indigenous vegetation, which would equate to approximately 334 acres based on the 2:1 credit under these criteria. The proposed recreational facility exceeds this requirement.

3. All off-site indigenous vegetation preserves must be located within the DR/GR areas. Unless located within or adjacent to existing or designated public acquisition areas, the minimum parcel size is 50 indigenous acres.

The proposed PRFPD exceeds the indigenous preserve requirement on-site and does not need off-site areas for preserve to meet the requirement.

4. The off-site indigenous vegetation preserves must include a management plan that is approved as part of the planned development rezoning. This management plan must include invasive exotic vegetation removal with perpetual management. This does not preclude the transfer of the property to a public entity as long as perpetual maintenance is guaranteed.

The proposed PRFPD exceeds the indigenous preserve requirement on-site and does not need off-site areas for preserve to meet the requirement.

5. Additional golf development must be in increments of 9 golf holes. For every additional 9 golf holes, the site area must be increased by 75 acres. Additional golf course impacts are limited to 75 acres per nine holes. The on-site or off-site indigenous preserve area must be increased by 100 acres for each nine holes and is subject to the restrictions above.

The proposed PRFPD only requests one 18-hole golf course.

GOAL 33: SOUTHEAST LEE COUNTY. Protect Southeast Lee County's natural resources through public and private acquisition and restoration efforts. Development incentives will be utilized as a mechanism to preserve, enhance, and protect natural resources, such as regional flow-ways and natural habitat corridors in the development of privately owned land. Allowable land uses will include conservation, agriculture, public facilities, low density or clustered residential, natural resource extraction operations, and <u>private recreation facilities</u>; allowable land uses must be compatible with protecting Southeast Lee County's environment.

The proposed development is being submitted as a "private recreational facility" consistent with Goal 33.

OBJECTIVE 33.1: WATER, HABITAT, AND OTHER NATURAL RESOURCES. Designate on a Future Land Use Map overlay the land in Southeast Lee County that is most critical toward restoring historic surface and groundwater levels and for improving the protection of other natural resources such as wetlands and wildlife habitat.

The subject property is designated as Tier 3 for Priority Restoration on Lee Plan Map 1-D. The attached Groundwater Resource Study demonstrates a <u>reduction</u> of an estimated 236.9 million gallons per year on average with the proposed recreational use in water consumption, and according to the Indigenous Area Preservation, Restoration and Management Plan nearly all of the on-site indigenous areas are being preserved and supplemented with an additional 243 acres of restored habitat.

POLICY 33.1.1: Large-scale ecosystem integrity in Southeast Lee County should be maintained and restored. Protection and/or restoration of land is of even higher value when it connects existing corridors and conservation areas. Restoration is also highly desirable when it can be achieved in conjunction with other uses on privately owned land including agriculture.

According to the Indigenous Area Preservation, Restoration and Management Plan and Protected Species Management Plan nearly all of the on-site indigenous areas are being preserved and supplemented with an additional 243 acres of restored farmland and over 30 acres of restored vegetated area that is heavily infested with exotics. These lands are adjacent to and build upon the CREW lands to the south.

POLICY 33.1.2: The DR/GR Priority Restoration Strategy consists of seven tiers of land where protection and/or restoration would be most critical to restore historic surface and groundwater levels and to connect existing corridors or conservation areas (see Map 1-D). Within these tiers, density incentives will be utilized as a mechanism to improve, preserve, and restore regional surface and groundwater resources and wildlife habitat of state and federally listed species; with Tier 1 and Tier 2 being the most incentivized tiers. Lee County may consider amendments to this Overlay based on changes in public ownership, land use, new scientific data, and/or demands on natural resources. This Overlay does not restrict the use of the land.

The subject property is designated as Tier 3 for Priority Restoration on Lee Plan Map 1-D. According to the Indigenous Area Preservation, Restoration and Management Plan nearly all of the on-site indigenous areas are being preserved and supplemented with an additional 243 acres of habitat restored from active framing operations, over 30 acres of enhanced vegetated areas that are currently not considered indigenous vegetation and preservation of nearly all of the on site indigenous preserve.

POLICY 33.1.3: Pursue acquisition (partial or full interest) of land within the Tier 1 areas in the Priority Restoration Strategy Overlay through direct purchase; partnerships with other government agencies; long-term purchase agreements; right of first refusal contracts; land swaps; or other appropriate means to provide critical connections to conservation lands that serve as the backbone for water resource management and wildlife movement within Southeast Lee County. Tier 2 lands are of equal ecological and water resource importance as Tier 1 but have better potential to remain in productive agricultural use. Tier 3 lands and the southern two miles of Tiers 5, 6, and 7 can provide an important wildlife connection to conservation lands in Collier County and an anticipated regional habitat link to the Okaloacoochee Slough State Forest. Tiers 1, 2, 3, and the southern two miles of Tiers 5, 6, and 7 may qualify for unique development incentives outlined in Objectives 33.2 and 33.3 due to the property's potential for natural resource benefits and/or wildlife connections. Additionally, the County may consider incentives, within all tiers, for private landowners to improve water resources and natural ecosystems.

The subject property is designated as Tier 3 for Priority Restoration on Lee Plan Map 1-D. The attached Groundwater Resource Study demonstrates a reduction of an estimated 236.9 million gallons of water withdrawal per year on average with the proposed recreational use. The Nutrient Loading Report shows a 46% reduction in TN and an 85% reduction in TP discharging from the site with the proposed use, and according to the Indigenous Area Preservation, Restoration and Management Plan nearly all of the on-site indigenous areas are being preserved and supplemented

with an additional 243 acres of restored habitat. All of these improvements are being undertaken at no cost to the public.

> **POLICY 33.2.4:** Restoration of critical lands in Southeast Lee County is a long-term program that will progress in phases based on available funding, land ownership, and natural resource priority. On individual sites, restoration can be carried out in stages:
>
> > 1. Initial restoration efforts would include techniques such as filling agricultural ditches and/or establishing control structures to restore the historic water levels as much as possible without adversely impacting nearby properties.
> >
> > 2. Future restoration efforts would include the eradication of invasive exotic vegetation and the reestablishment of appropriate native ecosystems based upon the restored hydrology.

As demonstrated in the Restoration Plan and the integrated surface and groundwater model, the proposed development will combine the eradication of invasive exotic vegetation and the reestablishment of appropriate native ecosystems based upon the restored hydrology with the restoration of 243 acres of farmland to native vegetation. A monitoring plan is proposed to last for 5 years, to ensure consistency with #2 above.

> **POLICY 33.2.7:** Impacts of proposed land disturbances on surface and groundwater resources will be analyzed using integrated surface and groundwater models that utilize site-specific data to assess potential adverse impacts on water resources and natural systems within Southeast Lee County. Lee County Division of Natural Resources will determine if the appropriate model or models are being utilized, and assess the design and outputs of the modeling to ensure protection of Lee County's natural resources.

In accordance with Policy 33.2.7, results of an integrated surface water and groundwater model are attached. The proposed recreational use will have a positive impact on natural systems, returning ground and surface water closer to historic levels.

> **GOAL 60: COORDINATED SURFACE WATER MANAGEMENT AND LAND USE PLANNING ON A WATERSHED BASIS.** To protect or improve the quality of receiving waters and surrounding natural areas and the functions of natural groundwater aquifer recharge areas while also providing flood protection for existing and future development.
>
> **POLICY 60.1.1:** Require design of surface water management systems to protect or enhance the groundwater table as a possible source of potable water.

In accordance with Policy 60.1.1, results of an integrated surface water and groundwater model are attached. The proposed recreational use will have a positive impact on natural systems, returning ground and surface water closer to historic levels.

> **POLICY 61.1.6:** When and where available, reuse water should be the first option for meeting irrigation needs of a development. Where reuse water is not available, surface water or low quality groundwater should be utilized for irrigation. All other potential water sources must be eliminated prior to selecting potable water as the sole source for meeting the irrigation needs of a development. New developments will coordinate with County staff regarding the source of irrigation water.

Reuse water is not a viable source of irrigation water due to the large distance from water reclamation facilities and a lack of reuse distribution system.

> **OBJECTIVE 60.4: INCORPORATION OF NATURAL SYSTEMS INTO THE SURFACE WATER MANAGEMENT SYSTEM.** Incorporate natural systems into surface water management systems to improve water quality, air quality, water recharge/infiltration, water storage, wildlife habitat, recreational opportunities, and visual relief.

The subject property is almost entirely impacted by active agricultural activities. Nearly all of the natural areas on site are being preserved and enhanced through restoration activities. As demonstrated by the Master Concept Plan and the attached surface water management narrative, the natural systems are being incorporated in such a way that water quality and water storage are both being significantly improved.

> **POLICY 61.1.6:** When and where available, reuse water should be the first option for meeting irrigation needs of a development. Where reuse water is not available, surface water or low quality groundwater should be utilized for irrigation. All other potential water sources must be eliminated prior to selecting potable water as the sole source for meeting the irrigation needs of a development. New developments will coordinate with County staff regarding the source of irrigation water.

Reuse lines are nowhere near the subject property. There are currently no plans to extend reuse lines along the east Corkscrew corridor to the subject property. When and if the County makes reuse available in the future, the property will connect for irrigation water supply.

> **OBJECTIVE 61.2: MIMICKING THE FUNCTIONS OF NATURAL SYSTEM.** Support a surface water management strategy that relies on natural features (flow

ways, sloughs, strands, etc.) and natural systems to receive and otherwise manage storm and surface water.

POLICY 61.2.1: All development proposals outside the future urban areas must recognize areas where soils, vegetation, hydrogeology, topography, and other factors indicate that water flows or ponds; and require that these areas be utilized to the maximum extent possible, without significant structural alteration, for on-site stormwater management; and require that these areas be integrated into area-wide coordinated stormwater management schemes.

The surface water management has been designed to be consistent with the natural features of the property by integrating the existing wetland area and providing better hydrologic connections to off-site preservation property through on-site restoration areas.

POLICY 123.2.10: Require that development adjacent to aquatic and other nature preserves, wildlife refuges, and recreation areas be designed to protect the natural character and public investment in these areas.

The subject property will include restoration adjacent to the CREW lands to the south of the subject property. Within these areas, the only proposed hunting is limited to imported bobwhite quail (Colinus virginianus). This species is native to the southeastern United States, eastern Mexico, and the Caribbean. They typically live and feed on the ground and live in habitats such as flatwoods, prairies, scrub, and upland pine. They nest, roost, forage, and escape predators by using a mosaic of different vegetation structure. In 2007 FWC published a document titled Strategic plan for northern bobwhite restoration in Florida that encouraged management practices that would help restore bobwhite and their habitat in Florida. Hunting will only take place in the designated hunting areas. Strict guidelines will be in place and there will be zero tolerance for the hunting of any listed endangered and threatened species. This type of hunting is compatible with the hunting that takes place on the CREW land east of the site. This is consistent with objective 123.4, as the onsite conservation lands that will be hunted for quail will also provide habitat for many of Florida's native wildlife species.

POLICY 123.3.1: Encourage upland preservation in and around preserved wetlands to provide habitat diversity, enhance edge effect, and promote wildlife conservation.

The proposed development contains an upland buffer around the wetland areas to enhance the edge effect, consistent with Policy 123.3.1.

OBJECTIVE 123.11: FLORIDA PANTHER. Develop strategies to protect the Florida panther.

The proposed development is preserving nearly all of the on-site indigenous vegetation, enhancing over 30 acres of vegetated area that is over 75% exotic vegetation and restoring over 243 acres of

active farmland. This, coupled with the over 85% on site open space will allow for continued movement of Panthers through the property and for preservation of habitat.

POLICY 123.11.7 Provide education and outreach to increase public understanding of Florida panthers and the need for panther conservation.

In accordance with the Protected Species Management Plan, the developer will provide educational materials to increase public understanding of Florida panthers.

OBJECTIVE 123.12: FLORIDA BLACK BEAR: Maintain sustainable black bear populations in suitable habitats and promote connectivity between sub-populations.

The proposed development is preserving nearly all of the on-site indigenous vegetation, enhancing over 30 acres of vegetated area that is over 75% exotic vegetation and restoring over 243 acres of active farmland. This, coupled with the over 85% on site open space will allow for continued movement of Black Bear through the property and for preservation of habitat.

POLICY 123.12.2: Encourage use of bear proof containers to secure waste and other attractants within and adjacent to known bear habitats.

In accordance with the submitted Protected Species Management Plan, the developer will utilize bear proof containers and dumpsters on site.

POLICY 123.12.3: Increase public understanding of black bears and need for bear conservation through public education and outreach.

In accordance with the Protected Species Management Plan, the developer will provide educational materials to increase public understanding of black bears.

GOAL 124: WETLANDS. To maintain and enforce a regulatory program for development in wetlands that is cost-effective, complements federal and state permitting processes, and protects the fragile ecological characteristics of wetland systems. (Ordinance No. 94-30)

The proposed development is preserving and restoring all on-site wetlands.

OBJECTIVE 124.1: Protect and conserve the natural functions of wetlands and wetland systems by maintaining wetland protection regulations.

The proposed development is preserving and restoring all on-site wetlands.

POLICY 124.1.2: The county's wetlands protection regulations will be consistent with the following:

1. The county will not undertake an independent review at the Development Order stage of the impacts to wetlands resulting from development in wetlands that is specifically authorized by a DEP or SFWMD dredge and fill permit or exemption.

2. No development in wetlands regulated by the State of Florida will be permitted by Lee County without the appropriate state agency permit or authorization.

3. Lee County will incorporate the terms and conditions of state permits into county permits and will prosecute violations of state regulations and permit conditions through its code enforcement procedures.

4. Every reasonable effort will be required to avoid or minimize adverse impacts on wetlands through the clustering of development and other site planning techniques. On- or off-site mitigation will only be permitted in accordance with applicable state standards.

5. Mitigation banks and the issuance and use of mitigation bank credits will be permitted to the extent authorized by applicable state agencies.

The proposed development is preserving and restoring all on-site wetlands. In addition, 243 acres of active farming operations are being restored to indigenous upland and wetland areas.

GOAL 125: WATER QUALITY. To ensure that water quality is maintained or improved for the protection of the environment and people of Lee County.

The proposed PRFPD will have a significant improvement for water quality discharging from the subject property. The Nutrient Loading Report shows that there is expected to be a reduction in TP of 85% and a reduction in TN of 46%.

OBJECTIVE 126.1: WATER SUPPLIES. Ensure water supplies of sufficient quantity and quality to meet the present and projected demands of consumers based on the capacity of the environment.

In section F, Irrigation Impact Assessment, see existing text: "Projected irrigation demands for the Preserve at Pepper Place project indicate a reduction in the historic maximum monthly use by approximately 57% based on the proposed land use changes and reduction from more than 770 irrigated agricultural acres to 230 irrigated acres associated with the proposed development. The proposed augmentation rate will be less than prior permitted demands from the Water Table and Sandstone aquifers."

In Section G, Integrated Surface/Ground Water Modeling, Modeling Results, Changes ins Ground and Surface Water Levels, see text and graphs demonstrating no negative impact on surrounding properties. The concluding statement is: The comparison of groundwater elevations indicates that the Pepper Place proposed development will not have a negative impact on groundwater resources in the area surrounding Pepper Place.

> **POLICY 126.1.1:** Natural water system features which are essential for retention, detention, purification, runoff, recharge, and maintenance of stream flows and groundwater levels shall be identified, protected, and managed.

Under the proposed plan, wetlands will be 397 acres, 3.4 times the existing wetland area of 118 acres. Wetlands will receive runoff treated through 32.6 acres of detention storage and 92 acres of lakes while existing wetlands receive untreated agricultural runoff.

> **POLICY 126.1.4:** Development designs must provide for maintaining or improving surface water flows, groundwater levels, and lake levels at or above existing conditions.

In Section G, Integrated Surface/Ground Water Modeling, Modeling Results, Changes ins Ground and Surface Water Levels, see text and graphs demonstrating no negative impact on surrounding properties. The concluding statement is: "The comparison of groundwater elevations indicates that the Pepper Place proposed development will not have a negative impact on groundwater resources in the area surrounding Pepper Place."

Water Resources Report
Preserve at Pepper Place, Lee County, Florida

MTM Naples Investments, LLC
87 Kingstown Road
Richmond, Rhode Island 02898

MAY 2023

13620 Metropolis Avenue, Suite 110
Fort Myers, Florida 33912
O 239.204.5300 - F 866.398.2426
www.waterscienceassociates.com

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SECTION A

EXECUTIVE SUMMARY

The Preserve Sporting Club & Residences at Pepper Place project (Preserve at Pepper Place) is a proposed mixed-use development located on the south side of Corkscrew Road approximately two miles west of the Collier County line in portions of Sections 27, 33, and 34, Township 46 South, Range 27 East in, Lee County Florida. The project is situated between Titan Aggregates Mine to the north across Corkscrew Road, existing agricultural and vacant areas to the east and west, and the undeveloped vacant land that is part of the Panther Island Mitigation Bank Expansion area to the south. The site consists of approximately 1,000 +/- acres of predominantly farm fields that have been heavily drained through an extensive network of ditches that have lowered surface and groundwater levels on the site. The fields also have a historic agricultural irrigation water use extending from the 1960's through present with permitted water use exceeding 3.5 million gallons per day from the Surficial Aquifer System and Sandstone Aquifer.

Projected irrigation water demands for the Preserve at Pepper Place are significantly lower than the historic agricultural use and proposed irrigation supplies will be developed from a combination of stormwater harvesting of the project stormwater management system with supplements from freshwater aquifers underlying the site. Lee County Utilities (LCU) currently utilizes groundwater sources from the Water Table and Sandstone Aquifers and maintains a public water supply wellfield located approximately three miles west of the project site. Potable water supplies and wastewater utility services for the project are anticipated to be provided by Lee County Utilities with privately funded extension of services to the project site.

The project currently lies within the Density Reduction Groundwater Resource (DRGR) land use designation of Lee County which is intended to provide protections to groundwater resources through restrictions on residential density and to maintain surface and groundwater levels at their historic levels. The proposed project can contribute to the County's water resource improvement initiatives through enhanced onsite water management design, including provision for coordinating stormwater management facilities to take advantage of regional connectivity opportunities. Site stormwater discharges can be routed to proposed flow-ways adjacent to the site to enhance water flows from north of the project to adjacent preserve lands to the south. In addition, improved water storage within the project boundaries can be managed to augment restoration on the Panther Island Mitigation Bank. The project also acknowledges the present character of the project site as severely impacted by agricultural uses. The project specifically recognizes the subject property's strategic location proximate to large conservation areas and its ability to implement and further the County's long-term goals of protecting groundwater and improving surface water management in eastern Lee County.

Specific benefits of the project are summarized below:

- Average annual water use will decrease from 537 to 300 MG/yr, a 44% reduction.
- Maximum monthly use will decrease from 87.5 to 37.75 MG/mo, a 57% reduction.
- The site currently has 15 acres of water storage and the proposed site will have 92 acres, a 6-fold increase.
- Discharges from developed areas will be routed through 32.6 acres of detention storage, which will capture nutrients associated with developed areas of the project site. There is currently no detention storage on the existing site.

- The site will have 383 acres of open spaces, 166 times the existing open space area of 2.3 acres.
- Proposed wetlands will be 397 acres, 3.4 times the existing wetland area of 118 acres.
- Wetlands will receive runoff treated through 32.6 acres of detention storage and 92 acres of lakes while existing wetlands receive untreated agricultural runoff.
- The current management of the agricultural site results in field preparation runoff flows and dry season water table management, both of which results in flows to Corkscrew Swamp Sanctuary (CSS) during a period when natural lands do not generate runoff.
- The runoff from the proposed detention storage and lakes will be directed to open space areas, further polishing runoff from developed lands.
- The proposed site provides opportunities for connectivity to flow-ways on adjacent lands that will improve hydrologic connectivity to CSS.
- Land closest to CSS will be open space, thereby improving buffers between existing conservation lands and developed/agricultural landscapes.

SECTION B
INTRODUCTION

Project Overview

The Preserve at Pepper Place project is an approximately 1,000 acre proposed mixed-use development located on the south side of Corkscrew Road approximately two miles west of the Collier County line in portions of Sections 27, 33, and 34, Township 46 South, Range 27 East in, Lee County Florida (**Figure 1**) within the Density Reduction Groundwater Recharge (DRGR) area. The property is currently used for agricultural purposes and consists of multiple active farm fields and heavily impacted wetland areas. The project is located on five parcels that currently maintain agricultural water use permits, including the Pepperplace North, Pepperplace South, Keystone-Lee Grove, Carter Road Citrus, and Corkscrew Tree, LLC projects.

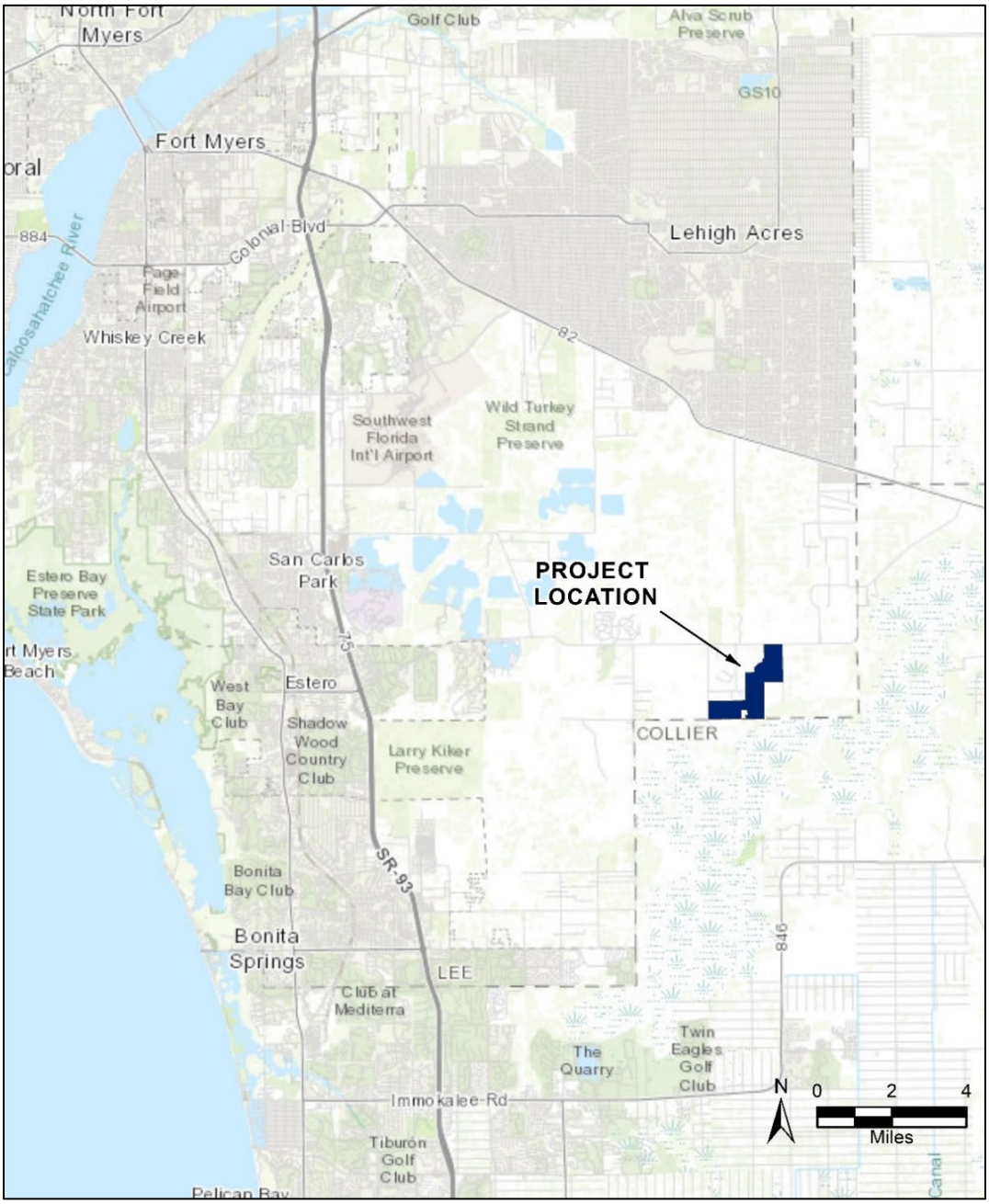


Figure 1. Location of the Preserve at Pepper Place Project

The project is bordered to the north by the Titan Aggregates Mine across Corkscrew Road, to the east and west by existing agricultural and vacant areas, and to the south by undeveloped conservation lands that are part of the Panther Island Mitigation Bank Expansion area. The project is located approximately two miles east of the 10-year Travel Time of the Lee County wellfield protection zone and approximately two and a half miles from the nearest public water supply well. Lee County Utilities (LCU) currently utilizes groundwater sources from the Water Table and Sandstone Aquifers and maintains a public water supply wellfield located approximately three miles west of the project site. The project lies within the Trafford watershed and namely within the Corkscrew – West sub-watershed (**Figure 2**). East of the Preserve at Pepper Place project lies the regionally extensive Corkscrew - East watershed.

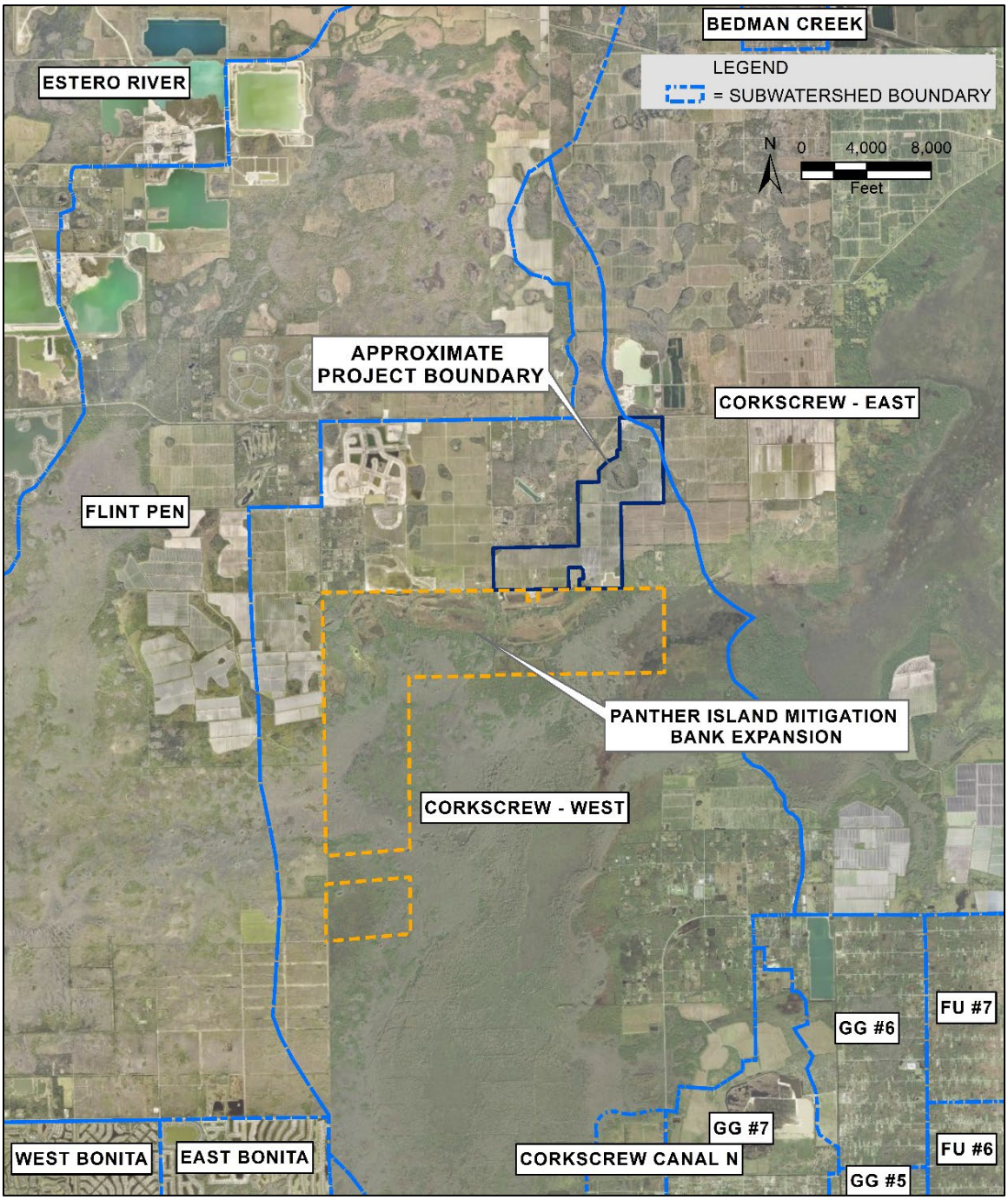


Figure 2. Pepper Place Project Site, Regional Watershed Setting

Past Land Use and Water Use

The Preserve at Pepper Place project falls within five permitted parcels that are currently used for agricultural production, including the Pepperplace North, Pepperplace South, Keystone-Lee Grove, Carter Road Citrus, and Corkscrew Tree, LLC projects. The project site was partially logged and undisturbed land until the late 1960's when it was largely converted to agricultural use. Review of aerial photography indicates that active agricultural activity has continued from the late 1960's to present. The earliest water use permit (WUP No. 36-0094-W/Carter Road Citrus) was issued by the South Florida Water Management District for the irrigation of 60 acres of citrus in 1979. Subsequently, in 1980, the Pepperplace and Keystone-Lee Grove parcels obtained a water use permit (WUP No. 36-00201-W) for the irrigation of approximately 426 acres of citrus. At its peak permitted use in 2007, the project area included the addition of the Pepperplace North water use permit (WUP No. 36-06587-W) for the irrigation of 237 acres of small vegetables with a total irrigated area of approximately 717 acres of small vegetables and citrus. Irrigation water supply was permitted for withdrawals from the Sandstone Aquifer and Surficial Aquifer system with an allocation of approximately 641 million gallons per year (about 1.75 mgd) on an annual average basis and approximately 115 million gallons per month (about 3.70 mgd) on a maximum monthly basis.

In 2008 the Pepperplace and Keystone-Lee Grove farms projects were bifurcated with approximately 151 acres of citrus remaining on the Pepperplace project (WUP No. 36-00201-W) and approximately 268 acres of citrus for the Keystone Lee Grove farm permitted under WUP No. 36-07002-W. The most recently added water use permit was issued in 2019 (WUP No. 36-09164-W) for the irrigation of 13 acres of nursery plants on the Corkscrew Tree, LLC project area. **Figure 3** provides a project area map showing current agricultural water use permits and groundwater well facilities.

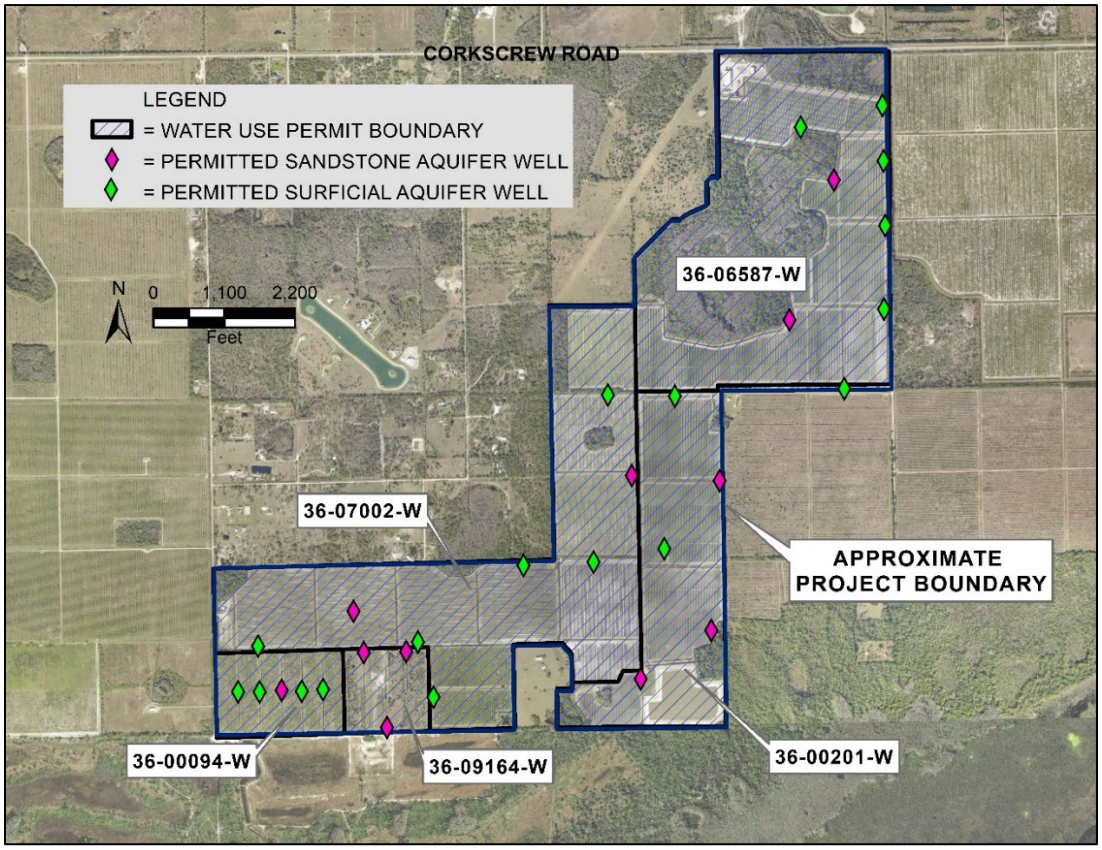


Figure 3. Preserve at Pepper Place Project Site, Existing Agricultural Water Use Permits

SECTION C

GROUNDWATER RESOURCES

Introduction

The hydrostratigraphy underlying the Preserve at Pepper Place project is typical for southern Lee County with a series of aquifers and confining beds occupying the Surficial, Intermediate, and Floridan Aquifer Systems. **Figure 4** provides a schematic showing the groundwater sources in Lee County. In general, freshwater sources are the Water Table and the Lower Tamiami Aquifers of the Surficial Aquifer System. The underlying Sandstone and Hawthorn Zone 1 Aquifers of the Intermediate Aquifer System are fresh to moderately brackish respectively. Brackish and saline water sources include the Lower Hawthorn Aquifer and underlying zones of the Upper Floridan Aquifer.

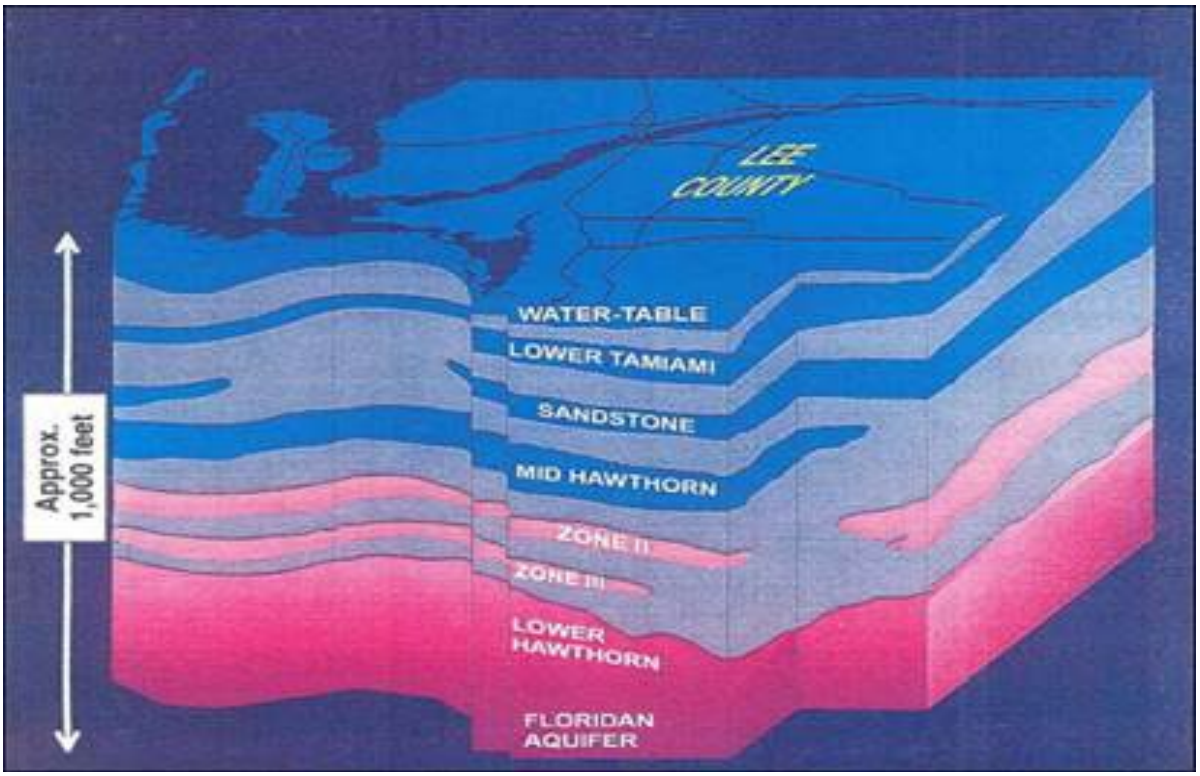


Figure 4. Aquifer System Underlying Lee County

Four primary aquifers are of significance beneath the Preserve at Pepper Place site and are described below in order of increasing depth. These are the Water Table, the Sandstone, the Mid-Hawthorn, and the Lower Hawthorn Aquifers. The Lower Tamiami aquifer is unconfined at this location and therefore considered a part of the Water Table Aquifer or Surficial Aquifer System. Deeper underlying aquifers are generally too saline for direct use at the site. The primary sources of information used to characterize the groundwater resources include information from Lee County, South Florida Water Management District, and U. S. Geological Society.

Surficial Aquifer System

The Water Table aquifer is an unconfined aquifer that covers all of Lee County. The aquifer is defined as occurring at or near land surface downward to the top of the first regional confining bed. Beneath the Preserve at Pepper Place project site, the aquifer occurs within an upper

section of unconsolidated sand and shells and an underlying lower section of limestone. Beneath the Preserve at Pepper Place project, the thickness of the aquifer is approximately 100 feet. The aquifer generally consists of sand, shell and limestone. The limestone portions of the aquifer typically have a moderate to high permeability making the aquifer suitable for medium to large capacity water production wells. The aquifer is used for public water supply, domestic self-supply, and irrigation of agricultural and landscaping foliage. Use of the aquifer is typically limited by the potential for impacts to natural wetland areas from drawdown in the aquifer water level. The aquifer is recharged directly by rainfall. Discharge from the aquifer generally occurs through the transpiration of plants, evaporation of soils, drainage to surface water bodies, and pumpage from wells. Groundwater flow and levels in the aquifer fluctuate seasonally in response to climatic conditions but are also impacted by local and regional drainage features. Water quality in the aquifer is generally very good and useful for both drinking water and irrigation water needs although high concentrations of naturally occurring iron and organic material are common. Lake extraction is the most efficient use of this aquifer for irrigation purposes, which also typically results in less iron and organic staining, as well as reduced impact to area water levels. Confining beds consisting of low permeable clays and silts of the Bonita Springs Marl are generally absent in the vicinity of the project site so that the Water Table Aquifer includes the Tamiami Limestone beds that make the Lower Tamiami Aquifer south of Preserve at Pepper Place. Beneath the project site, the base of the Surficial Aquifer System extends to about 110 feet below land surface. Productivity of the aquifer is moderate to high.

The Surficial Aquifer System is primarily used in the area of the project site for public water supply by Lee County, for agricultural irrigation, livestock, and by private residences for domestic self-supply. To prevent potential interference with these users, the Preserve at Pepper Place project proposes to significantly reduce the use of groundwater from the Water Table Aquifer below that amount currently used for irrigation of crops (see discussion in Section E). In addition, the project will include a surface water management system that provides for improved management of water levels in the Water Table Aquifer that will increase overall groundwater recharge to the aquifer in the vicinity of the project site. Use of the Surficial Aquifer System to supplement stormwater from the onsite lake system is proposed to meet a portion of the irrigation demands at the Preserve at Pepper Place project.

Sandstone Aquifer

The Sandstone Aquifer is the uppermost aquifer in the Intermediate Aquifer system which underlies approximately 100 feet of regional confining beds that create a hydraulic separation from the overlying Water Table Aquifer. Review of hydrostratigraphy data of nearby wells indicates that the top of the Sandstone Aquifer in the area of the Preserve at Pepper Place project site is expected to occur between about 190 to 215 feet below land surface. The Sandstone Aquifer and consists of unconsolidated sands and poorly consolidated sandstone. The unit varies in thickness in the area of the project site, ranging from about 40 to 80 feet.

The Sandstone Aquifer is considered a freshwater source although there are large areas, especially in the southwestern portions of Lee County and areas near and parallel to the Caloosahatchee River where there are elevated salinity levels which may limit the usefulness of the aquifer for public supply. Salinities however, are generally low enough for either general irrigation supply or blending with fresher water sources for irrigation supply. Productivity of the aquifer is moderate to low but it does provide large quantities of water for public water supply by Lee County Utilities, for domestic self-supply in eastern Lee County, and for agricultural irrigation in eastern Lee and western Hendry Counties. The aquifer is recharged where overlying confining beds are thin or absent in Hendry and Glades County. Discharge from the aquifer generally

occurs as pumpage from wells. Large fluctuations in seasonal water levels are common further north of the project site due to the heavy use of the aquifer in those areas with wet season levels near their historic highs but dry season water levels often at depths of 50 feet or more. To prevent potential interference with existing public and private water supply wells, the project proposes to significantly reduce the use of groundwater from the Sandstone Aquifer below that amount currently used for irrigation of crops (see discussion in Section E). Use of the Sandstone Aquifer to supplement stormwater from the onsite lake system is proposed to meet a portion of the irrigation demands at the Preserve at Pepper Place project.

Mid Hawthorn Aquifer

The Hawthorn Zone 1 Aquifer, also referred to the Mid Hawthorn Aquifer in south Lee and Collier counties, is the lowermost aquifer in the Intermediate Aquifer System in Lee County. It consists of moderately permeable limestones of the Arcadia Formation and is separated from the overlying Sandstone Aquifer and underlying Lower Hawthorn Aquifer by thick clay confining beds of the Peace River and Arcadia Formations. Based upon reports by the USGS and Florida Geological Survey, there is little viable yield from the limestones of the upper part of the Arcadia Formation in this part of Lee County. Test drilling has indicated that the limestone section is marly and that the aquifer is not present in the vicinity of the Preserve at Pepper Place project site. At the Corkscrew Water Treatment Plant, located about seven miles northwest of the project site, Lee County uses a permeable portion of the Mid Hawthorn Aquifer for aquifer storage and recovery (ASR) to store seasonally available water in wet summer months to meet peak season demands in dryer winter and spring periods.

Where present, the Mid Hawthorn Aquifer is a generally a lower yield, discontinuous water bearing unit that has utility as a limited supply resource or for seasonal storage in an ASR system. This aquifer is recharged north of Charlotte County where the aquifer is much nearer to land surface and overlying confinement is thin or nonexistent. The Mid-Hawthorn Aquifer is typically brackish in southern Lee County and salinity increases considerably to the south into Collier County. Review of data from wells that tap into this aquifer within about a mile of the project site indicates dissolved chloride concentrations between about 250 and 1,600 mg/l. Use of the Mid-Hawthorn Aquifer to supplement stormwater from the onsite lake system is not proposed to meet irrigation demands at the Preserve at Pepper Place project.

Lower Hawthorn Aquifer

The Lower Hawthorn Aquifer is the uppermost water bearing unit in the Upper Floridan Aquifer System. The aquifer has good yield potential but contains brackish water that is only useful for irrigation if blended with other freshwater resources and is only useful for public water supply using reverse osmosis or other desalination technologies. The top of this aquifer is anticipated to be encountered at depths between about 500 and 600 feet below grade at the Preserve at Pepper Place project site. The aquifer is separated from the overlying Mid-Hawthorn Aquifer by the Lower Hawthorn Confining Zone which consists of marine silts and clays of very low permeability. The Lower Hawthorn Confining Zone has a thickness of about 100 feet.

The aquifer is recharged in the central Florida highlands area between Tampa and Orlando where the aquifer beds are near land surface and confining beds are thin or absent. In general, the South Florida Water Management District supports increased use of the Lower Hawthorn/Upper Floridan aquifer especially for public water supply use. Use of the Lower Hawthorn Aquifer to supplement stormwater from the onsite lake system is not proposed to meet irrigation demands at the Preserve at Pepper Place project.

SECTION D
SURFACE WATER RESOURCES

Onsite Lakes

The development will include stormwater management lakes to provide flood control and water quality treatment of runoff. A number of design and control features are planned for the Preserve at Pepper Place project to protect and enhance the quality of water in the lakes and adjacent watersheds and provide for hydrological improvements on the project site (refer to **Figure 6** for a conceptual site plan). These elements include collection, treatment, and conveyance of stormwater within the project water management system, future drainage conveyance/restoration areas, and other water treatment BMP's, and centralized control over the application of irrigation water.

Figure 5. Typical Stormwater Management Lake

Centralized control of the operation of the irrigation system results in improved adherence to Best Management Practices and water use compliance than if individual homeowners have control of these functions or the ability to override irrigation programming. Individual homeowners will not have the ability to override irrigation times or quantities. Application of fertilizers and pesticides within the common areas will be controlled and managed by the Property Owners Association.

The stormwater management system will include the collection and detention of all stormwater generated on the site and will provide stormwater treatment through various dry and wet detention elements within the development footprint that meet or exceed water quality requirements of the South Florida Water Management District, the Florida Department of Environmental Protection, and Lee County.

Figure 6. Conceptual Site Plan

The Preserve at Pepper Place stormwater management system will incorporate multiple required best management practices to ensure a maximum potential treatment of stormwater. Details and goals of the Preserve at Pepper Place stormwater management system are provided in the Surface Water Management / Drainage Report included in the Comprehensive Plan Amendment.

The project is adjacent to a proposed north south future drainage conveyance/restoration area located east of the Preserve at Pepper Place property boundary that will allow for flow augmentation from the project if needed to facilitate regional watershed restoration and improvement initiatives. The future drainage conveyance/restoration area will include grading to provide restored wetland habitats within freshwater marshes that will be created within the future drainage conveyance/restoration area. Additional polishing of the water quality and nutrient uptake will occur in the future drainage conveyance/restoration area further reducing downstream nutrient loading and improve stormwater quality and regional flows.

SECTION E

WATER DEMANDS

Water demands at the project site will consist of in-house potable water and outside irrigation uses. Amendments to Lee County's Future Water Service Area map (Lee Plan Map 4-A) and Lee County's Future Sewer Service Area map (Lee Plan Map 4-B) are proposed to include the Preserve at Pepper Place project to allow for privately funded extension of water and sanitary sewer services to the development. Irrigation demands will be met with onsite sources including harvesting stormwater from the onsite stormwater lake system with re-supply by groundwater withdrawals when needed. The lake withdrawals will provide an efficient and low impact method for tapping the Water Table Aquifer underlying the project site and effectively harvest available stormwater supplies. Lake volume storage will minimize potential impacts to surface and groundwater levels. The project has a long history of permitted agricultural withdrawals from the Surficial Aquifer System and Sandstone Aquifer that are larger than the proposed irrigation demands for the Preserve at Pepper Place project. Analysis of potential impacts attributed to proposed irrigation withdrawals for the Preserve at Pepper Place project are presented in Section E.

Potable Water and Wastewater

Lee County Utilities (LCU) will provide potable water and wastewater services to the project. This will eliminate the need for individual domestic self-supply wells and individual onsite sewage treatment and disposal systems (septic tanks) which are common for many areas of Lee County. Provision of central public utilities to the Pepper Place project will provide a number of desirable environmental and hydrological advantages. Supplying potable water to the project from the nearby LCU Corkscrew Water Treatment Plant water treatment facility will remove a potentially competing water use from the freshwater aquifers and allow for improved planning and control of area water resources. Similarly, provision of a central sewer system will eliminate septic tank discharges in the area providing a higher level of protection to the adjacent wetland mitigation properties and existing Lee County wellfields to the west.

Irrigation Water

The project was historically permitted for Surficial and Sandstone Aquifer withdrawals for agricultural production. The current total permitted withdrawals of groundwater within the Preserve at Pepper Place project allocates about 2.82 MGD on a maximum monthly basis and about 1.47 MGD on an average annual basis for agricultural irrigation.

The Preserve at Pepper Place project will include stormwater management lakes that will intersect permeable limestone of the Water Table Aquifer. The proposed irrigation system will consist of stormwater harvesting from the stormwater lake management system with these withdrawals re-supplied by a combination of groundwater from the Surficial Aquifer System and Sandstone Aquifer. Actual percentages of lake and groundwater withdrawals will be determined during the water use permitting process with the SFWMD. Use of stormwater as a primary irrigation resource reduces use of potable water supplies, provides additional stormwater treatment, reduces offsite discharges of stormwater, reduces nutrient levels of the stormwater outfalls, and reduces reliance on groundwater systems being used to supply potable water to Lee County Utilities and home sites on individual wells.

Reuse water is not a viable source of irrigation water due to the large distance from water reclamation facilities and a lack of reuse distribution system.

Irrigated area for the Preserve at Pepper Place project is estimated to include 230 acres of turf grass and landscaping. Using standard Blaney-Criddle calculations used by the SFWMD for irrigation supply permitting, this acreage will result in irrigation water demands of 37.75 million gallons per month (MGM) on a maximum monthly basis (or about 1.22 million gallons per day) and 300.2 million gallons per year (MGY) on an average annual basis (or about 0.82 million gallons per day). **Table 1** provides a summary of historic/current water use on the property and proposed allocations for the Preserve at Pepper Place project. Projected irrigation demands for the project indicate a reduction in the historic maximum monthly use by approximately 57%.

Table 1. Summary of Historic and Proposed Allocations.

Allocation	Existing Permit					Current Total Allocations	Proposed Total Allocations	Change from Current Allocations
	36-06587-W	36-00201-W	36-07002-W	36-00094-W	36-09164-W			
Maximum Monthly (MGM)	17.4 MG	13.0 MG	46.3 MG	8.9 MG	1.9 MG	87.5	37.75 MG	-49.75 MG
Annual Average (MGY)	116.3 MG	86.8 MG	267.4 MG	51.2 MG	15.4 MG	537.1	300.2 MG	-236.9 MG

The proposed project will use computerized irrigation systems that incorporate onsite data and conditions to provide irrigation on an as-needed bases rather than simply on a scheduled basis. Such systems have been shown to result in reductions in irrigation water use by over 30% in Southwest Florida. In general, these systems operate based on computer software that accounts for soil moisture, rainfall, and elements that influence evaporation and transpiration to determine which locations require irrigation, how much irrigation is needed, and when to apply irrigation water.

SECTION F

IRRIGATION IMPACT ASSESSMENT

Water Levels

Water Science Associates reviewed hydrographs of nearby monitoring wells maintained by Lee County Division of Natural Resources (LCDNR) as well as data from a monitoring well on the Panther Island Mitigation Bank that was utilized in a recent hydrologic modeling study conducted for the Coastal & Heartlands National Estuary Partnership (CHNEP) (**Figure 7)**. The nearest Water Table Aquifer wells with long term water level data (1990 to present) are 49-GW23, located on the northern border of the Preserve at Pepper Place project and 49-GW24, located about one mile north of the project site. Monitoring well PIMB MW-9 is located less than one mile south of the project site in the Trafford watershed. The Preserve at Pepper Place and these three monitoring stations are in the Panther Island E sub-basin that discharges to Corkscrew Swamp Sanctuary which ultimately flows into the Imperial River sub-watershed.

The upstream monitoring wells have water levels ranging seasonally between 21 and 28 feet NAVD88 with 49-GW23 showing slightly lower water levels between 2010 and 2018 and 49-GW24 showing relatively consistent dry and wet season water levels starting from 2007 to present. The ground elevation at 49-GW23 is 28.5 ft-NAVD, 1.5 to 2.5 feet above measured water levels at 49-GW23. The ground elevation at 49-GW24 is 27.8 ft-NAVD, 1 – 2 feet above measured water levels at 49-GW24. The downstream monitoring well PIMB MW-9 has a shorter period of record and shows water levels ranging between approximately 14 and 18 feet NAVD88. Measured water levels at PIMB MW-9 were above ground during the wet seasons of 2016 and 2017 at PIMB MW-9, which has a ground elevation of 17.8 ft-NAVD.

Irrigation withdrawals from the stormwater management system will be partially re-supplied with groundwater from the Water Table Aquifer and/or the Sandstone Aquifer. Projected irrigation demands for the Preserve at Pepper Place project indicate a reduction in the historic maximum monthly use by approximately 57% based on the proposed land use changes and reduction from more than 770 irrigated agricultural acres to 230 irrigated acres associated with the proposed development. The proposed augmentation rate will be less than prior permitted demands from the Water Table and Sandstone aquifers. Additionally, the project's water management system will provide enhanced water quality treatment and storage thereby providing a positive impact to groundwater recharge and regional water quality.

Recharge within the project's water management system will occur within the proposed 34.6 acres of detention basins shown on the site plans. In addition, there are over 380 acres of open space on the project site that will be reserved for outdoor activities. These areas will not be drained to adjacent ditches as is the case with the existing agricultural activities. Therefore, rainfall not lost to evapo-transpiration will be recharged to the aquifer.

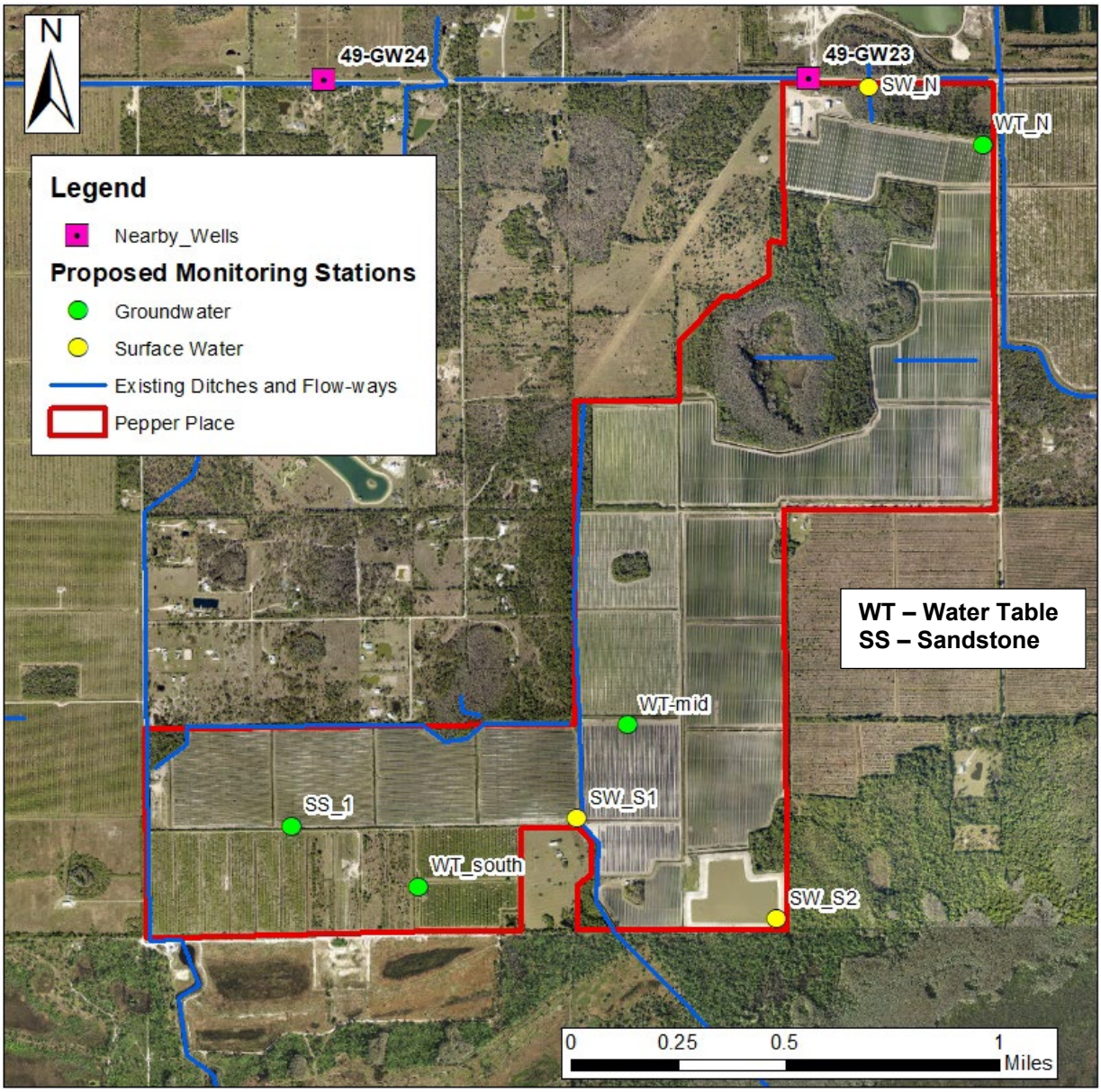


Figure 7. Location of Nearby Monitoring Wells

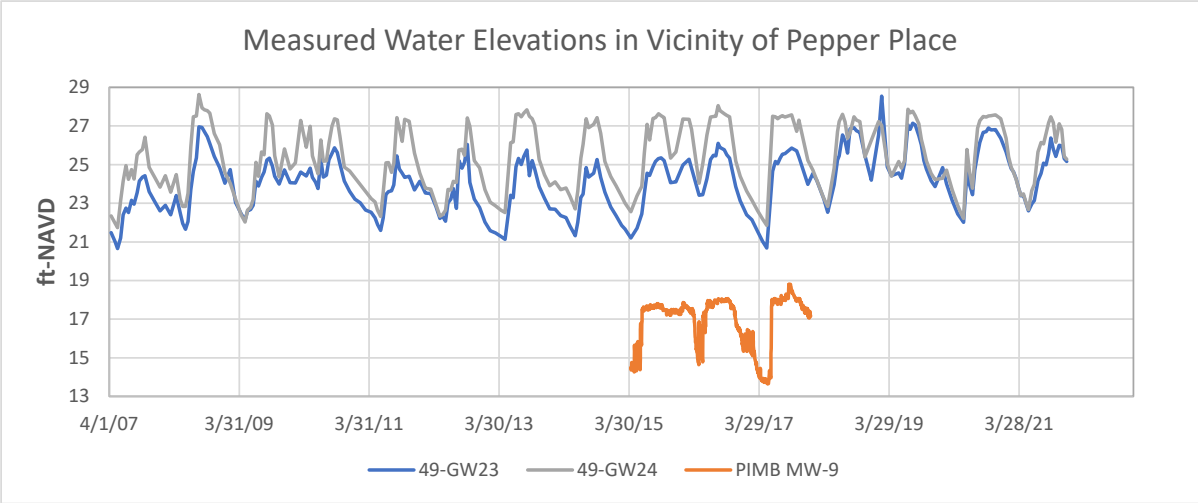


Figure 8. Water Table Aquifer Hydrographs of Nearby Monitoring Wells

SECTION G

INTEGRATED SURFACE/GROUND WATER MODELING

A number of Lee County policies have been evaluated that address the water resources impact of proposed developments within the Density Reduction/Groundwater Recharge overlay area. Relevant policies are paraphrased below.

- Policy 1.4.5: the project should not have negative impacts upstream, downstream, or adjacent to the proposed development.
- Policy 3.1.7: Impact of proposed land disturbances should be analyzed using integrated surface and groundwater models. Adverse impacts on water resources and natural resources should be avoided.
- Goal 60: Surface water management systems should be designed to protect/enhance groundwater levels.

INTRODUCTION

An existing integrated surface/ground water model was developed for South Lee County (SLC) for CHNEP in 2021 (Lago Consulting & Services, LLC & CHNEP, 2021). That model was used as a starting point for the analysis. Because the SLC model domain is over 363 square miles and Pepper Place is approximately 1.6 square miles, a local-scale model was developed so that the model grid size could be reduced from 350 x 350 feet to 150 x 150 feet. All raw input files (e.g., topography, land use) were re-sampled from GIS at the smaller grid size. This approach allowed for a more detailed evaluation of proposed lakes and developed areas of Pepper Place. **Figure 9** illustrates the model domain for the SLC model, the local scale model, and the boundary of Pepper Place. Historic aerial photographs from 1953, pre-development vegetation, and existing flow paths are presented in Figures 10, 11, and 12, respectively. The pre-development vegetation files were developed as part of the Southwest Florida Feasibility Study (Mike Duever, personal communication).

EXISTING CONDITIONS SIMULATIONS

Surface Water Representation

The local-scale model was developed, and a continuous simulation was conducted for January 1, 2017 through December 31, 2019. Simulated water levels during this period were compared to measured water levels at known calibration stations to verify that the local-scale model performed at least as good as the SLC model. A number of enhancements were made to improve model calibration as described below (see **Figure 13** for structure locations and identifiers):

- The outlet structure from King Ranch (SFWMD permit 36-00077-W, previously known as the Rosbaugh Grove or OCP Holding LLC) that flows through Titan Mine north of Pepper Place (Structure 16 in **Figure 10**) was modified using information obtained from a field visit.
- Titan Mine existing mining cells were represented more accurately using information obtained from permit files and discussions with mine representatives.

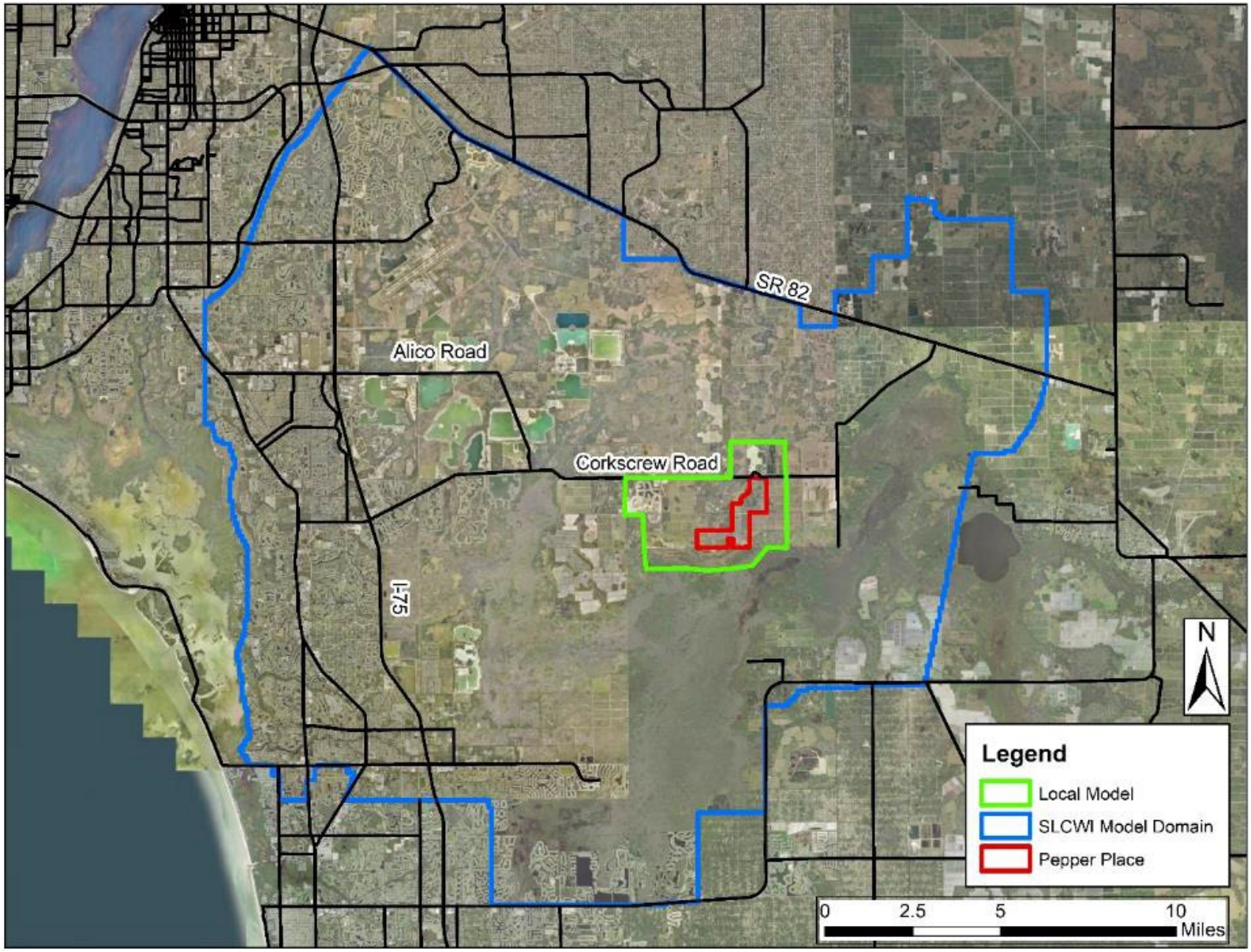


Figure 9. Map of SLCI Model Domain, Local Model Domain, and Boundary of Pepper Place

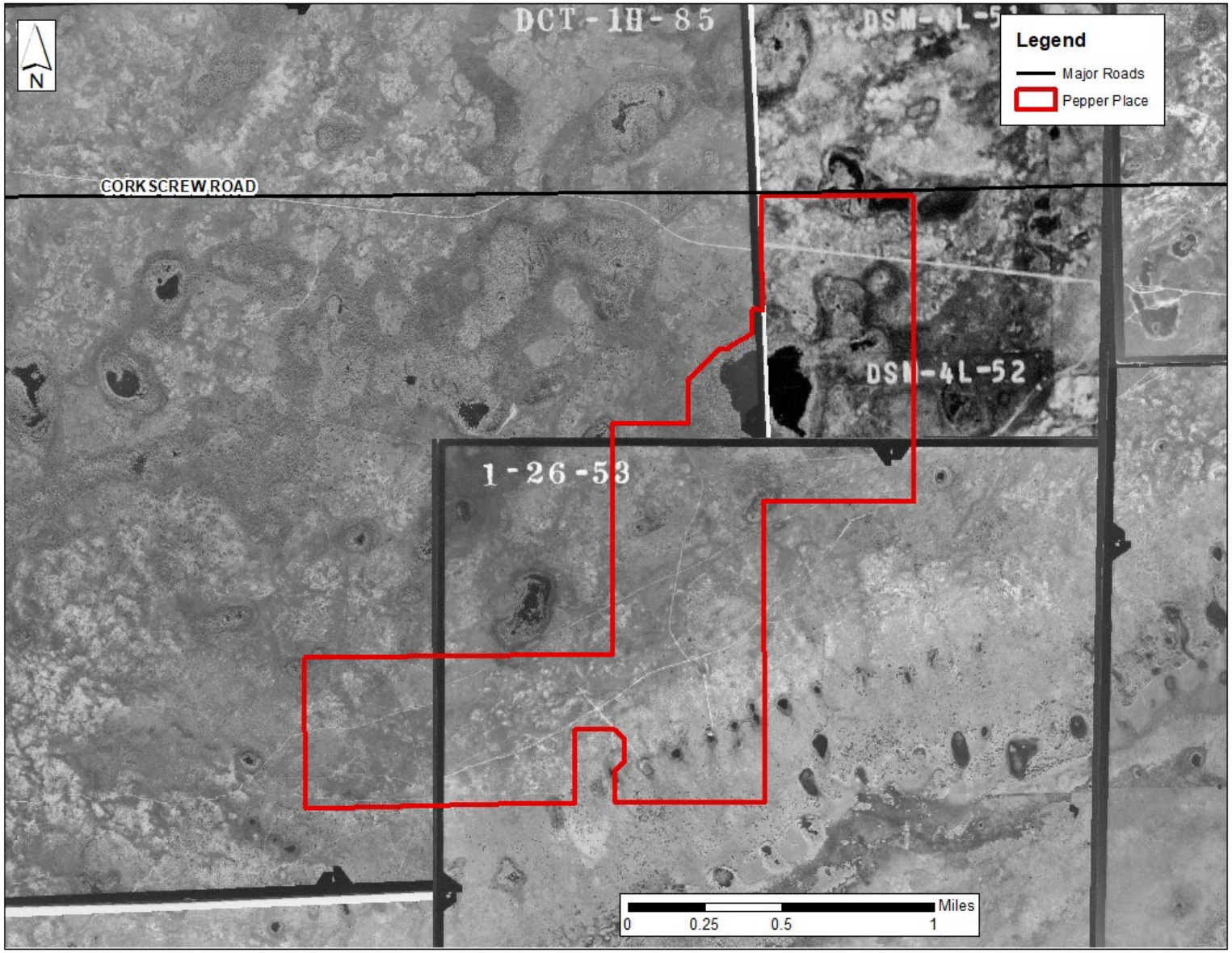


Figure 10. Map of 1953 Aerial Photographs in Vicinity of Pepper Place

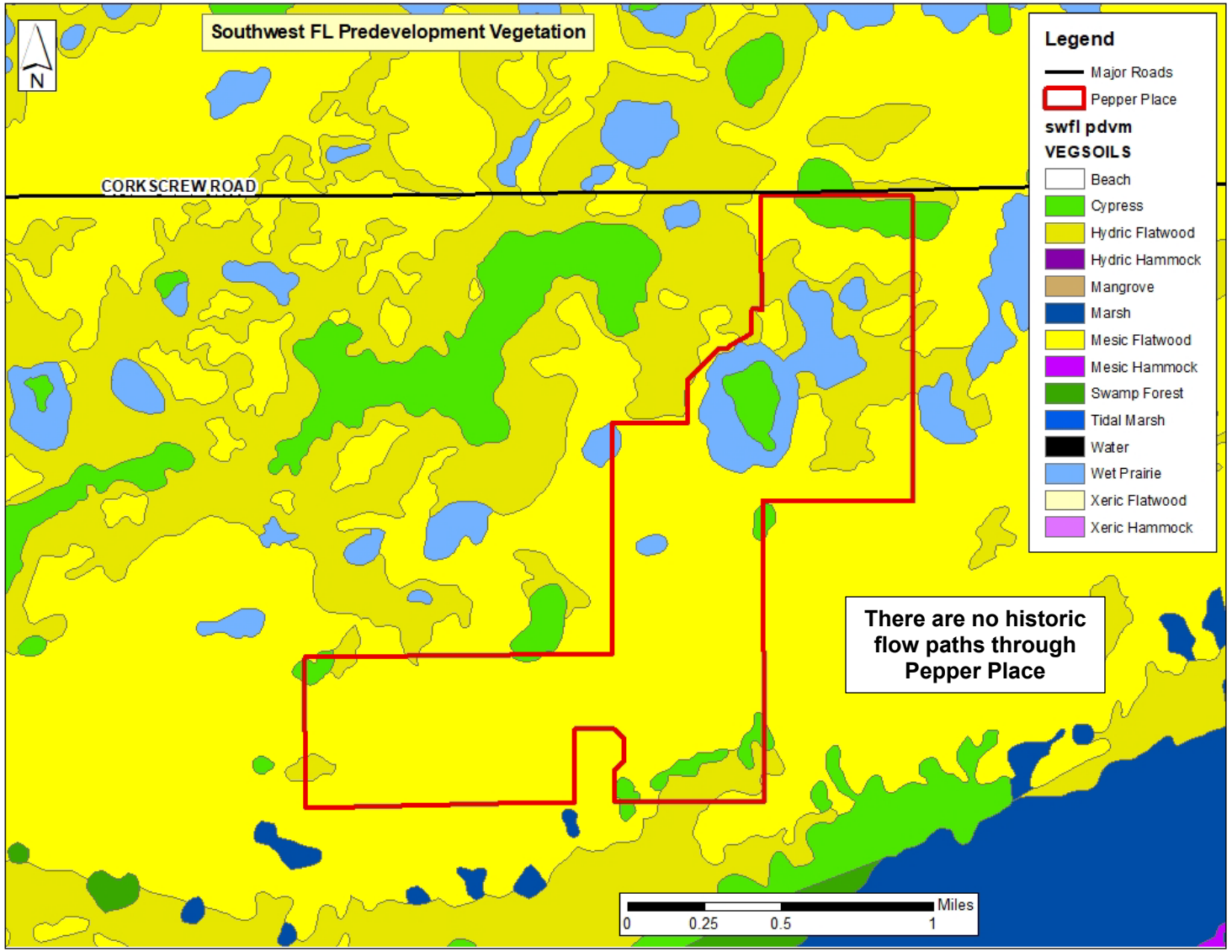


Figure 11. Map of Predevelopment Vegetation in Vicinity of Pepper Place

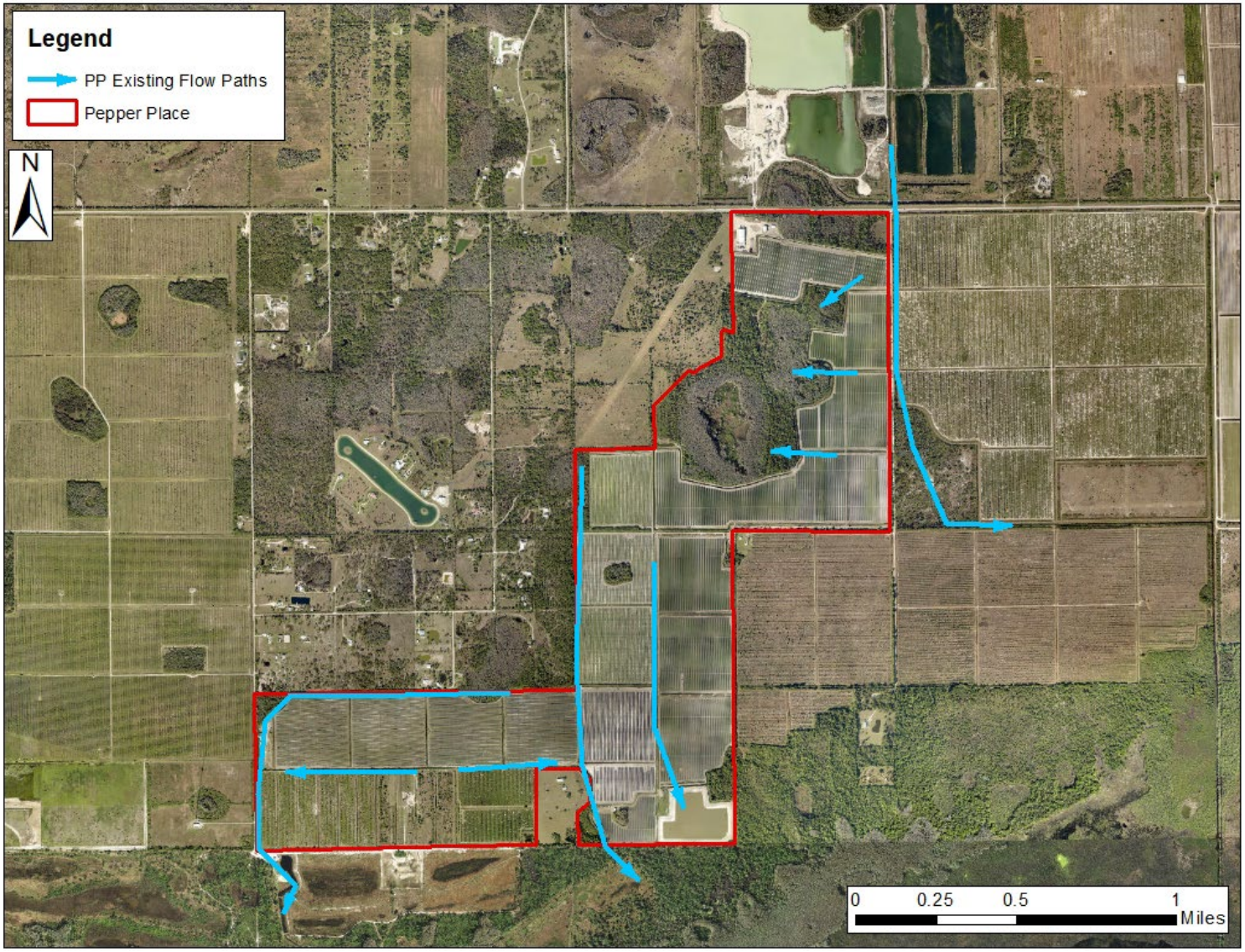


Figure 12. Map of Existing Flow Paths in the Vicinity of Pepper Place

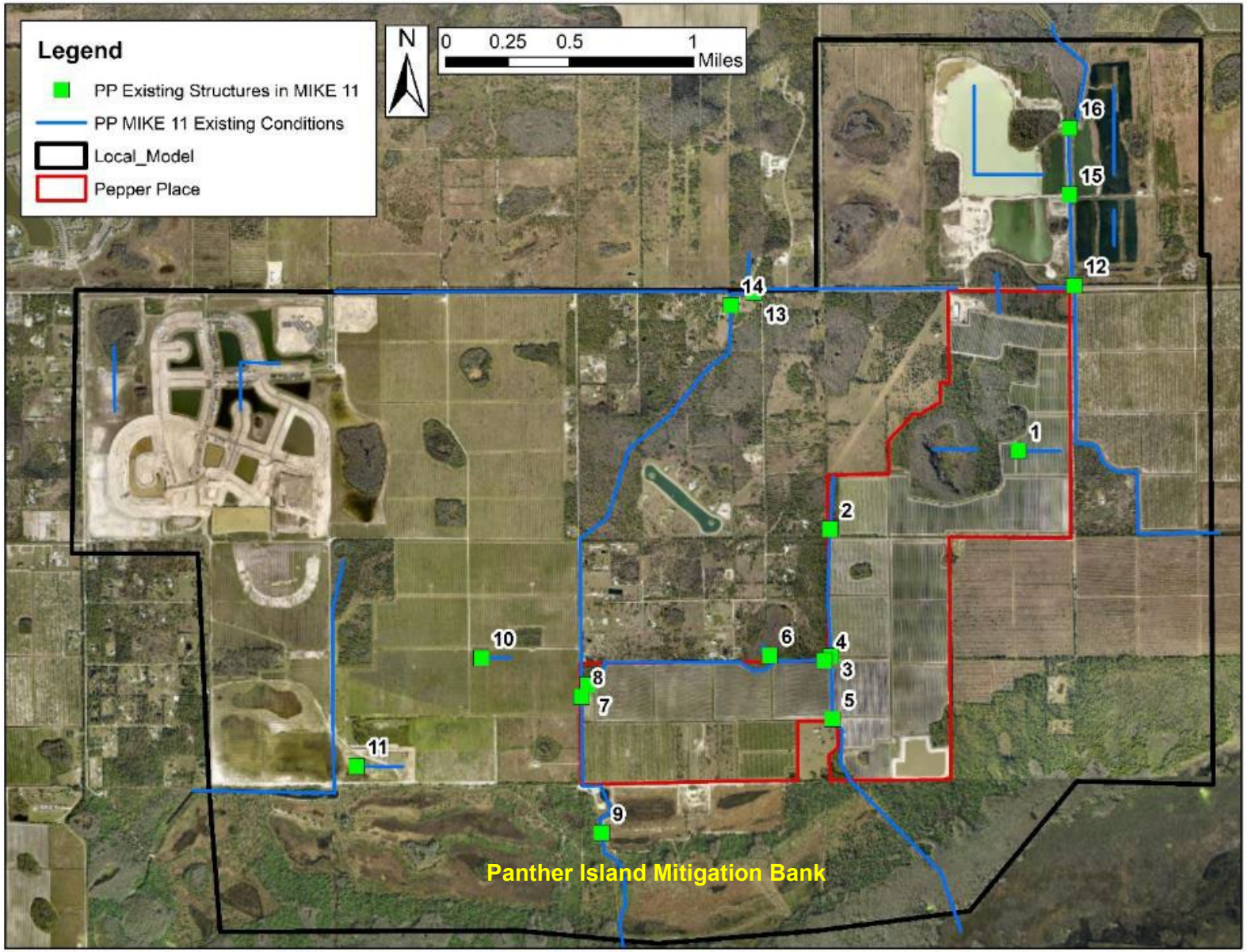


Figure 13. Existing Conditions Structures

- Field ditches in existing citrus fields route water to agricultural pump stations that convey the pumped water into above-ground impoundments. New surface water conveyance branches were added to the local-scale model to represent this process, and pumps were added to properly represent the existing agricultural operation (e.g., Structure 1, which is a farm pump that directs farm runoff to the wetland west of Structure 1).
- An existing farm ditch that routes water through the farm was in the SLC existing conditions model. Field studies identified a number of culverts that regulate southerly flow, and these structures were added to the existing conditions model to more accurately represent dry season water levels observed during the field visit (Structures 2, 3, 4, and 5). Structure 2 is a weir with an invert elevation of 27.2 ft-NAVD that allows inflows from lands outside of the existing farm during high flow periods.
- Structure 6 is located on the southern berm of a wetland area in the rural residential area west of Pepper Place. This area was checked during a field investigation to determine if there were any low spots in the berm that would allow it to flow into the perimeter ditches of the existing farm. No low spots were observed, and no culverts under the berm were evident. Structure 6 was added to the model to handle any flows should subsequent field investigations reveal a connection. No flow is allowed through Structure 6 in the existing conditions since no gaps in the berm were observed, and no culverts were evident.

Existing conditions model calibration was checked prior to preparing a future condition simulation that includes the proposed Pepper Place development. Calibration of the local-scale model is better than the larger SLC model at all calibration stations except for one station south of the project site PIMB MW-8) where land elevations were modified as part of mitigation bank activities. Since the timing and extent of those land elevation modifications is not known, the model calibration issue at this station is deemed minor. A map of the calibration stations and calibration plots are presented in **Appendix A**.

Topography

An inspection of the LiDAR elevation data obtained from Lee County indicated that ground elevations were higher in the large wetland west of Structure 1 than land elevations in adjacent agricultural fields (see **Figure 13** for location). Two transects were surveyed and surveyed ground elevations were as much as 4 feet below LiDAR elevations in the marsh area of that wetland. Surveyed ground elevations ranged from 1.2 feet below LiDAR elevations to 0.7 feet above LiDAR elevation in cypress wetlands. Based on this information, elevations were lowered by 4 feet in marsh habitat and 0.5 feet in cypress wetlands (details are available in **Appendix B**).

Irrigation Set-up

The existing farm is irrigated from both the Water Table (WT) and the Sandstone (SS) aquifers. As discussed in the Water Resources Report, a number of SFWMD Water Use Permits (WUP) regulate irrigation on the existing farm. The MIKE SHE/MIKE 11 model simulates irrigation based on soil moisture deficits that are calculated for each grid cell based on rainfall and evapotranspiration rates. When soil moisture drops below optimum, irrigation is applied to model cells within each irrigation command area (ICA) to satisfy the soil moisture deficit. Irrigation rates are limited to maximum monthly application rates that were set to be consistent with the WUP irrigation rates. The screened depth for each ICA is set based on information obtained from the

WUP files. **Figure 14** illustrates the ICAs for the Pepper Place farm. Note that the crop types and irrigation application rates were established based on the model calibration period (2017-2019). Citrus was the crop type during that period for two of the three ICAs used in the model. The farm crop type has changed in recent years from citrus to truck crops due to citrus greening, however the change of crop type occurred after the model calibration period, therefore citrus is the predominant crop type used in 2 of the 3 ICAs. Average simulated irrigation (256 MG/yr) during the simulation period was less than reported irrigation (309 MG/yr, range 174 – 494 MG/yr) during the calibration period. Note that current permitted irrigation allocations total 537 MG/yr.

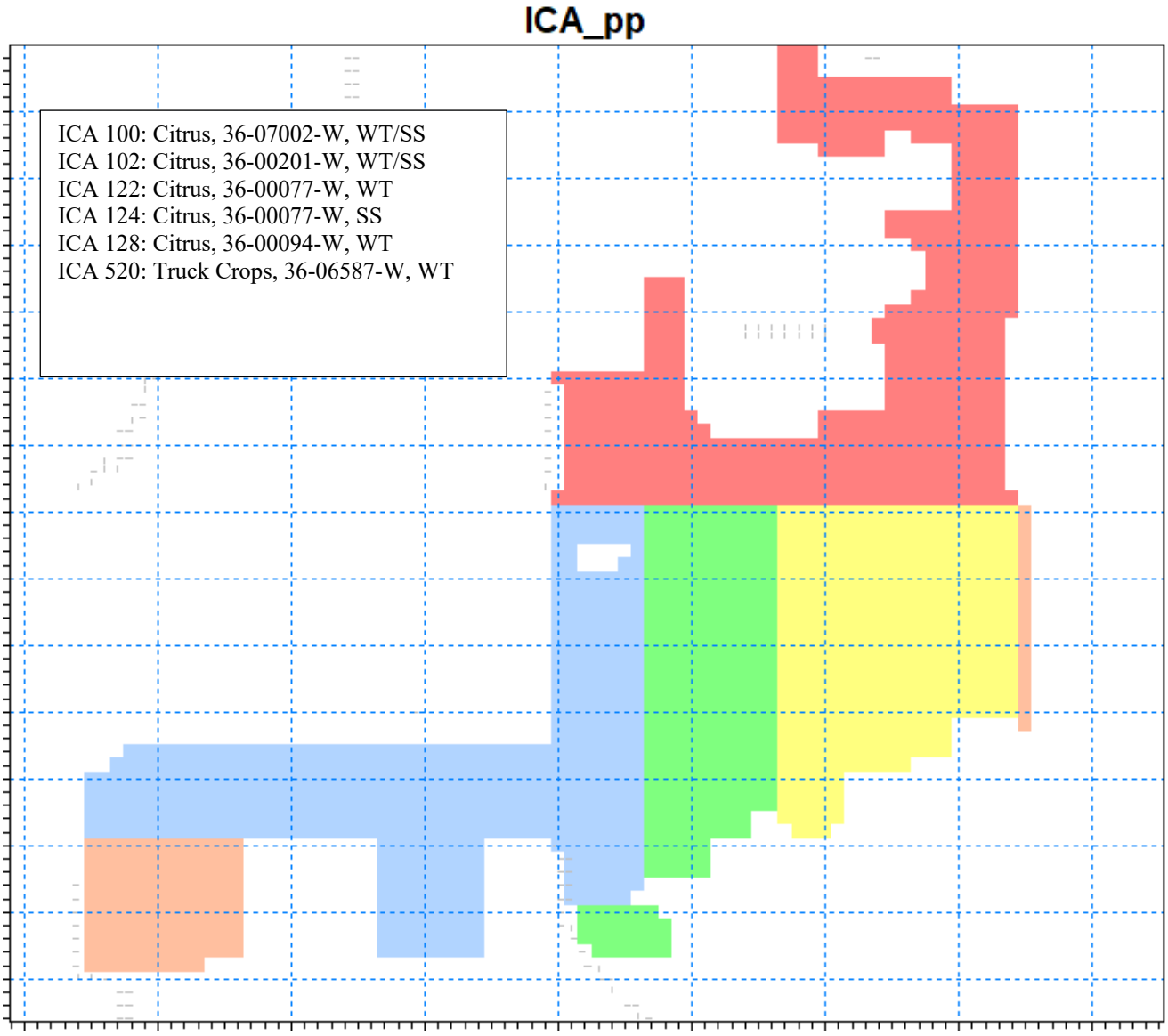


Figure 14. Irrigation Command Areas (ICAs) for Pepper Place Farm

FUTURE CONDITIONS SIMULATION

Model Development

The future conditions simulation model was developed based on the site plans prepared by J.R. Evans Engineering, Inc. (Pepper Place ERP Draft 01-11-2023.pdf). Land use was changed to a mix of residential development and passive recreation area consistent with the ERP site plan. Topography was increased in residential and associated areas by 3 feet based on information in the ERP site plan. The site plan includes dry detention treatment of developed areas that drain to a series of lakes that drain to the southern limit of the Pepper Place site. Lake dimensions, control structures, and culverts between the lakes were included in the Future Condition MIKE 11 network. **Figure 15** illustrates the MIKE 11 network, structures, and lakes/wetlands simulated as part of the surface water network. Two structures are proposed to handle off-site flows (see locations 1 and 2 in **Figure 15**). These structures are intended to provide flood relief for extreme large rainfall events. Structure 1 is a double set of box culverts each 4 ft wide by 2 ft high. Structure 2 is one box culvert with the same dimensions. The proposed invert elevation for both structures is 25.5 ft-NAVD.

Irrigation for Proposed Pepper Place

Irrigation for the Future Condition Pepper Place is applied to developed residential areas as well as for the turf associated with other buildings, as shown below in **Figure 16**. No irrigation is applied to the recreation areas associated with hunting and dog training. The simulated irrigation area is 376 acres, with irrigation only applied to the turf and other vegetated areas. The simulated irrigation is 283 MG/yr.

MODELING RESULTS

Surface Water Discharges

The combined discharges south of Pepper Place for existing and the Future Condition simulations is presented in **Figure 17**. Peak discharges during Hurricane Irma for the Future Condition are greater than for the Existing Condition simulation, and the duration of elevated flows is longer for the Future Condition than for the Existing Condition. Furthermore, positive wet season discharges during 2018 and 2019 are predicted for the Future Condition simulation in contrast to zero flows during the Existing Condition simulation during 2018 and 2019. The proposed Pepper Place development is therefore expected to have a positive impact on discharges to Panther Island Mitigation Bank.

Wet Season Flood Levels and Hydroperiod Differences

Difference maps of water levels above ground for Future Condition minus Existing Condition for the wet seasons of 2017, 2018, and 2019 are presented below in **Figures 18**, **19**, and **20**. Proposed minus existing average 2017-2019 hydroperiod is presented in . Hydroperiod is defined as the number of days per year that water levels 0.1 feet above ground level. A number of key observations include:

- No flooding or increased hydroperiods are predicted for the rural residential area west of Pepper Place.

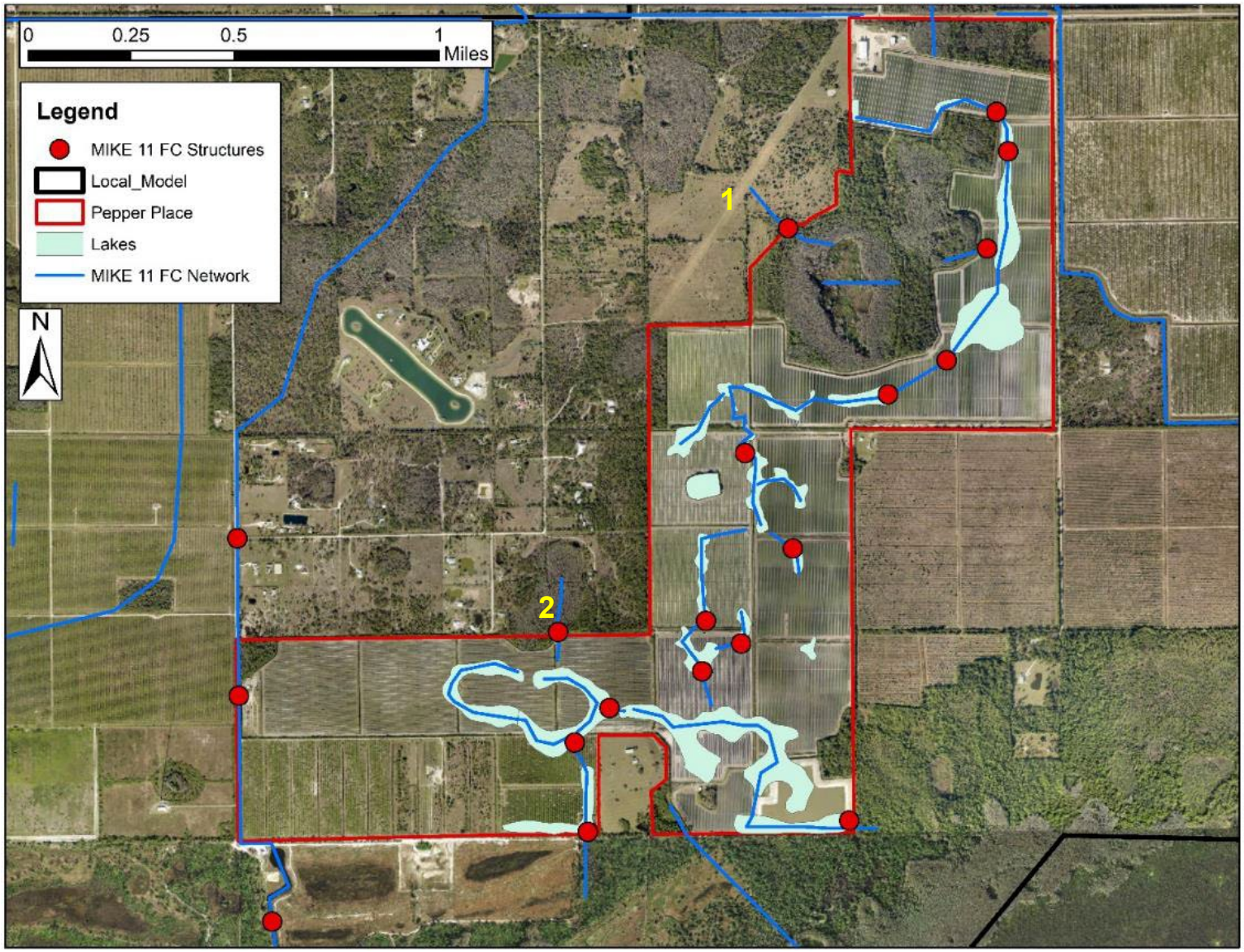


Figure 15. MIKE 11 Network, Structures, and Surface Water Bodies for Proposed Pepper Place

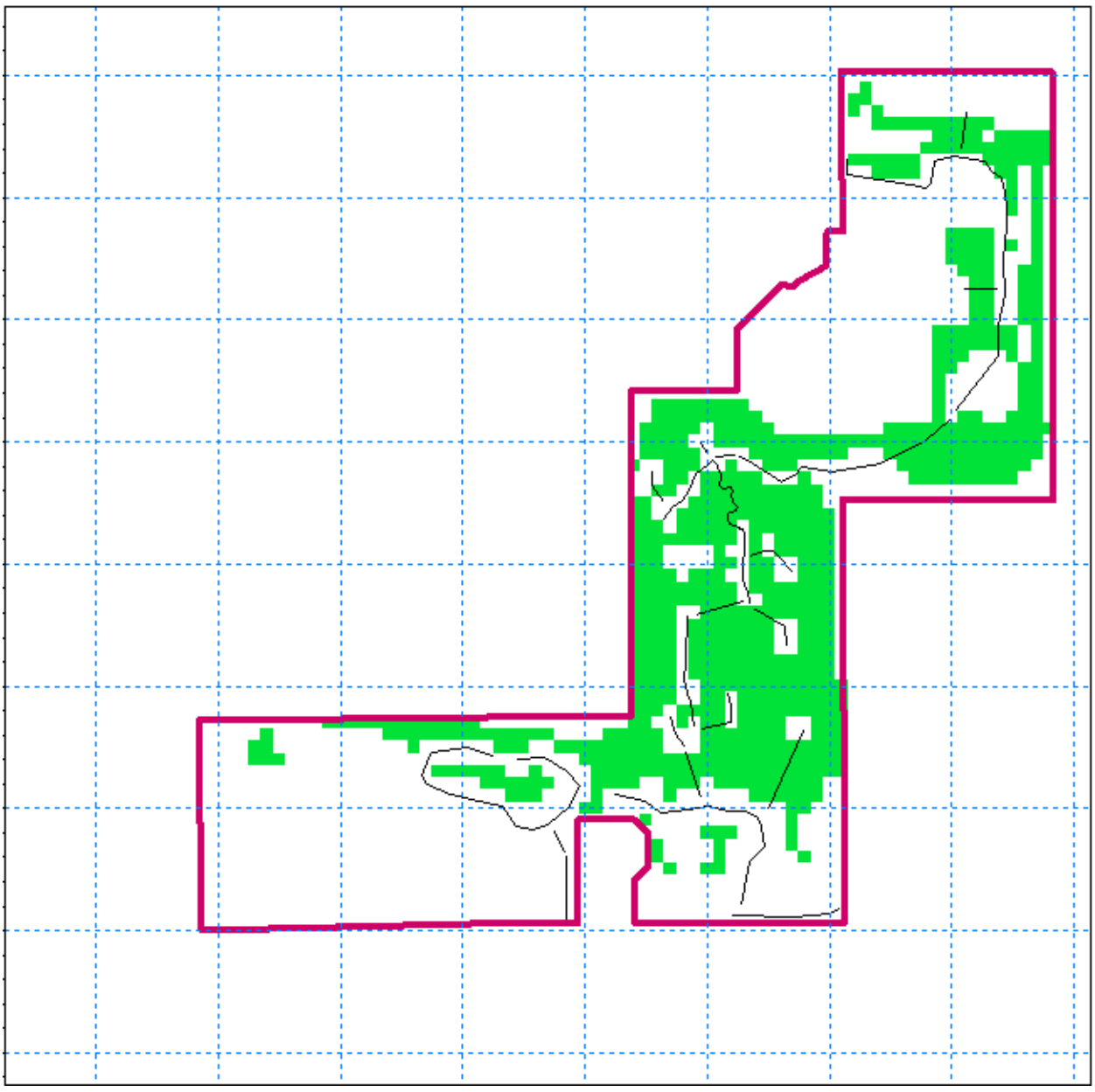


Figure 16. Irrigation Command Areas for Pepper Place Future Condition

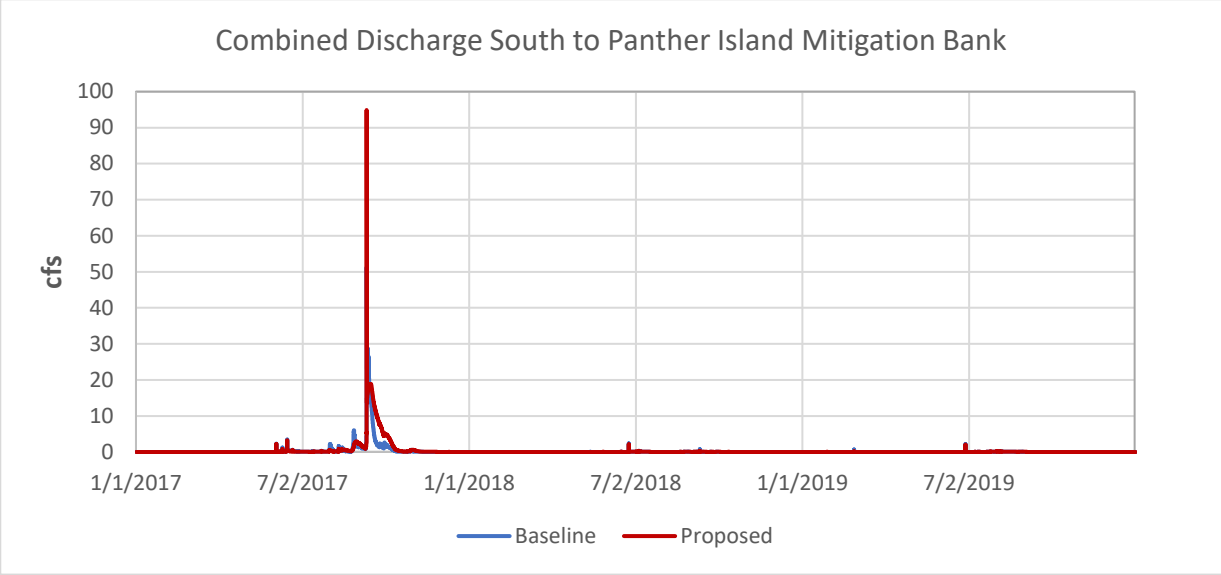


Figure 17. Simulated Discharges South from Pepper Place, Existing and Future Conditions Simulations

- Lower water levels and hydroperiods are predicted for the large wetland (see call-out on **Figures 18 - 20**) due to the termination of agricultural pumped discharges into that wetland. This is expected since water levels in that wetland have been maintained at unnaturally high levels due to it's function as an above-ground impoundment). The Pepper Place Future Condition allows for open exchanges between the large wetland and proposed lakes east of the large wetland.
- Hydroperiod changes are variable across the large wetland due to the changes in agricultural pumping. Existing, differences, and proposed condition hydroperiod maps are presented in **Figures 21, 22, and 23**, respectively. The hydroperiod difference map indicates no changes in Marsh habitat indicated by the arrow in **Figure 22**. Lower hydroperiods are seen in the perimeter surrounding the marsh, while hydroperiod increases are seen in much of the large wetland due to open hydrologic exchanges between the large wetland and lands both east and west of the large wetland.
- Longer hydroperiods are predicted for Panther Island Mitigation Bank southeast of Pepper Place with the Proposed Condition.

Changes in Ground and Surface Water Levels

Water levels relative to ground level are compared at three locations, one in the rural residential area west of Pepper Place, one south of discharge outfall CS 9A, and one south of discharge outfall CS 7A (see **Figure 24** for locations of calculation points). Simulated existing and Future Condition depths relative to ground at three locations are presented in **Figures 25**, **26**, and **27**.

Key observations include:

- Wet season water levels west of the large wetland are not increased during the wet season and are increased during the dry season. This is viewed as a benefit to the rural residential area west of the large wetland.
- Water levels south of CS 9A are largely unchanged.

- Water levels south of CS 7A are higher during both wet and dry season conditions. This area is a wetland restoration area and the change is considered to be a benefit. Water levels continue to drop below ground surface in two of three years, thereby permitting prescribed burns if necessary for management of invasive vegetation.

Changes to groundwater in the vicinity of Pepper Place were evaluated to determine if impacts of the proposed project. Existing and Future Condition groundwater elevations were compared at two locations (see **Figure 24** for the locations of calculation points). Figures 28 and 29 illustrate that the Future Condition water levels are either similar to or higher than Existing Condition groundwater elevations. Future Condition groundwater elevations for calculation point 110_84 are higher than Existing Condition groundwater elevations during the end of the 2017 wet season and the early portion of the 2018 dry season. Calculation point 110_84 is located in a lightly forested field west of the private runway west of the large wetland. Future Condition groundwater elevations for calculation point 97_55 are slightly higher than Existing Condition groundwater levels from late 2017 throughout 2019. The average difference is 0.24 feet for this period. This calculation point is located on the building pad of a residential property south of the water skiing lake.

Future Condition hydroperiods are either similar to or higher than Existing Conditions hydroperiods south of Pepper Place, which is deemed beneficial for the restoration of wetland hydroperiods in the Panther Island Mitigation Bank. The comparison of groundwater elevations indicates that the Pepper Place proposed development will not have a negative impact on groundwater resources in the area surrounding Pepper Place.

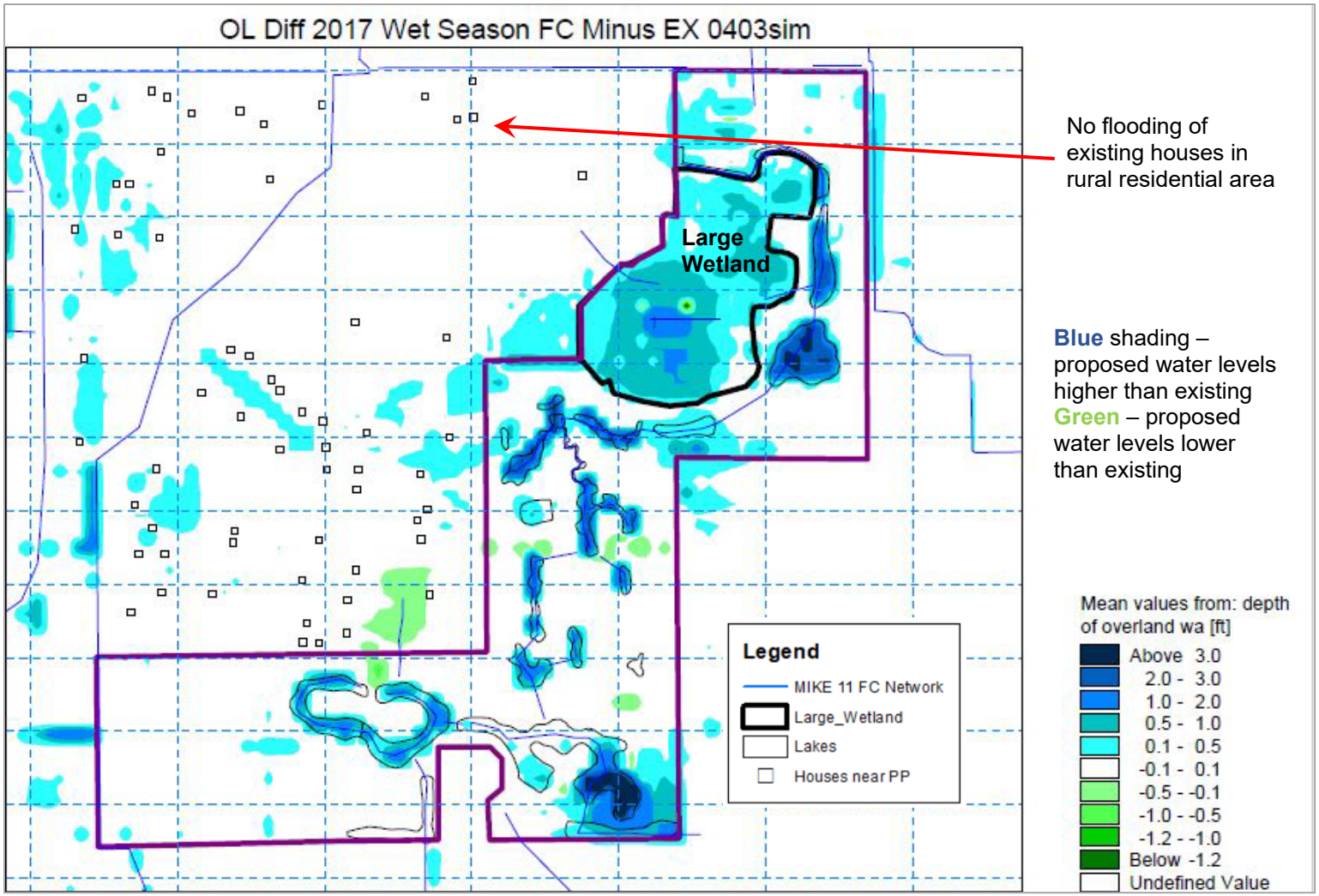


Figure 18. Average Future minus Existing Wet Season Water Depth Above Land, July 1 - Oct 31, 2017

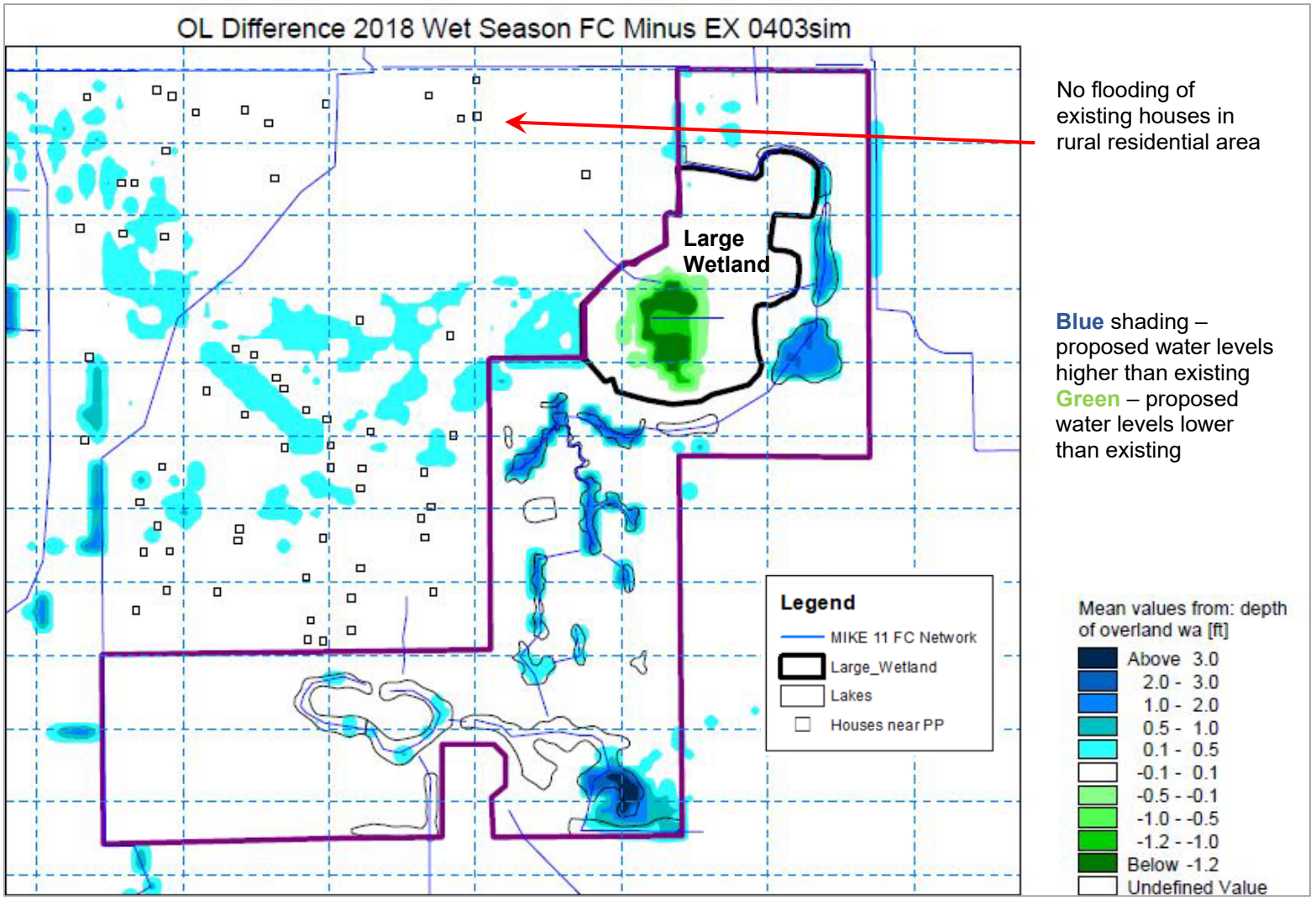


Figure 19. Average Future minus Existing Wet Season Water Depth Above Land, July 1 - Oct 31, 2018

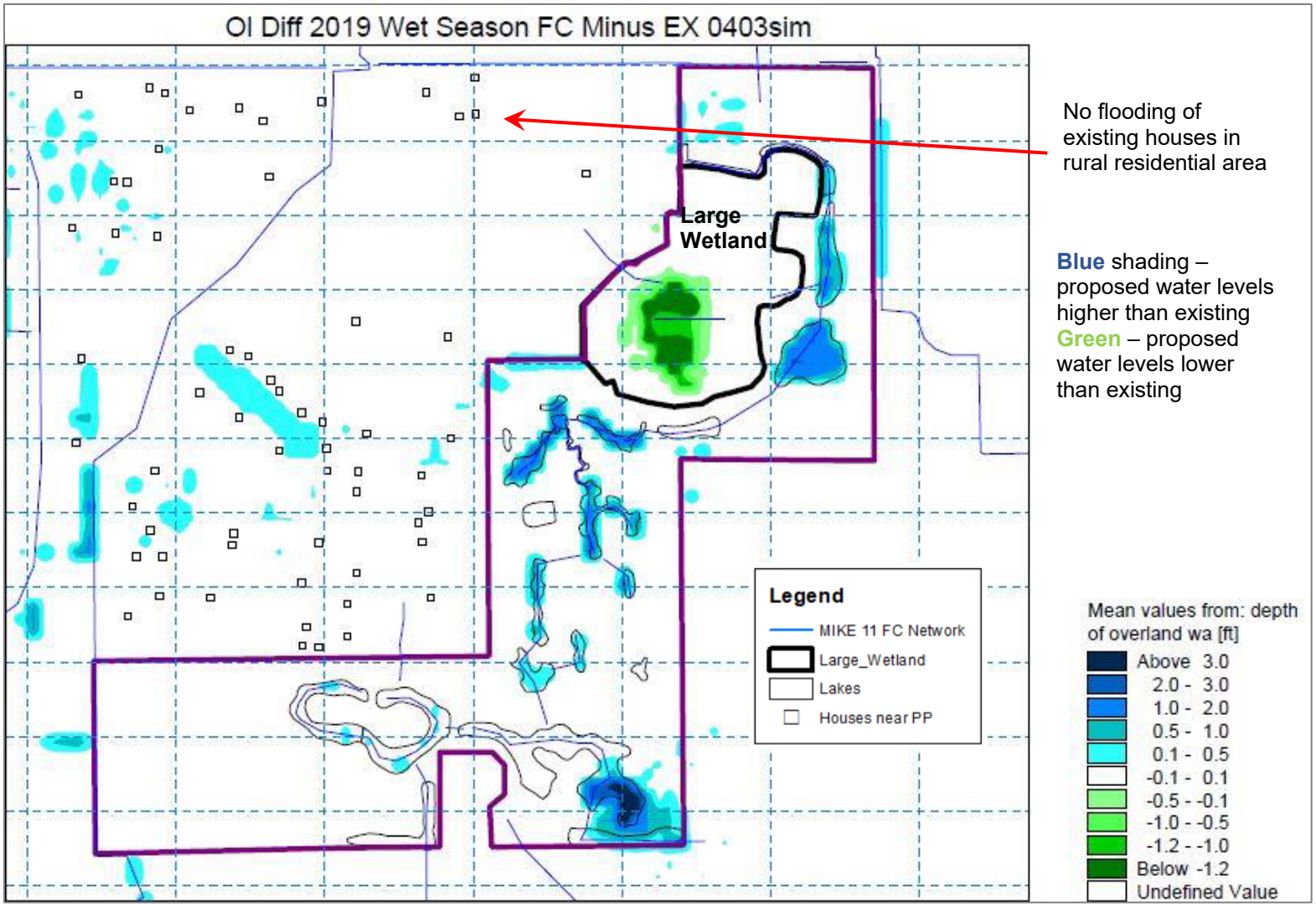


Figure 20. Average Future minus Existing Wet Season Water Depth Above Land, July 1 - Oct 31, 2019

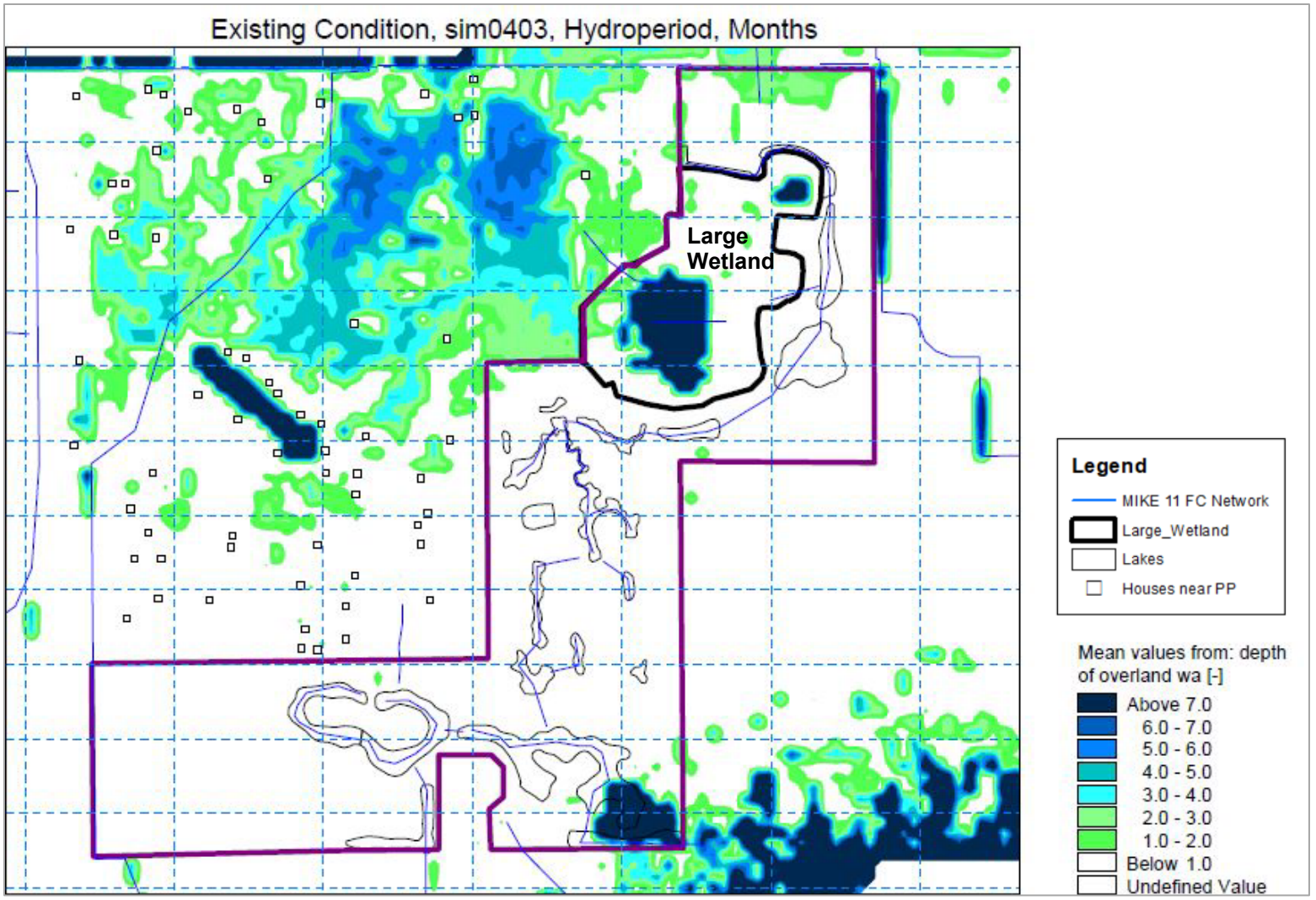


Figure 21. 2017 - 2019 Existing Conditions Hydroperiod (months). Hydroperiod is defined as the number of days per year that water levels 0.1 feet above ground level

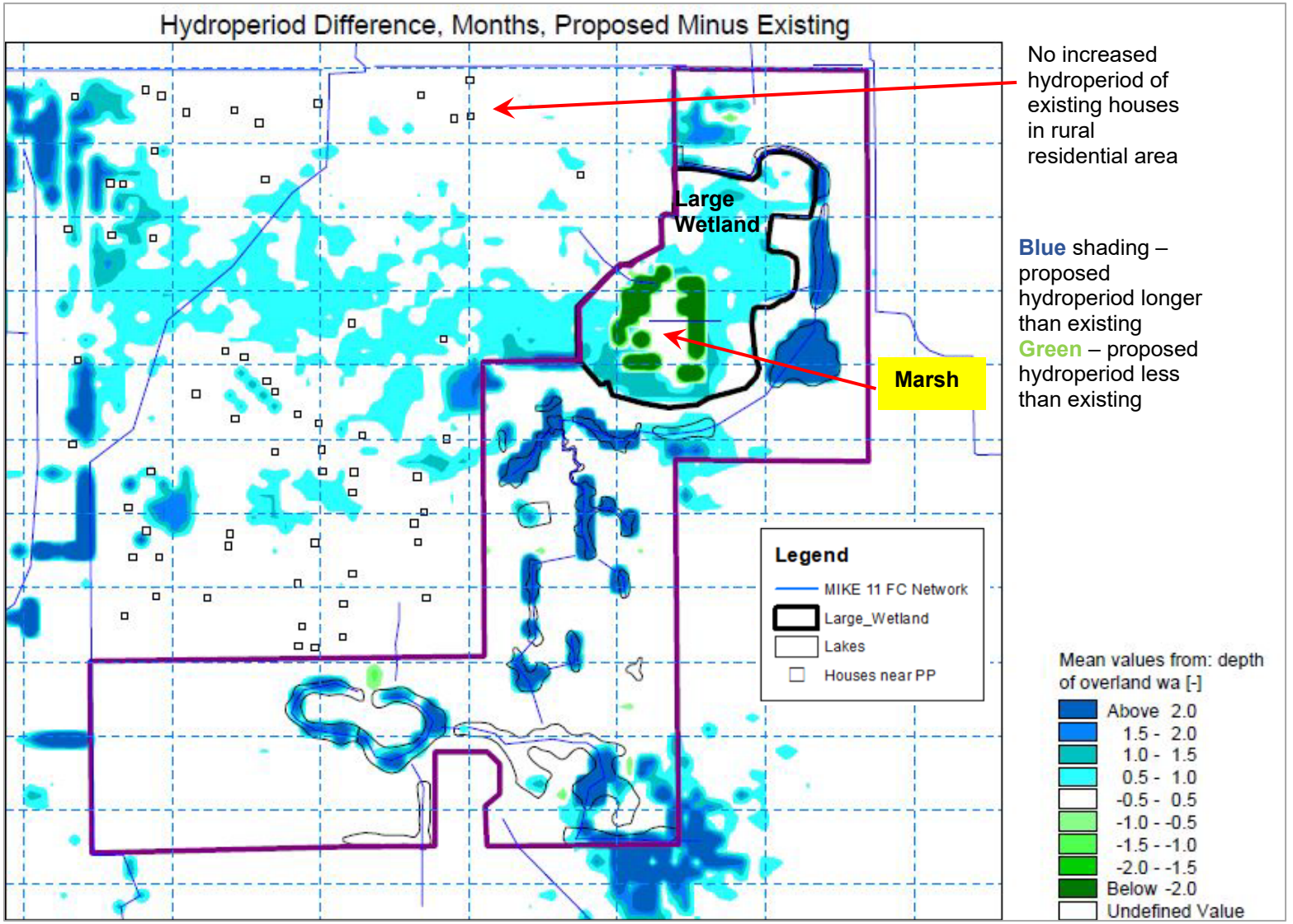


Figure 22. Future Condition minus Existing Hydroperiod (months) 2017 – 2019. Hydroperiod is defined as the number of days per year that water levels 0.1 feet above ground level

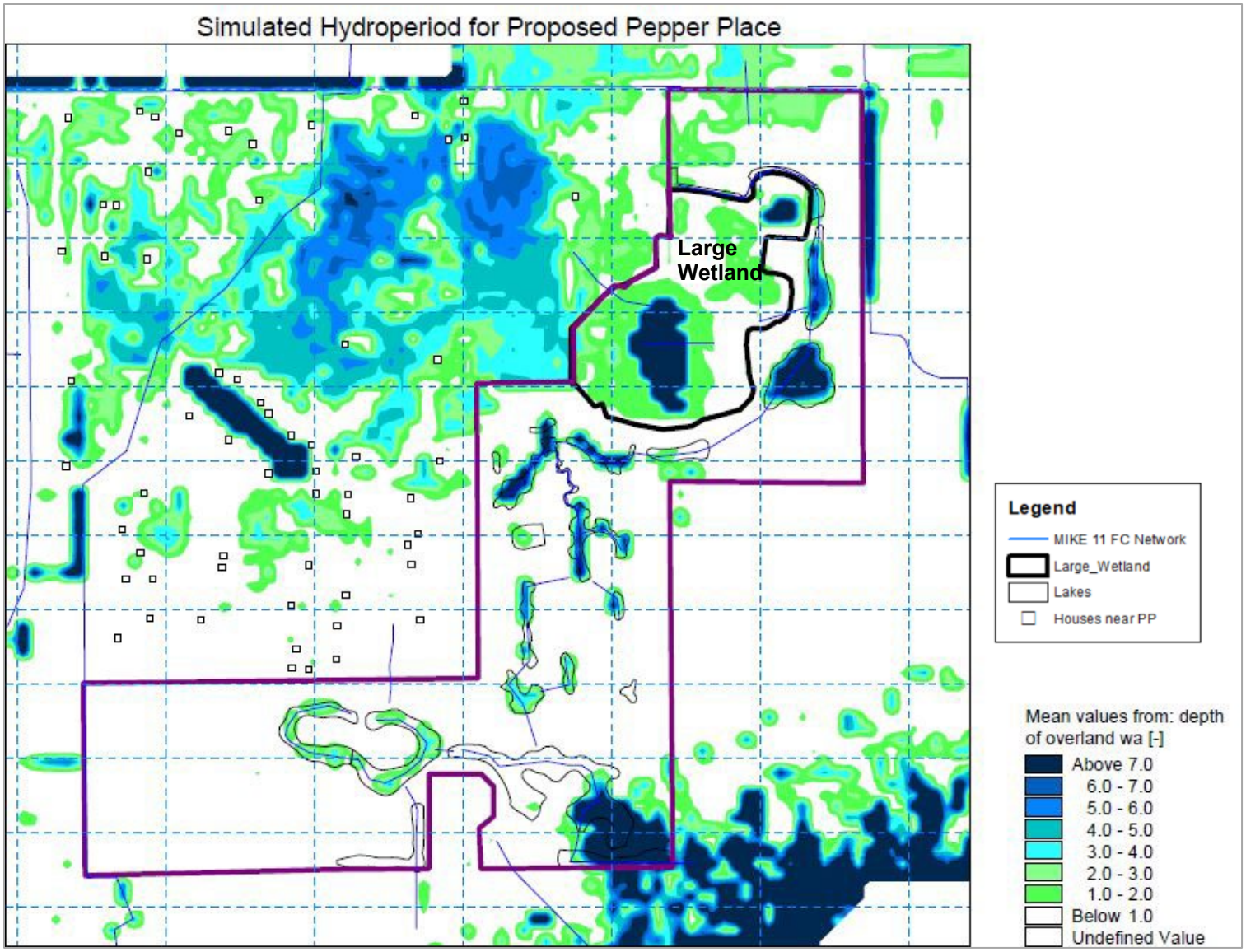


Figure 23. Future Condition Hydroperiod (months) 2017 – 2019. Hydroperiod is defined as the number of days per year that water levels 0.1 feet above ground level.

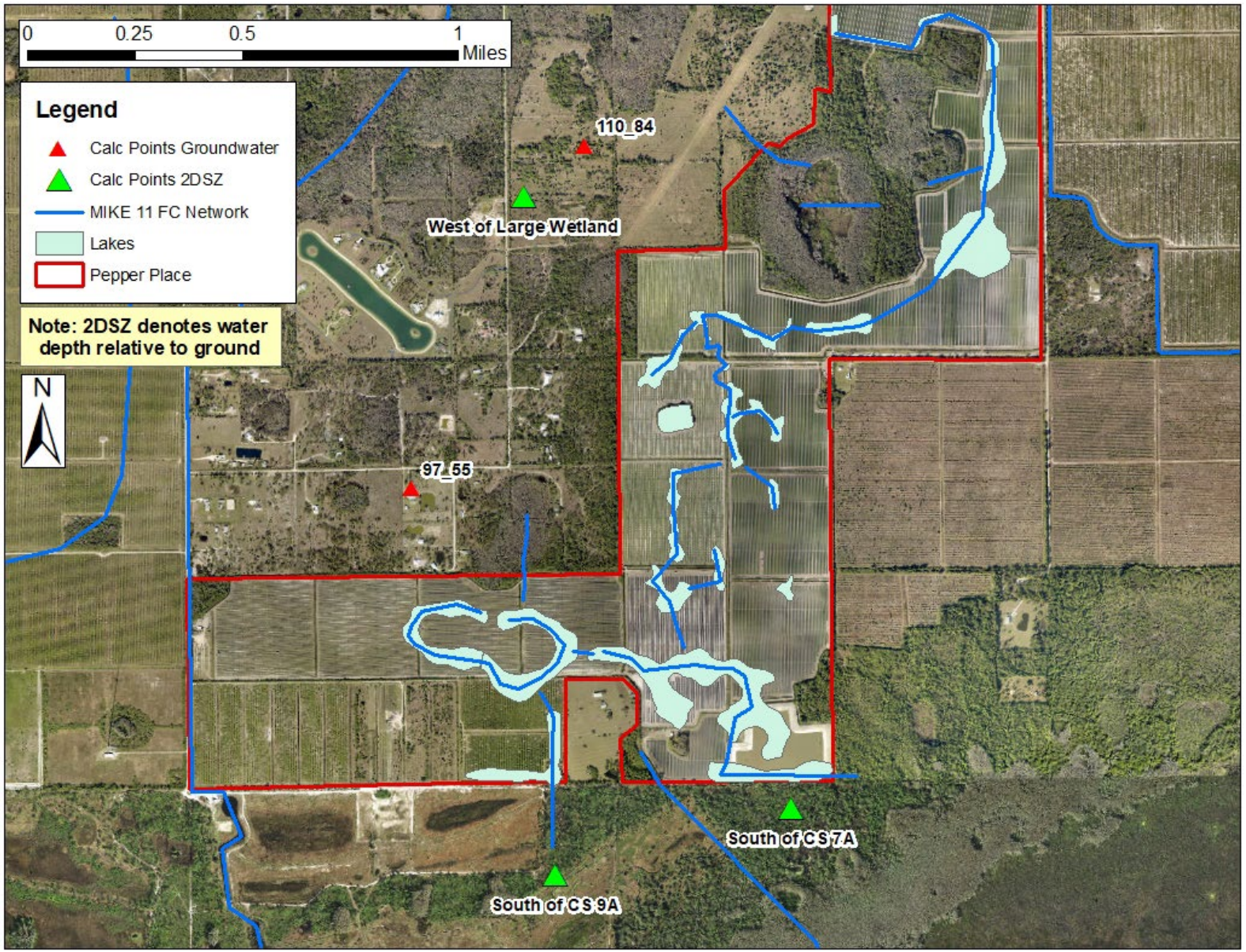


Figure 24. Calculation Points for Water Depth Relative to Ground, Existing vs Future Condition

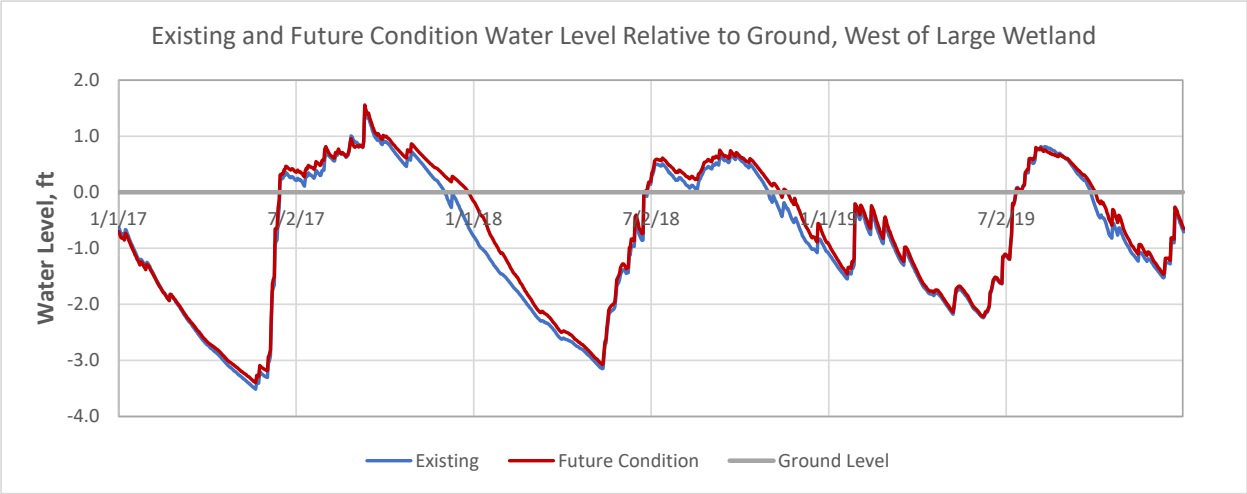


Figure 25. Existing and Future Condition Water Depth to Ground, West of Large Wetland

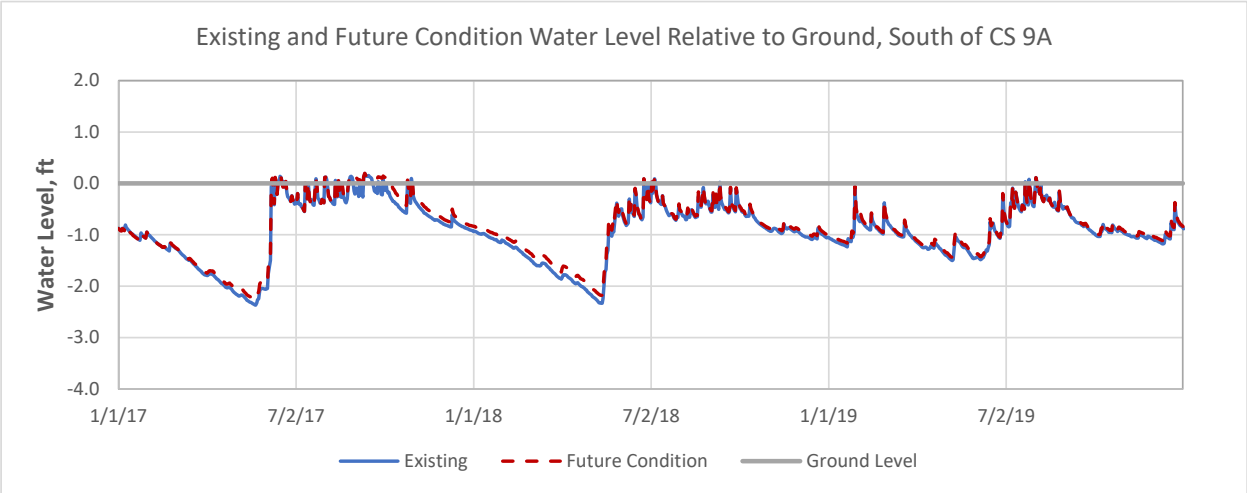


Figure 26. Existing and Future Condition Water Depth to Ground, South of CS 9A

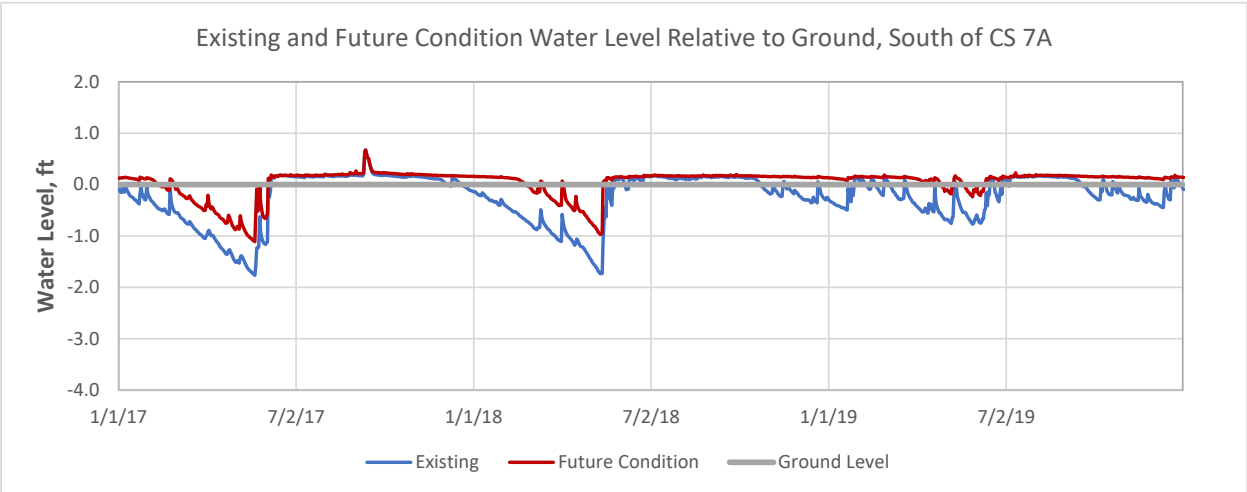


Figure 27. Existing and Future Condition Water Depth to Ground, South of CS 7A

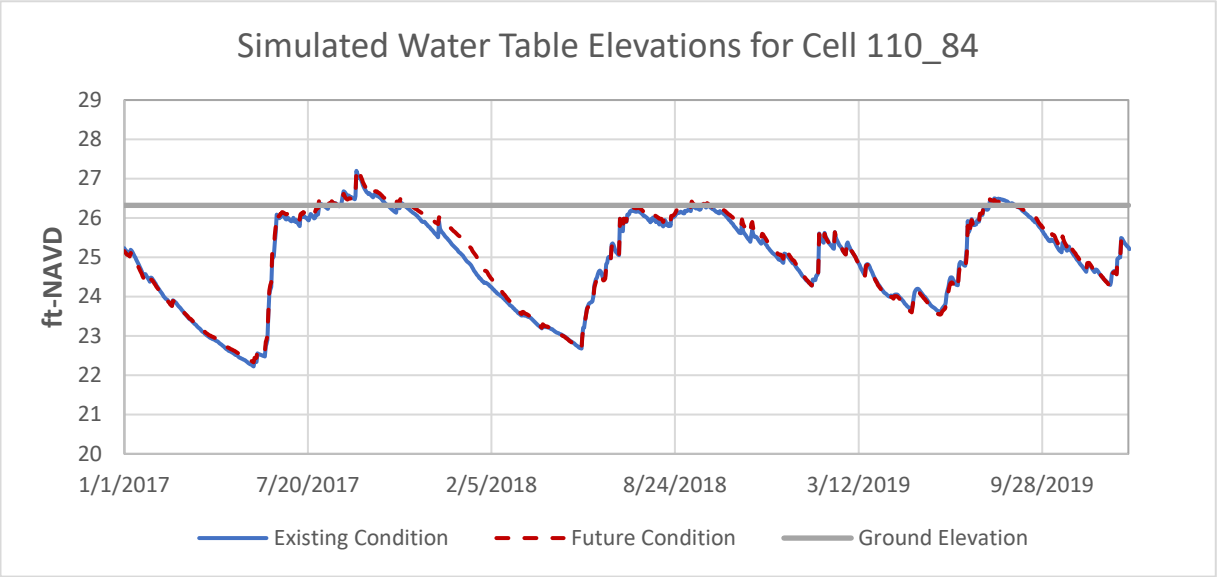


Figure 28. Existing and Future Condition Groundwater Elevations, Cell 110_84

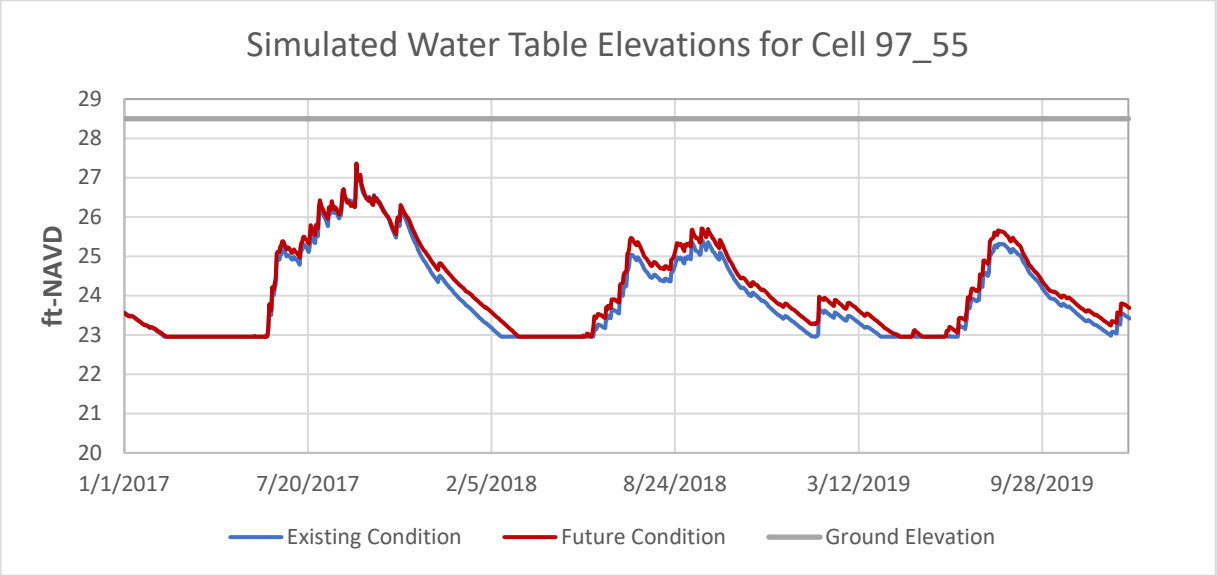


Figure 29. Existing and Future Condition Groundwater Elevations, Cell 97_55

WATER BUDGETS

The existing and proposed condition water budgets are presented **in Figure 30 and Figure 31.** Irrigation for the Existing Condition simulation is 9.3 inches/year (256 MG/year). The Existing Condition simulated irrigation is less than observed irrigation (2017 – 2019 range = 174 – 494 MG/year, avg 310 MG/yr). **Note that permitted irrigation is 537 MG/year, similar to observed 2017 irrigation**. MIKE SHE/MIKE 11 computes irrigation need based on moisture deficits in the unsaturated zone (essentially the same as the soil horizon). Actual irrigation is based on the farm operator's observations of crop conditions and observed water table elevations, and therefore may be higher or lower than simulated moisture deficits in the unsaturated zone.

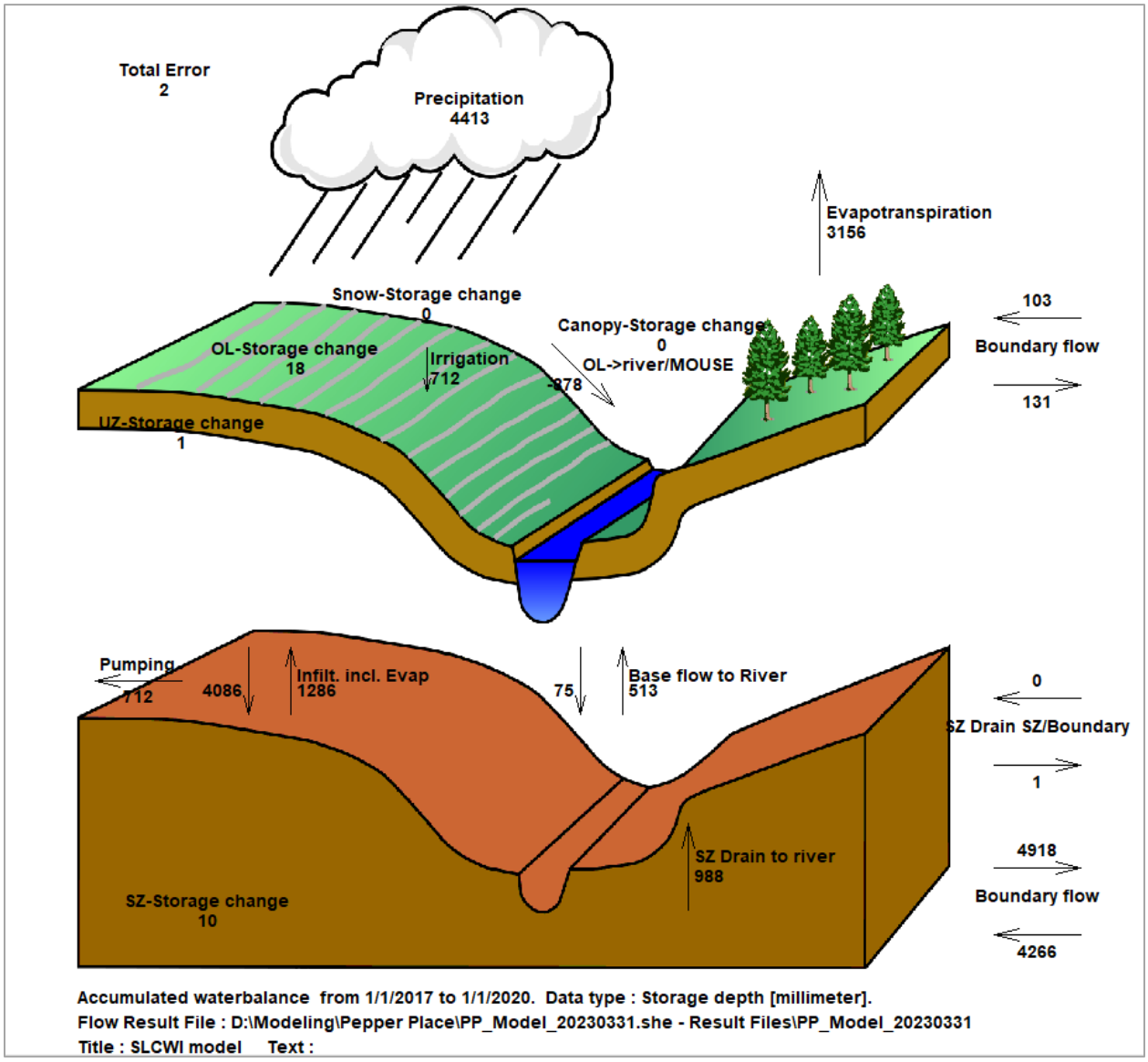


Figure 30. Existing Condition Water Budget

Irrigation for the Future Condition is 771 mm/yr (10.1 inches/year or 283 MG/yr). This irrigation rate is similar to the irrigation rate calculated for the proposed project using the Blaney-Criddle method (300.2 MG/yr). The higher amount for the Future Condition is unexpected. It is likely that the higher ground elevations associated with the proposed residential and associated developed areas that are further from the prevailing water table level results in greater irrigation. Further investigations into this are on-going.

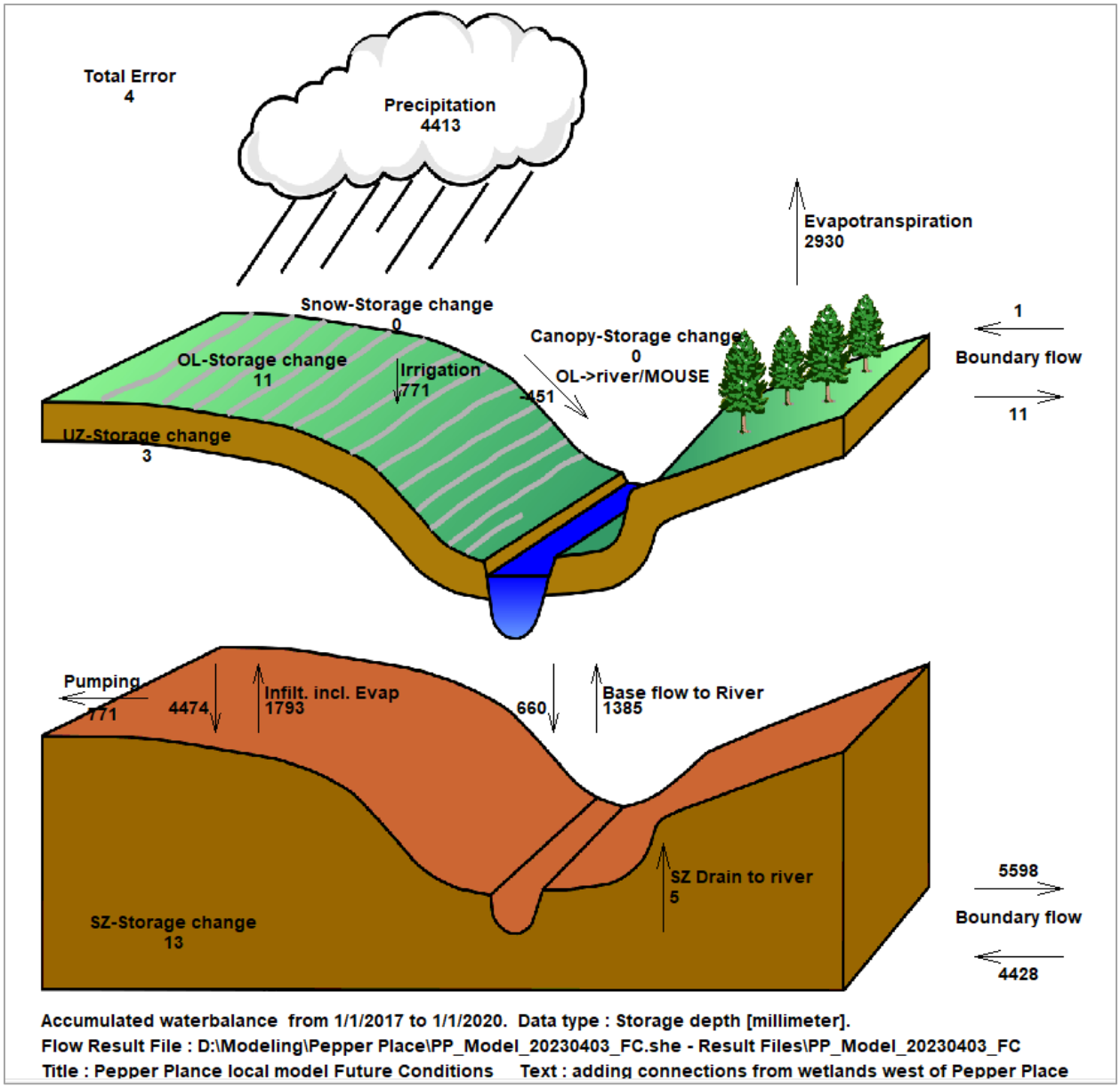


Figure 31. Future Condition Pepper Place Water Budget

DESIGN STORM ANALYSIS

A design storm analysis was conducted to determine the impact of a 25- and 100-year storm on the Future Condition. The analysis was conducted using Existing and Future Condition simulation results from August 23, 2017 (see **Figure 32**), which represents a typical wet season condition. Additionally, this date preceded the two large rainfall events in the 2017 wet season (Invest 92 and Hurricane Irma). The rainfall amounts used for the 25- and 100-year design storms were 9.8 and 12.5 inches, respectively. The 3-day 25- and 100-year rainfall amounts from the SFWMD ERP Information Manual Volume IV are 9.7 and 11.9 inches, respectively. Accordingly, this analysis is conservative since the simulated design storm rainfall amounts exceed the SFWMD amounts. The peak stages of the 25-year design storm were less than Hurricane Irma (results already presented above) and are not presented in this report.

The differences in the Future Condition and Existing Condition 100-year design storm peak elevations are presented in **Figure 33** and demonstrate that peak flood elevations slightly higher in portions of the model domain. Most of the houses in the rural residential area west of Pepper Place do not experience increased flooding, but slightly higher flood depths are predicted for the Future Condition. A more detailed view in the vicinity of the two houses is shown in the bottom image of **Figure 33**. Future Condition 100-year peak stages are predicted to be 0.14 and 0.11 feet higher in the vicinity of those two houses. **Figure 34** illustrates that the predicted 100-year peak stage for the Future Condition will be less than the estimated edge of the building lots of those two houses, therefore flooding of those houses and yards is not anticipated.

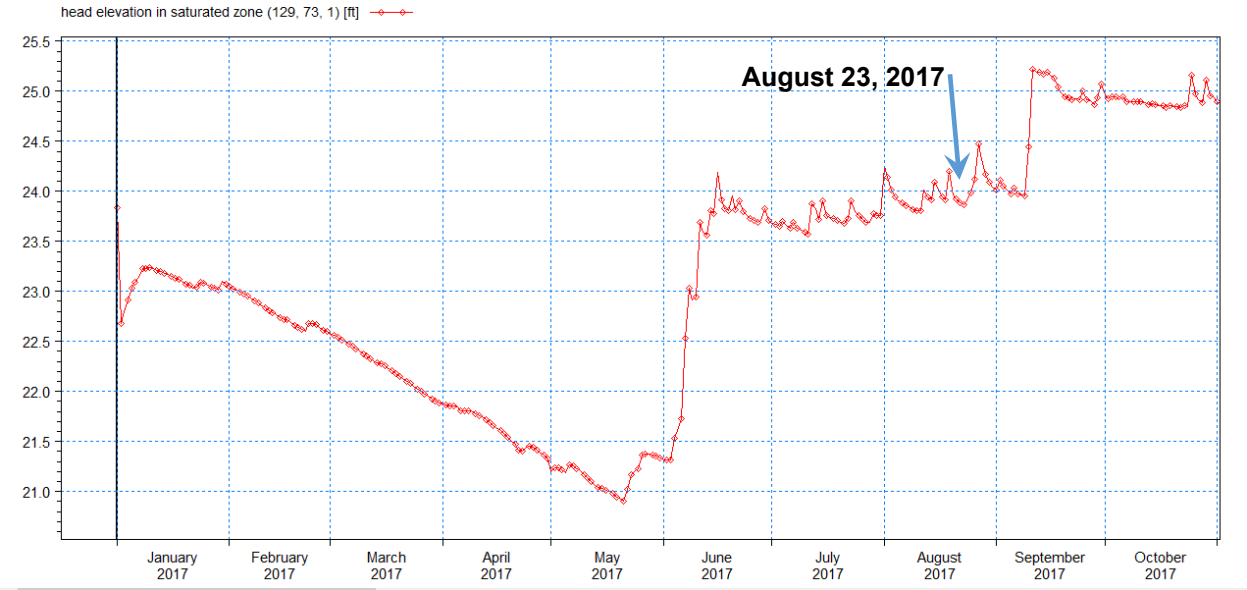


Figure 32. Date Used for Design Storm Initial Conditions

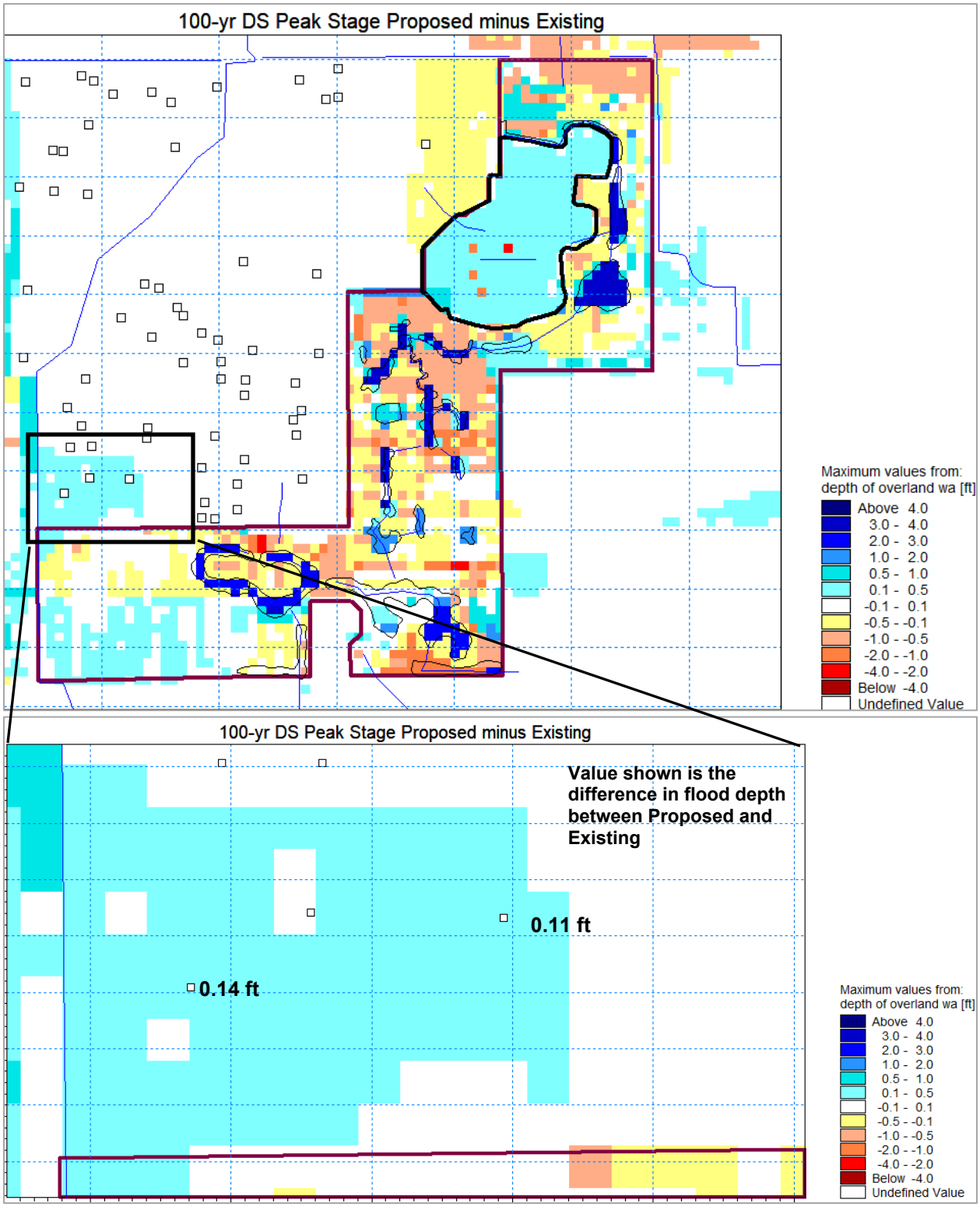


Figure 33. Flood Level Difference Map, Proposed minus Existing 100-year Design Storm (bottom image is a zoomed view of a portion of the top image)

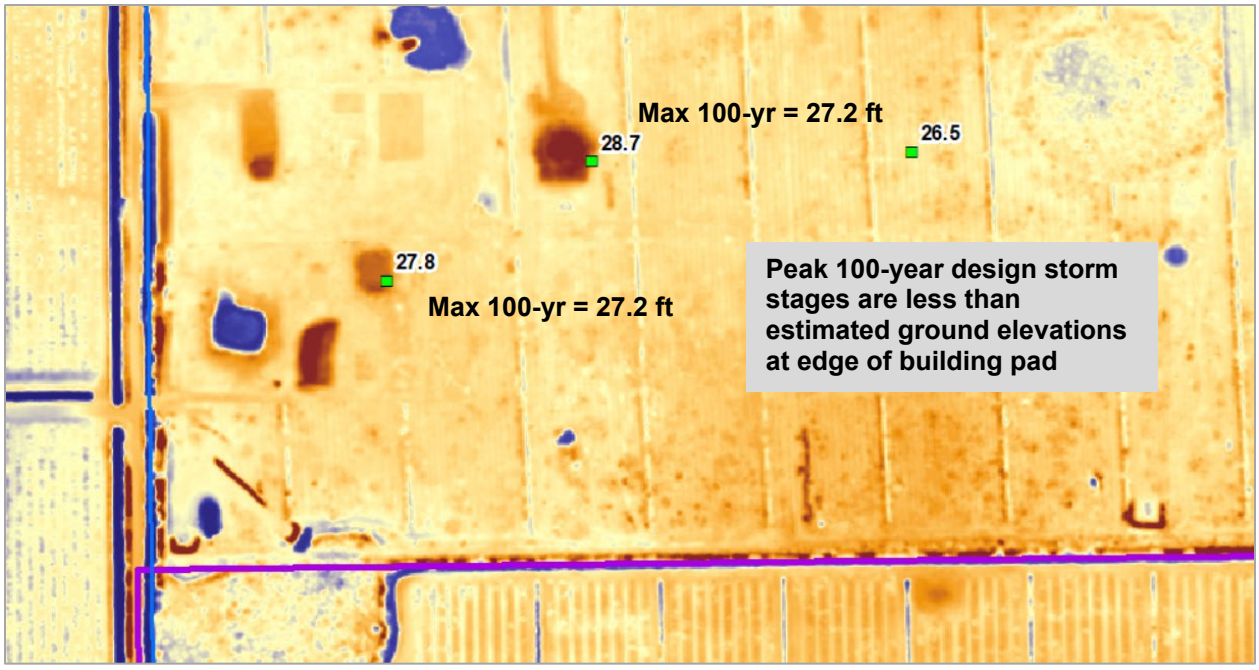


Figure 34. Flood Elevation Call-Outs for Houses where the Proposed 100-year Flood Elevation is Higher than Existing Conditions

CONCLUSIONS

The modeling study has demonstrated that the proposed development will not have negative impact on surface or ground water levels in the area surrounding the proposed Pepper Place. Key findings are summarized below.

- The proposed development will not have a negative impact on surface or ground water levels in the rural residential area west of Pepper Place. Slightly longer hydroperiods are predicted for wetland areas in the rural residential area for the Future Condition scenario, however the hydroperiod increases are generally less than one month. The 100-year design storm analysis indicated slightly higher peak flood depths in the vicinity of two houses in the southeastern portion of the rural residential area (see Figure 28). The 100-year Design Storm peak elevations for the Future Condition for the two houses increase by 0.11 – 0.14 feet, and the peak stage is below the estimated edge of the building lot footprint.
- The proposed development plan includes culverts to accept off-site inflows from the rural residential area during extreme flooding events, which will provide a benefit should the area experience another major rainfall event such as Hurricane Irma or Ian.
- Surface water discharges to Panther Island Mitigation Bank (south of Pepper Place) are predicted to be less during a major flood such as Hurricane Irma for the Future Condition than for the Existing Condition.
- Surface and ground water levels south of Pepper Place are predicted to remain unchanged in the western portion of Panther Island Mitigation Bank and are proposed to increase slightly in the eastern portion of Panther Island Mitigation Bank. The changes in water levels will not rise to levels that prevent scheduling of prescribed burns that may be

required for control of invasive vegetation.

- Irrigation for the proposed Pepper Place development is expected to be **47% less** than existing permitted irrigation rates of agricultural lands.
- Design storm analysis of the 25- and 100-year rainfall events was conducted. Peak stages during the 25-year design storm were less than conditions experienced during Hurricane Irma. Peak stages for the 100-year event were generally lower for the Future Condition scenario than for Existing Conditions except for a small area of rural residential development west of Pepper Place. Peak stages in the vicinity of two houses are predicted to be 0.11 and 0.15 feet higher at those properties. The peak stage at those two properties appears to be less than the edge of the building pad on those properties.

Overall, the proposed project is expected to have a positive impact on upstream, downstream, and adjacent properties.

SECTION H

SURFACE WATER AND GROUNDWATER MONITORING PLAN

Purpose

A Surface Water and Groundwater Monitoring Plan will be initiated to establish baseline conditions for the Preserve at Pepper Place project site and to quantify the potential adverse impacts as a result of the proposed development. The Surface Water and Groundwater Monitoring Plan includes sampling locations, sampling frequency, reporting requirements, and evaluations of the water level and water quality within the project site. The proposed monitoring plan may be further refined during the Development Order process that may include additional or removal of groundwater and/or surface water sampling locations.

Monitoring

The Surface Water and Groundwater Monitoring Plan will include the installation of two shallow monitor wells tapping the upper portion of the Water Table Aquifer (WT-1 & WT-2), located upstream and downstream within the project area, a deeper monitor well tapping the upper portion of the Sandstone Aquifer (SS-1), various surface water sample locations (to be located at the designated outfall locations), and staff gauge(s) installed within the irrigation withdrawal lake(s). All monitor wells and the staff gauge(s) will be equipped with electronic water level transducers set to record water levels every 6 hours. Proposed surface water and groundwater quality monitoring parameters are provided in **Table 2** and include contaminant target levels where applicable for surface water and groundwater.

Table 2. Summary of Surface Water and Groundwater Sampling Parameters

PARAMETER	Sample Source (SW/GW)	UNITS	Groundwater Target Level	Surface Water Target Levels	ANALYSIS TYPE
Total Kjeldahl Nitrogen (TKN)	SW & GW	mg/L as N	NA	NON-NUMERIC	Laboratory
Chloride	SW & GW	mg/L	250	250	Laboratory
Arsenic	SW & GW	µg/L	10	10	Laboratory
Lead	SW & GW	mg/L	0.015	NON-NUMERIC	Laboratory
Temperature	SW & GW	C	NA	NA	Field
Specific Conductance	SW & GW	umhos/cm	NA	1275 or <50% Increase	Field
pH	SW & GW	S.U.	6.5-8.5	1 unit from background	Field
Nitrite	SW	mg/L as N	1	NON-NUMERIC	Laboratory
Nitrate	SW	mg/L as N	10	10	Laboratory
Total Phosphorus	SW	mg/L as P	NA	NON-NUMERIC	Laboratory
E. coli	SW	MPN/100mL	NA	200 Average	Laboratory
Chlorophyll A	SW	mg/m^3	NA	NA	Laboratory
Dissolved Oxygen (DO)	SW	mg/L	NA	>5.0	Field
Discharge Condition	SW	Yes or No			Field
Lake Stage	SW	Feet (NAVD)	NA	NA	Field/Recorder
Groundwater Elevations	GW	Feet (NAVD)	NA	NA	Field/Recorder

NA=Not Applicable

Note - Groundwater Target Levels per Chapter 62-550 and Rule 62-520.420, FAC. Surface Water Target Levels per Chapter 62-302.

Note that additional parameters will be added to the sample analyte list once the chemicals and herbicides to be used on the golf course have been determined. It is understood that the golf course will include the development of an Integrated Pest, Disease, and Herbicide Management Plan, however that plan has not been developed at this point in time.

The proposed Surface Water and Groundwater Monitor Plan includes a baseline sampling event prior to construction commencement followed by subsequent quarterly events. The quarterly sampling events are proposed to occur during March, June, September, and December so that two events will be during the dry season and two will be during the wet season. The monitoring will include stage measurements of the stormwater management system and the discharge condition will be recorded noting whether or not water is flowing through the control structure at the time of sampling.

Proposed monitoring stations are presented in **Figure 7** (see **Section F** above). Three surface water monitoring locations are proposed (one upstream and two downstream), and three groundwater monitoring stations are proposed (two in the Water Table and one in the Sandstone).

Quality Assurance

Water samples will be collected and handled following protocols contained in Florida Department of Environmental Protection (FDEP) Quality Assurance Rule F.A.C. 62-160 and adopted as the 2014 FDEP Standard Operating Procedures for Field Activities (DEP-SOP-001/01), effective 7/30/2014. Water Quality samples will be collected from both monitor wells and the staff gauge monitoring station. One field blank and a field duplicate will be collected during each sampling event for quality assurance purposes. Chain of custody forms and laboratory analysis reports will be provided in corresponding quarterly reports.

Water samples will be tested by a certified laboratory under the National Environmental Laboratory Accreditation Program (NELAP) using approved test methods and QA testing requirements (i.e. blanks, sample duplicates, surrogates, matrix spikes etc.) as contained in F.A.C 62-160 QA Rules.

Water Monitoring Reporting and Analysis

An annual report which will include a comparison of State water quality standards, plots of parameters, and any conclusions or recommendations will be provided to the Lee County Division of Natural Resources annually for a minimum of 5 years. The monitoring reports will include a continuous hydrograph of the recorded water levels and updated tables of quarterly water quality sampling results. The monitoring reports will be submitted once per year as an Electric Data Deliverable (EDD) in a comma delimited text format approved by the Lee County Division of Natural Resources (LCDNR) in their approved format within 60 days of receipt of laboratory reports from two wet season monitoring events during the reporting period. Conclusions and recommendations will be based on applicable target levels and statistical analyses and trends of measured constituents. Statistical methods to be used may include determination of standard deviations, linear regressions, and calculation of confidence intervals.

The report will include a discussion and documentation of the following activities: Construction Monitoring, Land Management Activities, Wildlife Monitoring, Irrigation Monitoring, Mitigation/Vegetation Monitoring, and Integrated Pest Management Monitoring.

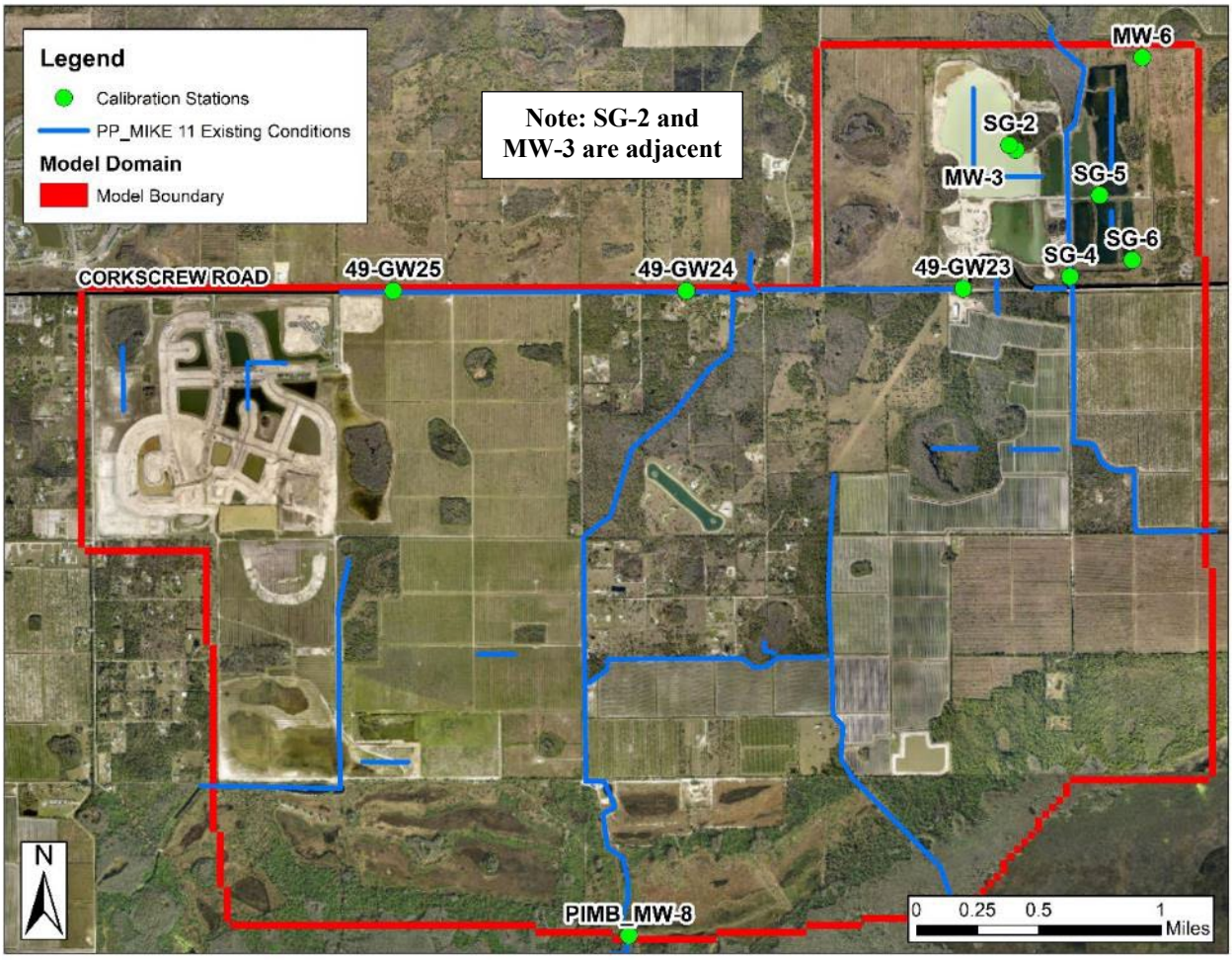
Results of water sampling will be compared to applicable target levels, if listed and deviation from the initial baseline sampling. Parameters that do not have numeric target levels will be evaluated for trends. The surface water laboratory results will undergo statistical analyses for the development of conclusions and recommendations within the annual reports.

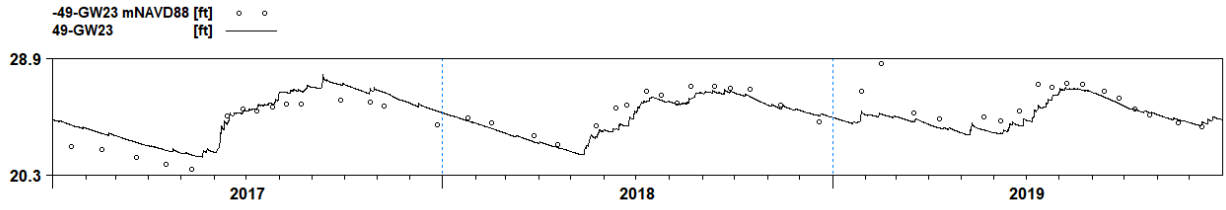
Should indications of water level or water quality concerns be identified by exceeding target levels or through statistical trend analyses, site conditions will be reviewed and assessed and if indicated, additional samples will be collected. Following any re-sampling event, the LCDNR will be notified of necessary corrective actions. Should potential areas of concern be identified, the Applicant will coordinate with the LCDNR to aid in identifying potential causes and potential needs to modify monitoring parameters, frequency, and/or reporting.

Water Quality Monitoring will continue in perpetuity from the date of completion of the stormwater management system. After 5 years of meeting or exceeding state water quality monitoring standards, the developer may amend or discontinue water quality monitoring and reporting after written request, review, and approval by Lee County Division of Natural Resources.

APPENDIX A

Map of Calibration Stations and Local Scale Calibration Plots





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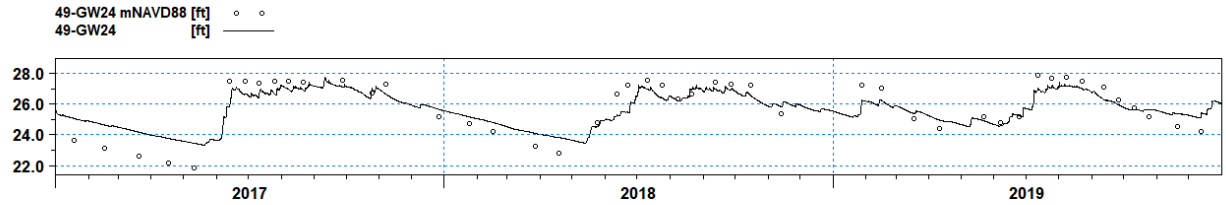

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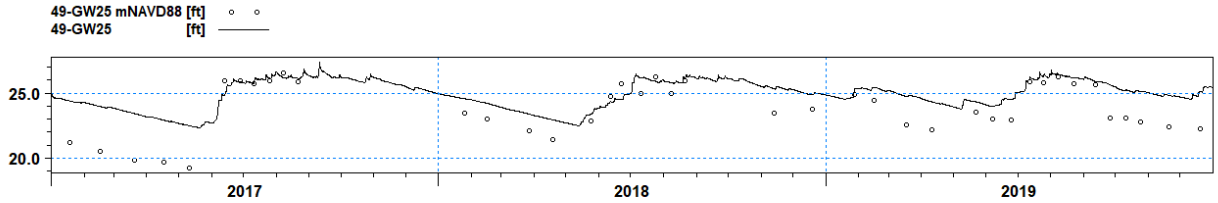

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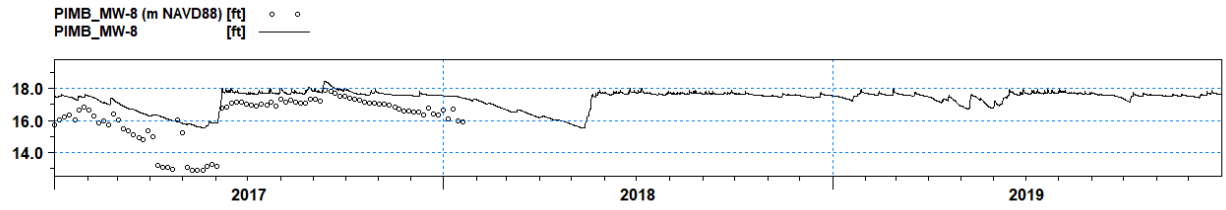

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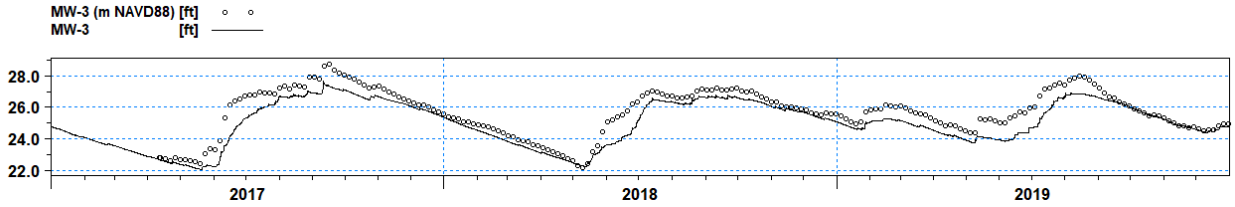

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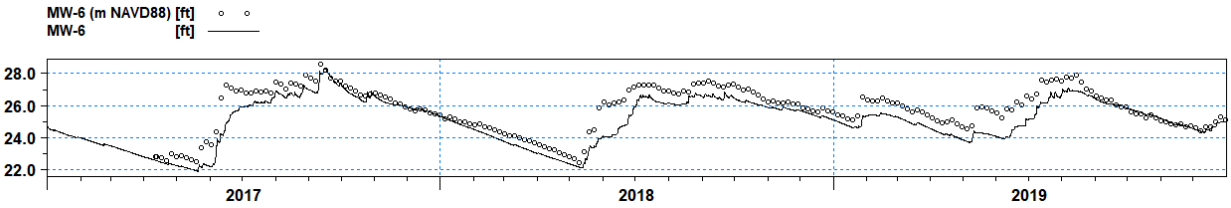

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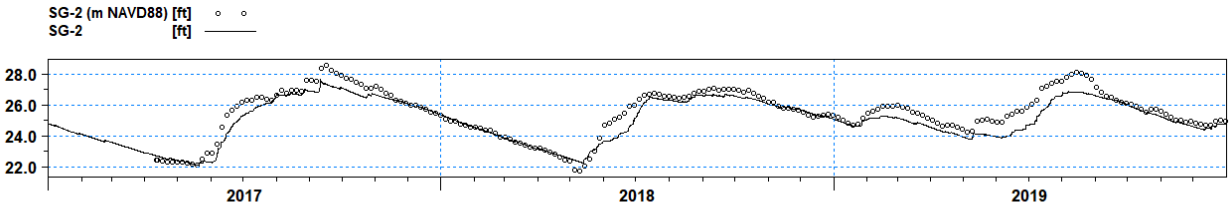

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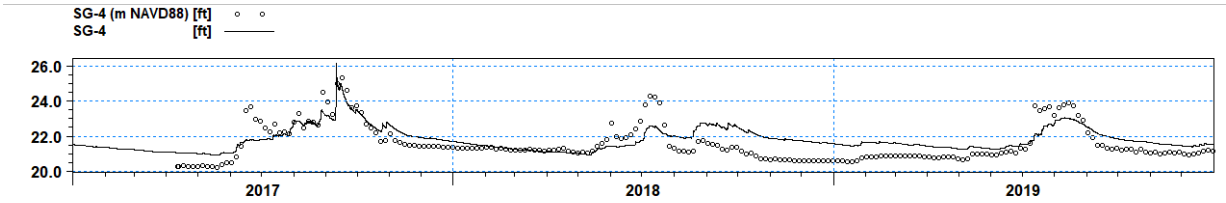

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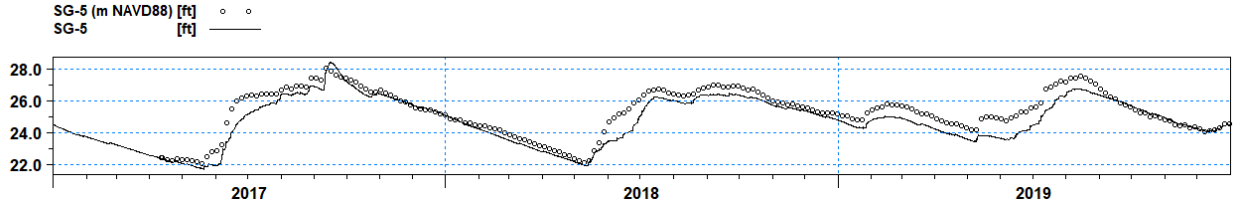

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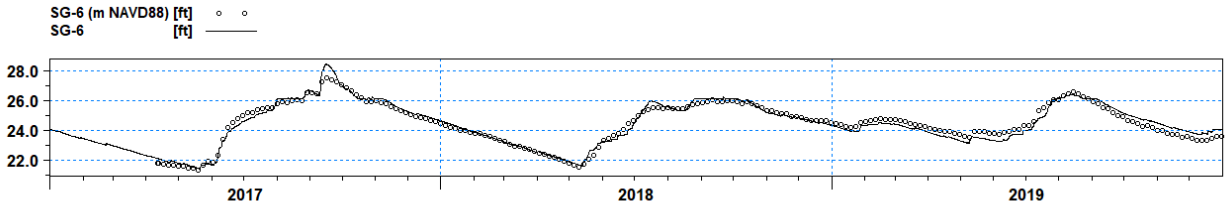

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APPENDIX B

Summary of Survey Transect Study

Introduction

Water Science Associates was contracted by MTM Development Corporation to develop an integrated surface groundwater model for the Preserve Sporting Club & Residences at Pepper Place, and utilize that model to evaluate potential changes in surface and ground water resources resulting from the proposed development. The existing land use on the property is agriculture. Initial simulations indicated that water levels in a large wetland (see **Figure 1**) just south of Corkscrew Road would experience lower water levels due to the cessation of pumping water from adjacent agricultural fields into the wetland. The regional topographic data used in the modeling was developed from Light Detection and Ranging (LiDAR) methods. LiDAR data is collected from pulsed Laser measurements of the distance to ground from airplanes. LiDAR cannot penetrate water, which can result in inaccurate ground elevations in flooded areas. Because the large wetland receives discharges from the agricultural fields, it was suspected that the regional topographic data was inaccurate in the wetland. Accordingly, a ground survey was conducted to determine actual ground elevations in the wetland. This memorandum summarizes the comparison of the regional LiDAR data to surveyed ground elevations.

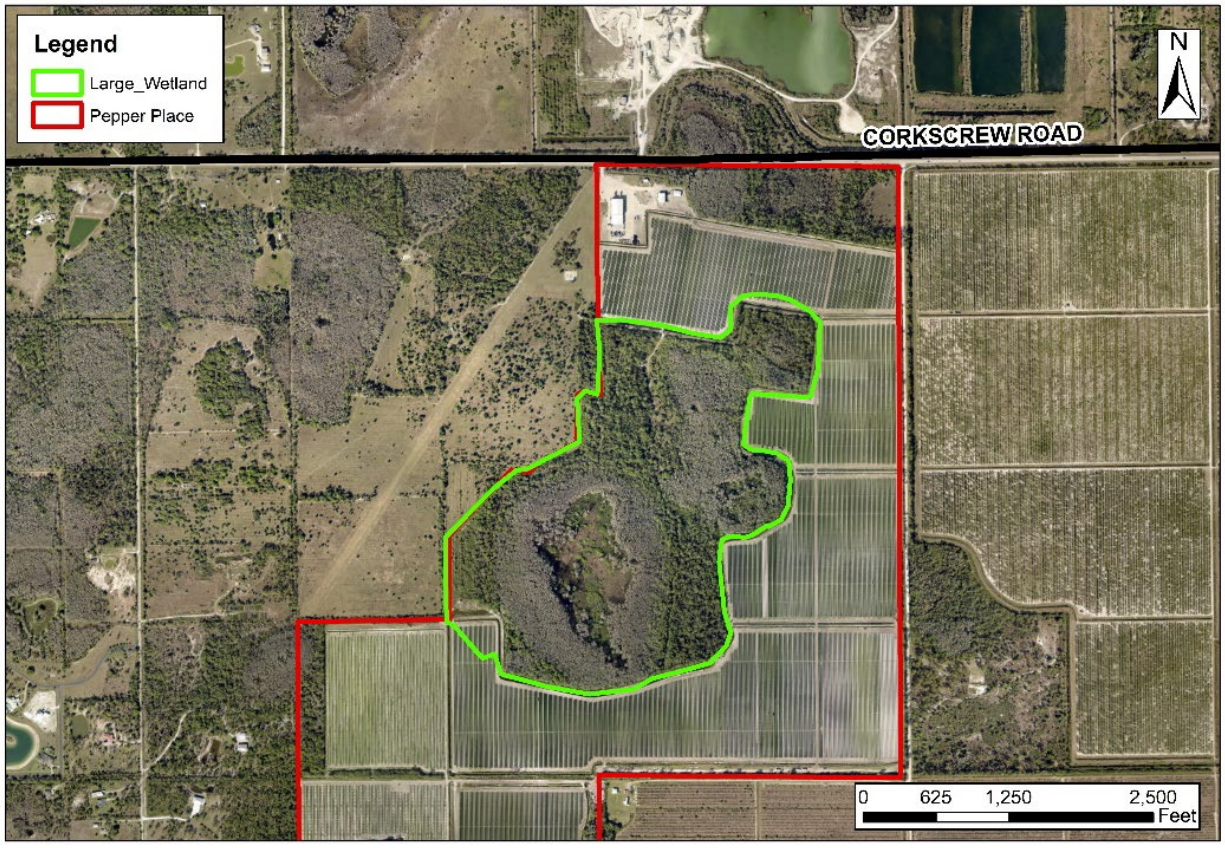

Figure 1 – Map of Large Wetland on Pepper Place

Study Results

Ground elevations were surveyed at 64 locations in two east-west transects in the large wetland shown in **Figure 2**. The outline of Cypress and Marsh habitat is also shown in **Figure 2**.

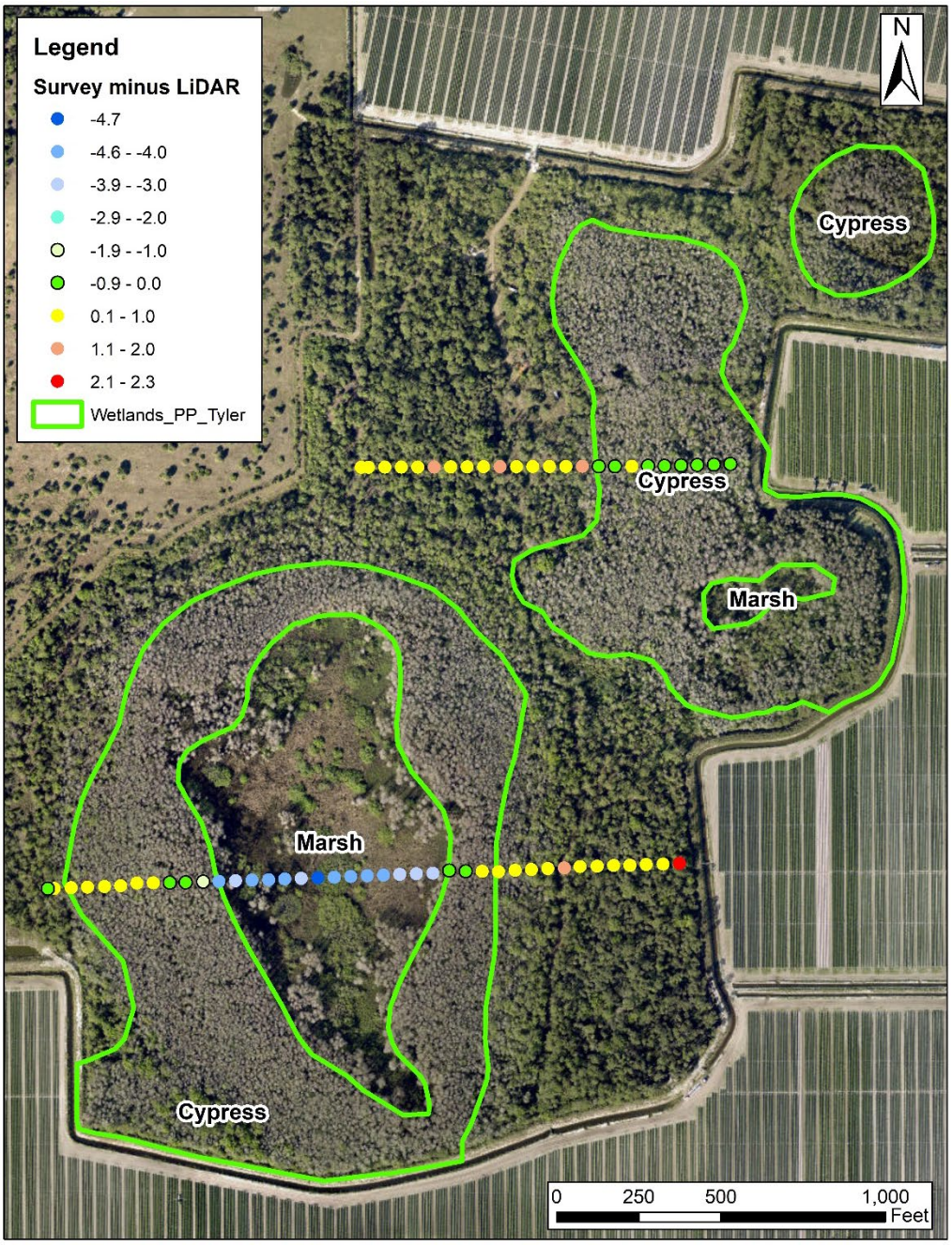

Figure 2 – Survey Transects in Pepper Place Large Wetland

LiDAR elevations from 2018 Lee County LiDAR data were obtained at each survey point, and the difference between the survey and LiDAR elevations was calculated. Figure 2 demonstrates that surveyed ground elevations are lower than LiDAR elevations in portions of the wetland area. The greatest differences are in the marsh area with lesser differences in the cypress habitat. Table 1 provides average differences for the main vegetation types within the large wetland. Elevation differences were greatest in Marsh habitat, with the average difference between survey and LiDAR was -4.1 feet (surveyed ground elevation, on average, is 4.1 feet lower than LiDAR elevations). The average difference for Cypress was -0.05 feet, however the Cypress area of the north transect was, on average, 0.27 feet lower than LiDAR elevations. The greatest differences were observed in the middle of the Cypress area within the north transect. The range of elevation differences for all Cypress habitat is presented in **Figure 3**.

Table 1 – Average Differences Between Survey and LiDAR for Vegetation Types

Survey Minus LiDAR		
Vegetation	**Average Difference**	**minimum difference**
	feet	**feet**
Pine	0.79	
Hydric Pine	0.72	
Cypress-Pine	0.75	
Cypress	-0.05	-1.17
Marsh	-4.10	

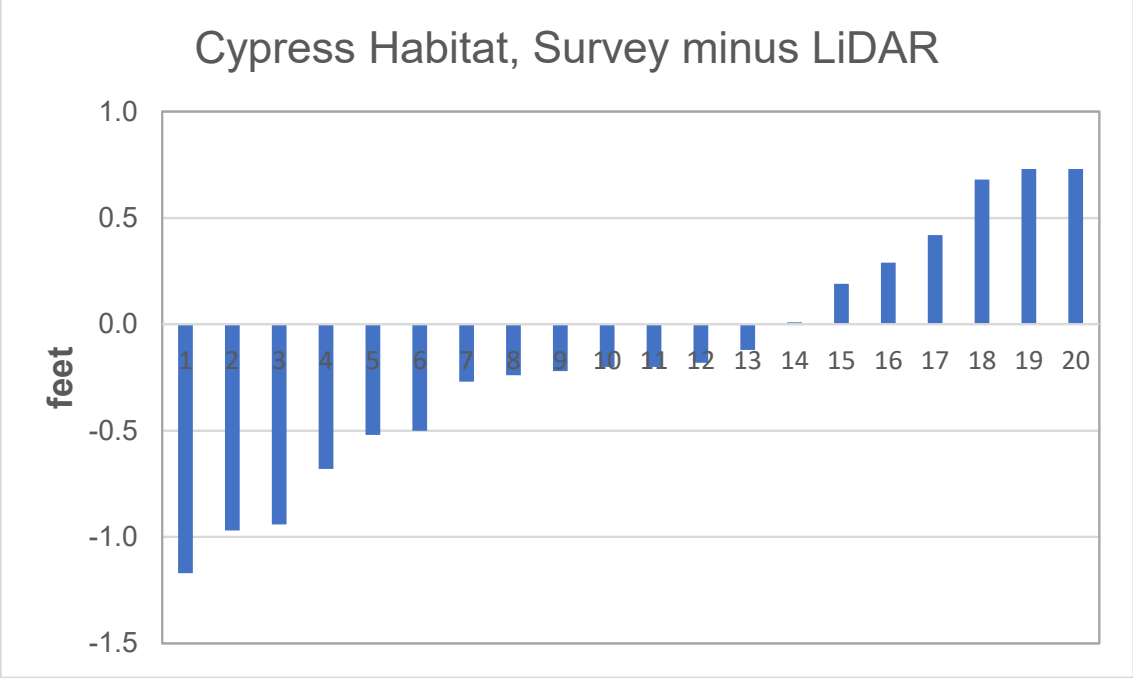

Figure 3 - Range of Elevation Differences for Cypress Habitat

Traffic Impact Statement
Section 1

Preserve Sporting Club & Residences at Pepper Place
Lee Plan Amendment and Rezone

Lee County, FL
4/28/2023

Prepared for:

JR Evans Engineering
9351 Corkscrew Road, Suite 102
Estero, FL 33928
Phone: 239.405.9148

Prepared by:

Trebilcock Consulting Solutions, PA
2800 Davis Boulevard, Suite 200
Naples, FL 34104
Phone: 239.566.9551
Email: ntrebilcock@trebilcock.biz

Statement of Certification

I certify that this Traffic Impact Statement has been prepared by me or under my immediate supervision and that I have experience and training in the field of Traffic and Transportation Engineering.

Norman J. Trebilcock, AICP, PTOE, PE
FL Registration No. 47116
Trebilcock Consulting Solutions, PA
2800 Davis Boulevard, Suite 200
Naples, FL 34104
Company Cert. of Auth. No. 27796

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Table of Contents

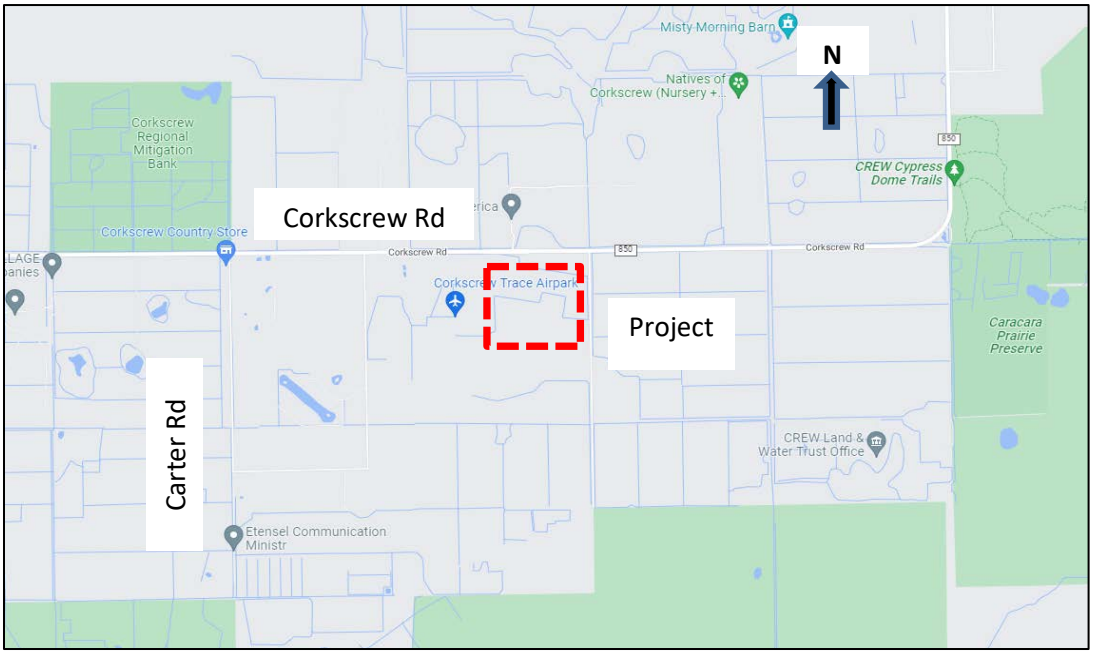
Appendices

Project Description

This report contains analyses intended to satisfy the requirements of a Lee Plan amendment (LPA) and a Rezone from Agricultural to Planned Development.

The Preserve Sporting Club & Residences at Pepper Place project is located south of Corkscrew Rd. approximately 3.6 miles east of the 6 Ls Farm Rd. and Corkscrew Rd. intersection, and lies within Section 27, Township 46 South, Range 27 East, in Lee County, Florida (refer to **Figure 1** and **Appendix A**).

Figure 1 – Project Location Map



The site parcel is currently vacant and is zoned Agriculture. The proposed project is a members only residential/recreational complex. The proposed uses subject to this application include:

- 121 single family detached homes
- 172 single family attached homes
- 108 multi-family homes
- Private clubhouse containing spa (15,000 SF), health club (10,000 SF), restaurant (7,500 SF) and other ancillary uses.
- 29,800 SF retail plaza - open to the public
- 18 hole golf course
- 1000 yard rifle range
- Trap and skeet ranges
- Equestrian Center
- Tennis courts
- Fishing ponds
- Hiking, biking and all terrain trails

Also included in the development plan, not part of this application, but included in the analysis at the request of county staff is a restaurant (10,200 SF/ 314 seats - to include related retail sales) that is allowed under the existing zoning on the parcel.

The Preserve project proposes a full movement connection onto Corkscrew Rd. directly across from the existing mining operation. The analysis of its operation and also the intersection of Corkscrew Rd. at Alico Rd. will be provided in a companion document titled **TIS Section 2 – Traffic Operational Analysis**. The LPA short term and Rezone analysis year is 2027. The LPA long term analysis year is 2045.

A methodology meeting was held with the Lee County Transportation Planning staff (via email) on September 26, 2022 and updated on January 23, 2023 (**Appendix B**). All level of service (LOS) estimates in this report use capacities from the Generalized Service Volumes. There is a published schedule of link specific service volumes. The capacity for Corkscrew Rd. contained in it (1,140 – see **Appendix E**) is significantly greater than the one used here (860).

Trip Generation

The project's site trip generation is shown in **Table 1** and is based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Ed. and Trip Generation Handbook 3rd Ed.

The proposed trip generation assumes that the source of trips to and from all the recreational uses will be the occupants of the dwelling units. The retail shop is intended for public access and thus added as a contributing use. The proposed ITE land use code (LUC) (822 - Strip Retail Plaza <40K) appears the most appropriate.

Because no separate trip generation estimates are being developed for the various recreational uses (many of which do not have any exact or similar ITE LUC), no internal capture is being proposed between them and the residential uses. Although private, Golf Course, Spa, and Fitness Club were added as trip generation contributors to provide a conservative estimate of staff related trip generation. The Spa and Fitness Club areas are combined in **Table 1**.

The by-right restaurant and the strip retail will both be open to the public and internal capture between them and the residential uses is reflected, along with pass by capture rates for each from the ITE Trip Generation Handbook 3rd Ed. The FDOT Transportation Site Impact Handbook suggests that 10 percent of the adjacent street traffic form an upper limit on any ITE based pass-by volume estimate. The projected future peak hour two-way volumes in **Tables 5 and 6** (844 PM, 704 AM) indicate that the total pass-by captured volumes in **Table 1** are less than that traffic-based limit. All ITE data pages are provided in **Appendix C**.

Table 1 – Trip Generation

Use	ITE LU#	Measure-ment Unit	# of Units	Rate (1) or Eqn. (2)			Trips	Daily Traffic	PM Peak Hour				AM Peak Hour			
				Daily	AM	PM			Reduct-ion %	In	Out	Total	Reduct-ion %	In	Out	Total
Strip Retail Plaza <40K	822	1000 SF	29.8	2	2	2	Total	1,487		85	84	169		35	24	59
							Internal		34.9	22	37	59	11.9	3	4	7
							External			63	47	110		32	20	52
							Pass-By		34.0	21	16	37	34.0	11	7	18
							Net New			42	31	73		21	13	34
Single-Family Detached Housing	210	Dwelling Units	121	2	2	2		1,202		75	44	119		23	66	89
Single-Family Attached Housing	215	Dwelling Units	172	2	2	2		1,260		56	43	99		26	58	84
Multifamily Housing (Low-Rise) Not Close to Rail Transit	220	Dwelling Units	108	2	2	2		768		42	25	67		13	43	56
			401				Total	3,230		173	112	285		62	167	229
Residential Total							Internal		14.7	27	15	42	5.7	2	11	13
							External			146	97	243		60	156	216
High Turnover Sit Down Restaurant	932-A	1000 SF	10.2	1	1	1	Total	1,093		56	36	92		54	44	98
							Internal		46.7	23	20	43	16.3	13	3	16
							External			33	16	49		41	41	82
							Pass-By		43.0	14	7	21	43.0	18	17	35
							Net New			19	9	28		23	24	47
Golf Course	430	Holes	18	2	2	1		526		28	24	52		24	6	30
Health/ Fitness Club	492	1000 SF	25	2	1	2		-		56	43	99		17	16	33
							Total	6,336		398	299	697		192	257	449
							Internal		20.7	72	72	144	8.0	18	18	36
Project Total							External			326	227	553		174	239	413
							Pass-By		10.5	35	23	58	12.8	29	24	53
							Net New			291	204	495		145	215	360
LPA/Rezone Total: Project Total Including the By-right Restaurant										291	204	495	0	145	215	360

Trip Generation Rates from ITE *Trip Generation Manual* 11th Ed.

Pass-by Capture volume based on lesser of: A) Rate per *ITE Trip Generation Handbook* 3rd Ed.; or B) County maximum allowable rate

LPA - Trip Distribution and Assignment

The traffic generated by the development was assigned to the adjacent road network utilizing the District 1 Regional Planning Model (D1RPM) that is based on the Metropolitan Planning Organization (MPO)'s 2045 Cost Feasible network. A new traffic analysis zone (TAZ) was added to the network at the project location. The attributes of the residential uses within it were averages of those at three other TAZs in the vicinity (See **Appendix D**). The intensities within the project zone reflect the uses as planned when the model run was conducted**.** At the project entrance, the model assignment directional split is 65.2 percent westbound and 34.8 percent eastbound (**Figure 2**).

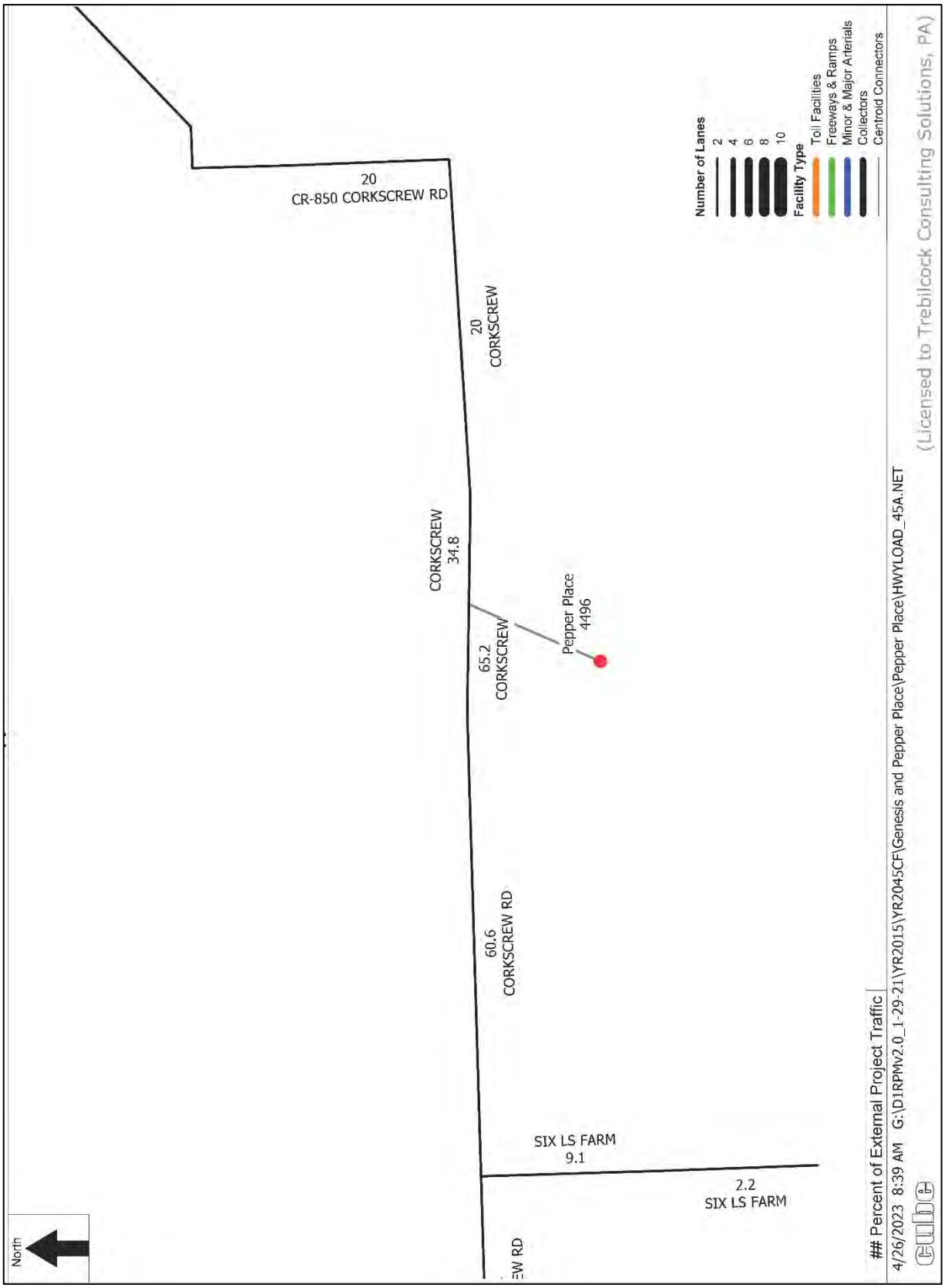
LPA - Project Traffic Characteristics

This LPA analysis is limited to arterial and collector roadway segments within three miles of the project. That consists of the segments of Corkscrew Rd. from 6Ls Farm Rd. to the Project entrance (3.6 mile) and from the Project entrance to the County line. **Table 2** contains the project traffic peak hour directional volumes (AM and PM) for those two segments. The percentage of project traffic on each segment is the maximum of the values found at the endpoints (1 is S or W end, 2 is N or E end) of the segments as shown in **Figure 2**. The percentages are then multiplied by the total AM and PM peak hour volumes in **Table 1**.

Table 2 – Project Traffic

Link No.	Link	From	To	Percent of Total Project Traffic-1 (1)	Percent of Total Project Traffic-2 (1)	Analysis Percent of Total Project Traffic	AM Project Traffic N/E	AM Project Traffic S/W	PM Project Traffic N/E	PM Project Traffic S/W
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	60.6	65.2	65.2	95	140	190	133
7000	Corkscrew Rd.	Project Entrance	County Line	34.8	20	34.8	75	50	71	101
Notes: 1) Figure 2 and Appendix D										

Figure 2 – Project Traffic Percentage Distribution



LPA - Background Roadway and Traffic Characteristics

The existing roadway conditions are derived from the Lee County 2022 Concurrency Report (**Appendix E**). Roadway improvements that are currently under construction or are scheduled to be constructed within the first five years of the current Capital Improvement Program (CIP) are committed improvements for the purpose of this study. None are programmed either within the CIP or the 2045 Long Range Transportation Plan (LRTP) so all analyses presume the existing configuration.

Table 3 contains the Generalized Peak Hour Peak Direction Service Volumes (**Appendix G**) used for this analysis.

Table 3 – Roadway Information

Link No.	Link	From	To	Existing Road Type (1)	LOS Stand-ard (1)	LOS B Service Volume (2)	LOS C Service Volume (2)	LOS D service Volume (2)	LOS E service Volume (2)
7000	Corkscrew Rd.	6 Ls Farm Rd	Project Entrance	2LN	E	140	800	860	860
7000	Corkscrew Rd.	Project Entrance	County Line	2LN	E	140	800	860	860

Notes: 1) Appendix E
2) Appendix G

Table 4 contains information about the background traffic on the analyzed segments. The directional splits are from Permanent Count Station (PCS) #70 (**Appendix F**). The 2021 existing year volume is from the 2022 Concurrency Report (**Appendix E**). The only count station with sufficient data to deduce a volume trend is also station 70. That five-year trend is downward (see **Appendix F**) so two percent is the assumed short term exponential growth rate. The 2045 Annual Average Daily Traffic (AADT) volumes are from the west and east ends of the segments in order, from the adopted 2045 Cost Feasible network (see **Appendix D**). The K100 to convert AADT to Peak Hour Two-way is from PCS 70 (**Appendix F**). It also is the source of the AM/PM Ratio which divides the total percentage of daily traffic in the AM peak hour (6.17 percent) by the total percentage in the PM peak hour (7.4 percent). It is used to convert PM peak hour two-way volume estimates to AM peak hour two- way volume estimates.

Table 4 – Background Traffic Information

Link No.	Link	From	To	AM Directional Split N/E (1)	AM Directional Split S/W (1)	PM Directional Split N/E (1)	PM Directional Split S/W (1)	2021 LOS Report Year Peak Hour Peak Direction Volume (2)	Annual Growth Rate G	2045 AADT1 in 100s (3)	2045 AADT2 in 100s (3)	2045 Analysis AADT	K 100 (1)	AM/PM Ratio (1)
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	0.41	0.59	0.62	0.38	464	2.0%	61	46	61	0.098	0.83
7000	Corkscrew Rd.	Project Entrance	County Line	0.41	0.59	0.62	0.38	464	2.0%	46	19	46	0.098	0.83

Notes: 1) Appendix F
2) Appendix E
3) Appendix D

LPA - Short Term Analysis

Table 5 displays PM peak period conditions in 2027 under background and total traffic. The Concurrency Report PM peak hour volume is inflated to the analysis year using the exponential growth rate from **Table 4**. The directional components of the background traffic are consistent with the directional splits contained in **Table 4**. PM peak background traffic in 2027 is projected to achieve acceptable level of service using the LOS E capacity from **Table 3**. The PM peak project traffic from **Table 2** is added to the

directional components of the background traffic. The resulting peak direction total traffic is projected to achieve acceptable level of service in 2027.

Table 5 – LPA 2027 PM Peak Period Analysis

Link No.	Link	From	To	2021 LOS Report Year Peak Hour Peak Direct-ion Volume (1)	Annual Growth Rate G (1)	2027 PM Future Year Back-ground Traffic N/E (2)	2027 PM Future Year Back-ground Traffic S/W (2)	2027 PM Future Year Back-ground 2-Way Traffic (2)	LOS E Serv-ice Vol-ume (3)	2027 PM Future Year Back-ground V/C	2027 PM Future Year Back-round Defic-ient Y/N	PM Project Traffic N/E (4)	PM Project Traffic S/W (4)	2027 PM Total Traffic N/E	2027 PM Total Traffic S/W	2027 PM Future Year Total Traffic V/C	2027 PM Future Year Total Traffic Defic-ient Y/N
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	464	2.0%	523	321	844	860	0.61	N	190	133	713	454	0.83	N
7000	Corkscrew Rd.	Project Entrance	County Line	464	2.0%	523	321	844	860	0.61	N	71	101	594	422	0.69	N

Notes: 1) Table 4

2) LOS Report Year Volume with exponential growth to analysis year : V(27) = V(21) * (1+G)^6

3) Table 3

4) Table 2

Table 6 displays AM peak period conditions in 2027 under background and total traffic. The analysis year PM peak period two-way volume developed in **Table 5** is converted to AM peak condition using the AM/PM Ratio from **Table 4**. The directional components of the background traffic are consistent with the directional splits contained in **Table 4**. AM peak background traffic in 2027 is projected to achieve acceptable level of service using the LOS E capacity from **Table 3**. The AM peak project traffic from **Table 2** is added to the directional components of the background traffic. The resulting peak direction total traffic is projected to achieve acceptable level of service in 2027.

The calculations that the tables contain are performed with more decimal places than those displayed. Using only the displayed decimals will yield slightly different results.

Table 6 – LPA 2027 AM Peak Period Analysis

Link No.	Link	From	To	2027 PM Future Year Back-ground 2-Way Traffic (1)	AM/ PM Ratio (2)	2027 AM Future Year Back-ground 2-Way Traffic	2027 AM Future Year Back-ground Traffic N/E	2027 AM Future Year Back-ground Traffic S/W	LOS E Serv-ice Vol-ume (3)	2027 AM Future Year Back-ground V/C	2027 AM Future Year Back-ground Defic-ient Y/N	AM Project Traffic N/E (4)	AM Project Traffic S/W (4)	2027 AM Total Traffic N/E	2027 AM Total Traffic S/W	2027 AM Future Year Total Traffic V/C	2027 AM Future Year Total Traffic Defic-ient Y/N
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	844	0.83	704	289	415	860	0.48	N	95	140	384	555	0.65	N
7000	Corkscrew Rd.	Project Entrance	County Line	844	0.83	704	289	415	860	0.48	N	75	50	364	465	0.54	N

Notes: 1) Table 5
2) Table 4
3) Table 3
4) Table 2

LPA - Long Term Analysis

Table 7 displays PM peak period conditions in 2045 for background and total traffic. The maximum 2045 AADT **(Table 4**) across each segment is converted to a peak hour two-way volume using the K100 factor from **Table 4**. The directional components of the peak hour background traffic are consistent with the directional splits contained in **Table 4**. PM peak period background traffic in 2045 is projected to achieve acceptable level of service using the LOS E capacity from **Table 3**. The PM peak project traffic from **Table 2** is added to the directional components of the background traffic. The resulting peak direction total traffic is projected to achieve acceptable level of service in 2045.

Table 8 displays AM peak period conditions in 2045 under background and total traffic. The analysis year PM peak period two- way volume developed in **Table 7** is converted to AM peak condition using the AM Peak Modifier from **Table 4**. The directional components of the background traffic are consistent with the directional splits contained in **Table 4**. AM peak background traffic in 2045 is projected to achieve acceptable level of service using the LOS E capacity from **Table 3**. The AM peak project traffic from **Table 2** is added to the directional components of the background traffic. The resulting peak direction total traffic is projected to achieve acceptable level of service in 2045.

The calculations that the tables contain are performed with more decimal places than those displayed. Using only the displayed decimals will yield slightly different results.

Table 7 – LPA 2045 PM Peak Period Analysis

Link No.	Link	From	To	2045 Analy-sis AADT in 100s (1)	2045 PM Peak Hour 2-Way Vol-ume (2)	2045 Peak Hour Vol-ume N/E	2045 Peak Hour Vol-ume S/W	LOS E Serv-ice Vol-ume (3)	Peak Hour V/C	Future Back-ground Traffic Defic-ient Y/N	Project Traffic N/E (4)	Project Traffic S/W (4)	2045 Total Traffic N/E	2045 Total Traffic S/W	2045 Future Year Total Traffic V/C	2045 Future Year Total Traffic Defic-ient Y/N
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	61	598	371	227	860	0.43	N	190	133	561	360	0.65	N
7000	Corkscrew Rd.	Project Entrance	County Line	46	451	280	171	860	0.33	N	71	101	351	272	0.41	N

Notes: 1) Table 4

2) AADT x K100 (Table 4)

3) Table 3

4) Table 2

Table 8 – LPA 2045 AM Peak Period Analysis

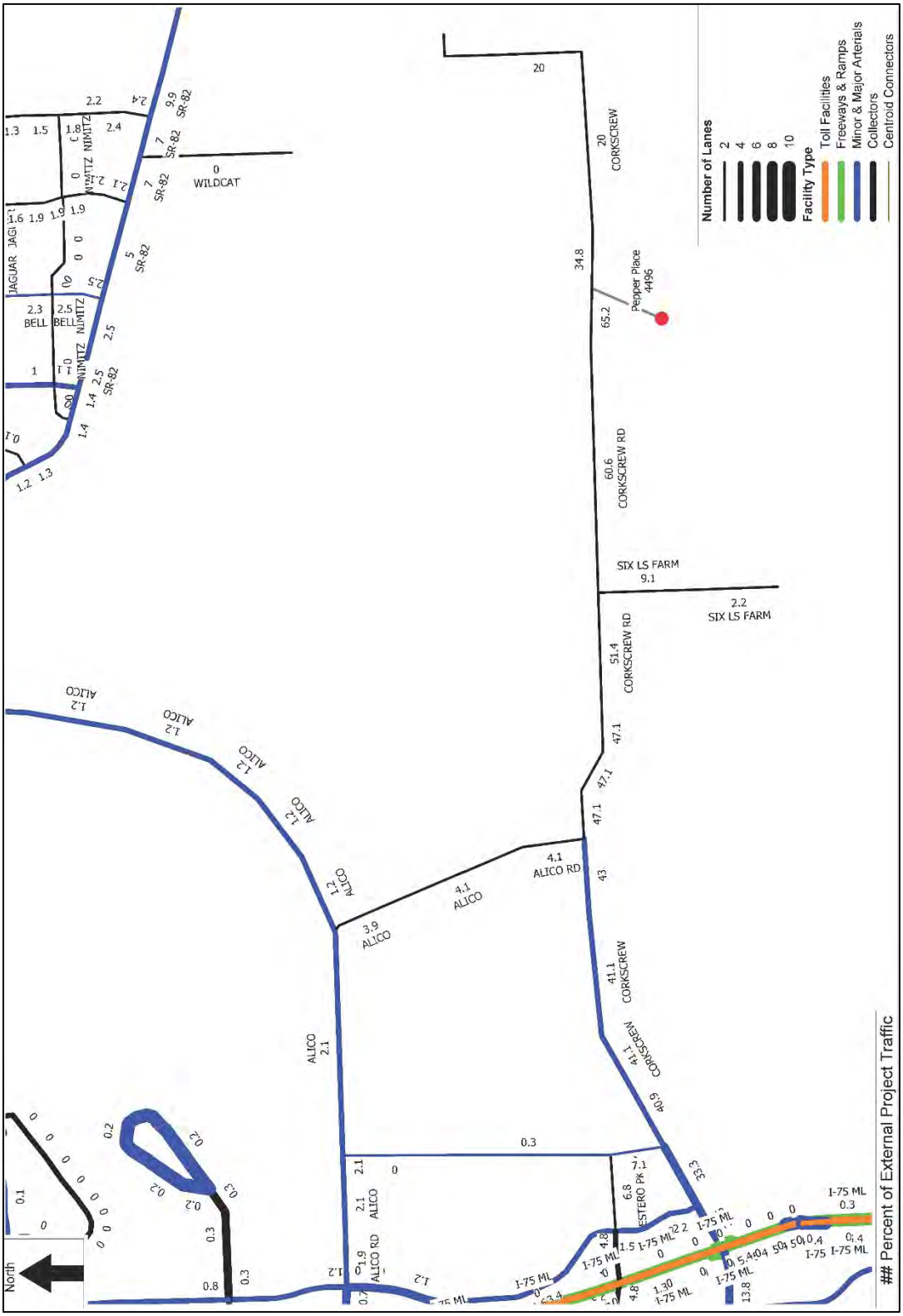
Link No.	Link	From	To	2045 PM Future Year Back-ground 2-Way Traffic (1)	AM/ PM Ratio (2)	2045 AM Future Year Back-ground 2-Way Traffic	2045 AM Future Year Back-ground Traffic N/E	2045 AM Future Year Back-ground Traffic S/W	LOS E Serv-ice Vol-ume (3)	2045 AM Future Year Back-ground V/C	2045 AM Future Year Back-ground Defic-ient Y/N	AM Project Traffic N/E (4)	AM Project Traffic S/W (4)	2045 AM Total Traffic N/E	2045 AM Total Traffic S/W	2045 AM Future Year Total Traffic V/C	2045 AM Future Year Total Traffic Defic-ient Y/N
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	598	0.83	495	203	292	860	0.34	N	95	140	298	432	0.50	N
7000	Corkscrew Rd.	Project Entrance	County Line	451	0.83	373	153	220	860	0.26	N	75	50	228	270	0.31	N

Notes: 1) Table 7
2) Table 4
3) Table 3
4) Table 2

Rezone Analysis

Figure 3 shows the percentage of project traffic on roads in the project vicinity.

Figure 3 – Project Traffic Percentage Distribution



Rezone – Project Traffic Significance

Table 9 contains the Generalized Peak Hour Peak Direction Service Volumes (**Appendix G**) used for this analysis.

For the rezone analysis, the segments analyzed are those on which the project traffic exceeds ten percent of the LOS C service volume using the Generalized Service Volume tables. **Table 10** contains the project traffic peak hour directional volumes (AM and PM) on area roadway segments. The percentage of project traffic assumed on each segment is the maximum of the values found at the endpoints (1 is S or W end, 2 is N or E end) of the segments as shown in **Figure 3**. Those percentages are then multiplied by the total AM and PM peak hour volumes in **Table 1**. The peak directional project traffic volume is expressed as a percentage of the LOS C service volume from **Table 9**. Analyses that follow are confined to those segments on which peak direction project traffic exceeds ten percent.

Table 9 – Roadway Information

Link No.	Link	From	To	Existing Road Type (1)	LOS Stand-ard (1)	LOS B Service Volume (2)	LOS C Service Volume (2)	LOS D service Volume (2)	LOS E service Volume (2)
1050	Alico Rd.	Green Meadows Dr.	Corkscrew Rd.	2LN	E	140	800	860	860
6900	Corkscrew Rd.	Ben Hill Griffin Blvd.	Alico Rd.	4LD	E	250	1840	1960	1960
7000	Corkscrew Rd.	Alico Rd.	6 Ls Farm Rd.	2LN	E	140	800	860	860
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	2LN	E	140	800	860	860
7000	Corkscrew Rd.	Project Entrance	County Line	2LN	E	140	800	860	860

Notes: 1) Appendix E
2) Appendix G

Table 10 – Project Traffic Significance

Link No.	Link	From	To	Per-cent of Total Project Traffic-1 (1)	Per-cent of Total Project Traffic-2 (1)	Analy-sis Per-cent of Total Project Traffic	AM Project Traffic N/E	AM Project Traffic S/W	PM Project Traffic N/E	PM Project Traffic S/W	Exist-ing Road Type (2)	LOS C Serv-ice Vol-ume (3)	Signif-icance Level (4)	Signif-icant Impact Y/N
1050	Alico Rd.	Green Meadows Rd.	Corkscrew Rd.	4.1	3.9	4.1	9	6	8	12	2LN	800	1.5%	N
6900	Corkscrew Rd.	Ben Hill Griffin Pkwy.	Alico Rd.	33.3	43.0	43.0	62	93	125	88	4LD	1840	6.8%	N
7000	Corkscrew Rd.	Alico Rd.	6 Ls Farm Rd.	47.1	51.4	51.4	75	110	150	104	2LN	800	18.8%	Y
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	60.6	65.2	65.2	95	140	190	133	2LN	800	23.8%	Y
7000	Corkscrew Rd.	Project Entrance	County Line	34.8	20.0	34.8	75	50	71	101	2LN	800	12.6%	Y

Notes: 1) Figure 3 And Appendix D
2) Appendix E
3) Table 9
4) Peak Direction PM Project Traffic as a Percentage of the LOS C Service Volume

Rezone – Background Traffic Characteristics

Table 11 contains information about the background traffic on the analyzed segments. The directional splits are from Permanent Count Station (PCS) #70 (**Appendix F**). The 2021 existing year volume is from the 2022 Concurrency Report (**Appendix E**). The only count station with sufficient data to deduce a volume trend is also station 70. That five-year trend is downward (see **Appendix F**) so two percent is the assumed short term growth rate. It also is the source of the AM/PM Ratio which divides the total percentage of daily traffic in the 7 AM to 9 AM period (12.15%) by the total percentage in the 4 PM to 6 PM period (14.68%). It is used to convert PM peak hour two-way volume estimates to AM peak hour two- way volume estimates.

Table 11 – Background Traffic Information

Link No.	Link	From	To	AM Direct-ional Split N/E (1)	AM Direct-ional Split S/W (1)	PM Direct-ional Split N/E (1)	PM Direct-ional Split S/W (1)	2021 LOS Report Year Peak Hour Peak Direct-ion Vol-ume (2)	Annual Growth Rate G	AM/ PM Ratio (1)
7000	Corkscrew Rd.	Alico Rd.	6 Ls Farm Rd.	0.41	0.59	0.62	0.38	464	2.0%	0.83
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	0.41	0.59	0.62	0.38	464	2.0%	0.83
7000	Corkscrew Rd.	Project Entrance	County Line	0.41	0.59	0.62	0.38	464	2.0%	0.83

Notes: 1) Appendix F
2) Appendix E

Rezone Level of Service Analysis

Table 12 displays PM peak period conditions in 2027 under background and total traffic. The Concurrency Report PM peak hour volume is inflated to the analysis year using the growth rate from **Table 11**. The directional components of the background traffic are consistent with the directional splits contained in **Table 11**. PM peak background traffic in 2027 is projected to achieve acceptable level of service using the LOS E capacity from **Table 9**. The PM peak project traffic from **Table 10** is added to the directional components of the background traffic. The resulting peak direction total traffic is projected to achieve acceptable level of service in 2027.

Table 13 displays AM peak period conditions in 2027 under background and total traffic. The analysis year PM peak period two-way volume developed in **Table 12** is converted to AM peak condition using the AM/PM Ratio from **Table 11**. The directional components of the background traffic are consistent with the directional splits contained in **Table 11**. AM peak background traffic in 2027 is projected to achieve acceptable level of service using the LOS E capacity from **Table 9**. The AM peak project traffic from **Table 10** is added to the directional components of the background traffic. The resulting peak direction total traffic is projected to achieve acceptable level of service in 2027.

The calculations that the tables contain are performed with more decimal places than those displayed. Using only the displayed decimals will yield slightly different results.

Table 12 – Rezone 2027 PM Peak Period Analysis

Link No.	Link	From	To	2021 LOS Report Year Peak Hour Peak Direct-ion Volume (1)	Annual Growth Rate G (1)	2027 PM Future Year Back-ground Traffic N/E (2)	2027 PM Future Year Back-ground Traffic S/W (2)	2027 PM Future Year Back-ground 2-Way Traffic (2)	LOS E Serv-ice Vol-ume (3)	2027 PM Future Year Back-ground V/C	2027 PM Future Year Back-round Defic-ient Y/N	PM Project Traffic N/E (4)	PM Project Traffic S/W (4)	2027 PM Total Traffic N/E	2027 PM Total Traffic S/W	2027 PM Future Year Total Traffic V/C	2027 PM Future Year Total Traffic Defic-ient Y/N
7000	Corkscrew Rd.	Alico Rd.	6 Ls Farm Rd.	464	2.0%	523	321	844	860	0.61	N	150	104	673	425	0.78	N
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	464	2.0%	523	321	844	860	0.61	N	190	133	713	454	0.83	N
7000	Corkscrew Rd.	Project Entrance	County Line	464	2.0%	523	321	844	860	0.61	N	71	101	594	422	0.69	N

Notes: 1) Table 11

2) LOS Report Year Volume with exponential growth to analysis year : V(27) = V(21) * (1+G)^6

3) Table 9

4) Table 10

Table 13 – Rezone 2027 AM Peak Period Analysis

Link No.	Link	From	To	2027 PM Future Year Back-ground 2-Way Traffic (1)	AM/ PM Ratio (2)	2027 AM Future Year Back-ground 2-Way Traffic	2027 AM Future Year Back-ground Traffic N/E	2027 AM Future Year Back-ground Traffic S/W	LOS E Serv-ice Vol-ume (3)	2027 AM Future Year Back-ground V/C	2027 AM Future Year Back-ground Defic-ient Y/N	AM Project Traffic N/E (4)	AM Project Traffic S/W (4)	2027 AM Total Traffic N/E	2027 AM Total Traffic S/W	2027 AM Future Year Total Traffic V/C	2027 AM Future Year Total Traffic Defic-ient Y/N
7000	Corkscrew Rd.	Alico Rd.	6 Ls Farm Rd.	844	0.83	704	289	415	860	0.48	N	75	110	364	525	0.61	N
7000	Corkscrew Rd.	6 Ls Farm Rd.	Project Entrance	844	0.83	704	289	415	860	0.48	N	95	140	384	555	0.65	N
7000	Corkscrew Rd.	Project Entrance	County Line	844	0.83	704	289	415	860	0.48	N	75	50	364	465	0.54	N

Notes: 1) Table 12
2) Table 11
3) Table 9
4) Table 10

Access Management and Intersection Analyses

Analysis of turn lane requirements per AC-11-4 and connection spacing per LDC Section 10-285 will be included in a companion document titled **TIS Section 2 – Traffic Operational Analysis**, which will also include an analysis of the intersection of Corkscrew Rd. with Alico Rd.

Improvement Analysis

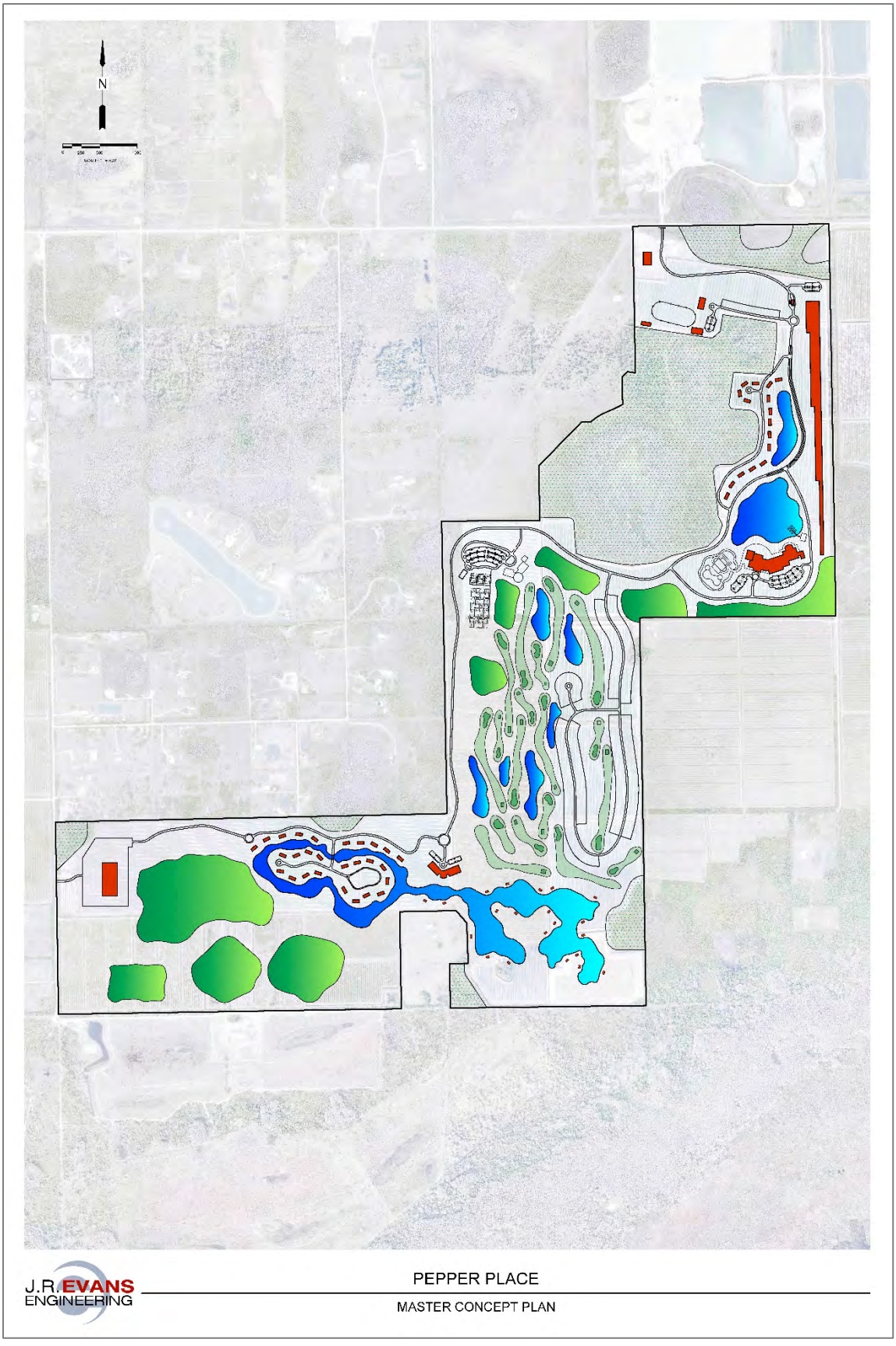
Based on the link analysis and trip distribution, the proposed project is a significant traffic generator for the roadway network at this location. There is sufficient roadway capacity to accommodate the proposed development buildout condition in 2027 and 2045.

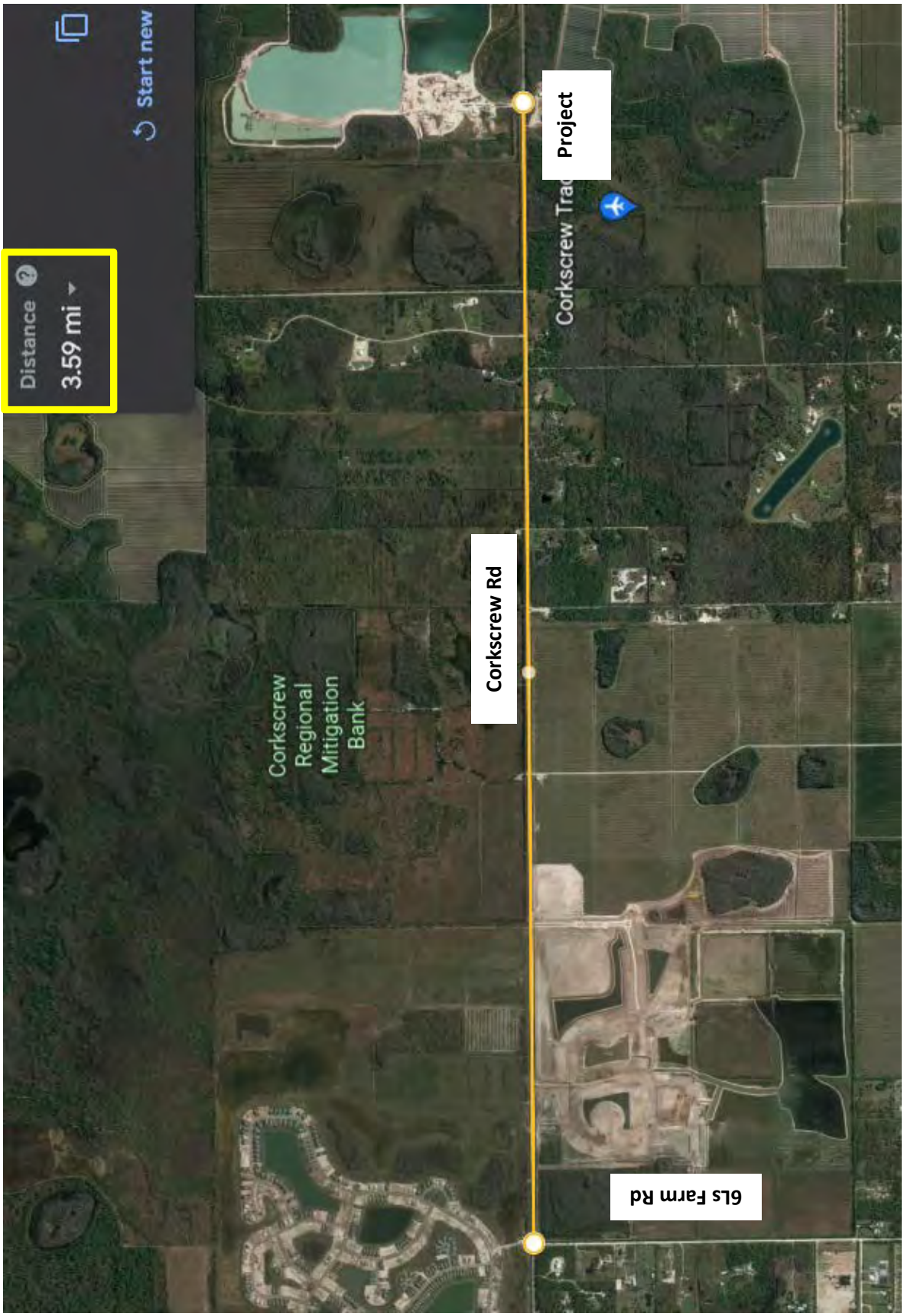
Mitigation of Impact

The developer proposes to pay the appropriate Lee County transportation impact fees as building permits are issued for the project.

Appendix A:

Project Master Site Plan and Location


N
J.R. EVANS
ENGINEERING
PEPPER PLACE
MASTER CONCEPT PLAN


Start new
Distance
3.59 mi
Project
Corkscrew Rd
Corkscrew Regional Mitigation Bank
Corkscrew Trac
Bls Farm Rd

Appendix B:

Initial Meeting Checklist (Methodology Meeting)

METHODOLOGY - INITIAL MEETING CHECKLIST

Date: September 26, 2022, revised January 23, 2023.

Location: N/A – Via Email

People Attending:
Name, Organization, and Telephone Numbers

1) Marcus Evans, Lee County Department of Community Development
2) Norman Trebilcock, TCS
3) Ciprian Malaescu, TCS
4) Gavin Jones, TCS

Study Preparer:
Preparer's Name and Title: Norman Trebilcock, AICP, PTOE, PE
Organization: Trebilcock Consulting Solutions, PA
Address & Telephone Number: 2800 Davis Boulevard, Suite 200, Naples, FL 34104; ph.:239-566-9551

Reviewer(s):
Reviewer's Name & Title: Marcus Evans, PE
Organization: Lee County Department of Community Development
Address: 1500 Monroe Street, Fort Myers, FL 33901
Telephone Number: 239-533-8355

Applicant:
Applicant's Name: JR Evans Engineering
Address: 9351 Corkscrew Road, Suite 102, Estero, FL 33928
Telephone Number: 239-405-9148

Proposed Development:
Name: Preserve Sporting Club and Residences at Pepper Place
Location: South of Corkscrew Road, the main entrance approximately 1.6 miles east of the Carter Road and Corkscrew Road intersection, in unincorporated Lee County, Florida – refer to **Figure 1.**

Page **1** of **6**

Figure 1 – Location Map

Description: The project site is currently vacant or agricultural. The proposed project is a members only residential/recreational complex. The proposed uses subject to this application include:

- 121 single family detached homes
- 172 single family attached homes
- 108 multi-family homes
- 225,000 square foot (SF) clubhouse containing spa (15,000 SF), health club (10,000 SF), and restaurant (7,500 SF).
- 29,800 SF retail shop -open to the public
- 18 hole golf course
- 1000 yard rifle range
- Trap and skeet ranges
- Equestrian Center
- Tennis courts
- Fishing ponds
- Hiking, biking and all terrain trails

Also included in the development plan, not part of this application, but included in the analysis at the request of county staff is a restaurant (10,200 SF/ 314 seats - to include related retail sales) that is allowed under the existing zoning on the parcel.

Findings of the Preliminary Study:

Given the private nature of the development, the proposed trip generation assumes that the source of trips to and from all the recreational uses will be the occupants of the dwelling units. The retail shop is intended for public access and thus added as a contributing use. The proposed ITE land use code (LUC) (822 - Strip Retail Plaza <40K) appears the most appropriate.

Because no separate trip generation estimates are being developed for the various recreational uses (many of which do not have any exact or similar ITE LUC), no internal capture is proposed between them and the residential uses. Golf Course, Spa, and Fitness Club, although all available only to residents, were added as trip generation contributors to provide a conservative estimate of staff related trip generation. The Spa and Fitness Club areas are combined in Table 1.

The by-right restaurant and the strip retail will both be open to the public and internal capture between them and the residential uses will be reflected, along with pass by capture rates for each consistent with the ITE Trip Generation Handbook 3rd ed.

The estimated net new trip generation for the project is greater than 300 peak hour trips.
Trip Generation – ITE Trip Generation Manual 11th Edition.
Internal capture – ITE Trip Generation Handbook 3rd Ed.
Pass-by Traffic – ITE Trip Generation Handbook 3rd Ed.

Concurrency analysis – based on AM and PM peak hour new external trips within the area of influence. LOS determination based on the Lee County Generalized Level of Service tables.
Operational - Site access turn lanes and offsite intersection analyses will be provided in a separate document called Section 2 – Operational Analysis.

Study Area:
Roadway Links: Corkscrew Road
Additional intersections to be analyzed: Corkscrew Rd. at Alico Rd.
Build Out Year: 2026
Horizon Year: 2027
Analysis Time Period(s): AM/PM Peak Hour,
Future Off-Site Developments: N/A
Source of Trip Generation Rates: ITE 11th Edition

Reductions in Trip Generation Rates:
None: N/A
Pass-by trips: see above
Internal trips: see above
Transit use: N/A

Page **3** of **6**

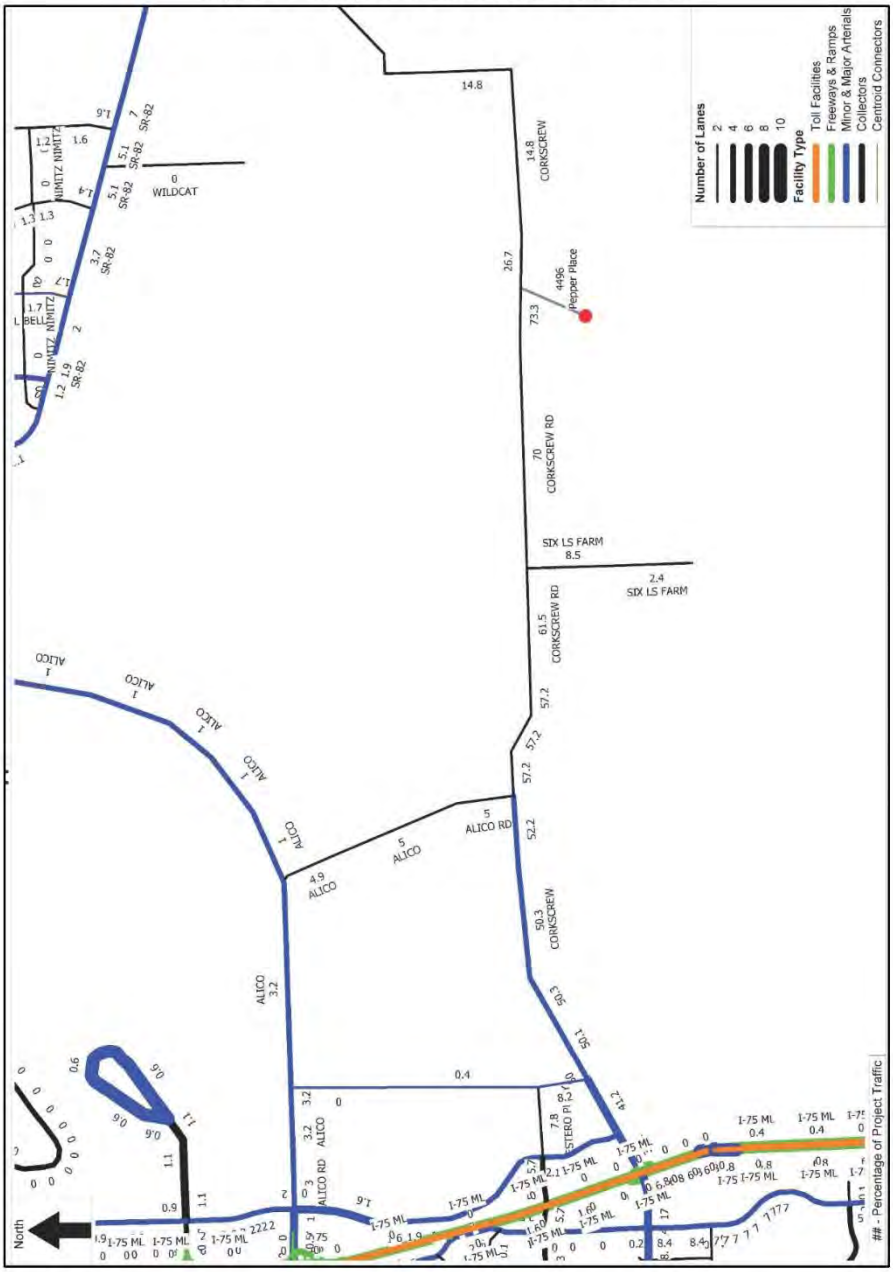
Horizon Year Roadway Network Improvements: 2027

Methodology & Assumptions:
Non-site traffic estimates: Lee County 2022 Concurrency Report Inventory and Projections: 2021 Traffic Count Report
Site-trip generation: ITE Trip Generation Manual 11th Edition

Trip distribution - assignment method: Based on FDOT District 1 Regional Planning Model (D1RPM), see **Figure 2**.

Page **4** of **6**

Figure 2 – Project Traffic Percent Distribution



Special Features: (from preliminary study or prior experience)
Accident locations: N/A
Sight distance: N/A
Queuing: to be determined
Access location & configuration: N/A
Traffic control: MUTCD
Signal system location & progression needs: N/A
On-site parking needs: N/A
Data Sources: ITE Trip Generation Manual 11th Edition
Base maps: N/A
Prior study reports: N/A
Access policy and jurisdiction: N/A
Review process: N/A
Requirements: N/A
Miscellaneous: N/A

SIGNATURES

Norman Trebilcock

Study Preparer—Norman Trebilcock

Trebilcock planning-engineering

Gavin Jones <gjones@trebilcock.biz>

RE: [EXTERNAL] Pepper Place Traffic Impact Methodology

1 message

Evans, Marcus <MEvans@leegov.com> Fri, Oct 21, 2022 at 1:13 PM
To: Gavin Jones <gjones@trebilcock.biz>
Cc: "Wu, Lili" <LWu@leegov.com>, "Butt, Farhan" <FButt@leegov.com>, "Dunn, Brandon" <BDunn@leegov.com>

Gavin,

Just a quick correction to (C) below: the latter portion of the sentence should reference that the model volumes may be used for the long-term analysis. If you have questions regarding this, please let me know. Thanks.

Marcus

From: Evans, Marcus
Sent: Friday, October 21, 2022 7:48 AM
To: 'Gavin Jones' <gjones@trebilcock.biz>
Cc: Wu, Lili <LWu@leegov.com>; Butt, Farhan <FButt@leegov.com>; Dunn, Brandon <BDunn@leegov.com>
Subject: RE: [EXTERNAL] Pepper Place Traffic Impact Methodology

Gavin,

Staff has reviewed the subject project traffic study methodology and provides the following comments for your consideration with respect to a proposed comprehensive plan amendment:

(A) study area: all arterials and collectors within a 3-mile radius of the project shall be included in the analysis

(B) analysis horizon year: a short-term (5-year) and long-term (year 2045) analysis is required

(C) background traffic: historical growth rates may be used for the short-term analysis and growth rates derived from the current 2045 FSUTMS model traffic volumes may be used for long-term analysis

(D) service volumes: Lee County's generalized service volumes shall be used for the both the short-term and long-term analyses

(E) trip generation: ITE's 11th Edition *Trip Generation Manual* shall be used for the analysis

(F) trip distribution: the FSUTMS model should be used to determine project trip distributions

(G) analysis time period(s): AM/PM peak hour; the appropriate Lee County K-100 and D-factors shall be used for the analysis

Staff has reviewed the subject project zoning traffic study methodology and provides the following comments for your consideration with respect to a proposed rezoning:

(1) Lee County's current generalized service volume tables must be used for determining future roadway levels of service

(2) project trip distribution should be determined by use of the Florida Department of Transportation's FSUTMS travel demand model

(3) the AM/PM peak hour trip generation calculations for ITE Land Use Code 330 appear incorrect

(4) the traffic study must comply with the requirements of the current Lee County Land Development Code and related codes/policies (including Lee County Administrative Code AC-13-17)

Hopefully, the above proves useful. If you have questions regarding any of the comments, please let me know. Thanks.

Marcus

Marcus Evans

Lee County Department of Community Development

(239) 533-8355

From: Gavin Jones <gjones@trebilcock.biz>
Sent: Tuesday, October 11, 2022 4:59 PM
To: Evans, Marcus <MEvans@leegov.com>
Cc: Norman Trebilcock <ntrebilcock@trebilcock.biz>; Ciprian Malaescu <cmalaescu@trebilcock.biz>
Subject: [EXTERNAL] Pepper Place Traffic Impact Methodology

Good afternoon Marcus,

Attached for your review is a methodology memo for the traffic analysis of a residential/recreation complex along with the estimated trip generation reflecting the current thinking on the uses involved, and a conceptual plan of the complex.

Thank you,

Gavin Jones, PE, AICP

Trebilcock Consulting Solutions, PA

2800 Davis Blvd, Suite 200

Naples, FL 34104

O 239.566.9551 / F 239.566.9553 / M 239.775.6026

www.trebilcock.biz

Appendix C:

ITE Trip Generation

Trip Generation

Use	ITE LU#	Measure-ment Unit	# of Units	Rate (1) or Eqn. (2)			Trips	Daily Traffic	PM Peak Hour				AM Peak Hour			
				Daily	AM	PM			Reduct-ion %	In	Out	Total	Reduct-ion %	In	Out	Total
Strip Retail Plaza <40K	822	1000 SF	29.8	2	2	2	Total	1,487		85	84	169		35	24	59
							Internal		34.9	22	37	59	11.9	3	4	7
							External			63	47	110		32	20	52
							Pass-By		34.0	21	16	37	34.0	11	7	18
							Net New			42	31	73		21	13	34
Single-Family Detached Housing	210	Dwelling Units	121	2	2	2		1,202		75	44	119		23	66	89
Single-Family Attached Housing	215	Dwelling Units	172	2	2	2		1,260		56	43	99		26	58	84
Multifamily Housing (Low-Rise) Not Close to Rail Transit	220	Dwelling Units	108	2	2	2		768		42	25	67		13	43	56
			401				Total	3,230		173	112	285		62	167	229
Residential Total							Internal		14.7	27	15	42	5.7	2	11	13
							External			146	97	243		60	156	216
High Turnover Sit Down Restaurant	932-A	1000 SF	10.2	1	1	1	Total	1,093		56	36	92		54	44	98
							Internal		46.7	23	20	43	16.3	13	3	16
							External			33	16	49		41	41	82
							Pass-By		43.0	14	7	21	43.0	18	17	35
							Net New			19	9	28		23	24	47
Golf Course	430	Holes	18	2	2	1		526		28	24	52		24	6	30
Health/ Fitness Club	492	1000 SF	25	2	1	2		-		56	43	99		17	16	33
							Total	6,336		398	299	697		192	257	449
							Internal		20.7	72	72	144	8.0	18	18	36
Project Total							External			326	227	553		174	239	413
							Pass-By		10.5	35	23	58	12.8	29	24	53
							Net New			291	204	495		145	215	360
LPA/Rezone Total: Project Total Including the By-right Restaurant										291	204	495	0	145	215	360

Trip Generation Rates from ITE *Trip Generation Manual* 11th Ed.

Pass-by Capture volume based on lesser of: A) Rate per *ITE Trip Generation Handbook* 3rd Ed.; or B) County maximum allowable rate

AM Internal Capture

Unconstrained Internal Trip Capture Rates for Origins						
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel
Office		28	63	0	1	0
Retail	29		13	0	14	0
Restaurant	31	14		0	4	3
Cinema/ Entertain-ment	0	0	0		0	0
Residential	2	1	20	0		0
Hotel	75	14	9	0	0	

Source: ITE Trip Generation Handbook 3rd Ed. Table 6.1

Unconstrained Internal Trip Capture Rates for Destinations						
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel
Office		32	23	0	0	0
Retail	4		50	0	2	0
Restaurant	14	8		0	5	4
Cinema/ Entertain-ment	0	0	0		0	0
Residential	3	17	20	0		0
Hotel	3	4	6	0	0	

Source: ITE Trip Generation Handbook 3rd Ed. Table 6.2

1.000 1.000 1 1 1 1

Internal Exiting Trips							
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel	Total Exiting Trips
Office		0.0	0.0	0.0	0.0	0.0	0
Retail	7.0		3.1	0.0	3.4	0.0	24
Restaurant	13.6	6.2		0.0	1.8	1.3	44
Cinema/ Entertain-ment	0.0	0.0	0.0		0.0	0.0	22
Residential	3.3	1.7	33.4	0.0		0.0	167
Hotel	0.0	0.0	0.0	0.0	0.0		0

Internal Entering Trips						
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel
Office		11.2	12.4	0.0	0.0	0.0
Retail	0.0		27.0	0.0	1.2	0.0
Restaurant	0.0	2.8		0.0	3.1	0.0
Cinema/ Entertain-ment	0.0	0.0	0.0		0.0	0.0
Residential	0.0	6.0	10.8	0.0		0.0
Hotel	0.0	1.4	3.2	0.0	0.0	
Total Entering Trips	0	35	54	41	62	0

Constrained Internal Trips							
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel	Internal Exiting
Office		0	0	0	0	0	**0**
Retail	0		3	0	1	0	**4**
Restaurant	0	2		0	1	0	**3**
Cinema/ Entertain-ment	0	0	0		0	0	**0**
Residential	0	1	10	0		0	**11**
Hotel	0	0	0	0	0		**0**
Internal Entering	**0**	**3**	**13**	**0**	**2**	**0**	**18**

Use	Total Enter-ing	Total Exiting	Internal Enter-ing	Internal Exiting	Internal Cap- ture Rate
Office	0	0	0	0	**0.0**
Retail	35	24	3	4	**11.9**
Restaurant	54	44	13	3	**16.3**
Cinema/ Entertain-ment	41	22	0	0	**0.0**
Residential	62	167	2	11	**5.7**
Hotel	0	0	0	0	**0.0**
Total	**192**	**257**	**18**	**18**	**8.0**

PM Internal Capture

Unconstrained Internal Trip Capture Rates for Origins						
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel
Office		20	4	0	2	0
Retail	2		29	4	26	5
Restaurant	3	41		8	18	7
Cinema/ Entertain-ment	2	21	31		8	2
Residential	4	42	21	0		3
Hotel	0	16	68	0	2	
Source: ITE Trip Generation Handbook 3rd Ed. Table 6.1						

Unconstrained Internal Trip Capture Rates for Destinations						
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel
Office		8	2	1	4	0
Retail	31		29	26	46	17
Restaurant	30	50		32	16	71
Cinema/ Entertain-ment	6	4	3		4	1
Residential	57	10	14	0		12
Hotel	0	2	5	0	0	
Source: ITE Trip Generation Handbook 3rd Ed. Table 6.2						
	1.000	1.000	1	1	1	1

Internal Exiting Trips							
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel	Total Exiting Trips
Office		0.0	0.0	0.0	0.0	0.0	0
Retail	1.7		24.4	0.0	21.8	4.2	84
Restaurant	1.1	14.8		0.0	6.5	2.5	36
Cinema/ Entertain-ment	0.0	0.0	0.0		0.0	0.0	67
Residential	4.5	47.0	23.5	0.0		3.4	112
Hotel	0.0	0.0	0.0	0.0	0.0		0

Internal Entering Trips						
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel
Office		6.8	1.1	0.0	6.9	0.0
Retail	0.0		16.2	0.0	79.6	0.0
Restaurant	0.0	42.5		0.0	27.7	0.0
Cinema/ Entertain-ment	0.0	0.0	0.0		0.0	0.0
Residential	0.0	8.5	7.8	0.0		0.0
Hotel	0.0	1.7	2.8	0.0	0.0	
Total Entering Trips	0	85	56	84	173	0

Constrained Internal Trips							
Use	Office	Retail	Restaurant	Cinema/ Entertain-ment	Residential	Hotel	Internal Exiting
Office		0	0	0	0	0	**0**
Retail	0		16	0	21	0	**37**
Restaurant	0	14		0	6	0	**20**
Cinema/ Entertain-ment	0	0	0		0	0	**0**
Residential	0	8	7	0		0	**15**
Hotel	0	0	0	0	0		**0**
Internal Entering	**0**	**22**	**23**	**0**	**27**	**0**	**72**

Use	Total Enter-ing	Total Exiting	Internal Enter-ing	Internal Exiting	Internal Cap- ture Rate
Office	0	0	0	0	**0.0**
Retail	85	84	22	37	**34.9**
Restaurant	56	36	23	20	**46.7**
Cinema/ Entertain-ment	84	67	0	0	**0.0**
Residential	173	112	27	15	**14.7**
Hotel	0	0	0	0	**0.0**
Total	**398**	**299**	**72**	**72**	**20.7**

ITE Code	Description	Independent Variable	Avg. Daily Traffic				AM Peak Hour					PM Peak Hour				
			Avg. Rate	Eqn. Linear (1) or Exp (2)	Coeff. A	Coeff. B	Avg. Rate	Eqn. Linear (1) or Exp (2)	Coeff. A	Coeff. B	Enter-ing Split	Avg. Rate	Eqn. Linear (1) or Exp (2)	Coeff. A	Coeff. B	Enter-ing Split
210	Single-Family Detached Housing	Dwelling Units	9.43	2	0.92	2.68	0.70	2	0.91	0.12	0.26	0.94	2	0.94	0.27	0.63
215	Single-Family Attached Housing	Dwelling Units	7.20	1	7.62	-50.48	0.48	1	0.52	-5.70	0.31	0.57	1	0.60	-3.93	0.57
220	Multifamily Housing (Low-Rise) Not Close to Rail Transit	Dwelling Units	6.74	1	6.41	75.31	0.40	1	0.31	22.85	0.24	0.51	1	0.43	20.55	0.63
430	Golf Course	Holes	30.38	1	34.93	-102.33	1.76	2	0.91	0.77	0.79	2.91				0.53
492	Health/ Fitness Club	1000 SF					1.31				0.51	3.45	2	0.67	2.44	0.57
822	Strip Retail Plaza <40K	1000 SF	54.45	1	42.20	229.68	2.36	2	0.66	1.84	0.60	6.59	2	0.71	2.72	0.50
932-A	High Turnover Sit Down Restaurant	1000 SF	107.20				9.57				0.55	9.05				0.61

Land Use: 210
Single-Family Detached Housing

Description

A single-family detached housing site includes any single-family detached home on an individual lot. A typical site surveyed is a suburban subdivision.

Specialized Land Use

Data have been submitted for several single-family detached housing developments with homes that are commonly referred to as patio homes. A patio home is a detached housing unit that is located on a small lot with little (or no) front or back yard. In some subdivisions, communal maintenance of outside grounds is provided for the patio homes. The three patio home sites total 299 dwelling units with overall weighted average trip generation rates of 5.35 vehicle trips per dwelling unit for weekday, 0.26 for the AM adjacent street peak hour, and 0.47 for the PM adjacent street peak hour. These patio home rates based on a small sample of sites are lower than those for single-family detached housing (Land Use 210), lower than those for single-family attached housing (Land Use 251), and higher than those for senior adult housing -- single-family (Land Use 251). Further analysis of this housing type will be conducted in a future edition of *Trip Generation Manual*.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

For 30 of the study sites, data on the number of residents and number of household vehicles are available. The overall averages for the 30 sites are 3.6 residents per dwelling unit and 1.5 vehicles per dwelling unit.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Arizona, California, Connecticut, Delaware, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Minnesota, Montana, New Jersey, North Carolina, Ohio, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, Virginia, and West Virginia.

Source Numbers

100, 105, 114, 126, 157, 167, 177, 197, 207, 211, 217, 267, 275, 293, 300, 319, 320, 356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 869, 903, 925, 936, 1005, 1007, 1008, 1010, 1033, 1066, 1077,1078, 1079

Single-Family Detached Housing
(210)

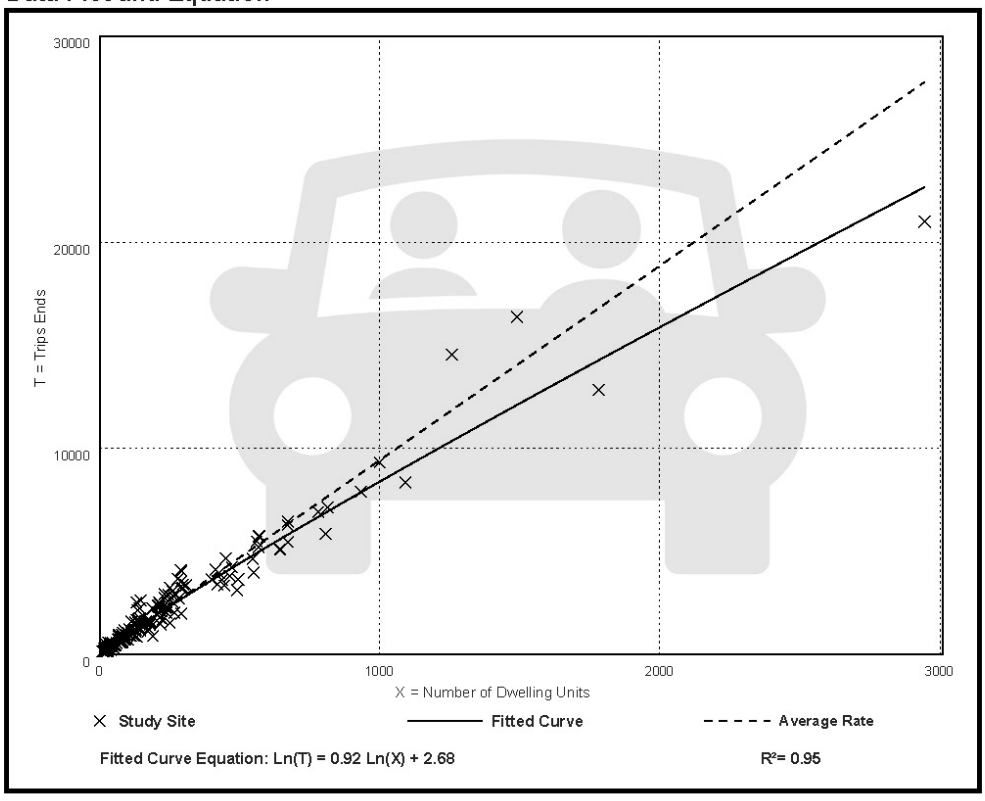
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 174
Avg. Num. of Dwelling Units: 246
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



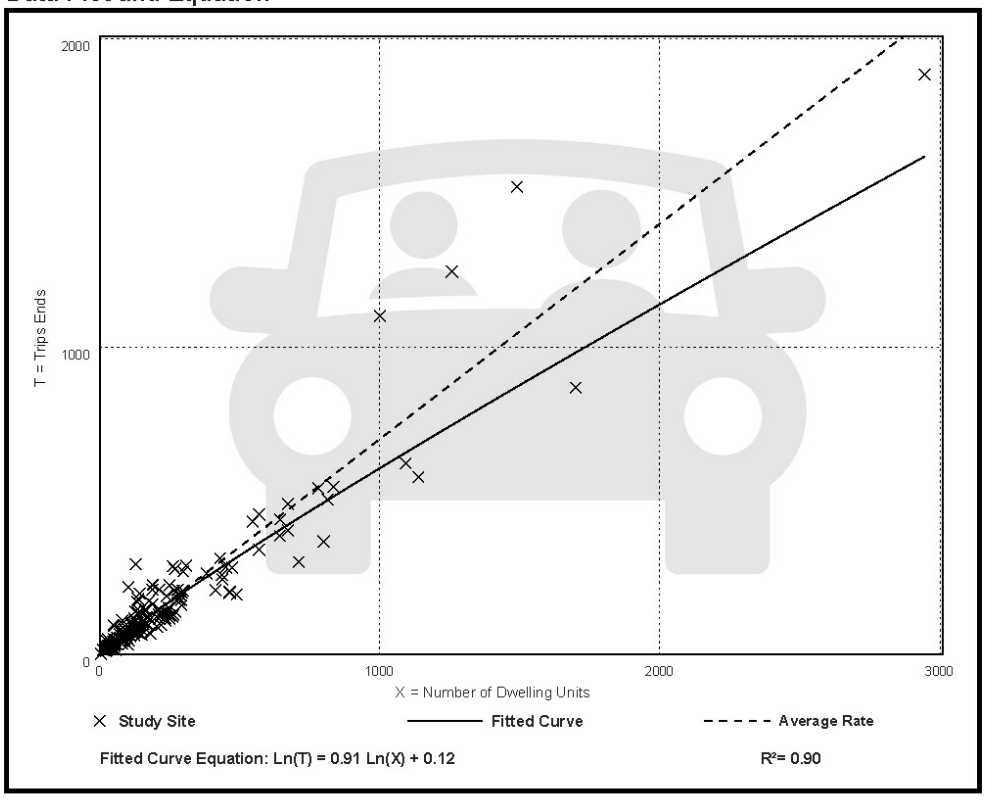
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 192
Avg. Num. of Dwelling Units: 226
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



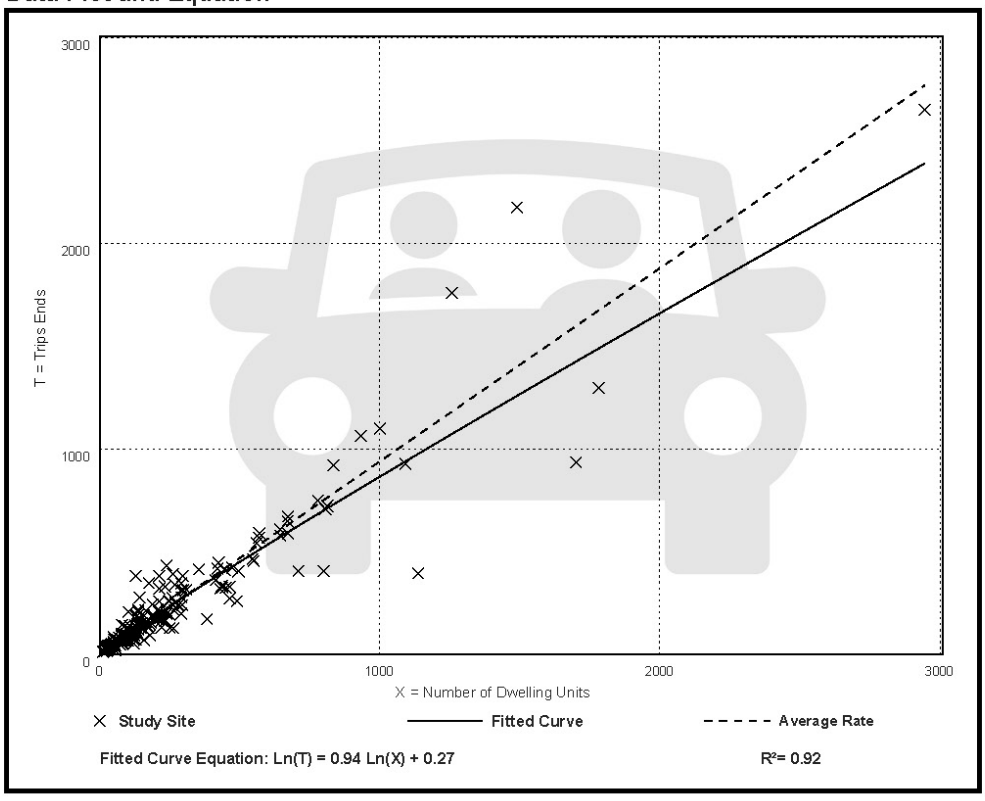
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 208
Avg. Num. of Dwelling Units: 248
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



Land Use: 215
Single-Family Attached Housing

Description

Single-family attached housing includes any single-family housing unit that shares a wall with an adjoining dwelling unit, whether the walls are for living space, a vehicle garage, or storage space.

Additional Data

The database for this land use includes duplexes (defined as a single structure with two distinct dwelling units, typically joined side-by-side and each with at least one outside entrance) and townhouses/rowhouses (defined as a single structure with three or more distinct dwelling units, joined side-by-side in a row and each with an outside entrance).

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, Georgia, Illinois, Maryland, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Dakota, Utah, Virginia, and Wisconsin.

Source Numbers

168, 204, 211, 237, 305, 306, 319, 321, 357, 390, 418, 525, 571, 583, 638, 735, 868, 869, 870, 896, 912, 959, 1009, 1046, 1056, 1058, 1077

Single-Family Attached Housing
(215)

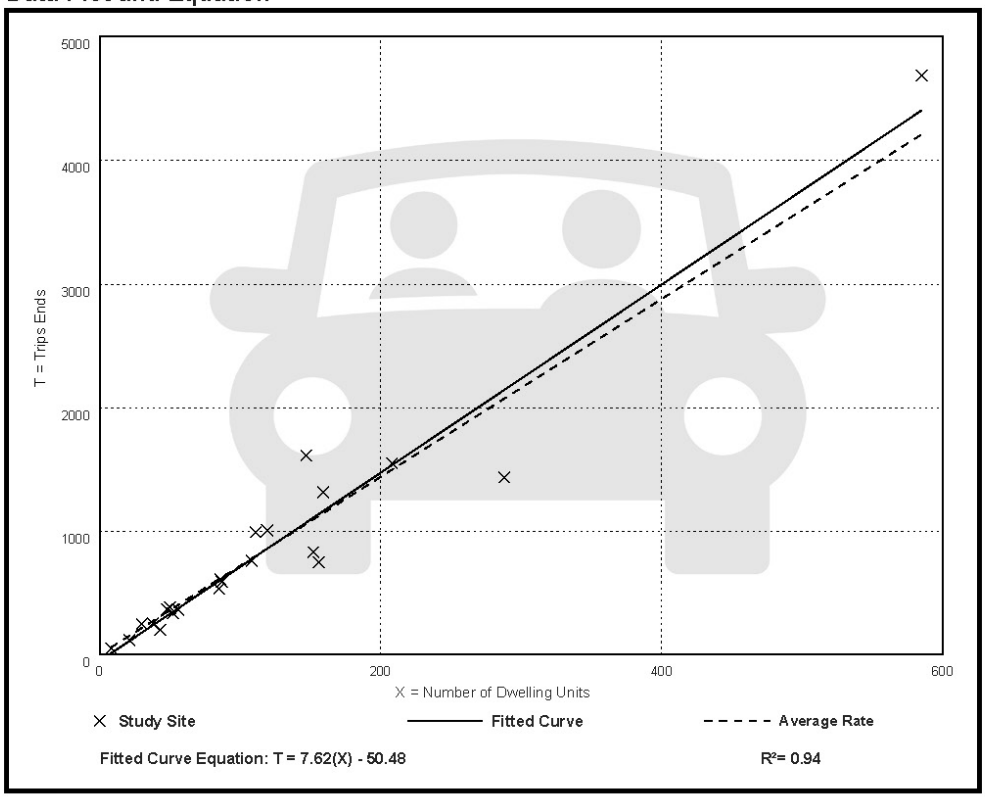
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 120
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.20	4.70 - 10.97	1.61

Data Plot and Equation



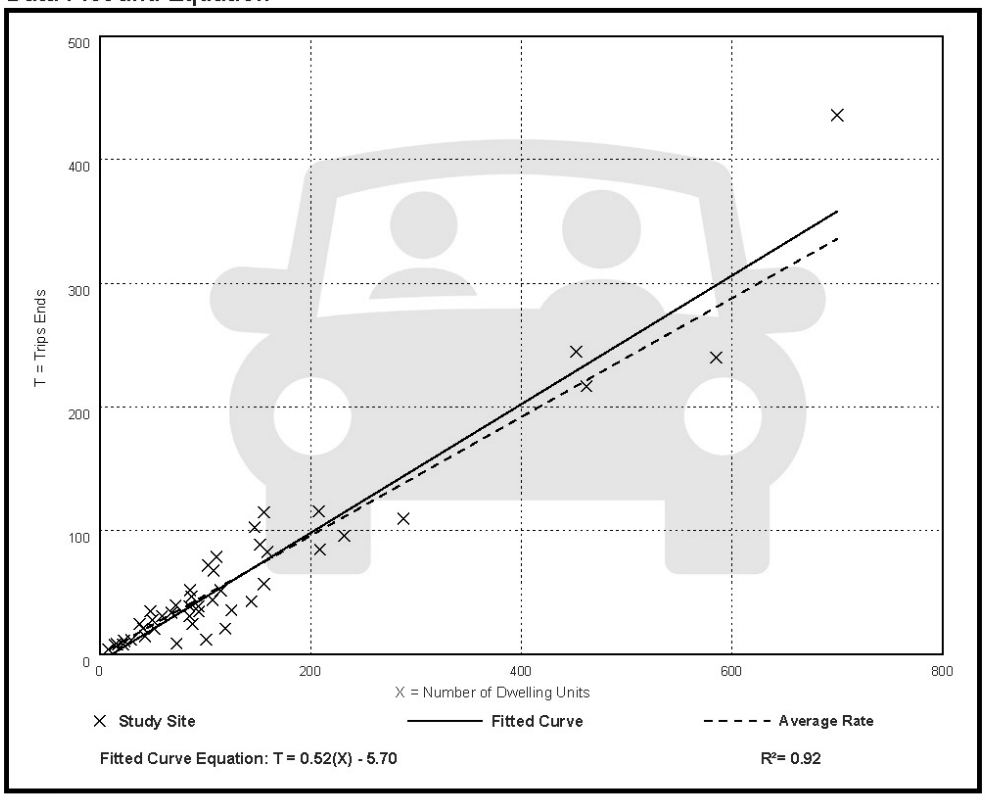
Single-Family Attached Housing
(215)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 46
Avg. Num. of Dwelling Units: 135
Directional Distribution: 31% entering, 69% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.48	0.12 - 0.74	0.14

Data Plot and Equation



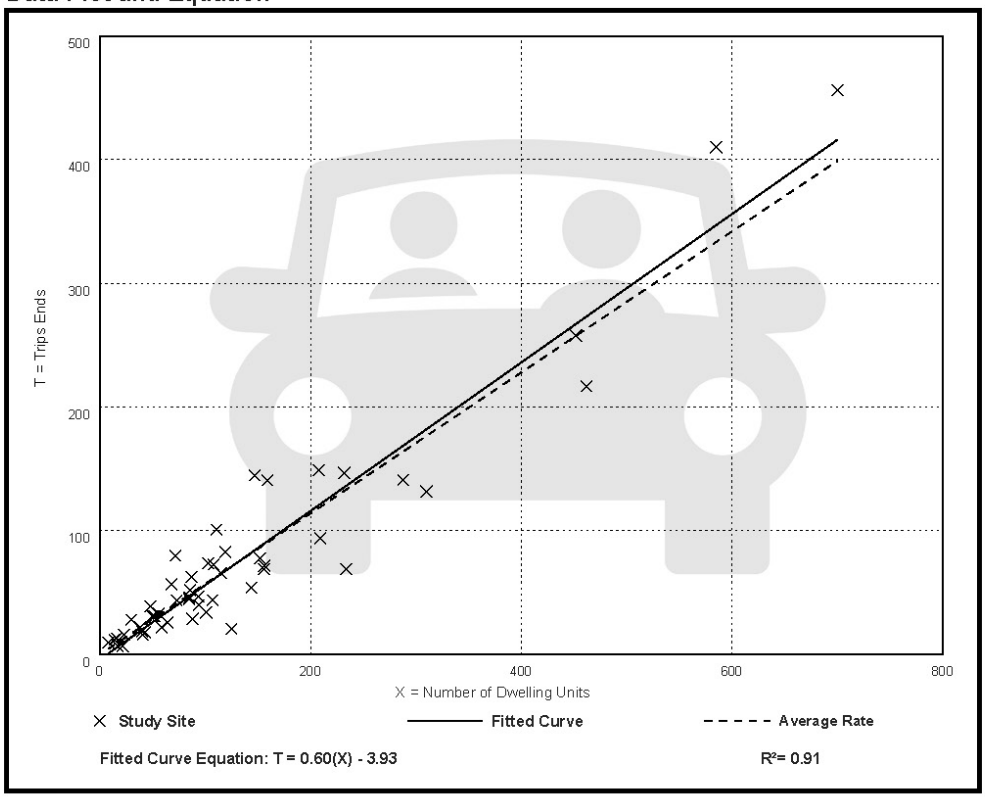
Single-Family Attached Housing
(215)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 51
Avg. Num. of Dwelling Units: 136
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.17 - 1.25	0.18

Data Plot and Equation



Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have two or three floors (levels). Various configurations fit this description, including walkup apartment, mansion apartment, and stacked townhouse.

- A walkup apartment typically is two or three floors in height with dwelling units that are accessed by a single or multiple entrances with stairways and hallways.
- A mansion apartment is a single structure that contains several apartments within what appears to be a single-family dwelling unit.
- A fourplex is a single two-story structure with two matching dwelling units on the ground and second floors. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.
- A stacked townhouse is designed to match the external appearance of a townhouse. But, unlike a townhouse dwelling unit that only shares walls with an adjoining unit, the stacked townhouse units share both floors and walls. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.

Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), affordable housing (Land Use 223), and off-campus student apartment (low-rise) (Land Use 225) are related land uses.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip

generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

For the three sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.72 residents per occupied dwelling unit.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1980s, the 1990s, the 2000s, the 2010s, and the 2020s in British Columbia (CAN), California, Delaware, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, and Washington.

Source Numbers

188, 204, 237, 300, 305, 306, 320, 321, 357, 390, 412, 525, 530, 579, 583, 638, 864, 866, 896, 901, 903, 904, 936, 939, 944, 946, 947, 948, 963, 964, 966, 967, 1012, 1013, 1014, 1036, 1047, 1056, 1071, 1076

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

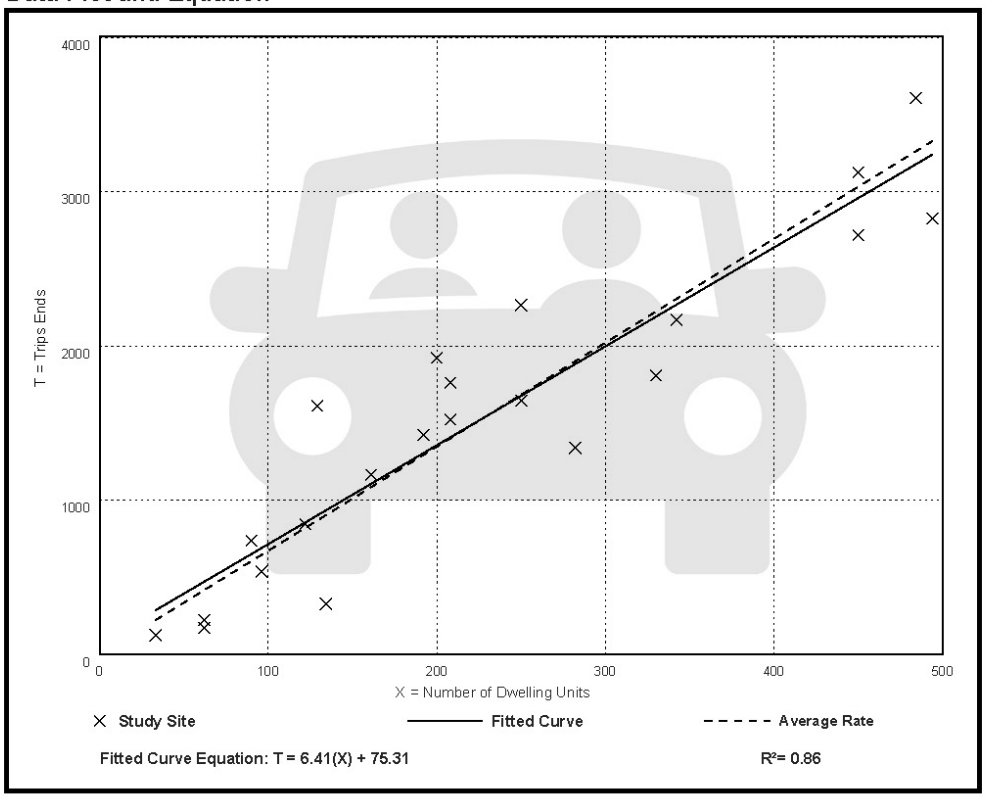
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



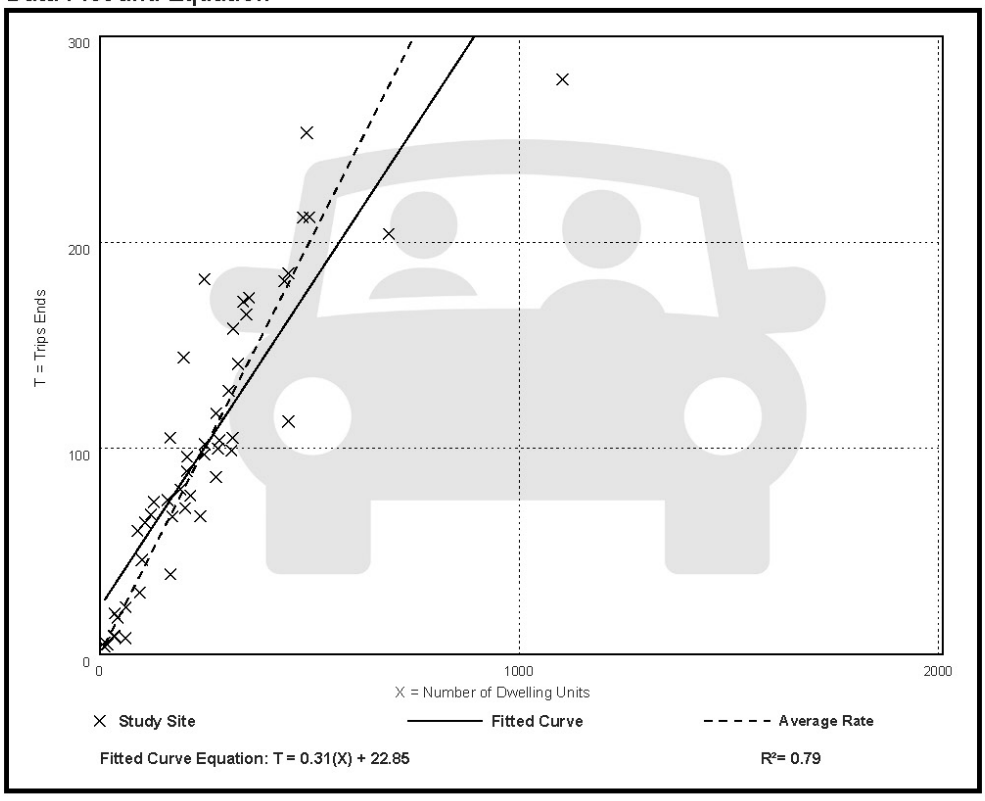
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



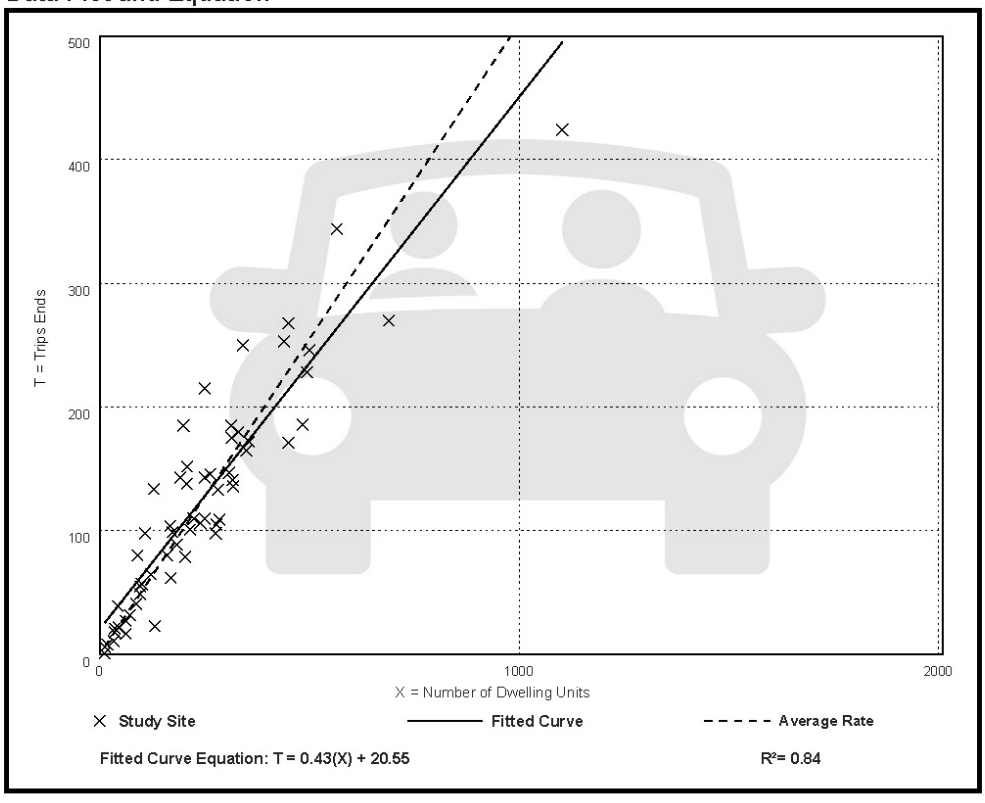
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 59
Avg. Num. of Dwelling Units: 241
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Land Use: 430
Golf Course

Description

A golf course is an expansive landscaped area that includes a series of golf holes, each consisting of a tee, fairway, and putting green. The site may have a driving range, clubhouse with a pro shop, restaurant, lounge, or banquet facility. Miniature golf course (Land Use 431), golf driving range (Land Use 432), and multipurpose recreational facility (Land Use 435) are related uses.

Additional Data

The golf courses in this land use are 9-, 18-, and 36-hole municipal courses.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, New Jersey, New York, Oregon, Pennsylvania, and Vermont.

Source Numbers

378, 407, 440, 629, 728, 925, 940, 970

Golf Course
(430)

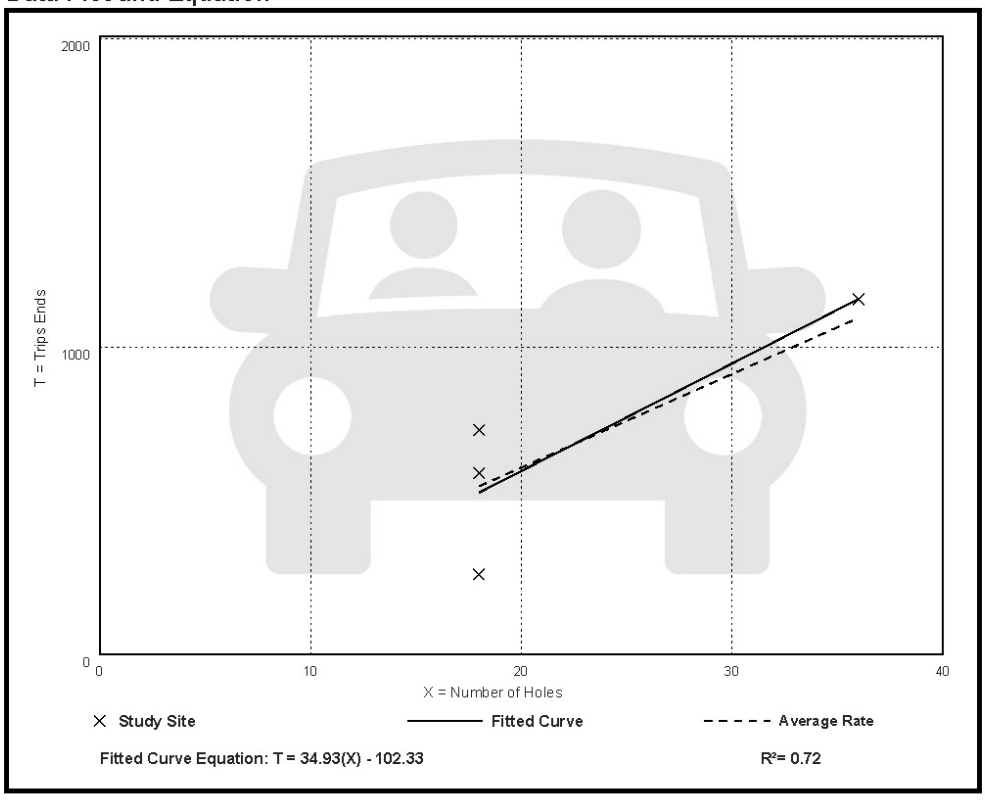
Vehicle Trip Ends vs: Holes
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 4
Avg. Num. of Holes: 23
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Hole

Average Rate	Range of Rates	Standard Deviation
30.38	14.50 - 40.50	9.88

Data Plot and Equation



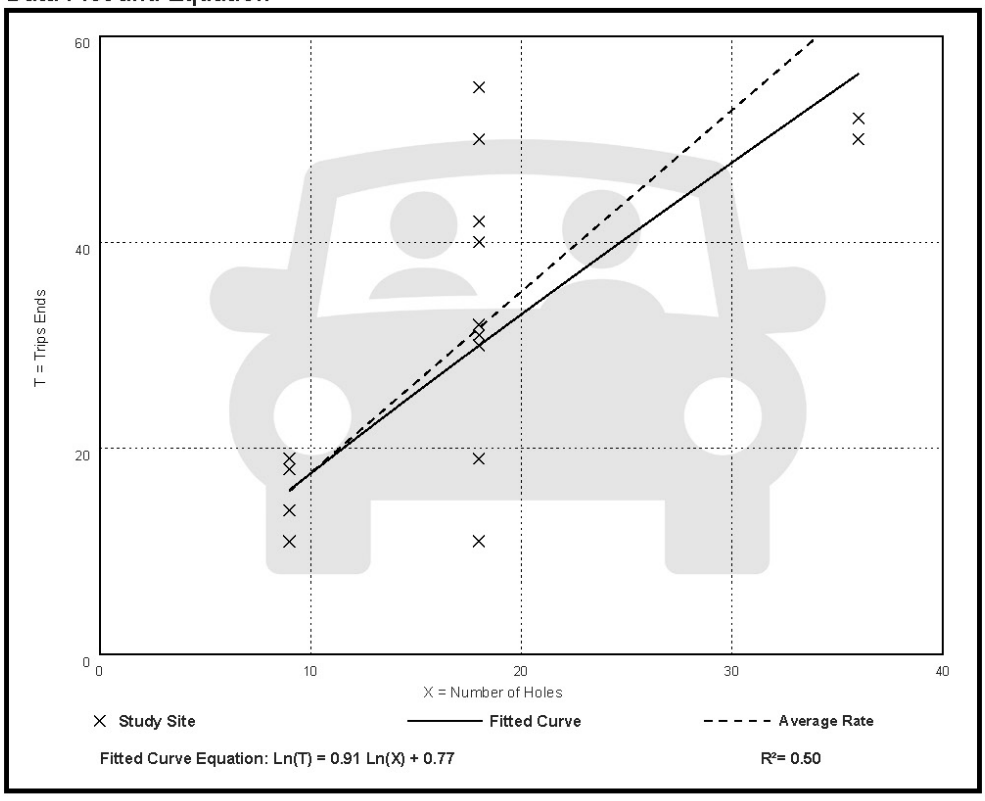
Golf Course
(430)

Vehicle Trip Ends vs: Holes
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 15
Avg. Num. of Holes: 18
Directional Distribution: 79% entering, 21% exiting

Vehicle Trip Generation per Hole

Average Rate	Range of Rates	Standard Deviation
1.76	0.61 - 3.06	0.64

Data Plot and Equation



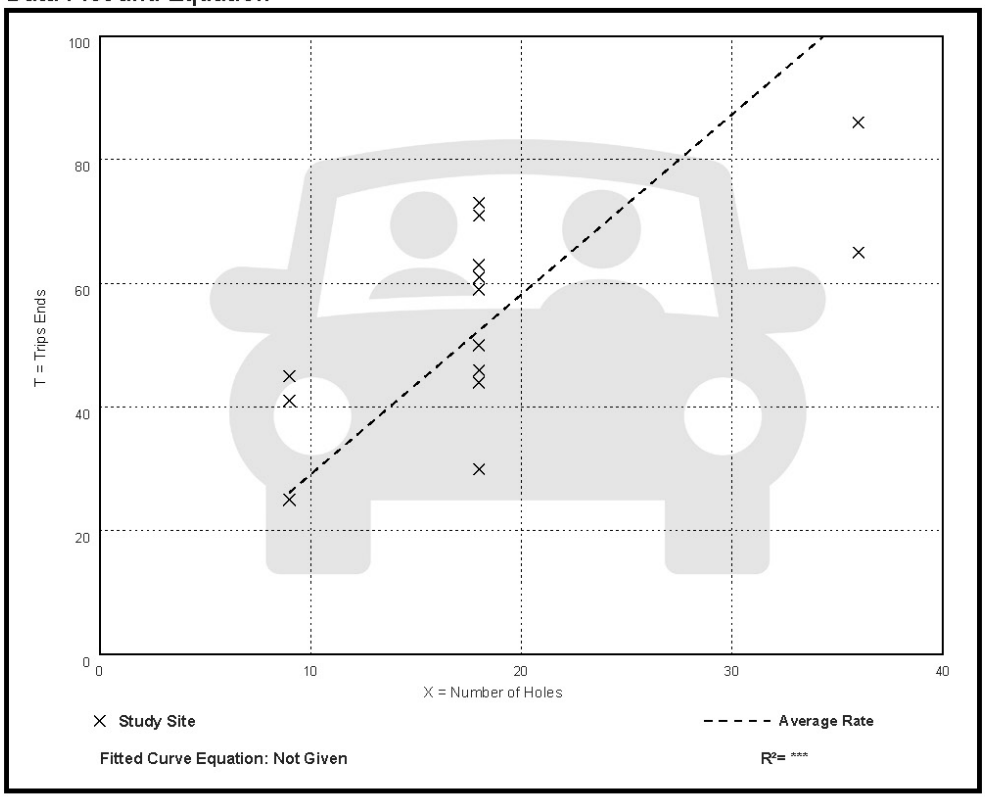
Golf Course
(430)

Vehicle Trip Ends vs: Holes
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 14
Avg. Num. of Holes: 19
Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per Hole

Average Rate	Range of Rates	Standard Deviation
2.91	1.67 - 5.00	0.93

Data Plot and Equation



Land Use: 492
Health/Fitness Club

Description

A health/fitness club is a privately-owned facility that primarily focuses on individual fitness or training. It typically provides exercise classes, fitness equipment, a weight room, spa, lockers rooms, and a small restaurant or snack bar. This land use may also include ancillary facilities, such as a swimming pool, whirlpool, sauna, limited retail, and tennis, pickle ball, racquetball, or handball courts. These facilities are membership clubs that may allow access to the general public for a fee. Racquet/tennis club (Land Use 491), athletic club (Land Use 493), and recreational community center (Land Use 495) are related uses.

Additional Data

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), Connecticut, New Jersey, Pennsylvania, Vermont, and Wisconsin.

Source Numbers

253, 571, 588, 598, 728, 926, 959, 971

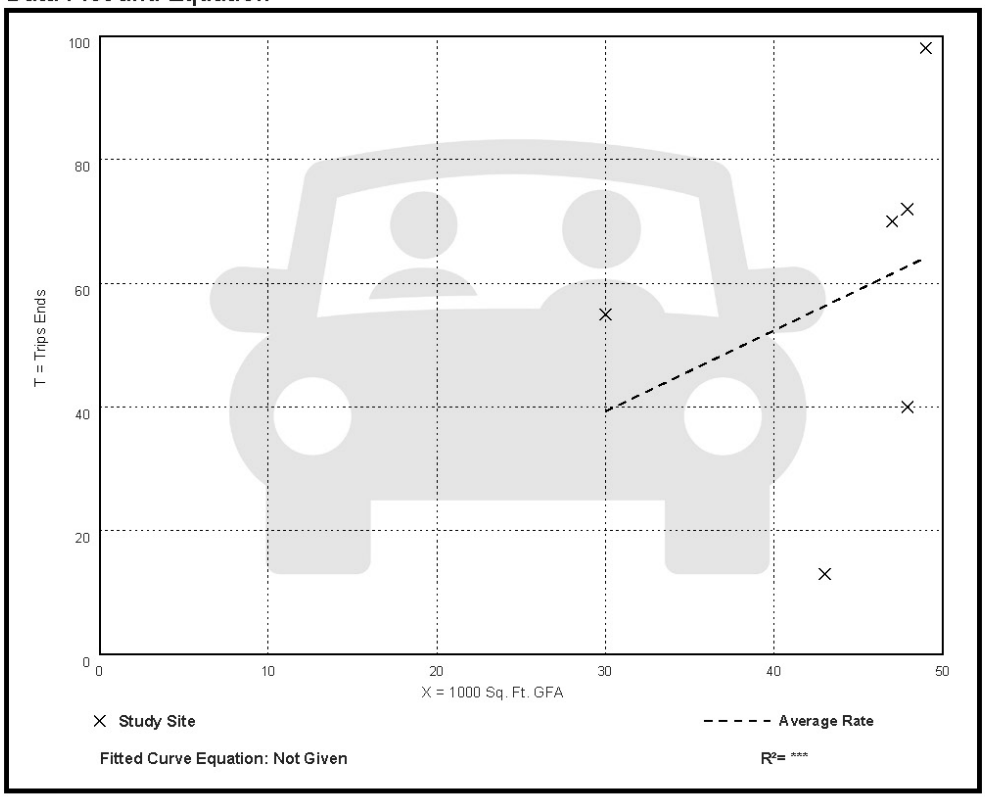
Health/Fitness Club
(492)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 44
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.31	0.30 - 2.00	0.64

Data Plot and Equation



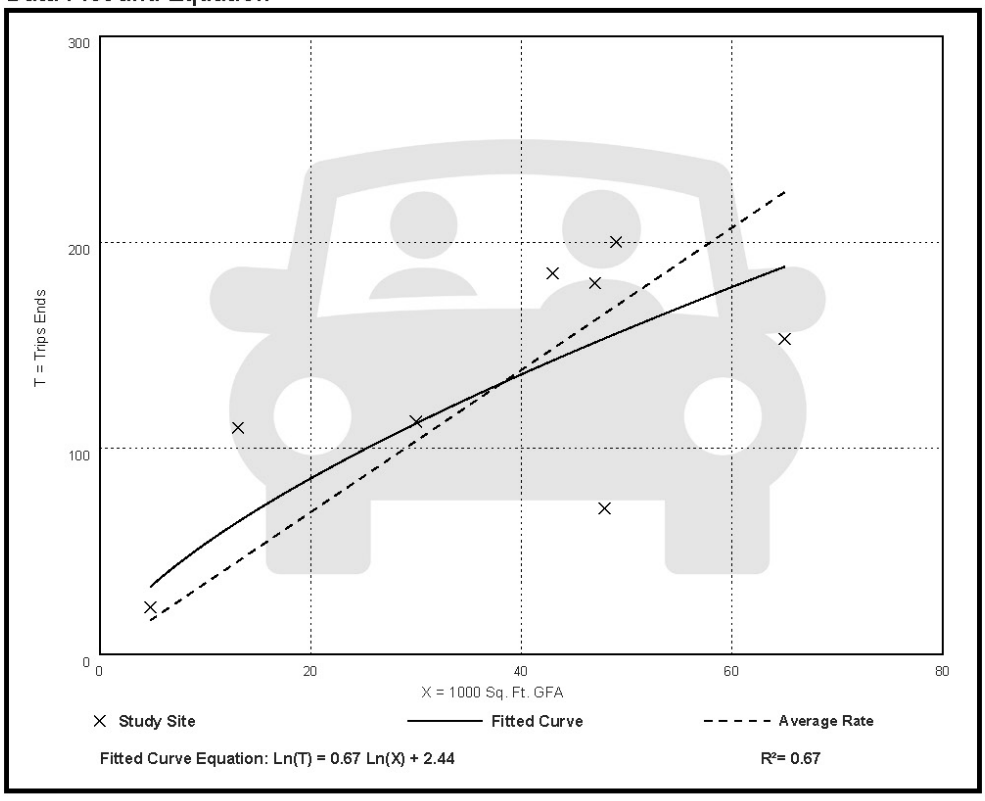
Health/Fitness Club
(492)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 8
Avg. 1000 Sq. Ft. GFA: 37
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.45	1.48 - 8.37	1.57

Data Plot and Equation



Land Use: 822
Strip Retail Plaza (<40k)

Description

A strip retail plaza is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. Each study site in this land use has less than 40,000 square feet of gross leasable area (GLA). Because a strip retail plaza is open-air, the GLA is the same as the gross floor area of the building.

The 40,000 square feet GFA threshold between strip retail plaza and shopping plaza (Land Use 821) was selected based on an examination of the overall shopping center/plaza database. No shopping plaza with a supermarket as its anchor is smaller than 40,000 square feet GLA.

Shopping center (>150k) (Land use 820), shopping plaza (40-150k) (Land Use 821), and factory outlet center (Land Use 823) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Delaware, Florida, New Jersey, Ontario (CAN), South Dakota, Vermont, Washington, and Wisconsin.

Source Numbers

304, 358, 423, 428, 437, 507, 715, 728, 936, 960, 961, 974, 1009

Strip Retail Plaza (<40k)
(822)

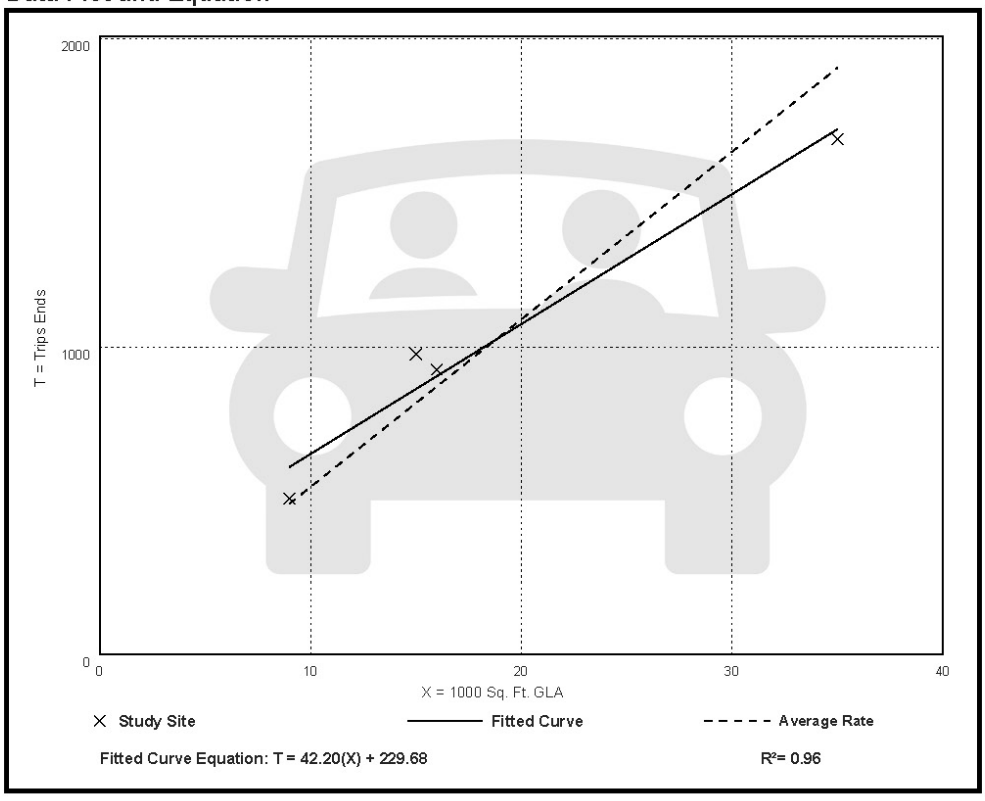
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 4
Avg. 1000 Sq. Ft. GLA: 19
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
54.45	47.86 - 65.07	7.81

Data Plot and Equation



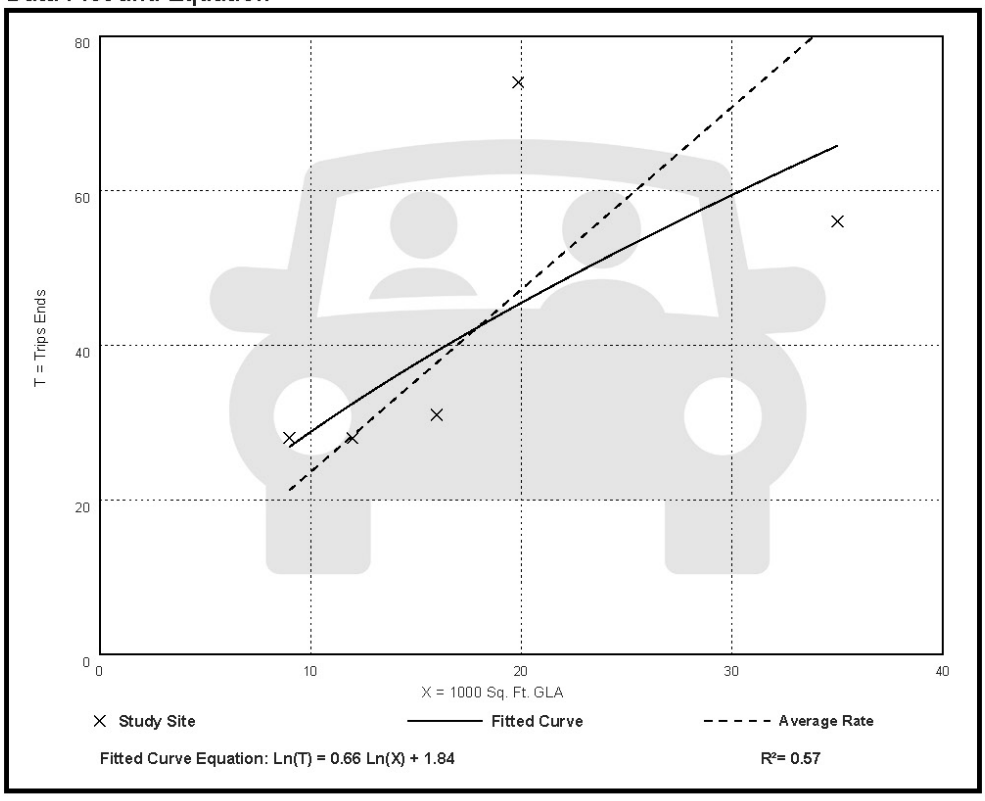
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 18
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation



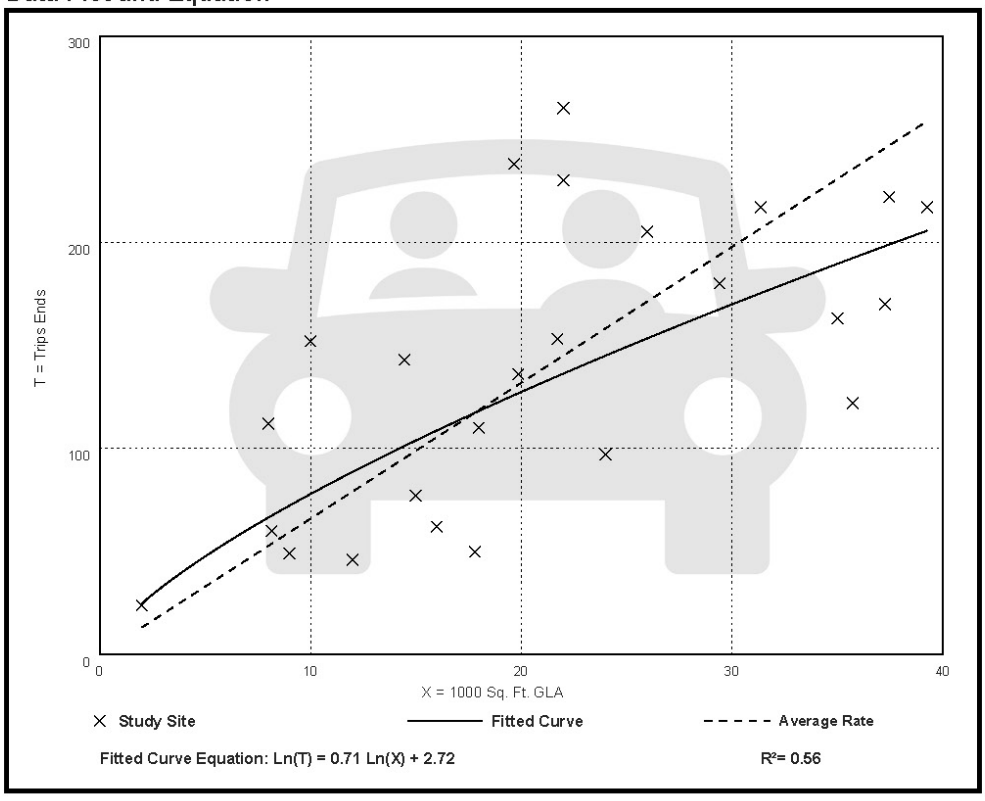
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 25
Avg. 1000 Sq. Ft. GLA: 21
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



Land Use: 932
High-Turnover (Sit-Down) Restaurant

Description

This land use consists of sit-down, full-service eating establishments with a typical duration of stay of 60 minutes or less. This type of restaurant is usually moderately priced, frequently belongs to a restaurant chain, and is commonly referred to as casual dining. Generally, these restaurants serve lunch and dinner; they may also be open for breakfast and are sometimes open 24 hours a day. These restaurants typically do not accept reservations. A patron commonly waits to be seated, is served by wait staff, orders from a menu, and pays after the meal.

Some facilities offer carry-out for a small proportion of its customers. Some facilities within this land use may also contain a bar area for serving food and alcoholic drinks.

Fast casual restaurant (Land Use 930), fine dining restaurant (Land Use 931), fast-food restaurant without drive-through window (Land Use 933), and fast-food restaurant with drive-through window (Land Use 934) are related uses.

Additional Data

Users should exercise caution when applying statistics during the AM peak periods, as the sites contained in the database for this land use may or may not be open for breakfast. In cases where it was confirmed that the sites were not open for breakfast, data for the AM peak hour of the adjacent street traffic were removed from the database.

If the restaurant has outdoor seating, its area is not included in the overall gross floor area. For a restaurant that has significant outdoor seating, the number of seats may be more reliable than GFA as an independent variable on which to establish a trip generation rate.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Florida, Georgia, Indiana, Kentucky, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Vermont, and Wisconsin.

Source Numbers

126, 269, 275, 280, 300, 301, 305, 338, 340, 341, 358, 384, 424, 432, 437, 438, 444, 507, 555, 577, 589, 617, 618, 728, 868, 884, 885, 903, 927, 939, 944, 961, 962, 977, 1048

High-Turnover (Sit-Down) Restaurant (932)

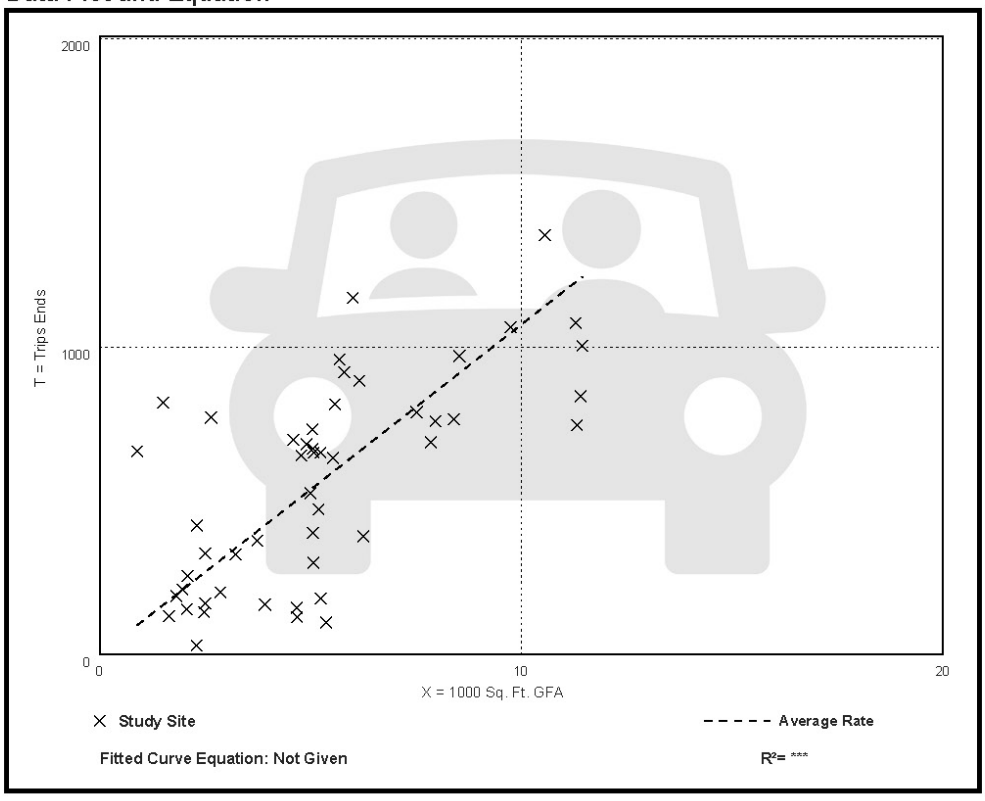
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 50
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
107.20	13.04 - 742.41	66.72

Data Plot and Equation



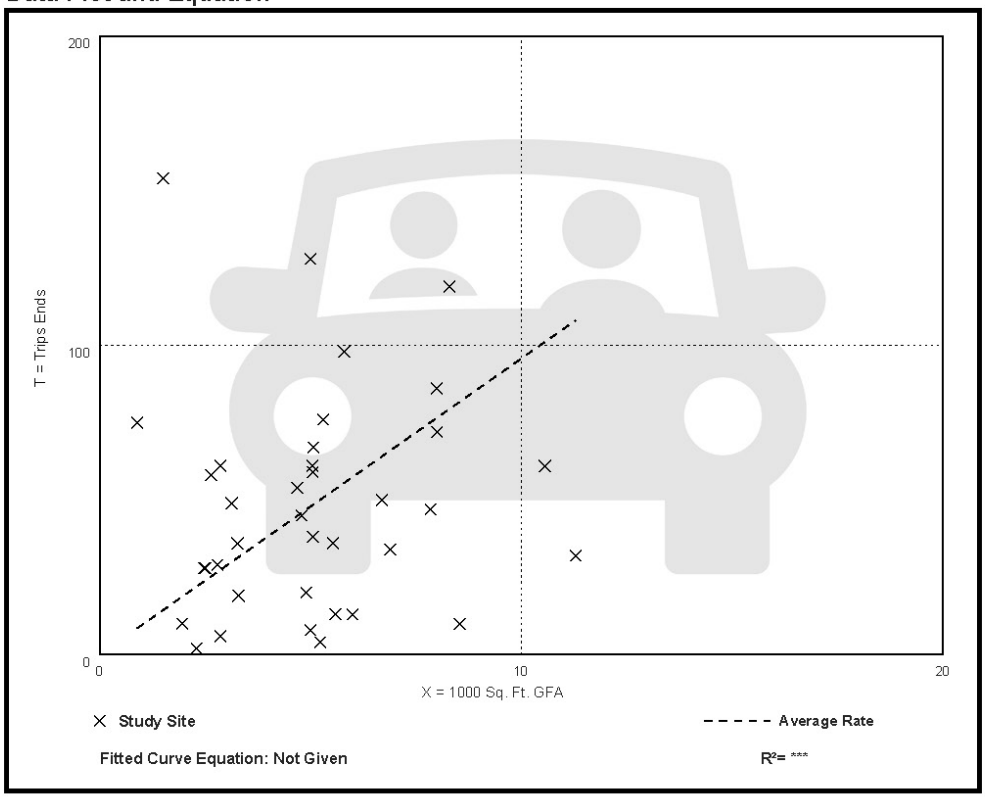
High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 37
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



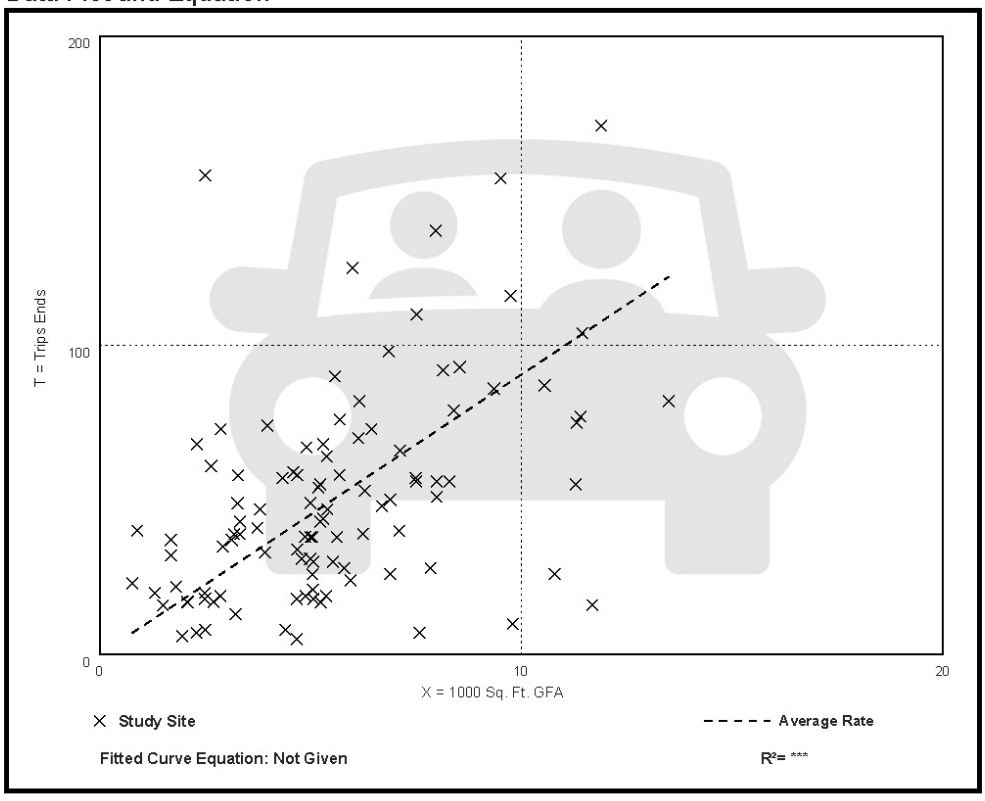
High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 104
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.05	0.92 - 62.00	6.18

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: Seats
On a: Weekday

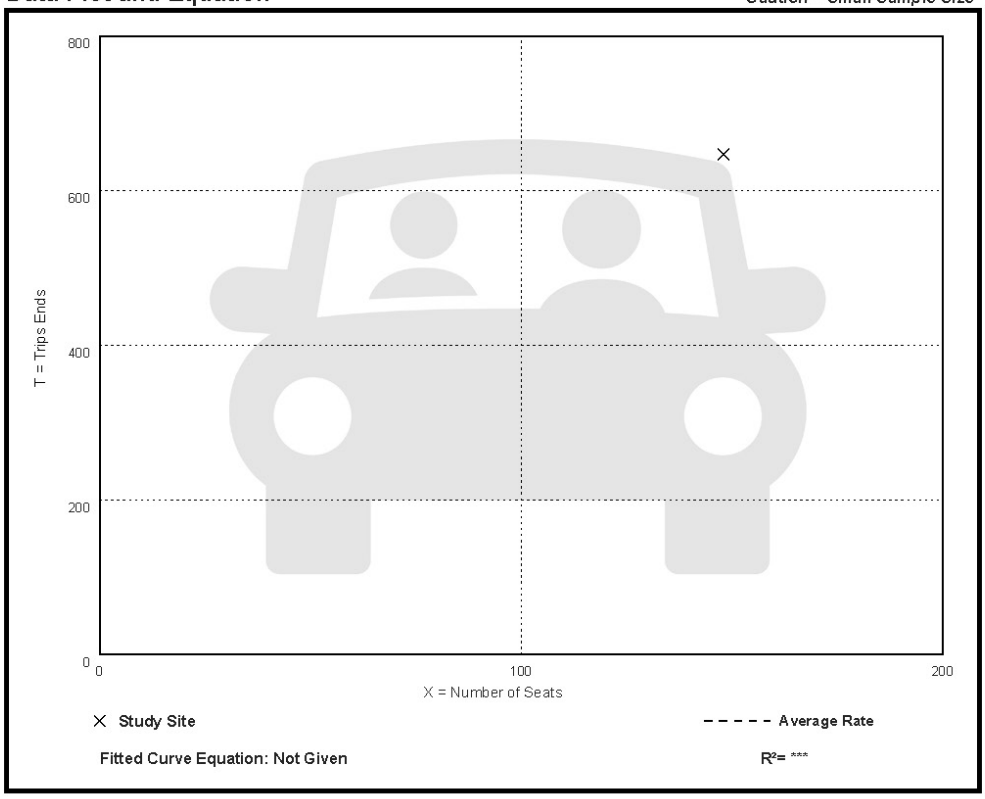
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. Num. of Seats: 148
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
4.37	4.37 - 4.37	***

Data Plot and Equation

Caution – Small Sample Size



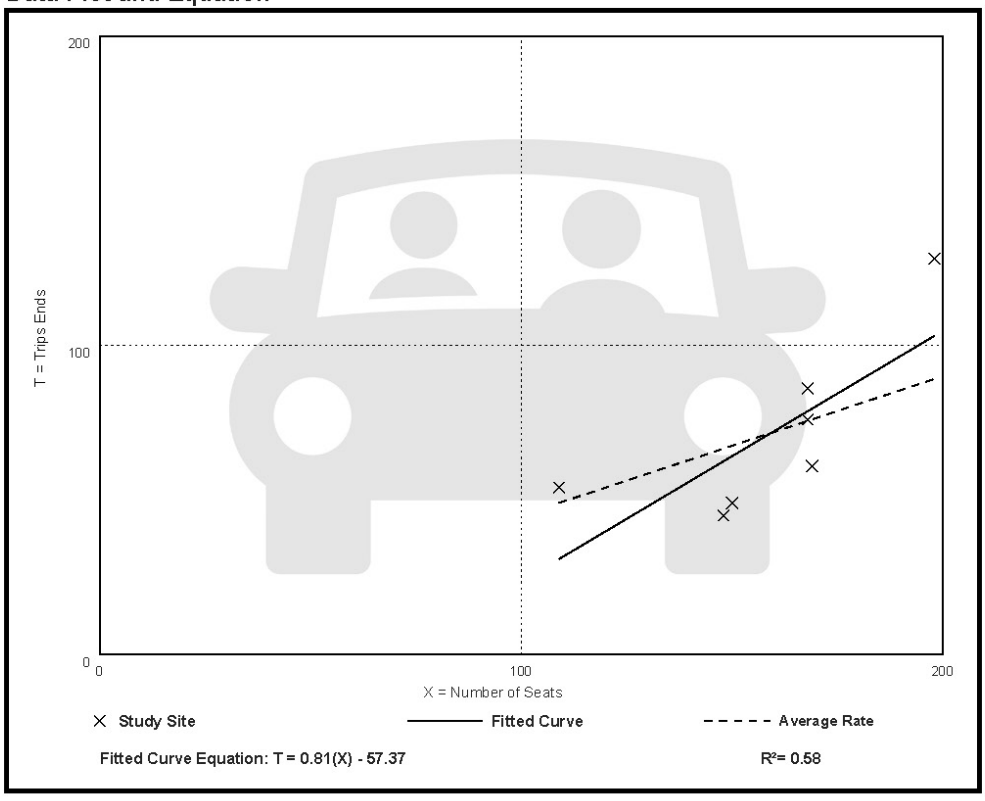
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: Seats
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 7
Avg. Num. of Seats: 159
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.45	0.30 - 0.65	0.13

Data Plot and Equation



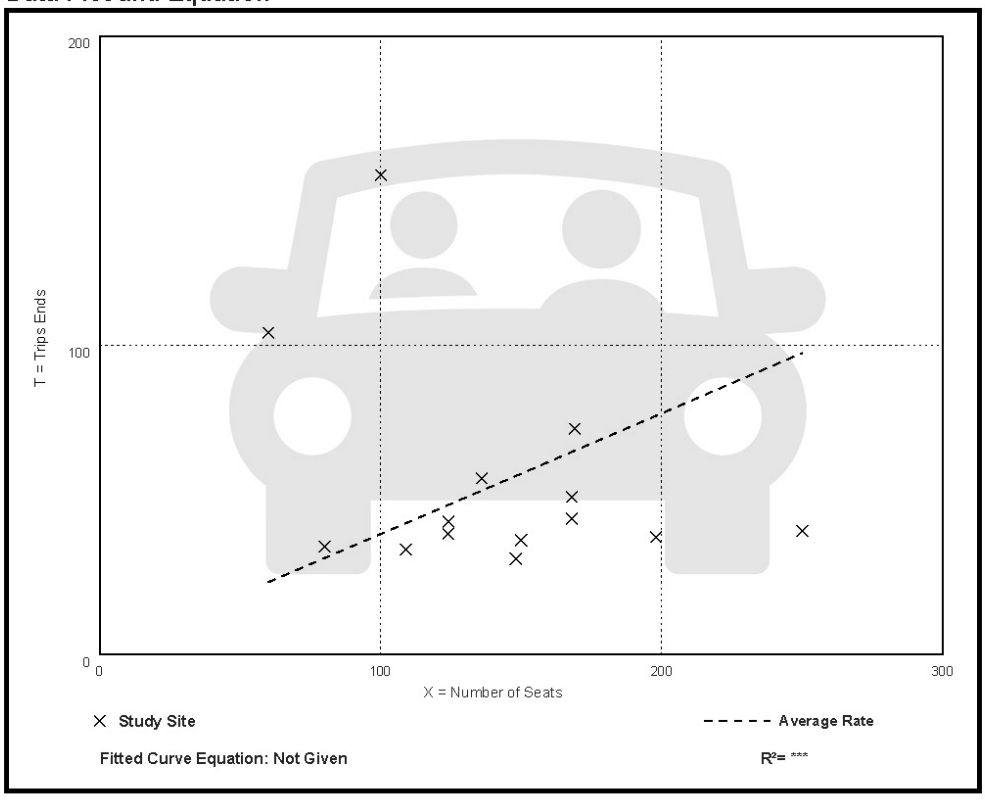
High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: Seats
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 14
Avg. Num. of Seats: 142
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per Seat

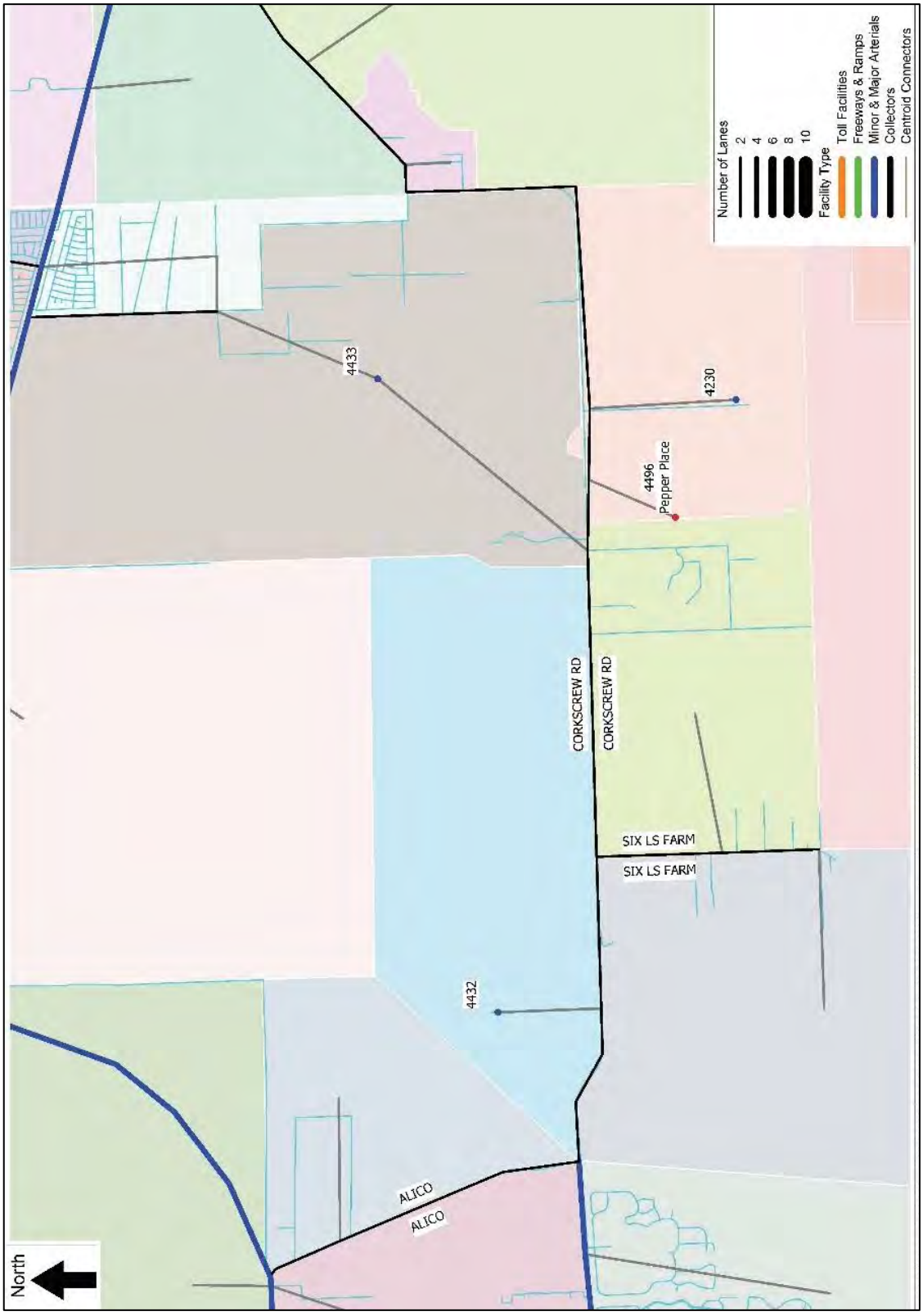
Average Rate	Range of Rates	Standard Deviation
0.39	0.16 - 1.73	0.39

Data Plot and Equation



Appendix D:

D1RPM Inputs and Outputs


Number of Lanes
2
4
6
8
10
Facility Type
Toll Facilities
Freeways & Ramps
Minor & Major Arterials
Collectors
Centroid Connectors
4433
4230
4496
Pepper Place
CORKSCREW RD
CORKSCREW RD
SIX LS FARM
SIX LS FARM
4432
ALICO
ALICO
North

Land Use	Total Size	Units	Employees per Unit	SF	MF	Industrial Employees	Commercial Employees	Service Employees	Students
Single Family Detached Dus	121	DUs		121					
Single Family Attached DUs	172	DUs			172				
Multi-Family Dus	108	DUs			108				
Retail	29,800	SF	3				89		
Golf Course	18	Holes	1					18	
Fitness/Health Club	25,000	1000 SF	3					75	
Restaurant	10,200	1000 SF	3					31	
			Total	121	280	0	89	124	0

Employees per Unit from FDOT Transportation Site Impact Handbook Exhibit 19

Exhibit 19

Land Use Conversion Rates for Traffic Impact Assessments

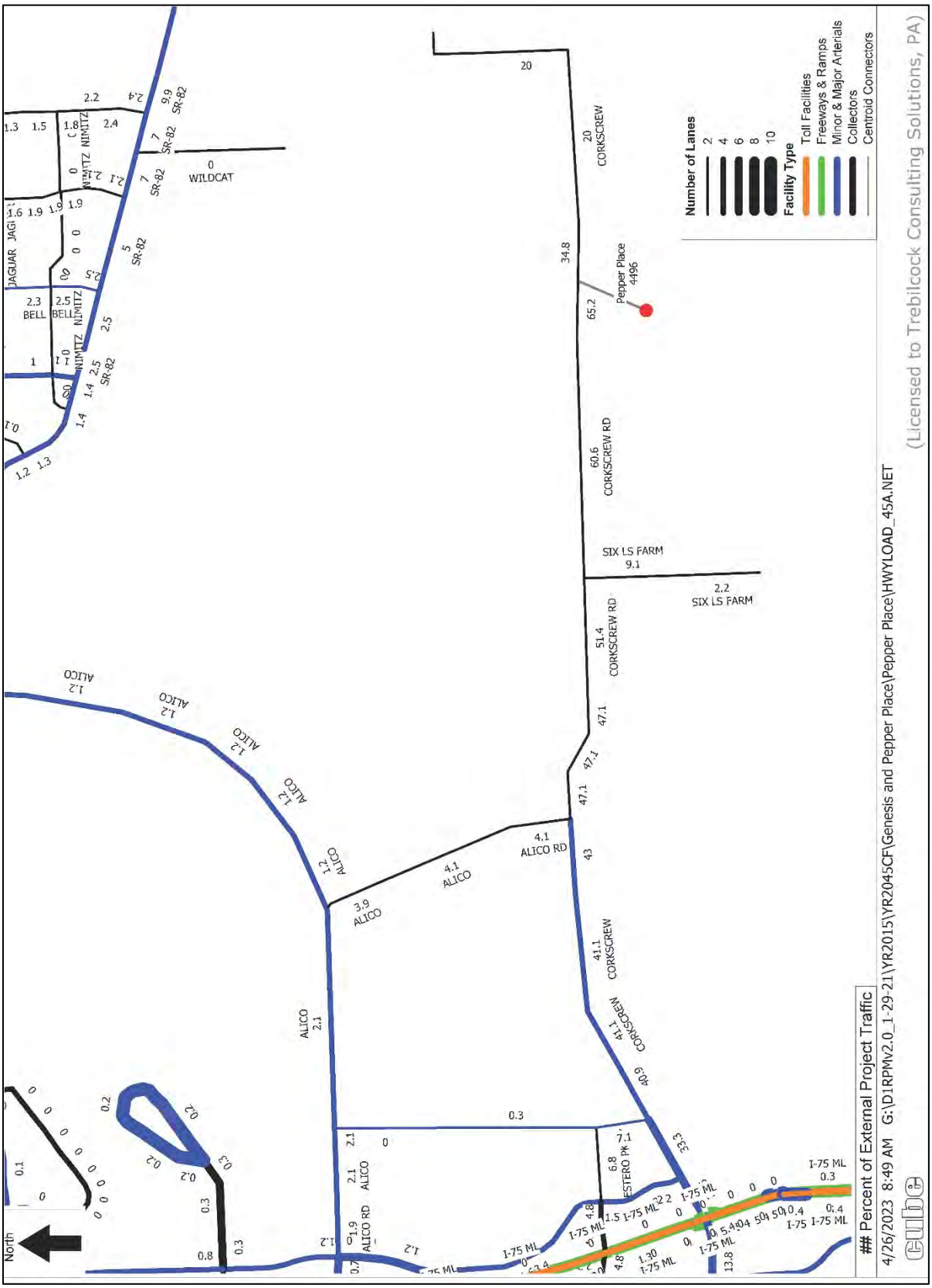
Land Use	Conversion Rate*
Single-Family Dwelling Unit	3 persons per DU
Multi-Family Dwelling Unit	2 persons per DU
Office	4 service employees per 1,000 sq ft
Hospital	3 service employees per 1,000 sq ft
Retail <200k sq ft	2 - 3 commercial employees per 1,000 sq ft
Large Retail	1.5 - 2 commercial employees per 1,000 sq ft
Industrial	2 industrial employees per 1,000 sq ft
Warehousing	1 industrial employee per 1,000 sq ft
Hotel	.5 - 1 service employee per room

*This data is a compilation of "Rules of Thumb" and calculations using the ITE *Trip Generation Manual*. These conversion rates should only be considered when local data, FDOT District guidance or more specific knowledge is not available.

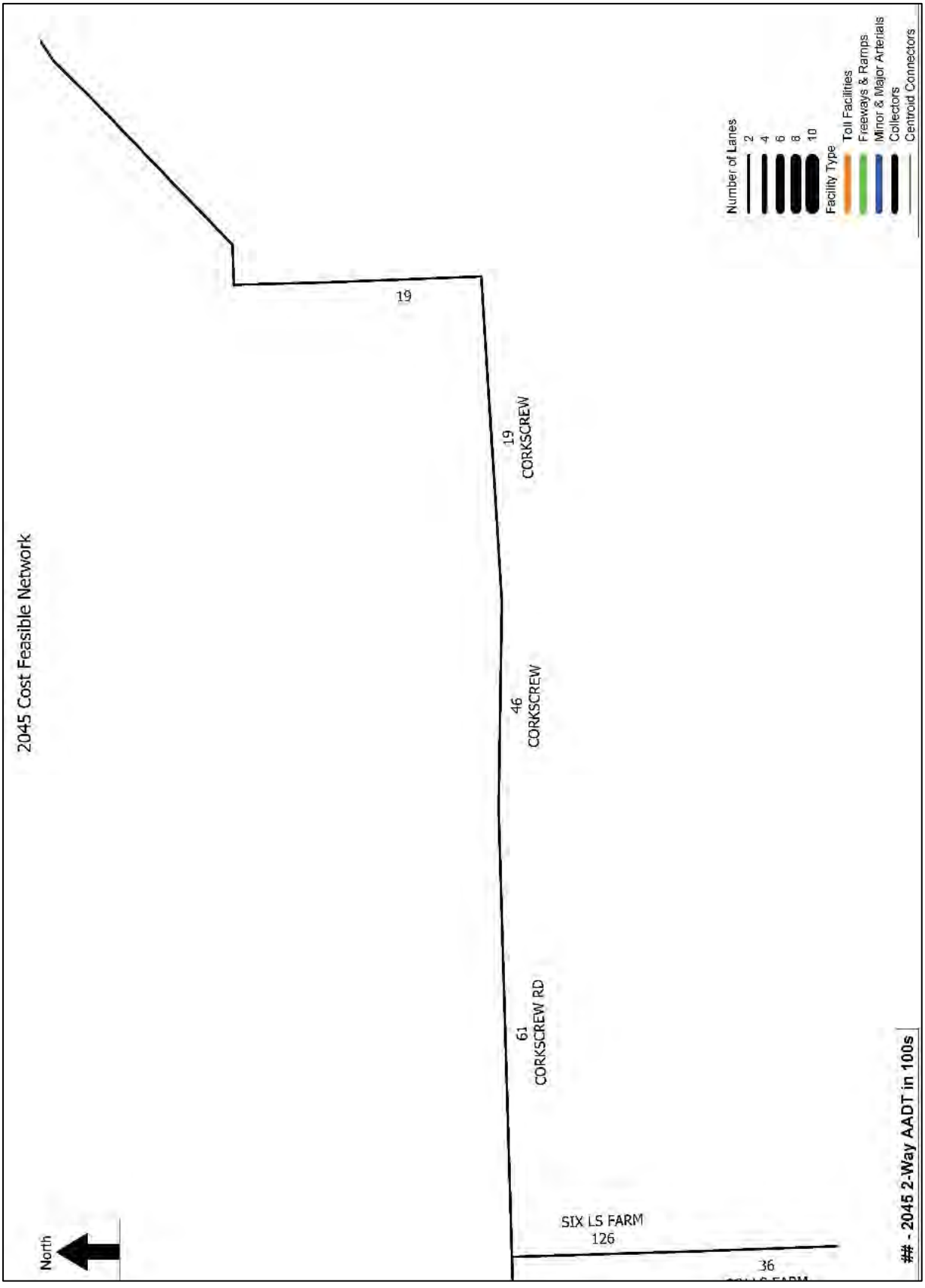
Year	TAZ 15	TAZ 10	CC	COUNTY NAME	ZONE	ST CNTY	SFDU	SF PCT VAC	SF PCT VNP	SF POP	SF POP DU	SF 0 AUTO	SF 1 AUTO	SF 2 AUTO	MF DU	MF PCT VAC	MF PCT VNP	MF POP	MF POP DU	MF 0 AUTO	MF 1 AUTO	MF 2 AUTO
2045	4432	4007	9	LEE	4432	12071	1571	15	17	3284	2.09	5	30	65	0	17	21	0	1	0	29	71
2045	4433	4007	9	LEE	4433	12071	387	15	17	818	2.11	5	30	65	2	17	21	6	3	0	29	71
2045	4230	3728	9	LEE	4230	12071	668	7	7	1393	2.09	0	53	47	0	0	0	0	2	8	43	49
Source AVERAGE						12071		12	14		2.1	3	38	59		11	14		2	3	34	64
New	4496		9	LEE	4496	12071	121	12	14	254	2.1	3	38	59	280	11	14	560	2	3	34	64

Year	TAZ 15	RESD HHLD	RESD POP	POP P HHLD	HH IN-COME	HH INC INDEX	HHLD SIZE	WRKR P HHLD	WORK-ERS	IND EMP	COMM EMP	SERV EMP	TOT EMP	HM DU	HM OCC	HM POP	SCHOOL	UNI-VERS-ITY	SHORT PARK	LONG PARK
2045	4432	1571	3284	2.09	40027	1023	1.5	0.76	1194	0	0	31	31	0	0	0	0	0	0	0
2045	4433	389	824	2.12	40027	1023	2.1	1.2	467	22	7	17	46	0	0	0	0	0	0	0
2045	4230	668	1393	2.09	47014	760	1.73	0.85	568	0	0	16	16	0	0	0	0	0	0	0
Source AVERAGE					42356	935	1.78	0.94												
New	4496	401	814	2.03	42356	935	1.78	0.94	377	0	89	124	213	0	87	0	0	0	0	0

Project Traffic Distribution Percentage



D1RPM 2045 AADT in 100s



Appendix E:

Lee County 2022 Concurrency Report Excerpt

Table 21 b): Link-Level Service Volumes and LOS Table

Table 21 b) 2 of 7

LEE COUNTY ROAD LINK VOLUMES (County- and State-Maintained Roadways)															
Link No.	NAME	ROADWAY LINK		F. Class	ROAD TYPE	PERFORMANCE STANDARD		2021 100TH HIGHEST HOUR			FUTURE FORECAST (2026)			Notes
		FROM	TO			LOS	DIRECTIONAL CAPACITY	LOS	VOL	V/C	LOS	VOL	V/C	
04800	CEMETERY RD	BUCKINGHAM RD	HIGGINS AVE	Maj. Col	2LN	E	860	C	308	0.36	C	323	0.38	
04900	CHAMBERLIN PKWY	AIRPORT ENT	DANIELS PKWY	Maj. Col	4LN	E	1,790	C	105	0.06	C	150	0.08	Port Authority maintained
05000	COCONUT RD	WEST END	VIA VENETTO BLVD	Maj. Col	2LN	E	860	C	268	0.31	C	420	0.49	Estero maintains to east
05100	COLLEGE PKWY	McGREGOR BLVD	WINKLER RD	P. Art	6LD	E	2,980	D	2,292	0.77	D	2,409	0.81	*
05200	COLLEGE PKWY	WINKLER RD	WHISKEY CREEK DR	P. Art	6LD	E	2,980	D	2,059	0.69	D	2,164	0.73	
05300	COLLEGE PKWY	WHISKEY CREEK DR	SUMMERLIN RD	P. Art	6LD	E	2,980	D	2,059	0.69	D	2,164	0.73	
05400	COLLEGE PKWY	SUMMERLIN RD	US 41	P. Art	6LD	E	2,980	D	1,898	0.64	D	1,995	0.67	
05500	COLONIAL BLVD	McGREGOR BLVD	SUMMERLIN RD	P. Art	6LD	E	2,840	F	3,049	1.07	F	3,204	1.13	*
05600	COLONIAL BLVD	SUMMERLIN RD	US 41	P. Art	6LD	E	2,840	D	2,650	0.93	D	2,785	0.98	
06200	COLONIAL BLVD	DYNASTY DR	SR 82	P. Art	6LD	D	3,040	B	2,070	0.68	C	2,175	0.72	*
06300	COLUMBUS BLVD	SR 82	MILWAUKEE BLVD	Maj. Col	2LN	E	860	C	100	0.12	C	105	0.12	old count
06400	CONSTITUTION BLVD	US 41	CONSTITUTION CIR	Maj. Col	2LN	E	860	C	217	0.25	C	245	0.28	old count projection(2010)
06500	CORBETT RD	SR 78 (PINE ISLAND RD)	LITTLETON RD	Maj. Col	2LN	E	860	C	22	0.03	C	226	0.26	old count, added VA clinic(2009)
06600	CORKSCREW RD	US 41	THREE OAKS PKWY	P. Art	4LD	E	1,900	C	1,047	0.55	C	1,312	0.69	Galleria at Corkscrew
06700	CORKSCREW RD	THREE OAKS PKWY	W OF I-75	P. Art	4LD	E	1,900	F	2,129	1.12	F	2,368	1.25	Estero Crossing
06800	CORKSCREW RD	E OF I-75	BEN HILL GRIFFIN BLVD	P. Art	4LD	E	1,900	C	1,069	0.56	C	1,281	0.67	
06900	CORKSCREW RD	BEN HILL GRIFFIN BLVD	ALICO RD	P. Art	4LD	E	1,960	C	1,186	0.61	C	1,398	0.71	
07000	CORKSCREW RD	ALICO RD	COUNTY LINE	P. Art	2LN	E	1,140	C	464	0.41	F	1,244	1.09	EEPCO Study, The Place
07100	COUNTRY LAKES BLVD	LUCKETT RD	TICE ST	Maj. Col	2LN	E	860	C	143	0.17	C	293	0.34	old count projection(2010)
07200	CRYSTAL DR	US 41	METRO PKWY	Maj. Col	2LN	E	860	C	360	0.42	C	379	0.44	
07300	CRYSTAL DR	METRO PKWY	PLANTATION RD	Maj. Col	2LN	E	860	C	242	0.28	C	254	0.30	
07400	CYPRESS LAKE DR	McGREGOR BLVD	SOUTH POINT BLVD	P. Art	4LD	E	1,940	D	1,129	0.58	D	1,186	0.61	
07500	CYPRESS LAKE DR	SOUTH POINT BLVD	WINKLER RD	P. Art	4LD	E	1,940	D	1,419	0.73	D	1,491	0.77	
07600	CYPRESS LAKE DR	WINKLER RD	SUMMERLIN RD	P. Art	4LD	E	1,940	D	1,419	0.73	D	1,491	0.77	
07700	CYPRESS LAKE DR	SUMMERLIN RD	US 41	P. Art	6LD	E	2,940	D	2,085	0.71	D	2,191	0.75	
07800	DANIELS PKWY	US 41	METRO PKWY	Controlled xs	6LD	E	2,680	D	2,288	0.85	D	2,405	0.90	
07900	DANIELS PKWY	METRO PKWY	SIX MILE PKWY	Controlled xs	6LD	E	2,680	D	2,109	0.79	E	2,520	0.94	Constrained
08000	DANIELS PKWY	SIX MILE PKWY	PALOMINO LN	Controlled xs	6LD	E	3,040	E	2,985	0.98	F	3,256	1.07	Constrained
08100	DANIELS PKWY	PALOMINO LN	I-75	Controlled xs	6LD	E	3,040	E	2,985	0.98	F	3,137	1.03	Constrained
08200	DANIELS PKWY	I-75	TREELINE AVE	Controlled xs	6LD	E	3,260	B	2,996	0.92	B	3,149	0.97	
08300	DANIELS PKWY	TREELINE AVE	CHAMBERLIN PKWY	Controlled xs	6LD	E	3,260	B	2,996	0.92	B	3,149	0.97	
08400	DANIELS PKWY	CHAMBERLIN PKWY	GATEWAY BLVD	Controlled xs	6LD	E	3,260	B	2,765	0.85	B	2,906	0.89	
08500	DANIELS PKWY	GATEWAY BLVD	SR 82	Controlled xs	4LD	E	2,160	F	2,163	1.00	F	2,307	1.07	SKY Walk *
08600	DANLEY DR	US 41	METRO PKWY	Maj. Col	2LN	E	860	C	255	0.30	C	286	0.33	
08700	DAVIS RD	McGREGOR BLVD	IONA RD	Maj. Col	2LN	E	860	C	15	0.02	C	29	0.03	old count projection(2010)
08800	DEL PRADO BLVD	CAPE CORAL PKWY	SE 46TH ST	P. Art	6LD	E	2,660	C	1,404	0.53	C	1,586	0.60	old count projection(2009)
08900	DEL PRADO BLVD	SE 46TH ST	CORONADO PKWY	P. Art	6LD	E	2,660	C	1,404	0.53	C	1,586	0.60	old count projection(2009)
09000	DEL PRADO BLVD	CORONADO PKWY	CORNWALLIS PKWY	P. Art	6LD	E	2,660	D	1,869	0.70	D	1,964	0.74	
09100	DEL PRADO BLVD	CORNWALLIS PKWY	CORAL POINT DR	P. Art	6LD	E	2,660	D	2,565	0.96	F	2,696	1.01	
09200	DEL PRADO BLVD	CORAL POINT DR	HANCOCK B. PKWY	P. Art	6LD	E	2,800	D	1,997	0.71	D	2,098	0.75	
09300	DEL PRADO BLVD	HANCOCK B. PKWY	SR 78	P. Art	6LD	E	2,800	C	1,642	0.59	C	1,725	0.62	*
09400	DEL PRADO BLVD	US 41	SLATER RD	M. Art	2LN	E	860	C	489	0.57	D	742	0.86	Crane Landing
09700	EAST 21ST ST	JOEL BLVD	GRANT AVE	Min. Col	2LN	E	860	C	31	0.04	C	33	0.04	*
09800	ESTERO BLVD	BIG CARLOS PASS BRIDGE	PESCADORA AVE	M. Art	2LN	E	726	A	356	0.49	A	374	0.52	Constrained*
09900	ESTERO BLVD	PESCADORA AVE	VOORHIS ST	M. Art	2LN	E	726	B	602	0.83	C	633	0.87	Constrained*
10000	ESTERO BLVD	VOORHIS ST	TROPICAL SHORES WAY	M. Art	2LN	E	726	B	602	0.83	C	633	0.87	Constrained*
10100	ESTERO BLVD	TROPICAL SHORES WAY	CENTER ST	M. Art	2LN	E	671	F	716	1.07	F	779	1.16	Constrained, old count(2010)
00007	ESTERO PKWY	US 41	THREE OAKS PKWY	P. Art	4LD	E	2,000	B	861	0.43	B	1,154	0.58	Not County Mntnd

Appendix F:

Lee County 2021 Traffic Count Report (Excerpts)

Updated 3/31/22			Daily Traffic Volume (AADT)									
STREET	LOCATION	Station #	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
COLLEGE PKWY	W OF SOUTH POINTE BLVD	83				38000	40900					
COLLEGE PKWY	E OF WINKLER RD	43	30400	31700	32300	36100	37600	37100	37200	37500		
COLLEGE PKWY	W OF NEW BRITTANY	87				33500	33300			32200	28900	
COLLEGE PKWY	E OF KENWOOD LN	237			26900							
COLONIAL BLVD	E OF SUMMERLIN RD	14	51500	52500	53100	54600	55600	55900	56900	56500	51100	57700
COLONIAL BLVD	W OF WINKLER AVE	78				56000						
COLONIAL BLVD	W OF TREELINE AVE	91				45100	45500			48300	53400	
COLONIAL BLVD	W OF IMMOKALEE RD	246		35400	39500	41500		43000				44500
CORKSCREW RD	E OF US 41	247		14300		16600		17000		20000		20800
CORKSCREW RD	W OF I - 75	15	29500	28800	30600	31600	33400	34200	36500	39500		
CORKSCREW RD	E OF I - 75			13000								
CORKSCREW RD	E OF I-75	70		21900	21900	22000	22200	22000	22900	20300	16900	17600
CORKSCREW RD	E OF BEN HILL GRIFFIN PKWAY	249				15600		18900		20900		
CORKSCREW RD	W OF ALICO RD	248		3800								
CORKSCREW RD	E OF ALICO RD	250			3100		4400		6700			
CRYSTAL DR	E OF US 41	254		8600	11200		12300		12100		8200	
CRYSTAL DR	E OF METRO PKWY	255			6100		6400		7900		5500	
CYPRESS LAKE DR	E OF SOUTH POINTE BLVD	81				20300	22300	22300		20900	18200	20000
CYPRESS LAKE DR	E OF OVERLOOK DR	73		29400	24700	25800	24200	27100	27200	27100	22600	25400
CYPRESS LAKE DR	W OF SUMMERLIN RD	259	27900	27800				27700		29000		28900
CYPRESS LAKE DR	E OF REFLECTION PKWY	82				42300	38900	39900	40700		35100	39800
CYPRESS LAKE DR	W OF US 41	258	31700	34000	35900	35200				36000		35400
DANIELS PKWY	W OF METRO PKWY	30	40500	40100	46400	47400	48300	48300	49400	49900	41900	49300
DANIELS PKWY	W OF PLANTATION RD	263			48000		47600					
DANIELS PKWY	E OF SIX MILE PKWY	31	52200	53200	51800	53200	59700		60700	62500	54100	63100

PCS 70 - Corkscrew Rd west of Ben Hill Griffin Pkwy

2021 AADT = 17,600 VPD

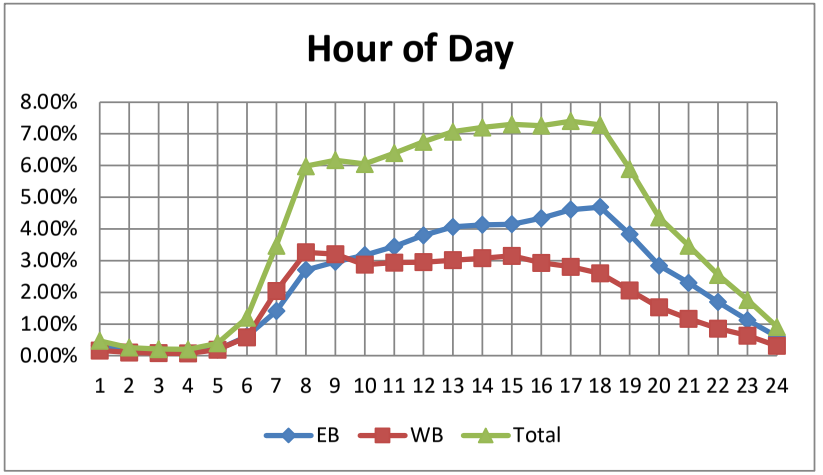
Hour	EB	WB	Total
0	0.31%	0.17%	0.47%
1	0.16%	0.10%	0.26%
2	0.13%	0.08%	0.21%
3	0.13%	0.07%	0.20%
4	0.20%	0.19%	0.39%
5	0.61%	0.58%	1.20%
6	1.41%	2.05%	3.47%
7	2.70%	3.26%	5.98%
8	2.96%	3.20%	6.17%
9	3.17%	2.87%	6.05%
10	3.44%	2.94%	6.39%
11	3.80%	2.95%	6.75%
12	4.06%	3.01%	7.07%
13	4.13%	3.08%	7.20%
14	4.15%	3.15%	7.30%
15	4.34%	2.93%	7.26%
16	4.61%	2.81%	7.40%
17	4.69%	2.60%	7.28%
18	3.83%	2.06%	5.89%
19	2.84%	1.53%	4.36%
20	2.30%	1.17%	3.47%
21	1.69%	0.86%	2.55%
22	1.12%	0.63%	1.76%
23	0.60%	0.31%	0.91%

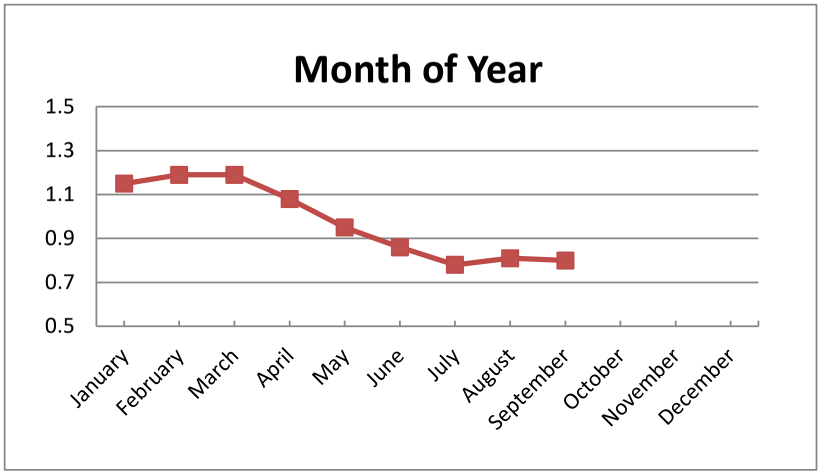
Month of Year	Fraction
January	1.15
February	1.19
March	1.19
April	1.08
May	0.95
June	0.86
July	0.78
August	0.81
September	0.8
October	
November	
December	

Directional Factor		
AM	0.59	WB
PM	0.62	EB

Day of Week	Fraction
Sunday	0.71
Monday	1.01
Tuesday	1.05
Wednesday	1.08
Thursday	1.11
Friday	1.12
Saturday	0.91

Design Hour Volume		
#	Volume	Factor
5	1885	0.107
10	1867	0.106
20	1844	0.105
30	1820	0.103
50	1780	0.101
100	1731	0.098
150	1693	0.096
200	1664	0.095





Appendix G:

Lee County Generalized Peak Hour Directional Service Volumes

Lee County
Generalized Peak Hour Directional Service Volumes
Urbanized Areas

April 2016 c:\input5

Uninterrupted Flow Highway

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	130	420	850	1,210	1,640
2	Divided	1,060	1,810	2,560	3,240	3,590
3	Divided	1,600	2,720	3,840	4,860	5,380

Arterials

Class I (40 mph or higher posted speed limit)

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	*	140	800	860	860
2	Divided	*	250	1,840	1,960	1,960
3	Divided	*	400	2,840	2,940	2,940
4	Divided	*	540	3,830	3,940	3,940

Class II (35 mph or slower posted speed limit)

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	*	*	330	710	780
2	Divided	*	*	710	1,590	1,660
3	Divided	*	*	1,150	2,450	2,500
4	Divided	*	*	1,580	3,310	3,340

Controlled Access Facilities

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	*	160	880	940	940
2	Divided	*	270	1,970	2,100	2,100
3	Divided	*	430	3,050	3,180	3,180

Collectors

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	*	*	310	660	740
1	Divided	*	*	330	700	780
2	Undivided	*	*	730	1,440	1,520
2	Divided	*	*	770	1,510	1,600

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

BBLS
SURVEYORS, INC.
9001 HIGHLAND WOODS
BOULEVARD, SUITE 3
BONITA SPRINGS, FLORIDA, 34135
TELEPHONE: (239) 597-1315
FAX: (239) 597-5207

LEGAL DESCRIPTION

THE PRESERVE CLUB & RESIDENCES AT PEPPER PLACE

A PARCEL OF LAND BEING A PORTION OF SECTIONS 27, 33 AND 34, TOWNSHIP 46 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

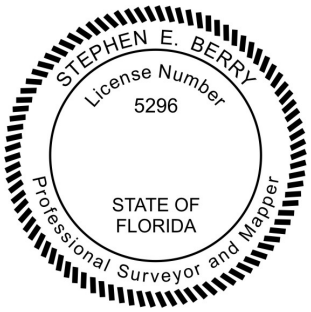
BEGINNING AT THE NORTHEAST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 27; THENCE RUN S.01°01'22"E., ALONG THE EAST LINE OF SAID NORTHEAST QUARTER, FOR A DISTANCE OF 2,645.26 FEET TO THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SAID SECTION 27; THENCE RUN S.01°01'09"E., ALONG THE EAST LINE OF SAID SOUTHEAST QUARTER, FOR A DISTANCE OF 2,644.88 FEET TO THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE RUN S.89°30'06"W., ALONG THE SOUTH LINE OF SAID SOUTHEAST QUARTER, FOR A DISTANCE OF 2,646.15 FEET TO THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 34; THENCE RUN S.00°56'15"E., ALONG THE EAST LINE OF SAID NORTHWEST QUARTER AND THE EAST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 34, FOR A DISTANCE OF 5,233.58 FEET TO THE SOUTHEAST CORNER OF THE SOUTHWEST QUARTER OF SAID SECTION 34; THENCE RUN S.89°17'23"W., ALONG THE SOUTH LINE OF SAID SOUTHWEST QUARTER, FOR A DISTANCE OF 2,639.87 FEET TO THE SOUTHWEST CORNER OF THE SOUTHWEST QUARTER OF SAID SECTION 34, THE SAME BEING THE SOUTHEASTERLY CORNER OF THAT PARCEL OF LAND DESCRIBED IN OFFICIAL RECORDS BOOK 2724, PAGE 2122 OF THE PUBLIC RECORDS OF SAID LEE COUNTY, FLORIDA; THENCE RUN N.00°59'43"W., ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER AND THE EASTERLY LINE OF SAID PARCEL, FOR A DISTANCE OF 597.74 FEET; THENCE RUN N.89°00'08"E., ALONG THE EASTERLY LINE OF SAID PARCEL, FOR A DISTANCE OF 250.04 FEET; THENCE RUN N.01°50'35"W., ALONG THE EASTERLY LINE OF SAID PARCEL, FOR A DISTANCE OF 546.00 FEET; THENCE RUN N.41°10'55"W., ALONG THE EASTERLY LINE OF SAID PARCEL FOR A DISTANCE OF 220.00 FEET TO THE NORTHEASTERLY CORNER OF SAID PARCEL; THENCE RUN S.89°00'17"W., ALONG THE NORTHERLY LINE OF SAID PARCEL, FOR A DISTANCE OF 100.00 FEET TO THE SOUTHEAST CORNER OF THE NORTH HALF OF THE SOUTH HALF OF SAID SECTION 33; THENCE RUN S.88°54'56"W., ALONG THE SOUTH LINE OF THE SOUTH HALF OF THE NORTH HALF

OF SAID SECTION 33 AND THE NORTHERLY LINE OF SAID PARCEL, FOR A DISTANCE OF 660.84 FEET TO THE NORTHEAST CORNER OF THE WEST HALF OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 33 AND THE NORTHWESTERLY CORNER OF SAID PARCEL; THENCE RUN S.00°58'43"E., ALONG THE EAST LINE OF THE WEST HALF OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 33 AND THE WESTERLY LINE OF SAID PARCEL, FOR A DISTANCE OF 1,309.90 FEET TO THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 33; THENCE RUN S.89°04'36"W., ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1,983.67 FEET TO THE SOUTHEAST CORNER OF THE SOUTHWEST QUARTER OF SAID SECTION 33; THENCE RUN S.89°03'06"W., ALONG THE SOUTH LINE OF SAID SOUTHWEST QUARTER, FOR A DISTANCE OF 2,639.77 FEET TO THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE RUN N.00°53'57"W., ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER, FOR A DISTANCE OF 2,596.13 FEET TO THE NORTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE RUN N.88°46'01"E., ALONG THE NORTH LINE OF SAID SOUTHWEST QUARTER, FOR A DISTANCE OF 2,638.48 FEET TO THE NORTHWEST CORNER OF THE SOUTHEAST QUARTER OF SAID SECTION 33; THENCE RUN N.88°46'01"E ,ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER, FOR A DISTANCE OF 2,641.88 FEET TO THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 34; THENCE RUN N.01°01'55"W., ALONG THE WEST LINE OF SAID NORTHWEST QUARTER, FOR A DISTANCE OF 2,620.25 FEET TO THE SOUTHWEST CORNER OF THE SOUTHWEST QUARTER OF SAID SECTION 27; THENCE RUN N.01°02'22"W., ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER, FOR A DISTANCE OF 1,324.65 FEET TO THE NORTHWEST CORNER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 27; THENCE RUN N.89°31'53"E., ALONG THE NORTH LINE OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 27, FOR A DISTANCE OF 1,323.64 FEET TO THE WEST LINE OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SAID SECTION 27; THENCE RUN N.01°01'54"W., ALONG SAID WEST LINE, FOR A DISTANCE OF 736.14 FEET; THENCE LEAVING SAID WEST LINE RUN N.44°15'39"E., FOR A DISTANCE OF 827.30 FEET TO THE NORTH LINE OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SAID SECTION 27; THENCE RUN N.89°33'12"E., ALONG SAID NORTH LINE, FOR A DISTANCE OF 125.98 FEET; THENCE LEAVING SAID NORTH LINE, RUN N.49°40'45"E., FOR A DISTANCE OF 50.38 FEET; THENCE RUN N.53°07'45"E., FOR A DISTANCE OF 49.23 FEET; THENCE RUN N.59°08'52"E., FOR A DISTANCE OF 83.85 FEET; THENCE RUN N.65°57'40"E., FOR A DISTANCE OF 199.18 FEET; THENCE RUN N.63°27'03"E., FOR A DISTANCE OF 73.25 FEET; THENCE RUN N.59°58'43"E., FOR A DISTANCE OF 34.83 FEET; THENCE RUN N.01°18'00"W., FOR A DISTANCE OF 350.25 FEET; THENCE RUN N.03°23'36"E., FOR A DISTANCE OF 20.49 FEET; THENCE RUN N.44°32'22"E., FOR A DISTANCE OF 98.27 FEET; THENCE RUN S.81°17'02"E., FOR A DISTANCE OF 109.82 FEET TO THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 27; THENCE RUN N.01°01'26"W., ALONG SAID WEST LINE, FOR A DISTANCE OF 1,978.66 FEET TO THE NORTHWEST CORNER OF SAID NORTHEAST QUARTER; THENCE RUN N.89°19'11"E., ALONG THE NORTH LINE OF SAID NORTHEAST QUARTER, FOR A DISTANCE OF 2,646.34 FEET; TO THE **POINT OF BEGINNING**.

CONTAINING 1,052.448 ACRES, MORE OR LESS.

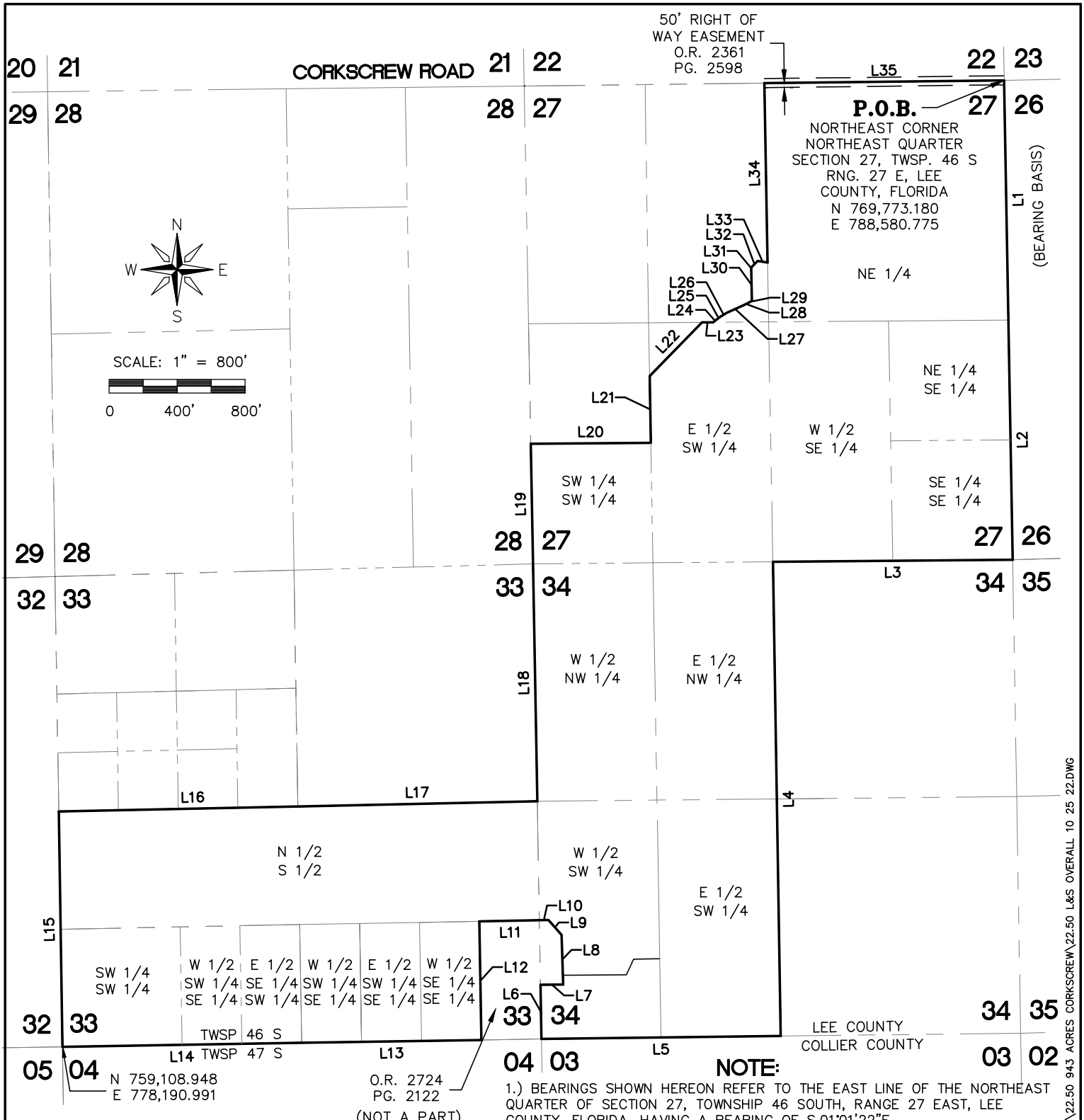
BEARINGS SHOWN HEREON REFER TO THE EAST LINE OF THE NORTHEAST QUARTER OF SECTION 27, TOWNSHIP 46 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA, HAVING A BEARING OF S.01°01'22"E.

THIS PROPERTY IS SUBJECT TO EASEMENTS, RESTRICTIONS AND RESERVATIONS OF RECORD.



_____12/28/2022
STEPHEN E. BERRY, STATE OF FLORIDA, (L.S. #5296)
BBLS SURVEYORS INC., (L.B. #8033)
REVISED BOUNDARY: 12/28/22

(SEE ATTACHED SKETCH-SHEET 4 OF 5 THROUGH SHEET 5 OF 5)



P.O.B. POINT OF BEGINNING
O.R. OFFICIAL RECORDS BOOK
PG. PAGE
P.B. PLAT BOOK
RNG RANGE
TWSP TOWNSHIP

NOTE:

1.) BEARINGS SHOWN HEREON REFER TO THE EAST LINE OF THE NORTHEAST QUARTER OF SECTION 27, TOWNSHIP 46 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA, HAVING A BEARING OF S.01°01'22"E.

2.) THIS PROPERTY IS SUBJECT TO EASEMENTS, RESERVATIONS OR RESTRICTIONS OF RECORD.

3.) DIMENSIONS SHOWN HEREON ARE IN FEET AND DECIMALS THEREOF.

4.) SEE SHEET 5 OF 5 FOR LINE TABLE.

5.) COORDINATES SHOWN ARE STATE PLANE COORDINATES, FLORIDA WEST ZONE, NORTH AMERICAN DATUM OF 1983 (2011 ADJUSTMENT).

REVISED BOUNDARY, 12 05 22
ADDED COORDINATES 05/06/23

THIS IS NOT A SURVEY

SHEET 4 OF 5

\\10.0.0.10\DATA\PROJECTS\2022\22.50 943 ACRES CORKSCREW\22.50 L&S OVERALL 10 25 22.DWG

DATE: 10/25/2022
FIELD BOOK: N/A
DRAWN BY: SEB
APPROVED: SEB
JOB NO. 22.50
SCALE: 1"=800'

SKETCH TO ACCOMPANY LEGAL DESCRIPTION

THE PRESERVE CLUB AND RESIDENCES AT PEPPER PLACE, A PORTION OF SECTIONS 27, 33 AND 34, TOWNSHIP 46 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA

BBLS SURVEYORS, INC.
9001 HIGHLAND WOODS BLVD.,
SUITE 3, BONITA SPRINGS, FLORIDA,
34135 (239) 597-1315

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S01°01'22"E	2645.26'
L2	S01°01'09"E	2644.88'
L3	S89°30'06"W	2646.15'
L4	S00°56'15"E	5233.58'
L5	S89°17'23"W	2639.87'
L6	N00°59'43"W	597.74'
L7	N89°00'08"E	250.04'
L8	N01°50'35"W	546.00'
L9	N41°10'55"W	220.00'
L10	S89°00'17"W	100.00'
L11	S88°54'56"W	660.84'
L12	S00°58'43"E	1309.90'
L13	S89°04'36"W	1983.67'
L14	S89°03'06"W	2639.77'
L15	N00°53'57"W	2596.13'
L16	N88°46'01"E	2638.48'
L17	N88°46'01"E	2641.88'
L18	N01°01'55"W	2620.25'
L19	N01°02'22"W	1324.65'
L20	N89°31'53"E	1323.64'

LINE TABLE		
LINE	BEARING	DISTANCE
L21	N01°01'54"W	736.14'
L22	N44°15'39"E	827.30'
L23	N89°33'12"E	125.98'
L24	N49°40'45"E	50.38'
L25	N53°07'45"E	49.23'
L26	N59°08'52"E	83.85'
L27	N65°57'40"E	199.18'
L28	N63°27'03"E	73.25'
L29	N59°58'43"E	34.83'
L30	N01°18'00"W	350.25'
L31	N03°23'36"E	20.49'
L32	N44°32'22"E	98.27'
L33	S81°17'02"E	109.82'
L34	N01°01'26"W	1978.66'
L35	N89°19'11"E	2646.34'

\\NAS\DATA\PROJECTS\2022\22.50 943 ACRES CORKSCREW\22.50 L&S OVERALL 10 25 22.DWG

REVISED BOUNDARY, 12 05 22

THIS IS NOT A SURVEY

DATE: 10/25/2022
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SKETCH TO ACCOMPANY LEGAL DESCRIPTION

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