



**CITRUS COUNTY LAND DEVELOPMENT CODE
 ATLAS AMENDMENT APPLICATION**

Application No.: _____ Date: _____
 * Written Authorization is required if Applicant is different than Owner.
Applicant* **Property Owner**
 Name: Chuck Pigeon Name: Gulf to Lakes Associates, LLLP
 Address: 925 SE 17th Street, Suite A Address: PO Box 2050
 City: Ocala City: Lecanto
 State: FL Zip: 34471 State: FL Zip: 34460
 Home No.: _____ Cell No.: _____ Home No.: _____ Cell No.: _____
 Work No.: (352) 861-7799 Fax No.: _____ Work No.: (352) 746-4000 Fax No.: _____
 Email: CPigeon@Ardurra.com Email: jcappuccilli@wranglerholdings.com

Property Description: Section: 20 Township: 18 South Range: 18 East
 Legal Description: See Attached
 Subdivision: Pine Ridge II Lot(s): See Attached Block/Parcel: See Attached
 Alternate Key #: 3526263 Parcel ID: 18E18S20 22000
 Acreage: 146.90 Acres
 Amendment to the Land Development code Atlas From: _____ To: _____
 Amendment to a Previously Approved Planned Development Previous Application No.: AA-11-02

Is this hearing being requested as a result of a Code Violation Notice? Yes _____ No X
 If "Yes", explain on a separate sheet and attach a copy of the Notice of Violation.

Applicant Request(s): Amend PD to allow flexibility in some Design Criteria.

Directions to Property: _____

The Applicant is: _____ Owner of Tract X Agent for Property Owner
 _____ One-Owner Among Several _____ Other (specify)

I am aware that if the property cannot be located using information from the submitted application, this application may be rescheduled to a later hearing date. I also understand that a sign must be placed (and marking flags may be placed) on the property by the Land Development Division at least seven days prior to the scheduled meeting.

I understand that approval for the proposed use shown hereon does not in any way relieve me of the responsibility of observing and complying with any deed restrictions applicable to the subject property.

I hereby authorize Citrus County or its agents to enter upon the property, which is the subject of this application and the date of the hearing thereon, at any time between the hours of 8:00 AM and 5:00 PM for the purpose of gathering any information relevant to this application.

I DO HEREBY SWEAR THAT THE INFORMATION CONTAINED HEREIN AND THE ATTACHMENTS HERETO ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

Signature: [Signature]

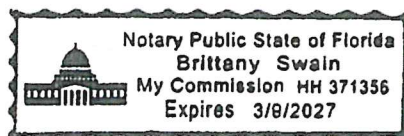
STATE OF FLORIDA
 COUNTY OF CITRUS

I HEREBY CERTIFY that on this day, before me, an officer duly authorized in the State and County aforesaid to take acknowledgements, personally appeared Chuck Pigeon, who is personally known to me or provided _____ as identification and who did not take an oath.

WITNESS my hand and official seal this 5th day of April, 2023

Brittany Swain
 Printed Name
[Signature]
 Notary Public - State of Florida

Seal



For Staff Use Only

Date: _____
 Time: _____
 Initials: _____

ATF: _____
 QTR: _____
 LUD: _____

GFLUM Des: RECEIVED
 FZ: _____

PIGEON-ARDURRA, LLC

April 5, 2023

Ms. Joanna Coutu, AICP
Department of Growth Management
Citrus County Land Development
3600 W. Sovereign Path, Suite 140
Lecanto, FL 34461
Email: joanna.coutu@citrusbocc.com

P-A Project No. 512.01
Ardurra #2022-0820-00

Project: Amber Ridge West
Sec/Twp/Rge: S20 / T18S / R18E
Parcel ID / Alt Key: 18E18S20 22000

RE: Planned Unit Development Overlay for Medium Density Residential Designation

Dear Ms. Coutu:

Please find attached the land use change application and development narrative, legal description, and Master Plan describing a new Planned Development Overlay for 146.90 acres MOL of property abutting W. Norvel Bryant Highway (CR 486) in the Central Ridge area of Citrus County. The property is currently designated Residential Mixed Use (RUR) with a PD master plan overlay with an allowed density of 1 dwelling units per acre. The request is to keep the RUR designation and add a PUD Overlay revision to the property to allow some flexibility in the design standards and medium density residential PD overlay plan. The overall density proposed with the master plan for the property is 2.60 dwelling units per acre.

Included with this application is a package of documents and information with various figures and exhibits including a narrative addressing the application requirements of the LDC. Specifically included:

1. PD Master Plan Exhibit A
2. Legal Description and Boundary Sketch of Description of Property
3. Requests for Specific Project Development Standards

Should you have any questions, please do not hesitate to contact me or Linda Pigeon at (352) 861-7799. We look forward to hearing back from the County following review of the submittal package.

Sincerely,

PIGEON - ARDURRA, LLC



Chuck A. Pigeon, P.E.
Project Manager
Ec: CR 486, LLC

T:\512 Delta Land Group LLC\01 DELTA Pine Ridge Parcel\Design\Reports-Zoning Info\AmberRidge(West)\Zoning_Coutu_ltr_04-05-2023.docx

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925 SE 17th Street, Suite A
Ocala, FL 34471
Ph: 352-861.7799
Fax: 352-861.7709

CIVIL ENGINEERS - PLANNERS
SURVEYORS & MAPPERS
www.Ardurra.com
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Land Development Division

**LAND DEVELOPMENT
AMENDMENT TO PD
&
MASTER PLAN OF DEVELOPMENT**

For

AMBER RIDGE WEST

CITRUS COUNTY, FLORIDA

DATE: April 05, 2023

Prepared By:

Pigeon – Ardurra, LLC

**CIVIL ENGINEERS – PLANNERS
SURVEYORS & MAPPERS**

925 S.E. 17th Street, Suite A

Ocala, FL 34471

Ph 352-861-7799

P-A Project No. 512.01

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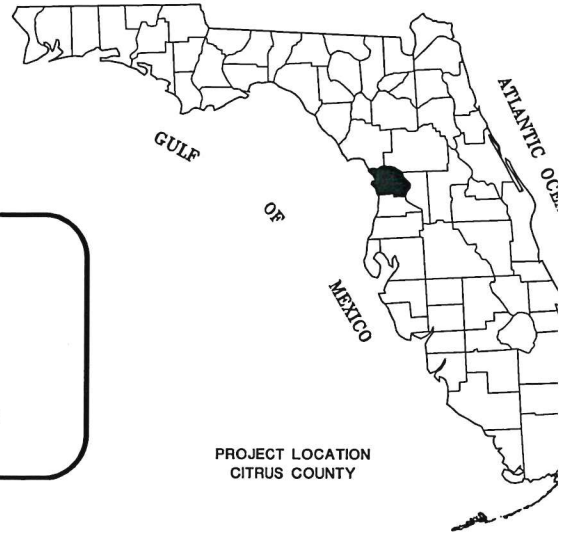
100%	85%	68%	51%	34%	17%	0%
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PROPERTY DATA

PROPERTY ID:
 PARCEL: 18E18S20 22000 (ALT. KEY No. 3520013)
 AREA: 147.59 Acres +/-

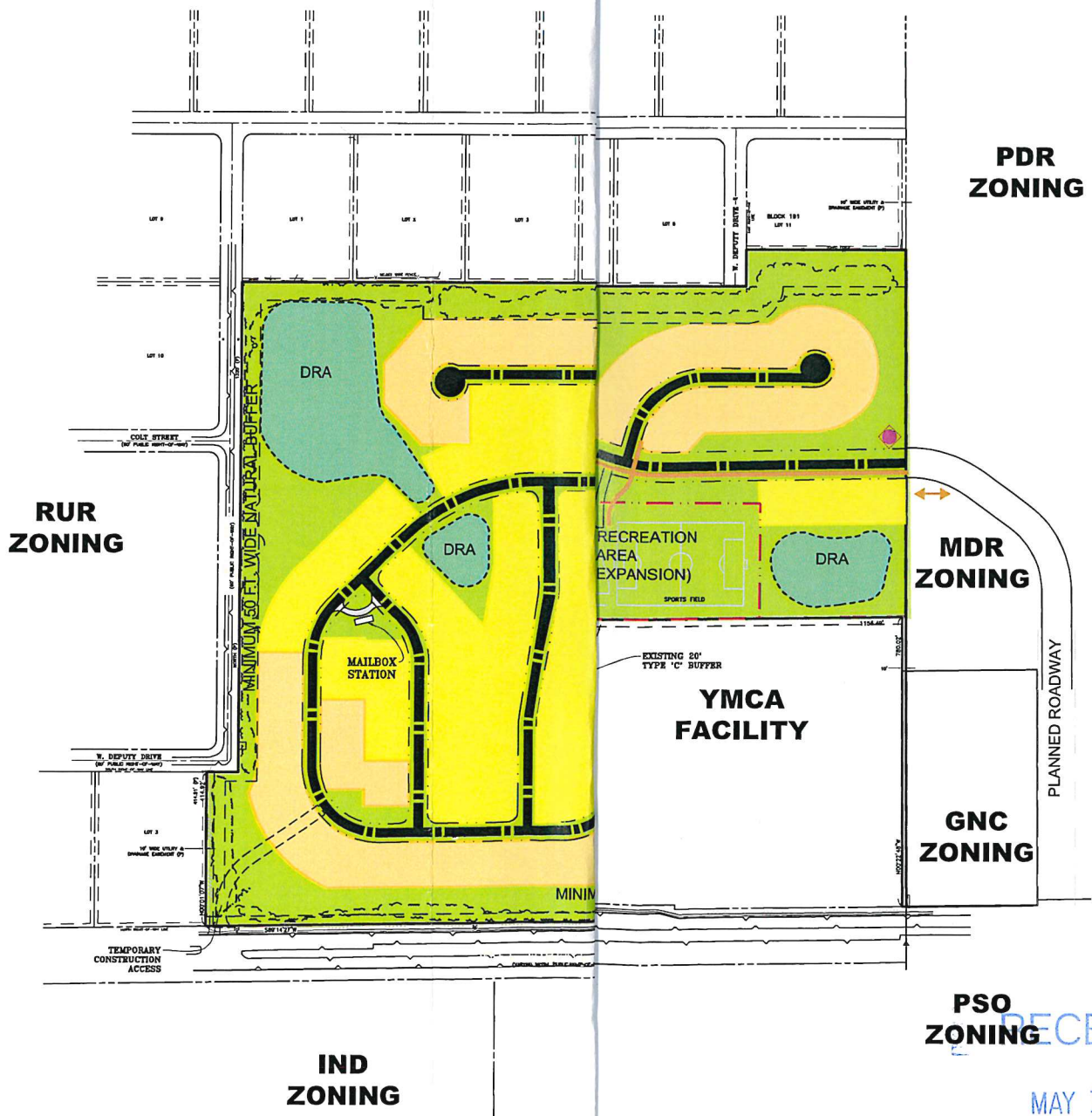
FLOOD ZONE INFORMATION:
 FEMA: PANEL 12017C0194D, SEPTEMBER 26, 2014
 FLOOD ZONE: X

ZONING SUMMARY:
 FUTURE LAND USE: (RMU) RESIDENTIAL MIXED USE
 ZONING: (RUR) RURAL RESIDENTIAL DISTRICT
 DEVELOPMENT: PINE RIDGE ESTATES/CITRUS SPRINGS; BINDING LETTER #05-2010-001
 DENSITY: PER APPROVED MASTER PLAN
 ADJACENT ZONING: RUR (NORTH AND WEST); MDR-MEDIUM DENSITY RESIDENTIAL (EAST).



LEGEND

- 50 FT MIN. LOT WIDTH
- 60 FT OR LARGER WIDTH
- STORM WATER MANAGEMENT AREA
- OPEN SPACE / GREEN SPACE



Plotted: 4/15/2023 8:23:47 PM : Chuck Pigeon

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APPENDIX

Appendix A	Legal Description of Subject Property
Appendix B	Warranty Deed (of Parent Parcel)
Appendix C	Boundary Sketch of Description
Appendix D	Water and Sewer Utility Provider Letters
Appendix E	Solid Waste Provider Letter
Appendix F	Environmental Phase 1
Appendix G	Traffic Operations Study

EXHIBIT A: PD Master Plan

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Letter of Authorization

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Board of County Commissioners
 DEPARTMENT OF GROWTH MANAGEMENT
 LAND DEVELOPMENT DIVISION
 3600 W. Sovereign Path, Suite 140
 Lecanto, FL 34461
 Telephone: (352) 527-5239
 TTY Dial 711
 Web Address: www.citrusboecc.com

AUTHORIZATION

APPLICATION REQUEST: (check one)


Variance Conditional Use Minor Subdivision Lot Reconfiguration
 Plat Vacation Street Vacation Comprehensive Plan Amendment
 Atlas Amendment Other (specify): _____

LEGAL DESCRIPTION OF PROPERTY:

Section 20 Township 18 Range 18 Alternate Key # 3526263
 Lot/Parcel _____ Block _____
 Subdivision _____

I, Gulf to Lakes Associates, LLLP, owner of the above described property,
 (Name of Owner)
 authorize Chuck Pigeon of Pigeon-Ardurra, LLC to
 (Name of Representative) (Name of Business)

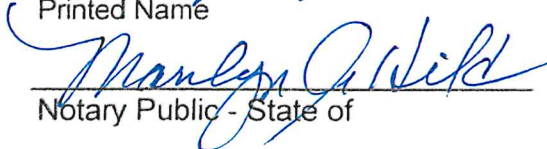
serve as agent on my behalf for the purpose of making application for the proposed request. No further authorization is expressed or implied, than that which is described herein.

SIGNATURE: 
 Bruce A. Olsen (Signature of Owner)

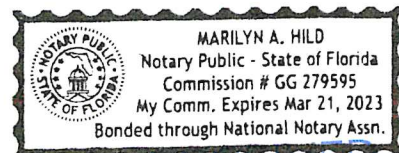
STATE OF _____
 COUNTY OF _____

I HEREBY CERTIFY that on this day, before me, an officer duly authorized in the State and County aforesaid to take acknowledgements, personally appeared Bruce Olsen, who is personally known to me or provided _____ as identification and who did not take an oath.

WITNESS my hand and official seal this 06 day of March, 2023

Marilyn A. Hild
 Printed Name

 Notary Public - State of _____

Seal



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Planned Unit Development Application

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I. STATEMENT OF OBJECTIVES

GENERAL PURPOSE

The Amber Ridge West development parcel is currently zoned Rural Residential District (RUR) with a Future Land Use of Residential Mixed Use (RMU) with a PD overlay. The property is part of the original Pine Ridge Estates/Citrus Springs which has vested rights of Land Use Entitlements originally recorded with the State in 1974. In 2010 a binding letter of modification was submitted to the State and County for the property and an amended master plan was approved by Ordinance 2011-10, allowing portions of the property to be used for the YMCA, a public elementary school and one-hundred one acre single family homes. The purpose of this application is to amend the Residential Planned Development portion of the Master Development Plan originally addressed in Ordinance 2011-10.

PROJECT LOCATION

The project is located in the central services area of Citrus County, boarded by W. Norvel Bryant Highway (CR 486) to the South. The site is approximately 1.4 miles west of N. Lecanto Highway (CR 491). **Figure 1.0** illustrates the site location. The overall parcel area for this planned development incorporates a total of 146.90 Acres.

PROJECT INTRODUCTION

The property would remain RUR as currently zoned. As illustrated on the amended PD Master Plan all of the homes will remain single family detached dwelling units. The overall site density with the plan proposed is 2.6 units / acre.

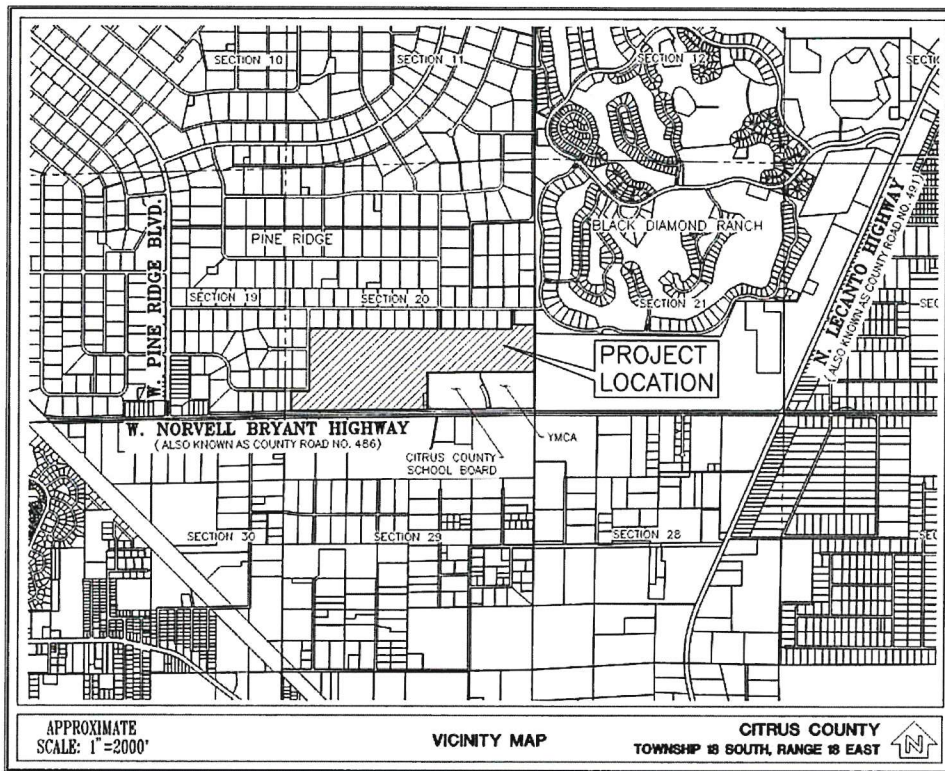
The property is within the planned service area of the County, and all the lots are planned to be served by central water and sewer fitting into the County's service area requirements. The development will be located within the "sandhills" of the County away from the environmentally sensitive coastal and lakes region wetland areas on the west and east side of the County.

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FIGURE 1.0 - Site Location Map



The original entitlements for the Pine Ridge/Citrus Springs development included over 38,000 dwelling units and approximately 20 acres of Community Facilities. Minor changes to these land use quantities are proposed. Other development entitlements for the property are not proposed to change with this application.

Below is a Table showing the original entitlements through the proposed changes with this application.

Table 1: Land Use Entitlements Table (Original and Proposed):

Land Use	Original Entitlements (1974)	Current Entitlements (2010)	Proposed Entitlements (2023)	Cumulative Change Since 1974	% Change This Plan
Residential	38,141 DU	38,083 DU	38,365 DU	+224 DU	0.74%
Commercial/Office	1,003 Ac	1,011.90 Ac	1,011.90 Acres	+ 8.9 Ac	0%
Park / Recreation	1,496.77 Ac	1,497.66 Acres	1,497.66 Acres	--	0%
Schools	158.71 Ac	143.05 Ac	143.05 Ac	-15.66 Ac	0%
Church	164.49 Ac	137.64 Ac	137.64 Ac	-26.85 Ac	0%
Hospital / Medical	14.90 Ac	14.90 Ac	14.90 Ac	--	0%
Community Facilities	20.18 Ac	32.23 Ac	37.23Ac	+17.05 Ac	15.51%
Utilities	86.15 Ac	86.16 Ac	86.16 Ac	+0.01 Ac	< .01%

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II. PROJECT DESCRIPTION

CHARACTER OF DEVELOPMENT

Amber Ridge West is planned as a residential community. The homes will be interconnected with paved roadways and community trails. Primary infrastructure improvements will include curb and gutter paved roadways, stormwater management systems, central sanitary sewer service, and public drinking water service, mailbox stations, street lighting and community trails and walkways.

The overall site will have two access points and a third temporary access for construction access. The two primary access roadways include one into CR 486 as a shared access with the public school site and the another access is at the eastern boundary connecting to Amber Ridge (approved under Ordinance 2023-A05). Both primary access points will provide for direct access to CR 486. Neither access connections are intended to be gated or controlled. Roadways and related development infrastructure will be provided and constructed in accordance with the minimum standards and specifications of the Citrus County Land Development Code (LDC) with exception to minor modifications as addressed with this PD submittal.

LAND USE DESIGNATIONS

See **Figure 2.0** for an illustration of a portion of the Citrus County LDC Atlas (Zoning Map). The subject property currently has RUR (Rural Residential) zoning.

Figure 3.0 illustrates a portion of the Citrus County LDC Atlas (Future Land Use Map). The future land use for the property is RMU (Residential Mixed Use).

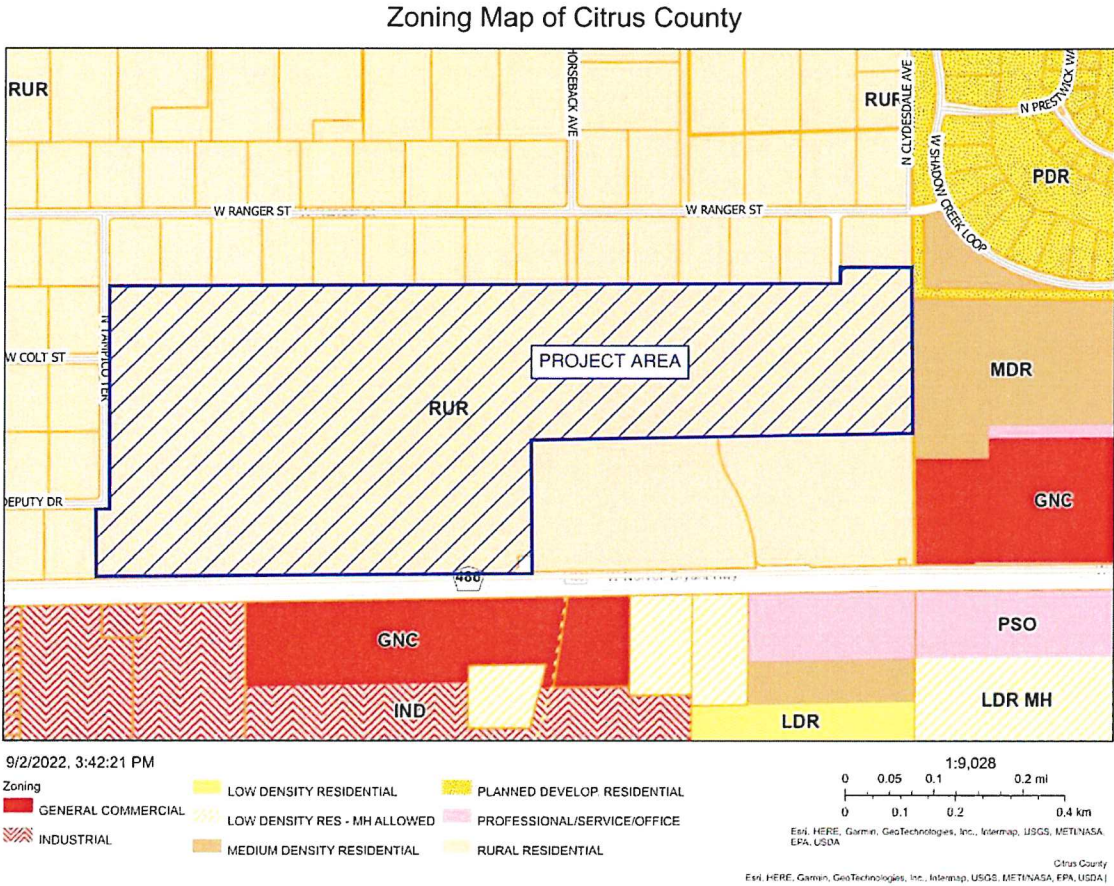
Figure 4.0 illustrates an Aerial Photo View of the subject property.

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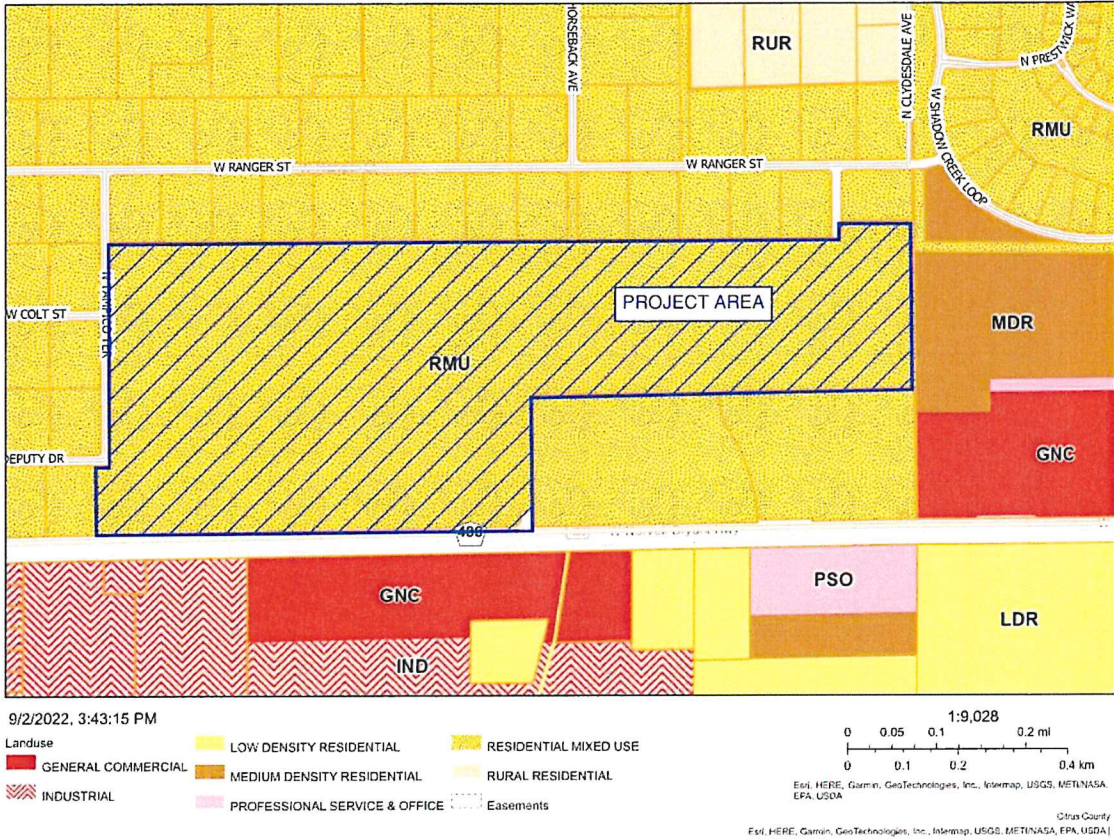
FIGURE 2.0 - Current Zoning Map



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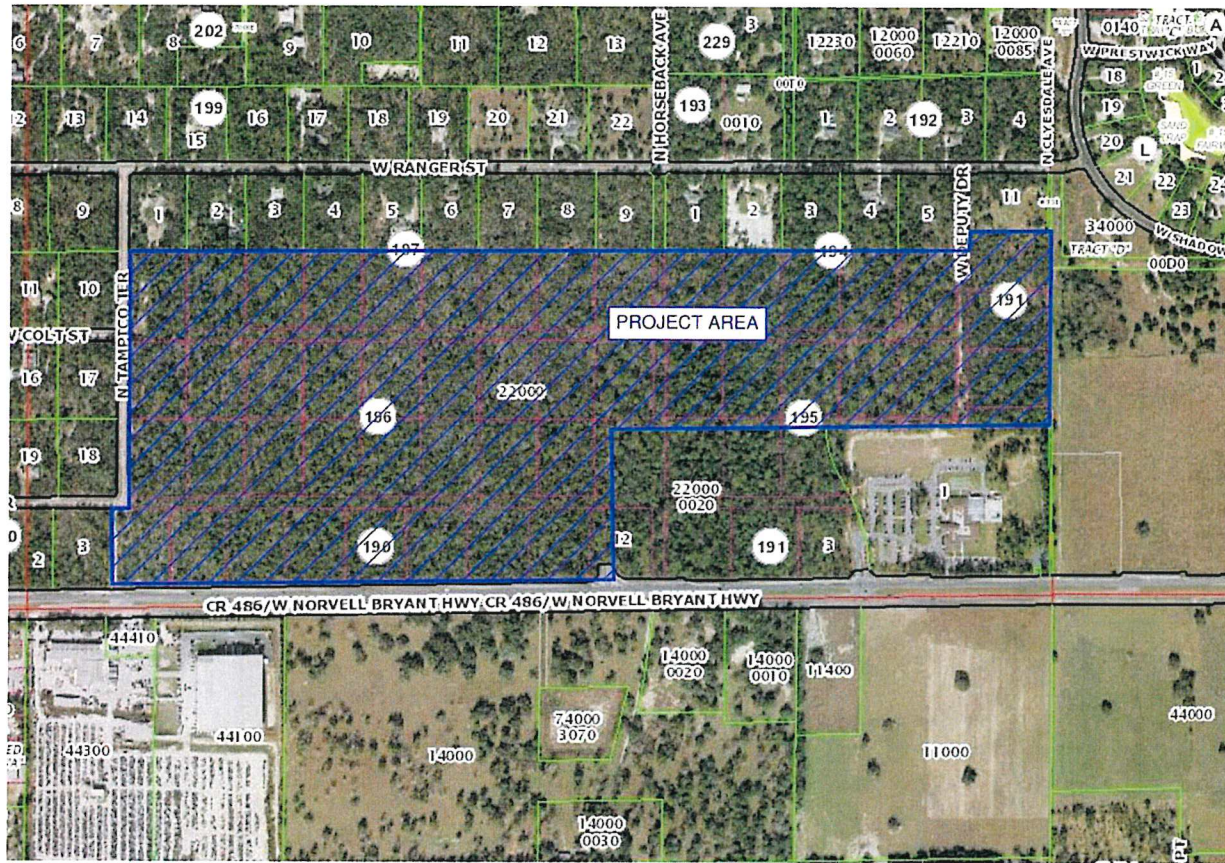
FIGURE 3.0 - Future Land Use Map

Future Land Use Map of Citrus County



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FIGURE 4.0 - Aerial Photo Map



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III. FINDINGS and PD PROJECT DEVELOPMENT STANDARDS

TRAFFIC CONSIDERATION

The overall site will have two roadway access points, one along CR 486 and the other at the planned east boundary roadway connection to Amber Ridge with direct access to CR 486. The median opening and roadway turnout for the access point on CR 486 was constructed and is in place as included in the design and construction of CR 486 for this area. The existing intersection spacing and turnout construction meet current County standards.

Most of the right-of-ways proposed for the subdivision are proposed with 50' right of way widths and 20' wide roadway pavement sections. As warranted the pavement width and / or right-of-way width will change to match projected traffic in accordance with the Land development Code. **Figure 5.0** illustrates a typical section for the neighborhood roadways.

Table 2.0 Trip Generation Comparison

Use Classification	Current Approved Master Plan (PM Peak Hour Trips)	Proposed Master Plan (PM Peak Hour Trips)
Single-Family Detached Housing LUC 210 ⁽¹⁾	99 ⁽²⁾	378 ⁽³⁾

- (1) 0.99 PM Trips per Single-Family Lot.
- (2) Currently one hundred lots approved.
- (3) Three hundred and eighty-two units proposed.

LAND USE COMPATIBILITY

The site area encompasses zoning classification and land use as illustrated on **Figures 2.0** and **3.0** respectively as derived from the current Land Development Code Atlas. The land use classifications for the property abutting the site are as follows:

<p>SURROUNDING LAND DEVELOPMENT CODE ATLAS DESIGNATIONS:</p>	<p>North – RMU, Residential Mixed Use South – RMU, Residential Mixed Use and where applicable across CR 486 – GNC General Neighborhood Commercial & IND Industrial East – MDR, Medium Density Residential & RMU, Residential Mixed Use West – RMU, Residential Mixed Use</p>
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The future land use designation for the Site is RMU (Residential Mixed Use) and is proposed to remain RMU with a PD overlay.

The site is currently undeveloped. The properties to the north and west are developed and residential uses. The property to the east is undeveloped. The property south of the site within the RMU area is currently the YMCA Site and a future school site. The property to the south of the property across CR 486 is mostly undeveloped with one business operating in the IND Zoning. The current and planned expansion areas of the current LKQ commercial facilities and operations are directly south of the subject Amber Ridge West property.

The site will have access onto W. Norvel Bryant Highway a major east-west arterial 4-lane divided roadway with limited access. The adjacent section of the corridor includes pedestrian and bicycle access facilities and is partially developed with commercial businesses.

CONSISTENCY WITH CITRUS COUNTY COMPREHENSIVE CODE

The proposed land use is consistent with the policies and objectives of the Citrus County Comprehensive Plan. More specifically, with regard to the Future Land Use Element:

Objective 2.3 The County shall require, during the development planning stage, adequate park, recreation, and open space facilities to meet the needs of the particular development.

Policy 2.3.1 The County will assure that all residential development dedicate or provide active recreation and open space areas.

Two private Community Park Areas along with several community pedestrian trails are planned throughout the development as well as a five-acre extension to the YMCA facility to be provided as part of the active recreation space. Vegetated land buffer areas are provided along the property lines of the development. Additional landscaping and buffering is planned around mailbox stations as well as within and around the park areas.

Objective 17.2 In order to promote the efficient use of resources and discourage scattered development and sprawl, the County shall encourage development in Planned Service Areas (PSA)...

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Policy 17.2.5 New development locating in the PSA shall be allowed only when central water and sewer are provided. For new residential land uses, this shall apply to developments of four units or greater per acre...

Policy 17.2.7 The County shall guide future development to the most appropriate areas, as depicted on the GFLUM, specifically those with minimal environmental limitations and the availability of necessary services.

Policy 17.7.8 The County shall utilize land use techniques and development standards to achieve a functional and compatible land use framework which reduces incompatible land uses.

This development is within the planned service area where development is encouraged and in an area with minimal environmental limitations. Water and Sewer Utility provider letters are included with this submittal.

Objective 17.5 The County shall permit innovative land use patterns via the County LDC such as Planned Developments, to promote excellence in design and to allow for mixed use projects within the County.

Policy 17.5.6 The LDC shall contain standards for PDs including provisions for residential clustering to preserve wetlands or other natural features...Standards for PDs shall address the following: Minimum Lot Size allowed, Open Space requirements, Maximum impervious surface area allowed per lot, Front, Side and Rear yard building setbacks etc...

The “Request for Specific PD Project Development Standards” is provided in the next section of this document.

REQUEST FOR SPECIFIC PUD PROJECT DEVELOPMENT STANDARDS

1. The following specific changes are proposed to address the neighborhood standards as requested.

- Minimum Lot Size = 5000 SF (50'x100') (No actual LDC Standard.)
- Lot Coverage (ISR) = 65% maximum impervious surface coverage
- Minimum Setbacks (Measured from ROW)

	Proposed	Existing LDC Standard
Front*	20 feet	25 feet
Side	5 feet	5 feet
Rear	5 feet	5 feet

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*Except on Corner Lots where the side front yard of 10' shall be permitted

2. Alternated designs for cul-de-sacs are proposed from the provisions of LDC, (LDC Section 7730, "Standard Cul-de-Sac") to accommodate better lot layout and allow for center landscape medians.
3. Tree Preservation or Planted trees requirements per lot shall be modified from the LDC (LDC Section 5720) provision from two trees for lots 10,890 sf or less to one tree per lot.
4. Provide Sidewalks on one side of all of the 50' ROWs. Provide a larger multi-use trail on one side of 80' or larger ROWs instead of two smaller 5' wide sidewalks on both sides of the roadway pavement drive lanes.
5. This planned development will be allowed to be developed in subphases and the PD will terminate within 15 years of the date of approval if either a site development plan or preliminary subdivision plat application is not filed with the County.

IV. ADDITIONAL FINDINGS

Site Development

A PD Master Plan illustrating the conceptual development layout plan for the proposed single-family development is illustrated and included as **Exhibit "A"**. As illustrated on the PD Master Plan, the arrangement of lot layout for the residential homesites, stormwater management areas, pocket parks, landscaped buffers and open space areas are shown. Design and development of the community is planned to be conducted substantially in accordance with the Citrus County Land Development Code with exception of the design standards noted.

Screening and Buffering

Landscape and/or natural buffers are proposed to be maintained around the perimeter of the site as shown on the PD Master Plan. According to the LDC Landscaping criteria in Chapter Five, Section 5400 only a sodded strip is required between residential uses, which currently exist on the west and north boundaries of the property.

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A minimum 100-foot natural buffer is proposed along the northern boundary of the site adjoining the Pine Ridge II Development with a 6' high privacy fence. A minimum 50-foot wide natural buffer is proposed along the west border. Along CR 486, a minimum 25-foot wide natural buffer is proposed. An illustration of the buffer area is included in **Figure 6**.

Signage and Lighting

Signage for the project is to include identification signage located at each of the entrance drives. Lighting shall be provided on the signs to help identify location of entrance for residents. Signage will be installed in accordance with the Citrus County Land Development Code and more specifically Chapter 4, Section 4661.

Stormwater Management

Stormwater management for the site is planned to include on-site stormwater retention areas to provide storage for the 100-year storm in accordance with the Citrus County Land Development Code. The use of storm drainage piping and berms or swales will be used to direct stormwater to the on-site retention areas.

The soils at the site include three major soil units with both having a well-drained characteristic. The predominant soil types are Candler Fine sand and Arredondo Fine sand. There are no wetlands or water bodies on or near the subject site. The moderate terrain will be graded to accommodate the proposed development.

Yards and Open Space

The site is planned to include open spaces and lawn areas with the preservation of existing trees where possible in parks and buffer areas and within stormwater management areas if grades and natural features can support the preservation of areas. Natural Buffer Areas and other landscaping for the project are planned to predominantly include Florida friendly native plant species and low maintenance turf. At least 20% of the development area is planned as open space. The site is not anticipated to exceed an overall 60% impervious surface ratio.

Solid Waste Disposal

The proposed facility solid waste disposal is categorized as domestic waste. The facility will utilize a licensed commercial waste hauler to collect and transport all solid waste generation from the site.

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Concurrency Statement

Establishing new development or facilities in Citrus County require compliance with Citrus County's Land Development Code and Comprehensive Plan. As such, specific levels of service are required to be achieved to demonstrate that the health, safety, and welfare for the Citizens of Citrus County are adequately considered and that the environment and natural resources are protected. These required Level of Service standards as well as the Goals, Objectives, and Policies defined in the Comprehensive Plan are to also consider and allow Reasonable, Beneficial and Economic use of the property.

All of the Level of Service (LOS) standards that apply to the proposed development and this Zoning Application were reviewed and considered. Level of Service standards for Traffic, Water supply, Wastewater treatment and disposal, Solid waste disposal, and Drainage are defined in the Citrus County Concurrency Management Ordinance No. 2009-A08.

The applicant has determined and demonstrated in this submittal that the LOS standards are achieved or exceeded in all areas for the proposed Land Use and this Application.

Sewer: $LOS = 75 \text{ GPD/Capita} \times 3.5 \text{ Persons/House} \times 382 \text{ Houses} = 100,275 \text{ GPD ADF}$ and 167,125 GDP peak day flow. Citrus County Utilities has sufficient available capacity to meet or exceed this LOS requirement.

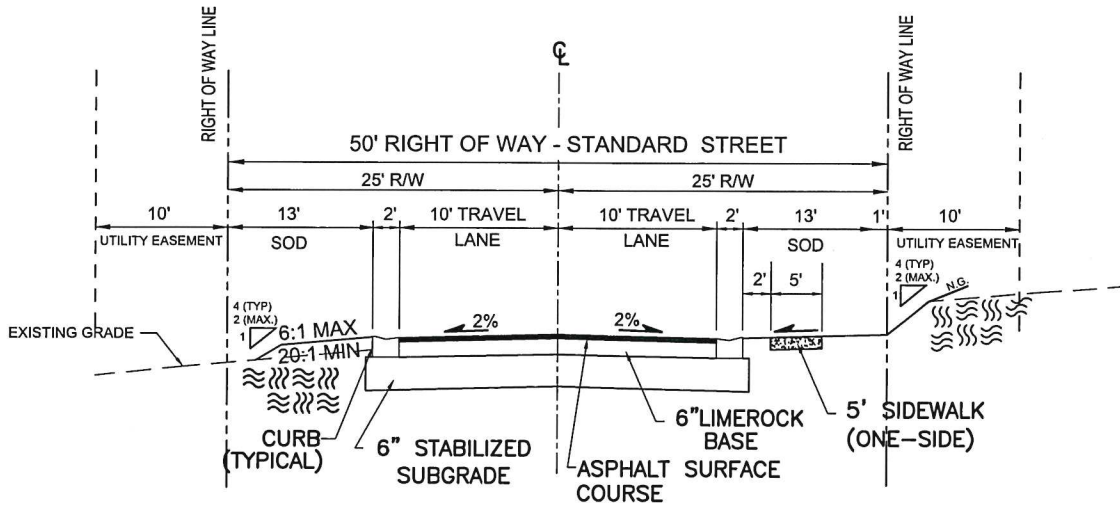
Water: $LOS = 150 \text{ Gallons per capita per day} \times 3.5 \text{ Persons/House} \times 382 \text{ Houses} = 167,125 \text{ GPD ADF}$ and 344 GPD peak hour domestic demand. Citrus County Utilities has sufficient available capacity to meet or exceed this LOS requirement.

Solid Waste: $LOS = 4.3 \text{ pounds per capita per day}$ for Class 1 waste. Citrus County Solid Waste division reports that there is sufficient available capacity to meet or exceed this LOS requirement.

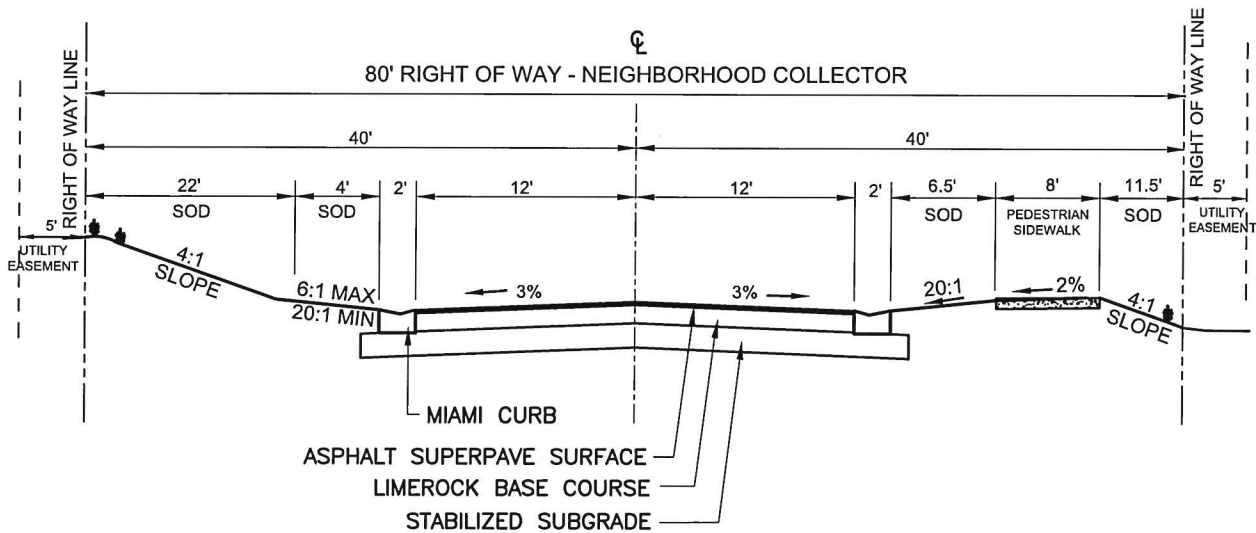
Drainage: $LOS =$ Constructed drainage facilities to store stormwater shall meet the 100yr-24hr storm event and duration requirement and provide water quality treatment for the first inch of runoff. The site and soils conditions as well as the proposed facility site design can meet or exceed this level of service requirement.

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**TYPICAL ROADWAY SECTION
NEIGHBORHOOD ROADWAY**
N.T.S.



**TYPICAL ROADWAY SECTION
NEIGHBORHOOD MINOR COLLECTOR**
N.T.S.

TYPICAL ROADWAY SECTIONS

AMBER RIDGE WEST
CITRUS COUNTY, FLORIDA

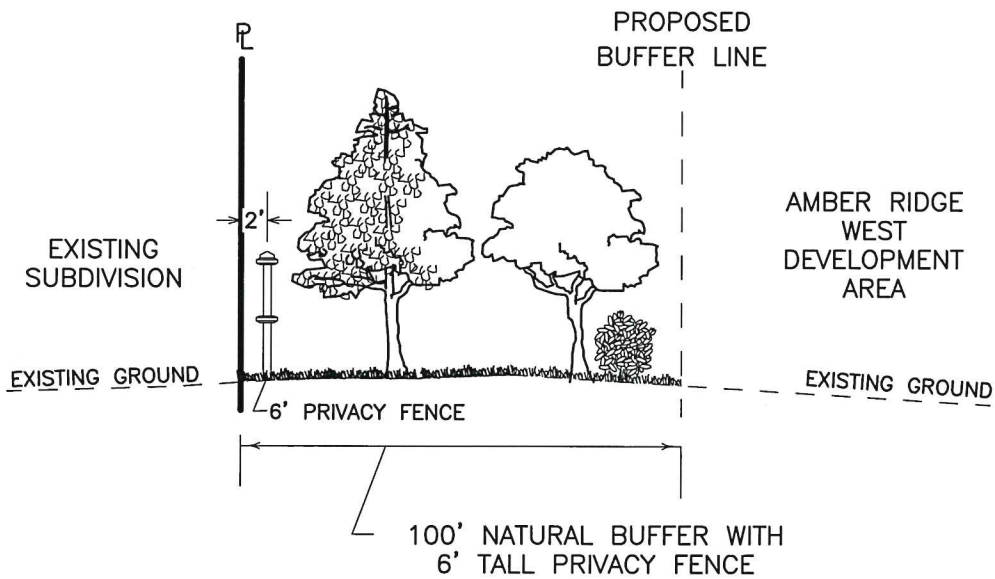
SECTION 21, 22, TOWNSHIP 18 SOUTH, RANGE 18 EAST,
CITRUS COUNTY, FLORIDA

FIGURE
5.0

**Pigeon - Ardurra
& Associates, LLC**
CIVIL ENGINEERS PLANNERS
SURVEYORS & MAPPERS

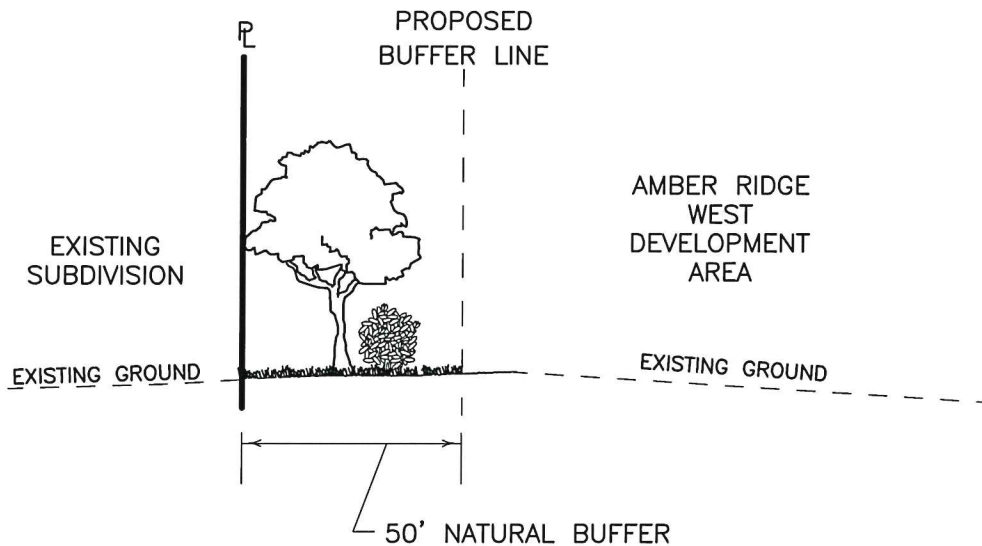
925 S.E. 17th Street
Suite A
Ocala, Florida 34471
(352) 861-7799 voice

ENGINEERING: NO. 26531 • SURVEYING & MAPPING: LB NO. 2610



100' NATURAL BUFFER ILLUSTRATION
(ALONG NORTH BOUNDARY)

NOT TO SCALE



50' NATURAL BUFFER ILLUSTRATION
(ALONG WEST BOUNDARY)

NOT TO SCALE

Pigeon - Ardurra, LLC

CIVIL ENGINEERS PLANNERS
 SURVEYORS & MAPPERS

925 S.E. 17th Street
 Suite A
 Ocala, Florida 34471
 (352) 861-7799 voice

FIGURE
 6.0

LANDSCAPE BUFFER SECTIONS

AMBER RIDGE WEST
 CITRUS COUNTY, FLORIDA

ENGINEERING: NO. 26531 • SURVEYING & MAPPING: LB NO. 2610

SECTION 20, TOWNSHIP 18 SOUTH, RANGE 18 EAST,
 CITRUS COUNTY, FLORIDA

APPENDIX A
Legal Descriptions of Property

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ARDURRA GROUP, INC.

March 31, 2023

LEGAL DESCRIPTION FOR AMBER RIDGE WEST

ALTKEY: 3526263, CITRUS COUNTY, FLORIDA

DESCRIPTION FOR AMBER RIDGE WEST:

A PARCEL OF LAND LYING IN SECTION 20, TOWNSHIP 18 SOUTH, RANGE 18 EAST, CITRUS COUNTY, FLORIDA, BEING A PORTION OF LANDS PREVIOUSLY INCLUDED IN PINE RIDGE UNIT TWO AS RECORDED IN PLAT BOOK 8, PAGES 37 THROUGH 50, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA; PORTIONS OF WHICH WERE VACATED ON MAY 24, 2011, PER RESOLUTION NO. 2011-091, AS RECORDED IN OFFICIAL RECORDS BOOK 2422, PAGE 581 OF SAID PUBLIC RECORDS; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 20, TOWNSHIP 18 SOUTH, RANGE 18 EAST, CITRUS COUNTY, FLORIDA; THENCE RUN N.00°23'07"W. ALONG THE EAST BOUNDARY LINE OF THE S.E. 1/4 OF SAID SECTION 20, 729.04 FEET TO A POINT ON THE NORTH BOUNDARY LINE OF LANDS DESCRIBED IN O.R. BOOK 3315, PAGE 1118, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA, SAID POINT ALSO BEING THE POINT OF BEGINNING; THENCE RUN S.89°14'11"W. ALONG THE NORTH BOUNDARY LINE OF SAID LANDS, 10.00 FEET TO THE EAST BOUNDARY LINE OF YMCA SUN AS RECORDED IN PLAT BOOK 19, PAGE 88, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA; THENCE RUN N.00°23'07 W., ALONG THE EAST BOUNDARY LINE OF SAID PLAT, 150.98 FEET; THENCE RUN S.89°14'11"W. ALONG THE NORTH BOUNDARY LINE OF SAID PLAT AND THE LANDS DESCRIBED IN O.R. BOOK 2452, PAGE 2157, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA, 2260.58 FEET; THENCE RUN S.00°45'49"E. ALONG THE WEST BOUNDARY LINE OF SAID LANDS, 687.50 FEET TO THE NORTHEAST CORNER OF PARCEL 300A AS DESCRIBED IN O.R. BOOK 2457, PAGE 1463, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA; THENCE RUN S.89°14'11"W, ALONG THE NORTH BOUNDARY LINE OF PARCEL 300A, 80.77; THENCE RUN S.00°45'51"E ALONG THE WEST BOUNDARY LINE OF PARCEL 300A, 62.50; THENCE RUN S.44°14'10"W. ALONG THE NORTHWESTERLY BOUNDARY LINE OF PARCEL 300A, 42.43 FEET TO THE NORTH RIGHT-OF-WAY OF

COUNTY ROAD 486 (W. NORVELL BRYANT HIGHWAY - RIGHT OF WAY WIDTH VARIES); THENCE RUN S.89°14'11"W. ALONG SAID NORTH RIGHT-OF-WAY, 2471.53 FEET TO THE EAST BOUNDARY LINE OF LOT 3, BLOCK 190, PINE RIDGE UNIT TWO AS RECORDED IN PLAT BOOK 8, PAGES 37 THROUGH 50, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA; THENCE RUN NORTH ALONG THE EAST BOUNDARY LINE OF SAID LOT 3, 414.91 TO THE SOUTH RIGHT-OF-WAY OF W. DEPUTY DRIVE (60' WIDE) AS PER SAID PINE RIDGE UNIT TWO PLAT; THENCE RUN EAST ALONG SAID SOUTH RIGHT OF WAY, 85.00 FEET TO THE EAST RIGHT-OF-WAY OF N. TAMPICO TERRACE (60' WIDE) AS PER SAID PINE RIDGE UNIT TWO PLAT; THENCE RUN NORTH ALONG SAID EAST RIGHT OF WAY, 1320.00 FEET TO THE SOUTH BOUNDARY LINE OF BLOCK 197 OF SAID PINE RIDGE UNIT TWO PLAT; THENCE RUN EAST ALONG THE SOUTH BOUNDARY OF BLOCK 197 AND BLOCK 194, OF SAID PINE RIDGE UNIT TWO PLAT, 4320.00 FEET TO THE EAST RIGHT-OF-WAY OF W. DEPUTY DRIVE (60' WIDE) AS PER SAID PINE RIDGE UNIT TWO PLAT; THENCE RUN NORTH ALONG SAID EAST RIGHT-OF-WAY, 100.00 FEET TO THE SOUTH BOUNDARY LINE OF LOT 11, BLOCK 191 OF SAID PINE RIDGE UNIT TWO PLAT, THENCE RUN EAST ALONG THE SOUTH BOUNDARY LINE OF SAID LOT 11, BLOCK 191, OF SAID PINE RIDGE UNIT TWO PLAT,, 430.38 FEET TO THE EAST BOUNDARY LINE OF THE S.E. 1/4 OF SAID SECTION 20; THENCE RUN S.00°23'07"E. ALONG SAID EAST BOUNDARY LINE, 1141.31 FEET TO THE POINT OF BEGINNING. CONTAINING 146.90 ACRES MORE OR LESS.

LEGAL PREPARED BY:

GARY L. MILAM P.S.M. #5058

ARDURRA GROUP, INC.

JOB #23-1060



Professional Surveyor & Mapper ~ 2182 N.E. 2nd Street, Ocala FL 34470

-Phone: (352) 622-7224 ~ Fax: (866) 425-3128 ~ office@milamls.com

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APPENDIX B
Warranty Deed

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1082
.5555

BK0827PG0330

Property Appraiser Parcel ID #: _____

✓ This instrument Prepared By:
Karen O. Gaffney, Esq.
Brannen, Stillwell & Perrin, P.A.
Post Office Box 250
Inverness, Florida 32651-0250

"RADON GAS, a naturally occurring radioactive gas that, when it has accumulated in a building in sufficient quantities, may present health risks to persons who are exposed to it over time. Levels of radon that exceed federal and state guidelines have been found in buildings in Florida. Additional information regarding radon and radon testing may be obtained from your county public health unit."

Grantee Employer ID#: 020372578

WARRANTY DEED

THIS INDENTURE, made this 24 day of August, 1989, BETWEEN CLARK A. STILLWELL, INDIVIDUALLY AND AS TRUSTEE, of the County of Citrus, State of Florida, Grantor, and GULF-TO-LAKES ASSOCIATES, LTD., a Florida limited partnership, whose post office address is Post Office Box 10,000, Crystal River, Florida 32629, of the County of Citrus, State of Florida, Grantee.

WITNESSETH that said Grantor, for and in consideration of the sum of TEN DOLLARS (\$10.00), and other good and valuable considerations to said Grantor in hand paid by said Grantee, the receipt whereof is hereby acknowledged, has granted, bargained and sold to the said Grantee, and Grantee's heirs and assigns forever, the following described land, situate, lying and being in Citrus County, Florida, to-wit:

See Exhibit "A" Attached Hereto And By Reference Made A Part Hereof.

SUBJECT to lien to taxes for 1989 and subsequent.
SUBJECT to easements, restrictions, covenants, limitations and conditions of record, if any.
GRANTOR states that the above-described property is not his homestead nor is it contiguous to lands claimed by him as his homestead.

This Deed is made pursuant to Fla. Stat. 201.11 and Fla. Admin. Code 4.014(2)(b) and is not subject to documentary stamp tax nor is State of Florida documentary stamp tax due.

GRANTOR warrants that Grantor has the power and authority to convey the property described herein under the express terms of the Trust Agreement dated February 17, 1986.

and said Grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons whomsoever. "Grantor" and "Grantee" are used for singular or plural, as context requires.

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

Signed, sealed and delivered in our presence:

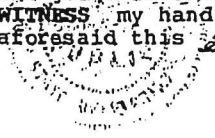
[Signature]
Pamela C. Rutledge

[Signature] (SEAL)
CLARK A. STILLWELL, Individually and as Trustee

STATE OF FLORIDA
COUNTY OF CITRUS

I HEREBY CERTIFY that on this day before me, an officer duly qualified to take acknowledgments, personally appeared CLARK A. STILLWELL, INDIVIDUALLY AND AS TRUSTEE, to me known to be the person described in and who executed the foregoing instrument and acknowledged before me that he executed the same.

WITNESS my hand and official seal in the County and State last aforesaid this 24th day of August, 1989.



[Signature]
Notary Public

Notary Public, State of Florida at Large
My Commission Expires Mar. 23, 1990

REC'D

MAY 23

and Development Division

EXHIBIT "A"

Legal Description

The following Lots and Blocks of PINE RIDGE UNIT TWO according to the plat thereof, as recorded in Plat Book 8, Pages 37 through 50, inclusive of the Public Records of Citrus County, Florida:

<u>Lots</u>	<u>Blocks</u>
4 through 12, inclusive	190
1 through 6, inclusive, and;	191
8 through 11, inclusive	
1	193
and; 6 through 10, inclusive	194
1 through 10, inclusive	195
1 through 17, inclusive	196
9 through 17, inclusive	197
22	199

LEGAL DESCRIPTION AND TITLE TO PROPERTY NOT RECORDED ON APPROVED.

ALSO

The following Lots and Blocks of PINE RIDGE UNIT THREE, according to the plat thereof, as recorded in Plat Book 8, Pages 51 through 67, inclusive of the Public Records of Citrus County, Florida:

<u>Lots</u>	<u>Blocks</u>
12 through 31, inclusive	307
3 through 28, inclusive	308
1 through 5, inclusive	309
11 through 17, inclusive	310
1 through 18, inclusive	311
1 through 7, inclusive	312
6 through 17, inclusive	313
7 and 8	314
3 through 5, inclusive	316

LEGAL DESCRIPTION AND TITLE TO PROPERTY NOT RECORDED ON APPROVED.

Flood Hazard Warning

This property may be subject to flooding. You should contact local building and zoning officials and obtain the latest information regarding flood elevations and restrictions on development before making plans for the use of this property.

The Board of County Commissioners of Citrus County, Florida is not responsible for, nor is any other governmental agency responsible for maintenance or improvement of any drive, road, street, easement or right-of-way providing ingress and egress to the property herein conveyed.

FILED & RECORDED
CITRUS COUNTY, FLORIDA
BETTY STRIFLER, CLERK
89 AUG 29 PM 3 37
VERIFIED BY:
[Signature]
D.C.

596456

030830
CITRUS COUNTY
STATE OF FLORIDA
DOCUMENTARY STAMP TAX
DEPT. OF REVENUE
AUG 29 1989
00.55

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APPENDIX C
Boundary Sketch of Description

APPENDIX D

Water and Sewer Utility Provider Letters

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Land Development Division



**Board of County Commissioners
DEPARTMENT OF WATER RESOURCES
UTILITY PLANNING AND ENGINEERING DIVISION**

3600 W. Sovereign Path, Suite 291

Lecanto, Florida 34461-7788

Telephone: (352) 527-7650 Fax: (352) 527-7644

TTY Telephone: (352) 527-5312

www.bocc.citrus.fl.us

E-mail Address: WaterResources@bocc.citrus.fl.us

04/04/2023

Mr. Chuck A. Pigeon, P.E.
PIGEON - ARDURRA, LLC
925 SE 17th Street, Suite A
Ocala, FL
cpigeon@ardurra.com

**RE: Amber Ridge West - Alt key #3526263
Water Service Capacity and Availability**

Dear Mr. Pigeon:

Citrus County Utilities currently has potable water capacity to serve the above referenced site, for the residential uses described in your March 30, 2023 letter.

The public water system serving this vicinity is the Citrus Springs/Pine Ridge Water System (Public Water System ID. No. 609-0312), having a current permitted capacity of 5,100,000 gallons per maximum day. During the past 12 months, the maximum day's flow was approximately 4,525,900 gallons per day.

Citrus County Utilities currently has both potable water and wastewater capacity to serve the above referenced site for the commercial and residential uses described in your March 30, 2023 letter.

The above referenced project vicinity is served by a network of 6-inch water distribution lines, generally located on W Deputy Dr, Tampico Ter, W Colt St, and W Ranger St.

Please let us know if this information is not responsive to your request.

CITRUS COUNTY DEPT. OF WATER RESOURCES

Layne C. Cady, P.E.
Senior Engineer

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Land Development Division



**Board of County Commissioners
DEPARTMENT OF WATER RESOURCES
UTILITY PLANNING AND ENGINEERING DIVISION**

3600 W. Sovereign Path, Suite 291

Lecanto, Florida 34461-7788

Telephone: (352) 527-7650 Fax: (352) 527-7644

TTY Telephone: (352) 527-5312

www.bocc.citrus.fl.us

E-mail Address: WaterResources@bocc.citrus.fl.us

04/04/2023

Mr. Chuck A. Pigeon, P.E.
PIGEON - ARDURRA, LLC
925 SE 17th Street, Suite A
Ocala, FL
cpigeon@ardurra.com

RE: Amber Ridge West - Alt key #3526263
Wastewater Service Capacity and Availability

Dear Mr. Pigeon:

Citrus County Utilities currently has wastewater capacity to serve the above referenced site, for the residential uses described in your March 30, 2023 letter.

Wastewater service to this vicinity is provided by the County;s Meadowcrest Wastewater Treatment Facility (Permit No.: FLA011845), having a current permitted capacity of 2,000,000 gallons per annual average day. During the past calendar year flows have averaged approximately 821,064 gallons per day

A 16 inch diameter pressure sewer force main runs along the south right-of-way line of CR-486 near the above referenced site.

Please let us know if this information is not responsive to your request.

CITRUS COUNTY DEPT. OF WATER RESOURCES

Layne C. Cady, P.E.
Senior Engineer

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Amber Ridge West

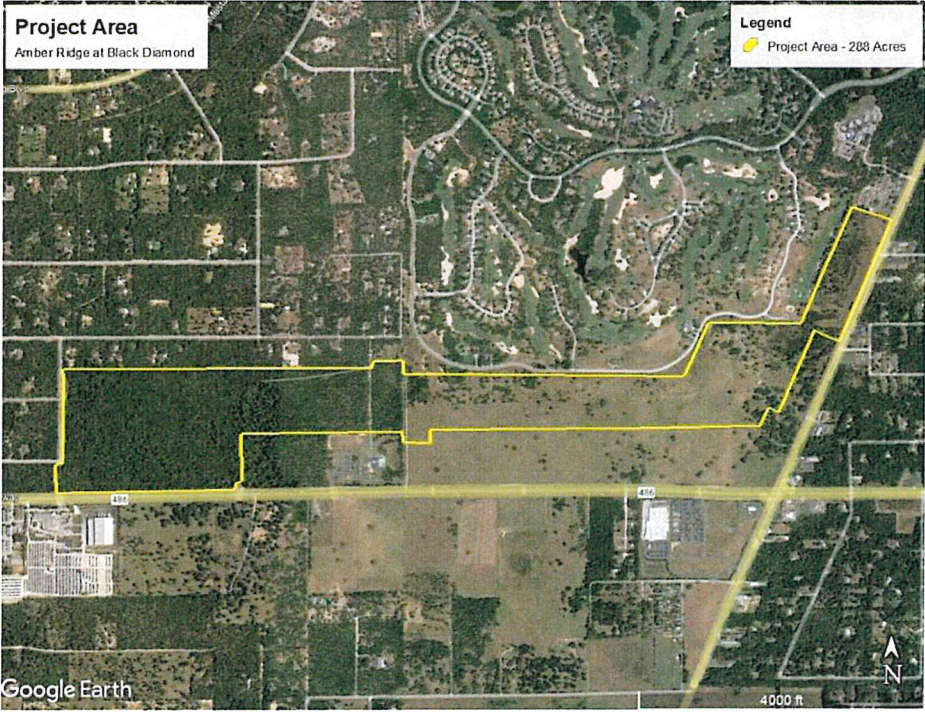
APPENDIX F
Environmental Phase 1

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Phase 1 Environmental Site Assessment
Amber Ridge at Black Diamond
Lecanto, Florida
April 6, 2022



Submitted by:

Southeast Soil & Environment Service, Inc.

4511 S Indian River Drive

Fort Pierce, Florida 34982

772 359-0038

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- I. Summary
- II. Introduction
 - A. Property Location
 - B. Coordinates
 - C. Elevation
 - D. Township, Range, and Section
 - E. Legal Description
 - F. Purpose of Phase 1 Environmental Site Assessment
 - G. USGS 7.5 Minute Quadrangle Map
- III. User Provided Information
- IV. Records Review
- V. Site Reconnaissance
- VI. Interviews
- VII. Evaluation
- VIII. Non-Scope Services

List of Figures

1. Site Map
2. Citrus County Property Appraisal Parcel Map
3. Topographic Map
4. Soil Map
5. Hydric Soils by Map Unit

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Appendices

- Appendix 1 Environment Professional
- Appendix 2 ERS Report -Occurrence Count
- Appendix 3 Historic Photomaps
- Appendix 4 Photographic Documentation
- Appendix 5 Forestry Management Information

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I. Summary

This section provides a summary of the Phase I Environmental Site Assessment process plus findings, opinions, and conclusions.

The site has no recognized environmental conditions and there were no indications of additional environmental testing needed. None is recommended.

Southeast Soil & Environmental Service, Inc. was asked by Scott Prewitt of DIX Development Inc. through Danny Young YBE Consulting, Inc. to conduct a Phase 1 Environmental Site Assessment on the Amber Ridge at Black Diamond property located on the northwest corner of the intersection of Citrus County Highway 486/Norvell Bryant Highway and Citrus County Highway 491/N Lecanto Highway Lecanto, Citrus County, Florida. The property is forested rural land consisting of some improved pasture, some planted pine, and abandoned buildings and sheds and a foundation of a homesite. DIX Development Inc. intends to purchase 283 acres of the property for development.

Southeast Soil and Environmental Service, Inc. followed the US Environmental Protection Agency's (EPA) All Appropriate Inquiries (AAI) rule found in 40 Code of Federal Regulations (CFR) Part 312, Subpart C. The AAI rule was developed by EPA as required by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) also known as Superfund. This Environmental Site Assessment includes, but is not limited to; interviews with past and present owners, operators and occupants, review of historical sources of information, review of federal, state, tribal and local government records as deemed appropriate, visual inspection of the facility and adjoining property, review of commonly known or reasonably ascertainable information and assessment of the degree of obviousness of the presence or likely presence of contamination at the property and the ability to detect the contamination. The report format is in general accordance with ASTM International (ASTM) Standard E 1527-13.

The Amber Ridge at Black Diamond property historic photomaps that were reviewed shows agricultural use or natural lands from 1944 to present. The property is listed as having no know contaminants reported and the site is not within a potential area of concern. No visible soil or vegetative areas observed indicate any potential areas of concern. There was no soil or groundwater testing performed in this study.

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II. Introduction

This section identifies the property and the purpose of the Phase I Environmental Site Assessment.

A. Property Location:

The Amber Ridge at Black Diamond property is located on the northwest corner of the intersection of Citrus County Highway 486/Norvell Bryant Highway and Citrus County Highway 491/N Lecanto Highway, Lecanto, Citrus County, Florida. The property is forested rural land consisting of some improved pasture, some planted pine, and abandoned buildings and sheds and a foundation of a homesite. The pastures are leased and are currently being grazed with 29 cows and calves and no bulls. The property is bordered on the north by single family homes, a golf course and a rehabilitation center. The property is bordered on the east by CR 491 with businesses across the highway including a fitness center, doctor's office, retail businesses and a Circle K gas station. It is bordered on the south by Citrus Memorial Health foundation YMCA, a site where Citrus County intends to build an elementary school, and CR 486, with a Walmart Super Center and an auto salvage facility on the south side of the highway. It is bordered on the west by N Tampico Terrace and single-family homes.

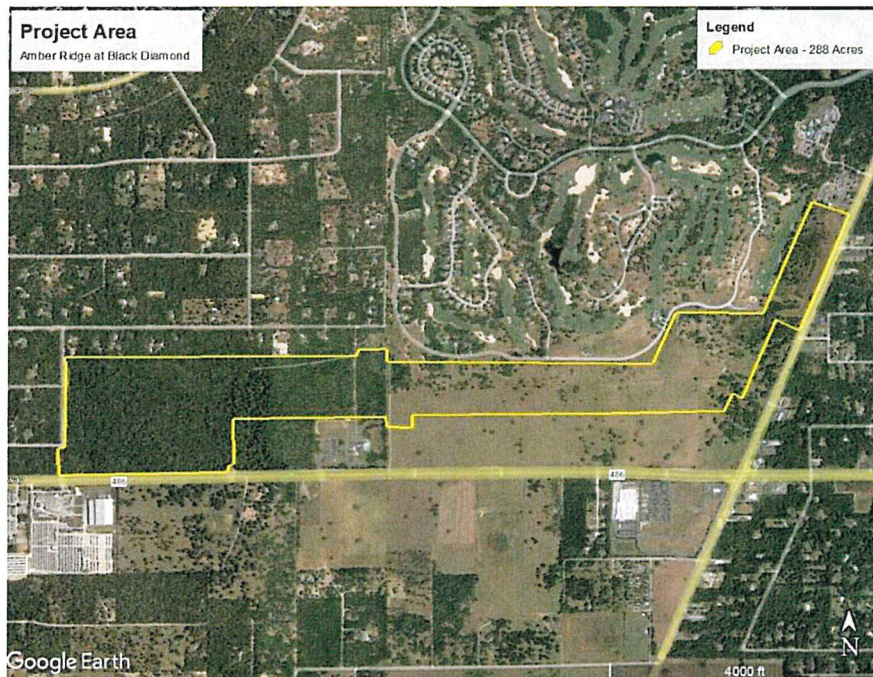


Figure 1. Site Map.

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B. Coordinates: N28°54'46.14" and W82°29'50.98"

C. Elevation: 36 - 185 feet NAVD 1988 Vertical Datum

D. Section Township Range: S1/2 Section20 and S1/2 Section 21 T18S R18E

E. Legal Descriptions: Citrus County Property Appraiser:

All	Altkey	Parcel ID	Owner Name ▲	Site Address	Site City	Short Legal	PC	NBHD	TaxYr
<input type="checkbox"/>	3469733	18E18S21 10000	CR 486 LLC	3499 W NORVELL BRYANT HWY	LECANTO	PARCEL 1. A PARCEL OF LAND BEING A PORTION OF LANDS DESCR	6100	0186	2022
<input type="checkbox"/>	3469757	18E18S22 34000	CR 486 LLC	2376 N LECANTO HWY	LECANTO	PARCEL 2. A PARCEL OF LAND BEING A PORTION OF THE LANDS	5500	0191	2022
<input type="checkbox"/>	3469757	18E18S22 34000	CR 486 LLC	2430 N LECANTO HWY	LECANTO	PARCEL 2. A PARCEL OF LAND BEING A PORTION OF THE LANDS	5500	0191	2022

3440692 18E18S21 21000 OLSEN ELIZABETH 2020 N LECANTO HWY LECANTO COM AT NE COR SEC 21-18-18, TH S O DEG 16S W AL E LN 6100 1804 2022

altkey	parcelid	nbhd	nbhd_desc	pc	pc_desc	mapsec	maptpv	maprpg	landuse
3469757	18E18S22	191	FOREST RIDGE BLVD SOUTH TO HWY 486	5500	Timberland, Index 80-90	22	18S	18E	PSO ON HWY
3469733	18E18S21	186	HORSEBACK AVE EAST TO HWY 491	6100	Grazing, Class II	21	18S	18E	PSO ON HWY
3469733	18E18S21	186	HORSEBACK AVE EAST TO HWY 491	6100	Grazing, Class II	21	18S	18E	MEDIUM DENSITY RES ON HWY
3469757	18E18S22	191	FOREST RIDGE BLVD SOUTH TO HWY 486	5500	Timberland, Index 80-90	22	18S	18E	MEDIUM DENSITY RES ON HWY
3469733	18E18S21	186	HORSEBACK AVE EAST TO HWY 491	6100	Grazing, Class II	21	18S	18E	COMMERCIAL MEDIUM

numbldg	est_pcl	sc_est_pcl	ac	mill_distri	site_adrnc	site_adrdi	site_adrstr	site_adrsite	site_adrsite	site_adrci	site_uni	short_leg	justvalue	landval	imprval	assessed	taxable	homestea
0	1977235	45.39	000X		2376 N	LECANTO	HWY	LECANTO	LECANTO	LECANTO	PARCEL 2:	1177040	1177040	0	10894	10894	N	
0	6372443	146.29	000X		3499 W	NORVELL BRYANT	HWY	LECANTO	LECANTO	LECANTO	PARCEL 1:	5198160	5198160	0	31495	31495	N	
0	6372443	146.29	000X		3499 W	NORVELL BRYANT	HWY	LECANTO	LECANTO	LECANTO	PARCEL 1:	5198160	5198160	0	31495	31495	N	
0	1977235	45.39	000X		2376 N	LECANTO	HWY	LECANTO	LECANTO	LECANTO	PARCEL 2:	1177040	1177040	0	10894	10894	N	
0	6372443	146.29	000X		3499 W	NORVELL BRYANT	HWY	LECANTO	LECANTO	LECANTO	PARCEL 1:	5198160	5198160	0	31495	31495	N	

total_under_roof	owner_1	owner_2	address	city_st_zip
0	CR 486 LLC		32 FOX RUN	BEDFORD NH 03110
0	CR 486 LLC		32 FOX RUN	BEDFORD NH 03110
0	CR 486 LLC		32 FOX RUN	BEDFORD NH 03110
0	CR 486 LLC		32 FOX RUN	BEDFORD NH 03110
0	CR 486 LLC		32 FOX RUN	BEDFORD NH 03110

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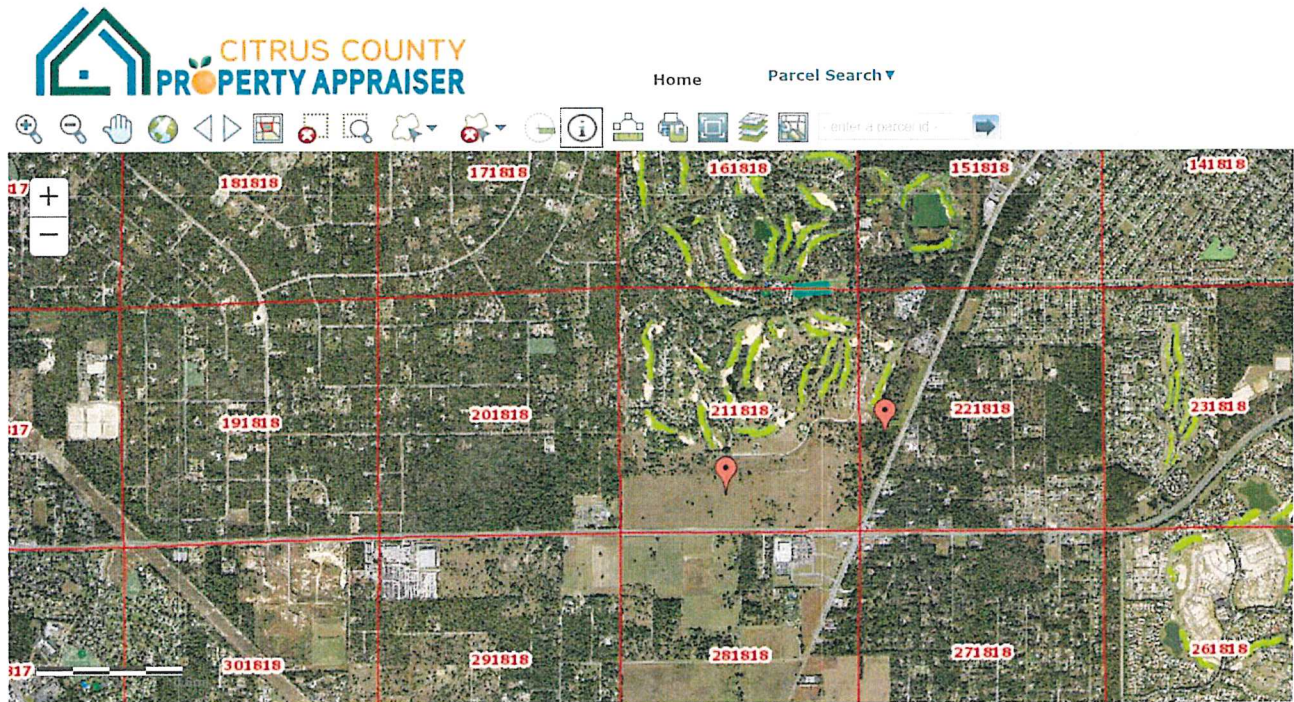


Figure 2. Citrus County Property Appraisal Parcel Map.

F. Purpose of Phase 1 Environmental Site Assessment:

Southeast Soil & Environmental Service, Inc. was asked by Scott Prewitt of DIX Development Inc. through Danny Young YBE Consulting, Inc. to conduct a Phase 1 Environmental Site Assessment on the Amber Ridge at Black Diamond property located on the northwest corner of the intersection of Citrus County Highway 486/Norvell Bryant Highway and Citrus County Highway 491/N Lecanto Highway Lecanto, Citrus County, Florida., Lecanto, Citrus County, Florida. The purpose of the Phase 1 Environmental Site Assessment was for their own satisfaction during their due diligence period before purchasing the property.

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G. USGS 7.5 Minute Quadrangle Map

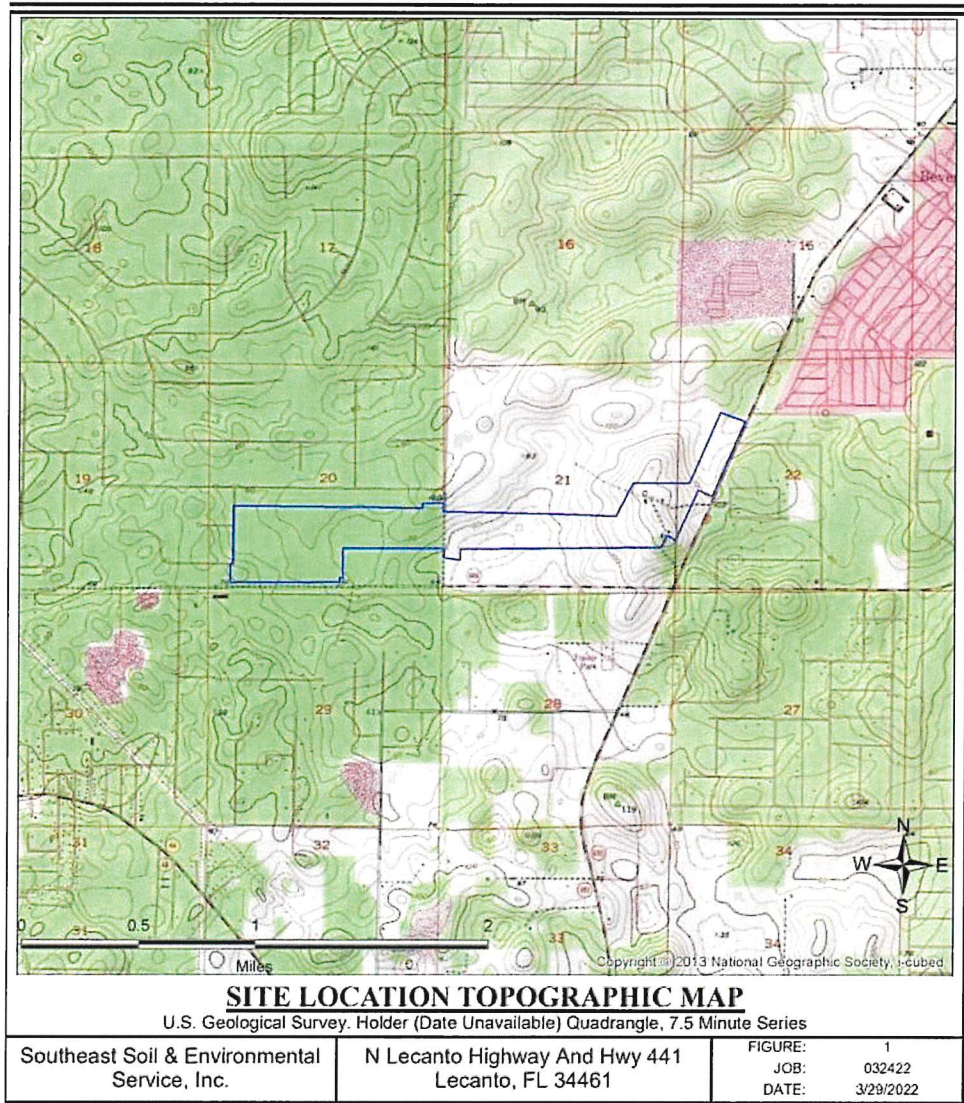


Figure 3. Topographic Map.

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III. User Provided Information

See Section VI. Interviews.

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IV. Records Review

This section presents a review of physical setting sources, standard and additional environmental records, sources, and historical use information on the property and surrounding area.

An Environmental Record Search (ERS) was completed on April 26, 2022 and is provided in Appendix 2. The property is not located within a potential area of concern. The Occurrence Count is 51 within a 1-mile radius. Most of the occurrences are businesses with a potential for a problem due to the nature of the business, such as a gas station, dry cleaner or salvage yard. Six businesses were found in the Source Water Assessment and Protection Program due to potential contamination of the Floridan aquifer, which is used for drinking water. Part of the records searched was a review of Florida Department of Agriculture and Consumer Services data base on cattle dipping vats which were widely used in the 1950s and required by State law in Florida. They commonly contained arsenic and may present an environmental or public health problem. There were none found within the data base for the Amber Ridge at Black Diamond property.

Historic aerial photomaps are provided in Appendix 3. The earliest year reviewed was 1944. Also reviewed were photomaps from 1951, 1960, 1974, 1985, 1990, 1995, 2000, 2005, 2010, 2013, 2015, and 2021. On the 1944 photomap the property is forested becoming less dense in the east near CR 491. There is possible mining activity showing to the north. The 1951 photomap shows more open land on the property, perhaps for grazing and in 1960 the pasture is more apparent. The 1974 photomap showed the biggest change in the surrounding properties with development starting east of CR 491 north of the property. County Road 486 has been built. In the 1985 photomap the house can be seen on the property. The surrounding properties are being developed with single family homes and small businesses. Changes after 1985 have been gradual.

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V. Site Reconnaissance

This section includes general site setting, observations and conditions of the property and adjoining properties.

A site investigation was conducted on March 31st and April 1st 2022. All buildings were inspected for leaking chemicals and none were found. All pastures and wooded areas were inspected. There were no areas where vegetation appeared to be stressed or discolored. Pastures appeared to be in good health. A small number of Tropical Soda Apple were observed, which are invasive. Photographic documentation can be found in Appendix 4.

The property was hilly with the elevation varying more than 100 feet. The wooded area in the western half of the property was mixed pine and hardwoods. The pines appeared to be old with some having a DBH of 24 inches or more. There was also a pine plantation in the eastern part of the property appearing to be planted about 10 years ago.

There were many businesses adjacent to the property. On Citrus County Highway 491 there is a Rehabilitation Center adjacent to the property with retail stores, a fitness center and doctors' offices across the street. There are Circle K and Wawa gas stations and a McDonalds at the intersection with Citrus County Highway 486/West Norvell Bryant Highway. On the South side of Citrus County Highway 486/Norvell Bryant Highway there are also businesses including a Walmart Super Center and a large auto salvage facility, and on the same side of the street is the Citrus Memorial Health Foundation YMCA and an area west of the YMCA where Citrus County intends to build an elementary school. There is a large purple pipeline on the east side of the YMCA through the property bringing reclaimed water to a golf course north of the property which is used for irrigation. There was also a post in the ground indicating that a buried natural gas line was present (see Interviews in Section VI for more information.) See photos in Appendix 4. Also, along Citrus County Highway 486/Norvell Bryant Highway, there are many stormwater drains which take the stormwater off of the highway and allow it to run into a small swale and then, in many places, onto the property. See photos in Appendix 4.

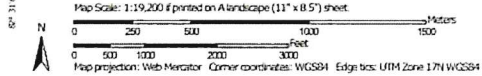
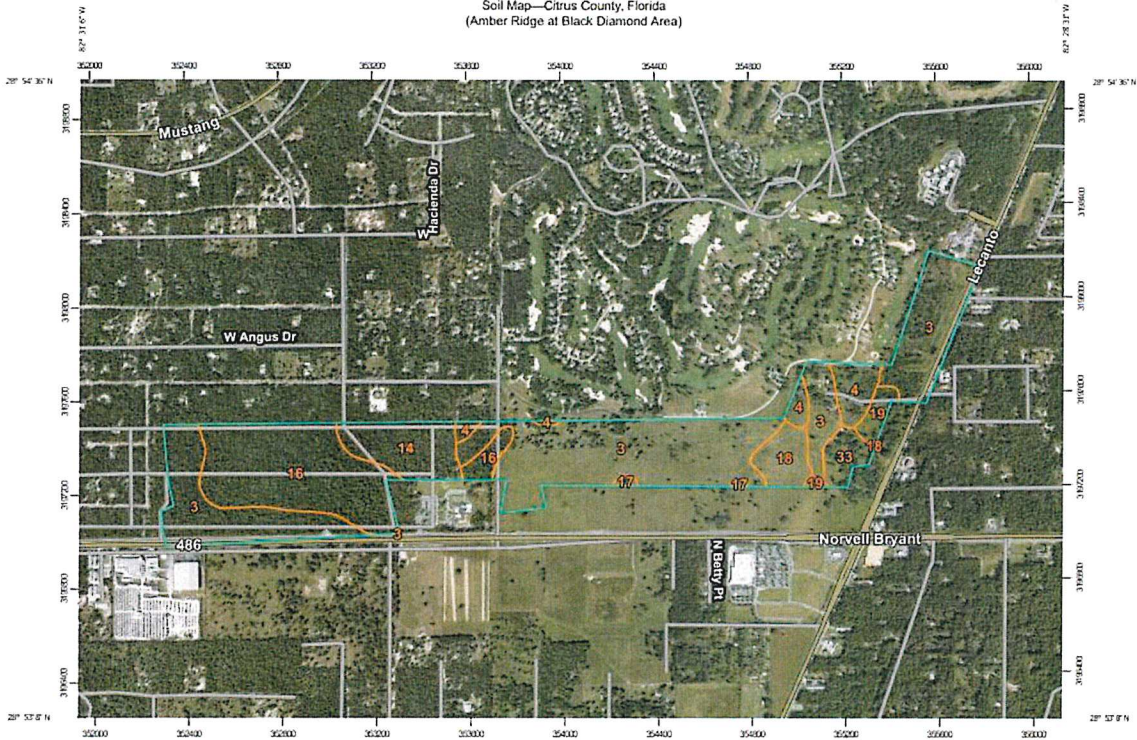
There were several small structures on the property including what appeared to be a well house with a large partially buried pressure tank in the back. There was electricity to this building and it was probably used for irrigation in the past. The main residence has been torn down but the foundation was still present. There were some building materials nearby.

No wetlands were observed on the property.

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Soil Map—Citrus County, Florida
(Amber Ridge at Black Diamond Area)



USDA
Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

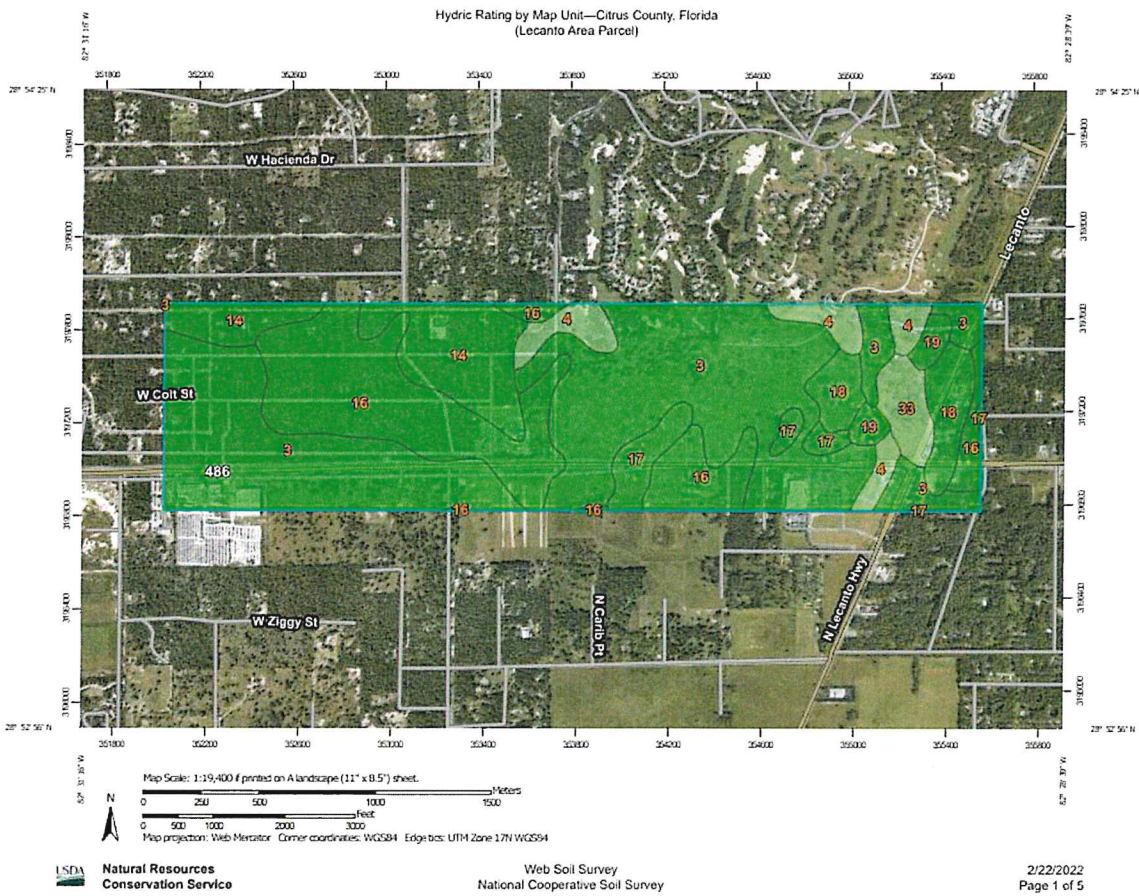
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Page 1 of 3


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Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Candler fine sand, 0 to 5 percent slopes	173.2	54.1%
4	Candler fine sand, 5 to 8 percent slopes	15.9	5.0%
14	Lake fine sand, 0 to 5 percent slopes	25.8	8.1%
16	Arredondo fine sand, 0 to 5 percent slopes	75.4	23.6%
17	Arredondo fine sand, 5 to 8 percent slopes	1.2	0.4%
18	Kendrick fine sand, 0 to 5 percent slopes	12.8	4.0%
19	Kendrick fine sand, 5 to 8 percent slopes	6.4	2.0%
33	Micanopy loamy fine sand, 2 to 5 percent slopes	9.3	2.9%
Totals for Area of Interest		320.0	100.0%

Figure 4. Soil Map.



 100% non-hydric

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Figure 5. Hydric Soils by Map Unit

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VI. Interviews

This section provides a summary of interviews conducted.

Joe Cappuccilli

There were two telephone interviews with owner representative, Joe Cappuccilli, on March 30th 2022 and April 8, 2022 as well as several emails. Mr. Cappuccilli provided phone numbers for Michael Johns, the property manager, Tony Russ who has the grazing lease, and for John Holzaepfel, the Forestry Management Consultant who all had knowledge of the property. Mr. Cappuccilli explained the complex ownership of the property and said that the exact acreage of the current negotiation has not yet been determined. The 283 acres originally addressed in this report were 232 acres parallel to CR 486 owned by CR 486 LLC and Gulf to Lakes Associates LLLP, 35 acres along CR 491 also owed by CR 486 LLC and 16 acres between the two owned by Elizabeth Olsen. He said that the name "Black Diamond" was a variety of grapefruit that may have grown north of the property. He said that the current owners of the property originally owned property both north and south of the current property including the golf course to the north and the site of the Walmart Super Center to the south. Mr. Cappuccilli said that there may have been mining activity in the past on the property to the north.

Michael Johns

Michael Johns, the property manager, was interviewed by phone on March 31st and on April 5th 2022. Mr. Johns said that he was the property manager for about 24 years but was familiar with the property for more than 30 years. He said that they used to grow grapefruit on the property before the freeze. (He couldn't have been talking about the 1985 freeze that caused much of the citrus in Florida to move south because there was no evidence of any citrus in the area on the historical photomaps so he may have been speaking of the Great Freeze on December 29th 1894.) Mr. Johns said that the grapefruit extended north beyond the current property boundary. He said that when the houses to the north were built, they needed a buffer and what is left of the property is that buffer. Mr. Johns also explained that the metal tank behind the well house was a pressure tank. The well was used for irrigation.

Tony Russ

Tony Russ who leases part of the property to graze cattle was interviewed by phone on April 4, 2022. He said that he has leased approximately 180 acres of the property for three to four years. He said that he took over the lease from Tom Wolf, now deceased,

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and bought the cows from him. Before that, Charles S Dean, Sr., Citrus County Sheriff, held the lease for many years but is now a Florida State Senator. Senator Dean took his cows off the property when the road was expanded. Mr. Russ said that he has 29 cows and calves on the property now but no bulls.

John Holzaepfel

Forestry management Consultant, John Holzaepfel, Natural Resource Planning Services, was interviewed on April 7th 2022 by phone and email. Mr. Holzaepfel said that he oversaw the mechanical planting of a 25.3-acre pine plantation in 2010. See Appendix 5. It is located on the west side of CR 491. The only chemical use was to spray a stand of Cogan grass. Mr. Holzaepfel also described some work he did cutting some trees out of the pasture area that were suitable to be removed due to disease or other problems. He was also familiar with the 147.59-acres owned by Gulf to Lakes Associates, LLLP of xeric pine oak in the western half of the property but did not cut any trees there.

Phil Zimmer

Phil Zimmer from Florida Public Utilities was interviewed by phone on April 11th, 2022. He verified that the large (+/- 20 inch) purple pipe on the east side of the YMCA is a re-use water line crossing the property to the golf course for irrigation. He also verified that there are two buried gas lines in the area. A six-inch line runs east-west along CR 486 and a two-inch line runs north and is the Main Feed for the Black Diamond housing development. There is an easement across the property for maintenance.

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VII. Evaluation

More than half of the Amber Ridge at Black Diamond property has been wooded since the 1944 aerial photo maps and probably long before that. The balance was used for grazing animals and would be considered native rangeland for most of the time. No visible environmental problems were encountered during the site inspection. According to the Records Search, the property is listed as having no known contaminants reported and is not within a potential area of concern. There was no visible soil or vegetative evidence indicating unusual site disturbance encountered during the site inspection. There were no wetlands encountered on the property and none were listed in the ecological or soils information that was reviewed. There were no sinkholes encountered on the property although Citrus County is listed as number 6 out of the top ten counties in Florida for sinkhole activity according to Insurance Journal dated March 30th, 2011. There was no soil or groundwater testing performed in this study.

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VIII. Non-Scope Services

During the field investigations, record searches and interviews conducted for this Phase I Environmental Site Assessment there were no indications of additional environmental testing needed. However, if in the future something becomes apparent or during construction something that was otherwise not readily visible is seen, additional environmental evaluation, including soil and/or water testing might be necessary.

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APPENDIX I

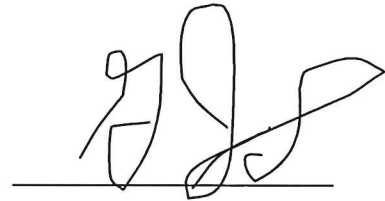
Appendix I
Qualifications of Environmental Professional and Limitations

According to EPA's 40 CFR part 312 Subpart (b) (1) a person who possesses sufficient specific education, training, and experience (2) hold a professional license, have at least three years of full-time relevant experience, have a Baccalaureate or higher degree from an accredited institution of higher learning in a discipline of engineering or science.

The preparers of this Phase I Environmental Assessment have the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the subject property.



Donna M. Smith P.G. #150



Gregory J. Sawka, CPSS. 02625

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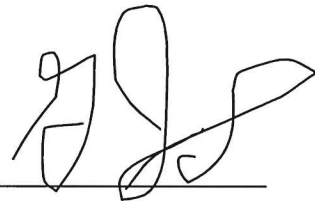
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Limitations

While due care has been exercised in the performance of these measurements and their interpretations, Southeast Soil & Environmental Service, Inc. can make no representations, warranties, or guarantees with respect to latent or concealed conditions which may exist that may be beyond the limits of the detection with the methodologies used. Additional data subsequently provided may alter the findings or conclusions made in the assessment report. The findings presented in this report are based on site conditional and information made available at the time of the assessment.



Donna M. Smith P.G. #150



Gregory J. Sawka, CPSS . 02625

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Amber Ridge West

APPENDIX G
Traffic Operations Study

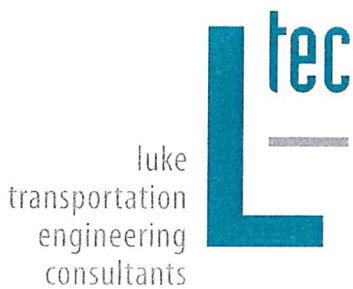
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DECEMBER 2022

AMBER RIDGE RESIDENTIAL SITE

CITRUS COUNTY, FLORIDA

TRAFFIC OPERATIONS STUDY



L^{tec} No 22-4701

transportation engineering + planning

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CITRUS COUNTY
TRAFFIC OPERATIONS STUDY

AMBER RIDGE RESIDENTIAL SITE

Prepared for:

Delta Land Group
103 Commerce Street, Suite #140
Lake Mary, FL 32746

Prepared by:

LUKE TRANSPORTATION ENGINEERING CONSULTANTS, INC.

P. O. Box 941556
Maitland, Florida 32794-1556
407-423-8055

www.Ltec-FL.com

DECEMBER 2022

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PROFESSIONAL ENGINEERING CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Luke Transportation Engineering Consultants, a corporation authorized to operate as an engineering business (#EB-0007429), by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice hereby reported for

PROJECT: Amber Ridge Residential Site

LOCATION: NW Quadrant of CR 486 & CR 491, Citrus County, Florida

CLIENT: Delta Land Group

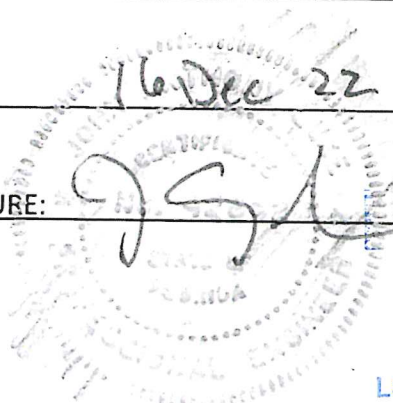
I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

NAME: J. Anthony Luke, P.E.

P.E. NO.: 42642

DATE: 16 Dec 22

SIGNATURE: JSA



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INTRODUCTION

Purpose

This study was conducted to assess the traffic impact of the proposed Amber Ridge Residential Site (“Project”) in Citrus County, Florida. The Project site location is shown in **Figure 1**. **Figure 2** shows the conceptual site plan with seven (7) proposed access points, along CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway). This traffic analysis is based on the full build-out of the Project by year 2027. As determined through coordination with the Citrus County staff, the traffic analysis required for the Project is limited to the peak hour analysis of the proposed Project access points. Citrus County does not require a concurrency analysis of the off-site transportation network. Based on the adopted Citrus County municode, the traffic analysis for the Project includes the following components:

- No TIA Methodology Letter/Statement required,
- Study Intersection limited to the Project Driveway Access Points,
- Review Area/Study Roadways limited to CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) roadway segments adjacent to the Project access points, and
- Background traffic volumes developed using background traffic growth rates determined based on historic traffic volumes and the CR 486 and CR 491 – NWC commercial development traffic volumes.

Site Location and Site Plan

The Project site location is shown in Figure 1, in the northwest quadrant of CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) in Citrus County, Florida. The property is currently undeveloped. Figure 2 shows the conceptual site plan with the full access driveways identified.

The development scenario consists of two residential subdivisions, a 300-dwelling unit multi-family subdivision and a 787-dwelling unit single family subdivision.

Study Limits

The TIA study limits included the following:

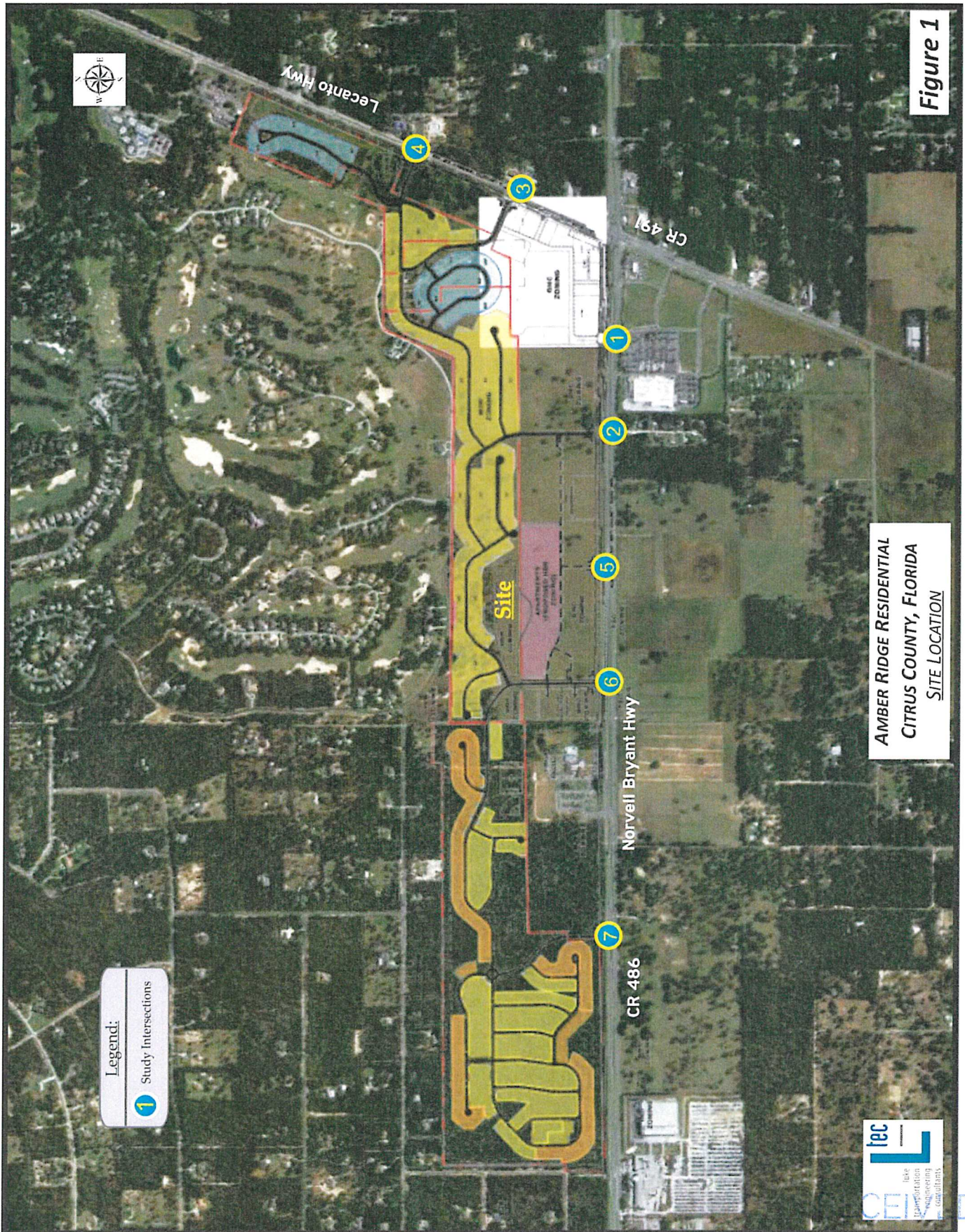
- Project access driveways (five) on 486 (Norvell Bryant Highway)
- Project access driveways (two) on CR 491 (Lecanto Highway)

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Based on a review of the Hernando/Citrus Metropolitan Planning Organization FY 2022-2026 Transportation Improvement Program, no improvements are programmed for construction within the Project traffic study limits.



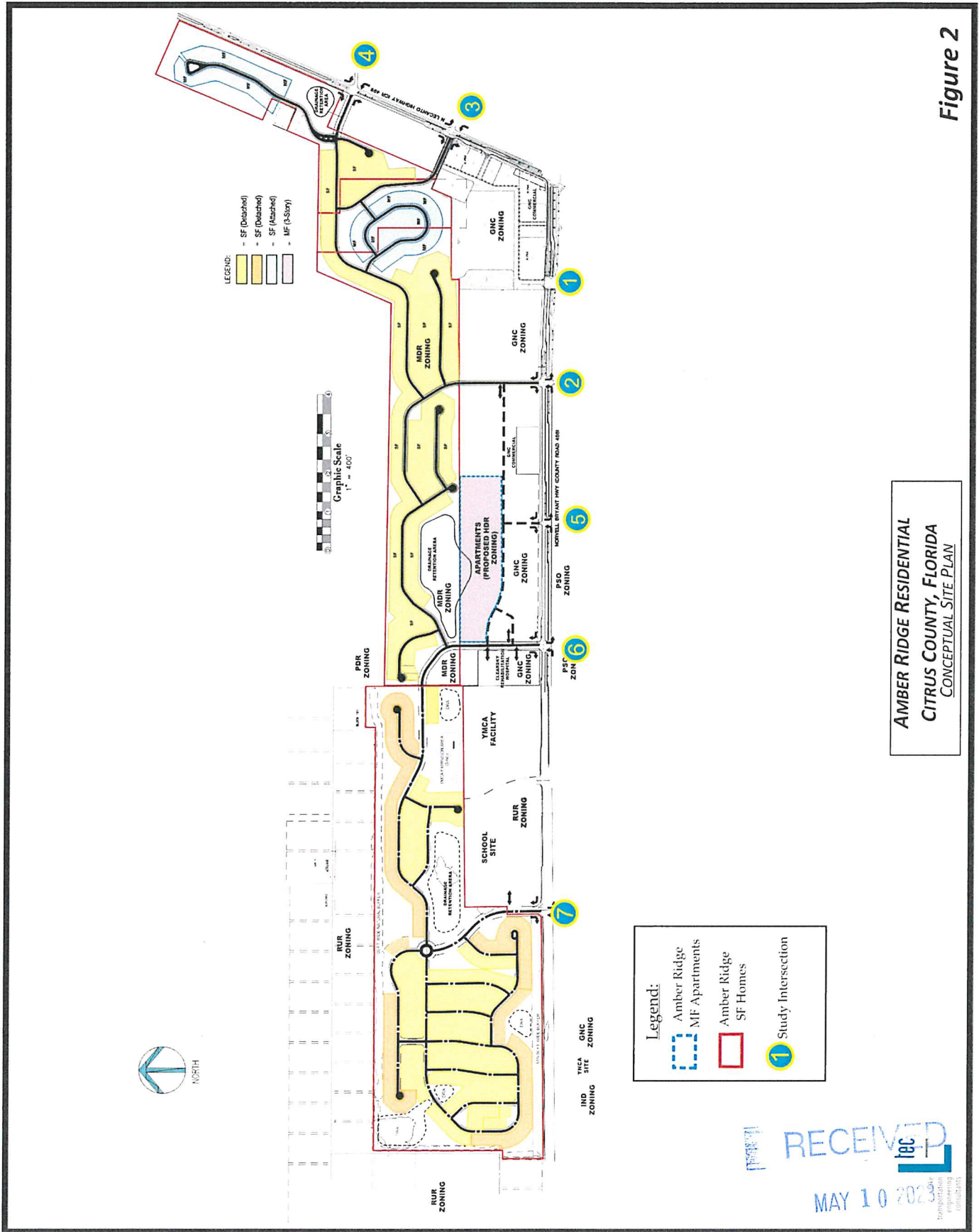


Figure 2

EXISTING ROADWAY AND TRAFFIC CONDITIONS

Existing Roadway Traffic Volumes

Existing traffic volumes for the CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) roadway segments adjacent to the Project were derived from the turning movement counts collected for this study. The turning movement count summary is included in **Appendix A**. The existing (Thursday, October 13, 2022) intersection volumes are developed from raw turning movement counts and FDOT Seasonal Factors to produce Annual Average volumes. **Figure 3** shows the existing A.M. and P.M. peak hour access driveways traffic volumes. The CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) segment volumes are summarized in **Table 1**. As can be seen the adjacent roadways currently operate at LOS C.

TABLE 1
Study Roadway Segment Parameters and Existing Level of Service

Roadway Segment	# of Lanes	Adopted Functional		Roadway Service Volumes Peak Hour / Peak Direction Capacity Table (1)				
		Class	LOS	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Norvell Bryant Highway (CR 486)								
West of Lecanto Highway	4LD	Arterial	C	0	0	1,910	2,000	2,000
Lecanto Highway (CR 491)								
North of Norvell Bryant Highway	4LD	Arterial	C	0	0	1,910	2,000	2,000

Roadway Segment	# of Lanes	Peak Hour Traffic Volumes						Meets Adopted LOS
		A.M. Peak Hour			P.M. Peak Hour			
		Volumes	LOS		Volumes	LOS		
Norvell Bryant Highway (CR 486)								
West of Lecanto Highway	4LD	<u>EB</u>	<u>WB</u>		<u>EB</u>	<u>WB</u>		
		481	704	C	1,019	678	C	Yes
Lecanto Highway (CR 491)								
North of Norvell Bryant Highway	4LD	<u>NB</u>	<u>SB</u>		<u>NB</u>	<u>SB</u>		
		793	1,081	C	1,199	1,073	C	Yes

1. FDOT Quality/LOS Handbook, Jan 2020.

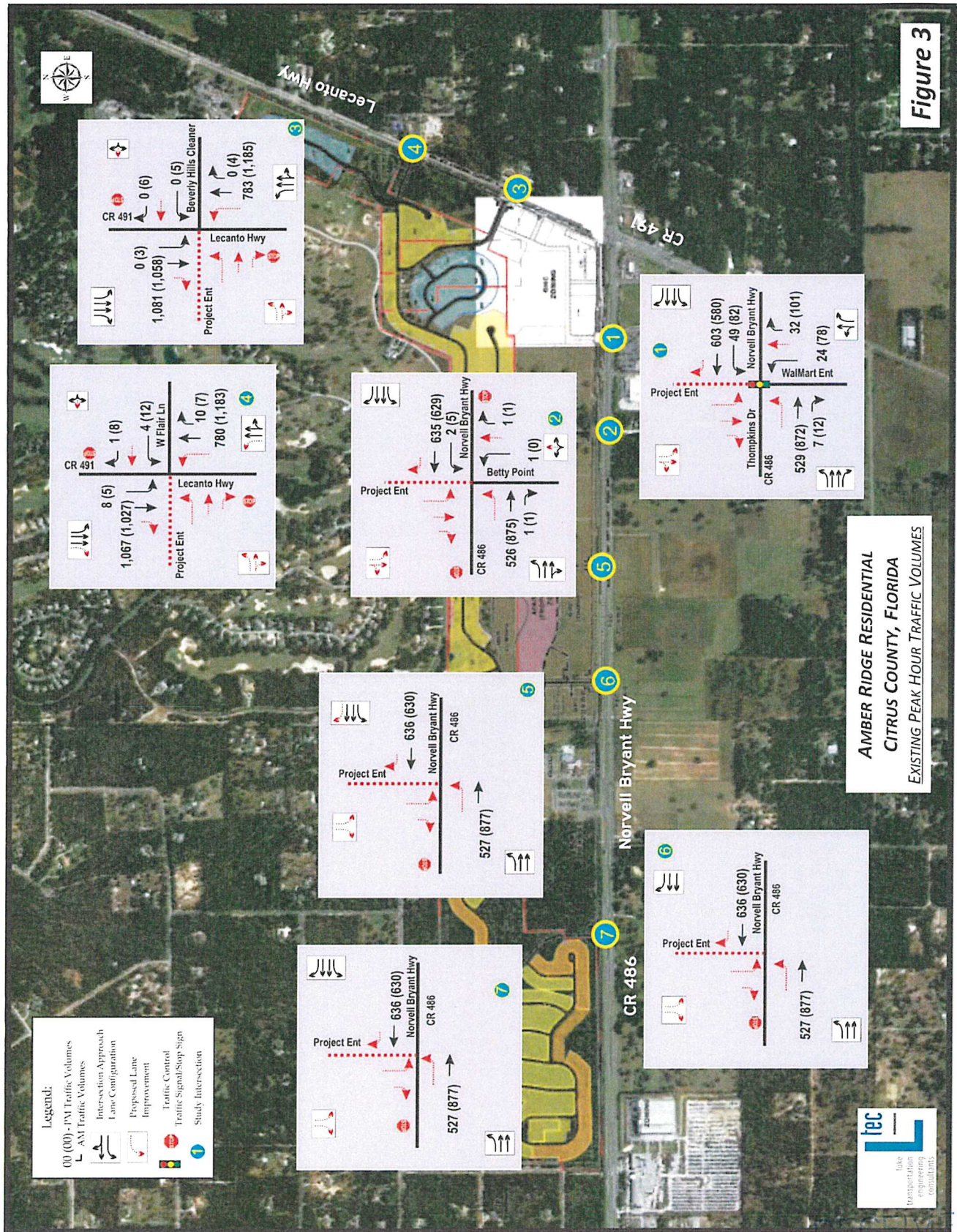
Luke Transportation Engineering Consultants, 2022

Existing Intersection Traffic Volumes and Operating Conditions

The existing AM and PM peak hour traffic volumes for the study intersections were analyzed using the Synchro 11 software *Highway Capacity Manual (HCM)*, 6th Edition techniques. The HCM Synchro reports for the Project driveway is included in **Appendix B**. The Project driveways existing level of service and delay are presented in **Table 2**. As can be seen, the signalized study intersection (Intersection #1) currently operates at LOS A. For the unsignalized study intersections, all the major streets left turn movements operate at a LOS B or better condition. All the minor street movements operate at a level of service of C or better.





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Figure 3



AMBER RIDGE RESIDENTIAL
 CITRUS COUNTY, FLORIDA
 EXISTING PEAK HOUR TRAFFIC VOLUMES

TABLE 2
Study Intersection Existing (2022) Level of Service

Approach / Movement		Lanes	Turn Lane Length	Traffic Control	LnGrp Avg Delay (d) (sec/veh)	LnGrp V/C Ratio	LnGrp LOS	95th %ile Queue (Feet)	LnGrp Avg Delay (d) (sec/veh)	LnGrp V/C Ratio	LnGrp LOS	95th %ile Queue (Feet)
1 - Norvell Bryant Highway (CR 486) (EB/WB) and WalMart Entrance (NB)												
					A.M. Peak Hour				P.M. Peak Hour			
EB	Thru Right	2	385		3.9	0.22	A		6.9	0.39	A	
		1	245		3.2	0.01	A	0	4.7	0.01	A	3
WB	Left Thru	1	345		2.2	0.07	A	5	4.4	0.22	A	18
		2			1.6	0.22	A		2.7	0.23	A	
NB	Left Right	1	175		46.3	0.35	D	28	45.1	0.52	D	95
		1			49.8	0.51	D		50.9	0.75	D	
Intersection Summary					4.7		A		9.7		A	
2 - Norvell Bryant Highway (CR 486) (EB/WB) and Betty Point (NB)												
					A.M. Peak Hour				P.M. Peak Hour			
EB	Thru Right	2		Free Flow								
		>										
WB	Left Thru	1	345	Free Flow	8.7	0.002	A	0	10.3	0.008	B	0
		2										
NB	Left Right	<			11.7	0.004	B	0	12.0	0.002	B	0
		>										
3 - Beverly Hills Cleaner (WB) and Lecanto Highway (CR 491) (NB/SB)												
					A.M. Peak Hour				P.M. Peak Hour			
WB	Left Right	<			0.0	0.000	A	0	18.2	0.041	C	3
		>										
NB	Thru Right	2		Free Flow								
		>										
SB	Left Thru	1	245	Free Flow	0.0	0.000	A	0	11.6	0.006	B	0
		2										
4 - West Flare Lane (WB) and Lecanto Highway (CR 491) (NB/SB)												
					A.M. Peak Hour				P.M. Peak Hour			
WB	Left Right	<			15.4	0.015	C	0	20.4	0.084	C	8
		>										
NB	Thru Right	2		Free Flow								
		>										
SB	Left Thru	1	240	Free Flow	9.6	0.011	A	0	11.8	0.010	B	0
		2										

Luke Transportation Engineering Consultants, Inc., 2022



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PROPOSED DEVELOPMENT PLAN

Project Trip Generation

The proposed Amber Ridge Residential Project plan is to develop two residential developments (a 787-dwelling unit single family subdivision [outlined in a red line] and a 300-dwelling unit subdivision [outlined in a dashed blue line]) north of the CR 486 and CR 491-NWC commercial development as shown in Figure 2. Using the Institute of Transportation Engineers (ITE) *Trip Generation Report*, (11th Edition) the Project trips for each of the residential developments were developed. **Table 3** summarizes the estimated trip generation for the two residential developments. The daily, A.M. and P.M. peak hour trip ends for the two residential land use are presented. Due to the CR 486 and CR 491 – NWC commercial development located along the southern property boundary of the two residential developments, an internal capture calculation was performed and is discussed below.

Internal Capture

Internal trips are defined as trips that occur between compatible land uses (i.e., trips occurring between residential and commercial land uses within the proposed development site). The internal trips will have no impact on the adjacent roadway network. Utilizing the procedures contained in the *ITE Trip Generation Handbook*, 3rd Edition, section on “Trip Generation for Multi-Use Development,” an internal capture calculation was performed. Copies of the internal capture worksheets (A.M. and P.M.) are included in **Appendix C**. **Table 3** includes the internal trip ends adjustment calculations at build-out based on the three development scenarios.

Trip Distribution and Assignment

Project trip distribution was estimated based on the existing turning movement counts collected in the area. **Figure 4** shows the Project trip distribution based on the access connections. The Project trips were assigned to the site driveways and adjacent CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) segments at the Project driveways.

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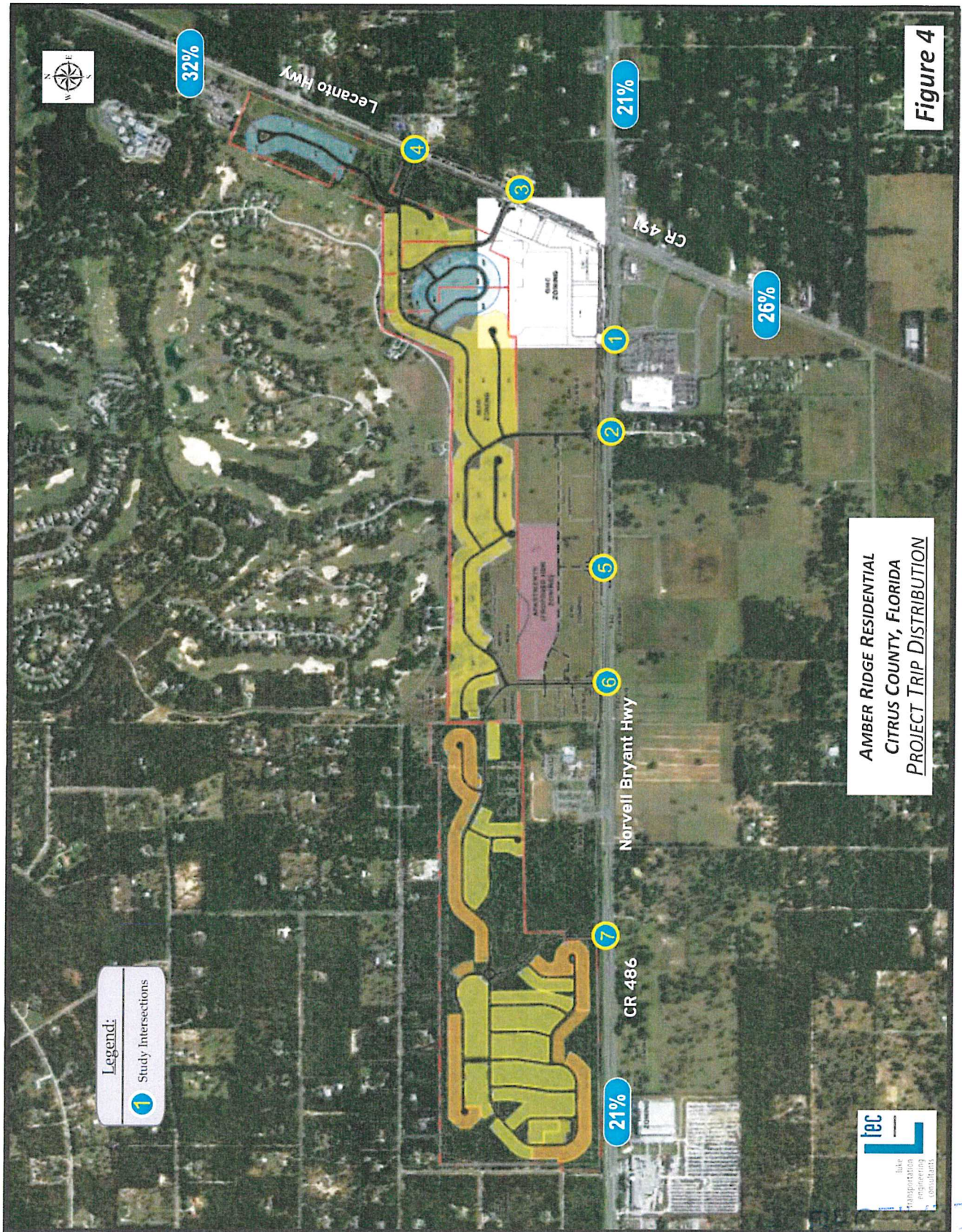


Figure 4

AMBER RIDGE RESIDENTIAL
 CITRUS COUNTY, FLORIDA
 PROJECT TRIP DISTRIBUTION

Legend:
 1 Study Intersections

PROJECTED TRAFFIC TRANSPORTATION ASSESSMENT

The Project trips generated by the proposed development were combined with background traffic and assigned to the study roadways and intersections. Background traffic volumes were developed using existing traffic plus a FDOT trend analysis 2027 growth factor based on five years of historical traffic counts and the CR 486 and CR 491 – NWC commercial development traffic volumes (a copy of the FDOT 5-year historical traffic trend projections and the CR 486 and CR 491 -NWC project trip worksheets are included in **Appendix C**).

Study Roadways

The AM and PM peak hour Project trips were added to the future background traffic volumes for the adjacent CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) roadway segments. The CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) segment volumes are summarized in **Table 4**. As shown, CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) are estimated to continue to operate at LOS C for the adjacent roadway segment at build-out of the three Projects.

TABLE 4
Study Roadway Segment Parameters and Projected 2027 Level of Service

Roadway Segment	# of Lanes	Adopted Functional		Roadway Service Volumes Peak Hour / Peak Direction Capacity Table (1)				
		Class	LOS	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Norvell Bryant Highway (CR 486)				<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
West of Lecanto Highway	4LD	Arterial	C	0	0	1,910	2,000	2,000
Lecanto Highway (CR 491)				<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
North of Norvell Bryant Highway	4LD	Arterial	C	0	0	1,910	2,000	2,000
Roadway Segment	# of Lanes	Traffic Volumes with Project Trips						Meets Adopted LOS
		A.M. Peak Hour Volumes		LOS	P.M. Peak Hour Volumes		LOS	
Norvell Bryant Highway (CR 486)		<u>EB</u>	<u>WB</u>		<u>EB</u>	<u>WB</u>		
West of Lecanto Highway	4LD	1,107	926	C	1,304	1,004	C	Yes
Lecanto Highway (CR 491)		<u>NB</u>	<u>SB</u>		<u>NB</u>	<u>SB</u>		
North of Norvell Bryant Highway	4LD	1,298	1,608	C	1,739	1,598	C	Yes

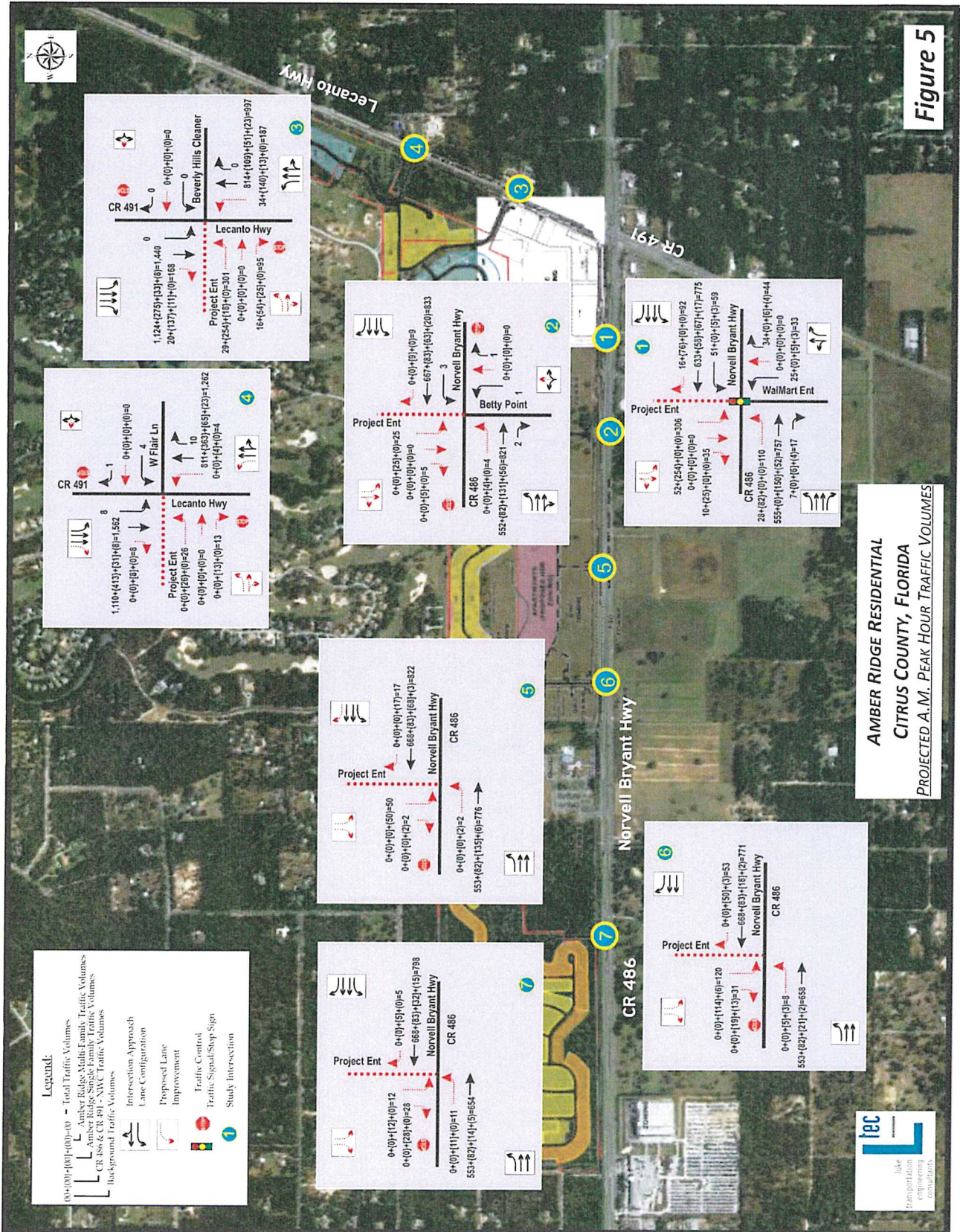
1. FDOT Quality/LOS Handbook, Jan 2020.

Luke Transportation Engineering Consultants, 2022

Study Intersections

The estimated AM and PM peak hour traffic volumes for the site driveways at the Project build-out are provided in **Figure 5** for the AM and **Figure 6** for the PM. Synchro 11 software using *Highway Capacity Manual* (HCM), 6th Edition techniques was used to analyze the projected traffic volumes for the Project driveways. The 2027 HCM Synchro reports for the Project study intersections are included in **Appendix D**.

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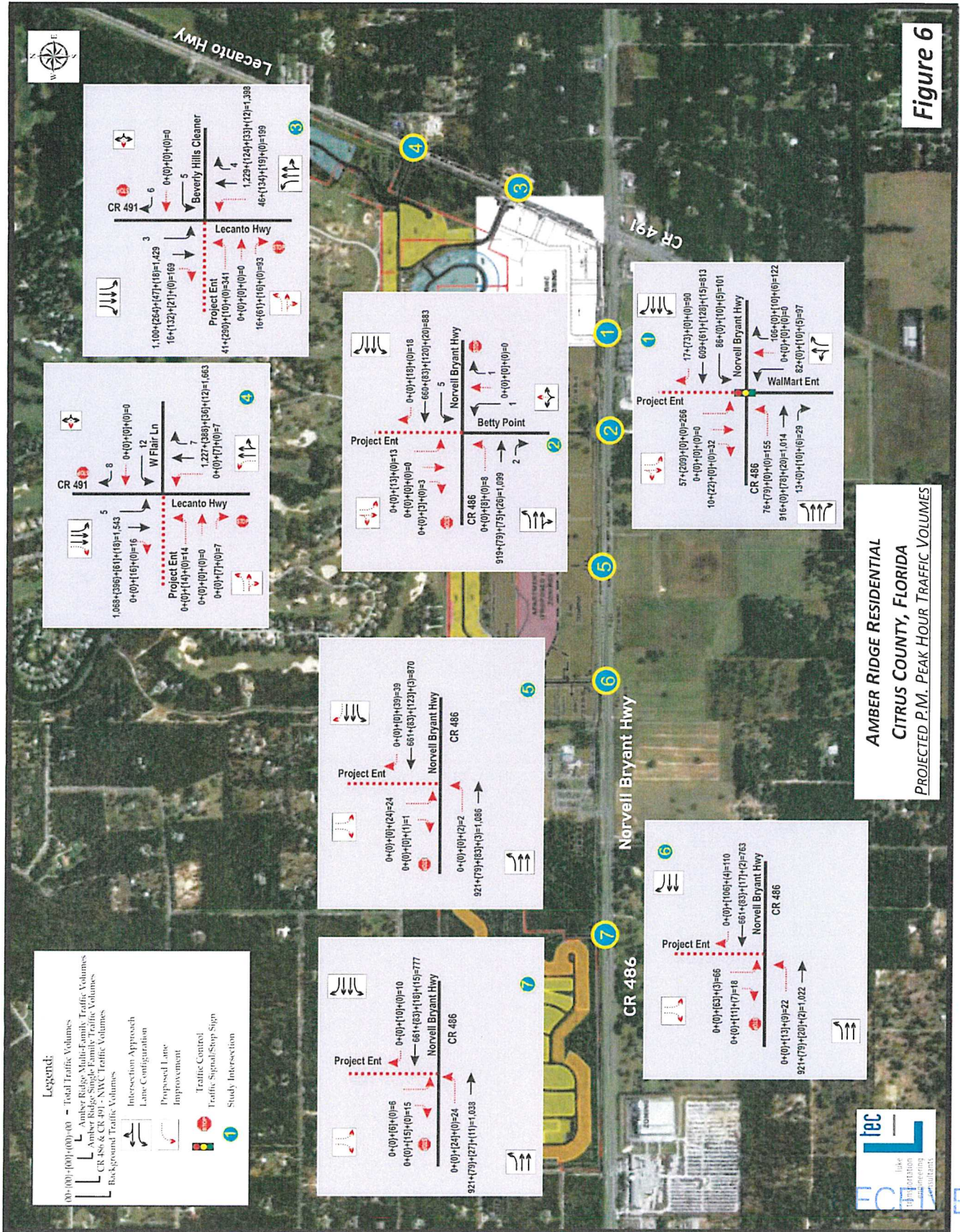


Figure 6



The Project driveways projected level of service and delay are presented in **Table 5**. As can be seen, the signalized study intersection (Intersection #1) continues to operate at an acceptable LOS C.

For the unsignalized study intersections, all but one of the major streets left turn movements operate at a LOS C or better condition. The unsignalized intersection Lecanto Highway (CR 491) and Beverly Hills Cleaner/Project Entrance (Intersection #3) northbound left turn movement operates at a LOS D condition. However, the volume to capacity ratio (Lane V/C Ratio) for this northbound movement is less than 1.0 (0.526), which indicates a delay issue due to the main street opposing traffic volumes and is not a capacity issue.

All but two of the minor street movements operate at a level of service of C or better. The unsignalized intersection Lecanto Highway (CR 491) and Beverly Hills Cleaner/Project Entrance (Intersection #3) and Lecanto Highway (CR 491) and West Flare Lane/Project Entrance (Intersection #4) have minor street movements that operate at LOS F conditions. Due to the high eastbound left turn volume, Intersection #3 may warrant a traffic signal. Should a signal be installed at this intersection it would operate at an acceptable level of service. Intersection #4 has low minor street volumes which will not warrant a traffic signal. Exiting vehicles will experience long delays in exiting.

Project Access Auxiliary Turn Lanes

As documented in the *FDOT Driveway Information Guide, 2008* exclusive right turn lanes are useful where a combination of high roadway speeds and high right turn volumes into a driveway are expected. However, the **FDOT Standard Index** has no specific guidance on warrants for right turn lanes into unsignalized driveways. Rather they have developed a set of guidelines to assist in the decision-making process. Per **Exhibit 44** (see **Appendix E**), for roadways with a posted speed of 45 mph or greater, the range of right turns that would meet the recommendation for a right turn lane is 80 to 125. The lower threshold of 80 right turning vehicles per hour would be most used for higher volumes roadways (greater than 600 vehicles per hour, per lane in one direction on the major roadway). Only two study intersections do not have existing auxiliary turn lanes. They are Intersection #4 and Intersection #5. Neither of these intersections have high right turn volumes, the projected right turn volumes range from a low of 8 to a high of 39.

An evaluation was then conducted using the procedures documented in the *NCHRP Report 457: Evaluating Intersection Improvements, 2001* and the projected traffic counts utilized in this analysis to evaluate the need for an auxiliary right-turn lane at the unsignalized Project Entrances (Intersection #4 and Intersection #5). The results of this analysis indicate that based on the projected traffic volumes, Intersection #4 and Intersection #5 Project driveways would meet the recommendation to add a right turn bay.

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TABLE 5
Study Intersection Projected (2027) Level of Service

Approach / Movement	Lane	Turn Lane Length	Traffic Control	LnGrp Avg Delay (d) (sec/veh)	LnGrp V/C Ratio	LnGrp LOS	95th %ile Queue (Feet)	LnGrp Avg Delay (d) (sec/veh)	LnGrp V/C Ratio	LnGrp LOS	95th %ile Queue (Feet)	
1 - Norvell Bryant Highway (CR 486) (EB/WB) and WalMart Entrance (NB)/Project Entrance (SB)												
A.M. Peak Hour						P.M. Peak Hour						
EB	Left	1	385	12.4	0.32	B	48	14.1	0.45	B	78	
	Thru	2		16.7	0.47	B		20.7	0.65	C		
WB	Left	1	245	12.3	0.02	B	8	13.3	0.04	B	15	
	Thru	2		12.0	0.17	B	25	15.9	0.39	B	58	
NB	Left	1	345	16.8	0.48	B		19.1	0.53	B		
	Thru	2		13.2	0.13	B		14.6	0.13	B		
SB	Left	1	175	44.1	0.24	D	38	44.2	0.48	D	118	
	Thru	1		0.0	0.00	A		0.0	0.00	A		
SB	Right	1		50.1	0.59	D	55	49.6	0.76	D	160	
	Right	>		36.5	0.73	D	290	33.3	0.55	C	263	
Intersection Summary				20.1		C		22.8		C		
2 - Norvell Bryant Highway (CR 486) (EB/WB) and Betty Point (NB)/Project Entrance (SB)												
A.M. Peak Hour						P.M. Peak Hour						
EB	Left	1		Free Flow	10.1	0.006	B	0	10.4	0.013	B	0
	Thru	2										
WB	Left	1	345	Free Flow	10.0	0.005	A	0	11.6	0.010	B	0
	Thru	2										
NB	Left	1	285	STOP	15.6	0.007	C	0	20.6	0.010	C	0
	Thru	1										
SB	Left	1		STOP	21.4	0.113	C	10	23.3	0.067	C	5
	Thru	1			11.7	0.010	B		12.0	0.006	B	
3 - Project Entrance (EB)/Beverly Hills Cleaner (WB) and Lecanto Highway (CR 491) (NB/SB)												
A.M. Peak Hour						P.M. Peak Hour						
EB	Left	1		STOP	2,364.0	5.916	F	895	3,621.8	8.637	F	1,080
	Thru	1			19.1	0.280	C		19.3	0.283	C	
WB	Left	1		STOP	0.0	0.000	A	0	100.1	0.239	F	20
	Thru	1										
NB	Left	1	355	Free Flow	25.0	0.526	D	73	26.8	0.571	D	85
	Thru	2										
SB	Left	1	245	Free Flow	0.0	0.000	A	0	13.1	0.007	B	0
	Thru	2										
SB	Right	1	260	Free Flow	12.3	0.017	B	3	15.8	0.016	C	0
	Right	1										
4 - Project Entrance (EB)/West Flare Lane (WB) and Lecanto Highway (CR 491) (NB/SB)												
A.M. Peak Hour						P.M. Peak Hour						
EB	Left	1		STOP	59.9	0.297	F	28	77.8	1.254	F	65
	Thru	1			16.9	0.043	C		16.8	0.024	C	
WB	Left	1		STOP	29.4	0.034	D	3	48.4	0.207	E	18
	Thru	1										
NB	Left	1	245	Free Flow	14.6	0.011	B	0	14.7	0.020	B	3
	Thru	2										
SB	Left	1	240	Free Flow	12.3	0.017	B	3	15.8	0.016	C	0
	Thru	2										
SB	Right	1	260	Free Flow	12.3	0.017	B	3	15.8	0.016	C	0
	Right	1										
5 - Norvell Bryant Highway (CR 486) (EB/WB) and Project Entrance (SB)												
A.M. Peak Hour						P.M. Peak Hour						
EB	Left	1	355	Free Flow	9.9	0.003	A	0	10.2	0.003	B	0
	Thru	2										
WB	Left	1		Free Flow								
	Thru	2										
SB	Left	1		STOP	18.8	0.173	C	15	19.3	0.094	C	8
	Right	1			11.6	0.004	B		11.9	0.002	B	
6 - Norvell Bryant Highway (CR 486) (EB/WB) and Project Entrance (SB)												
A.M. Peak Hour						P.M. Peak Hour						
EB	Left	1	355	Free Flow	9.8	0.012	A	0	10.2	0.033	B	3
	Thru	2										
WB	Left	1	275	Free Flow								
	Thru	2										
SB	Left	1		STOP	22.1	0.385	C	45	20.3	0.234	C	23
	Right	1			11.6	0.058	B		11.4	0.033	B	
7 - Norvell Bryant Highway (CR 486) (EB/WB) and Project Entrance (SB)												
A.M. Peak Hour						P.M. Peak Hour						
EB	Left	1	485	Free Flow	9.8	0.016	A	0	9.8	0.033	A	3
	Thru	2										
WB	Left	1	440	Free Flow								
	Thru	2										
SB	Left	1		STOP	16.5	0.040	C	3	17.2	0.022	C	3
	Right	1			11.7	0.053	B		11.4	0.028	B	

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An evaluation was also conducted to determine if projected traffic volumes at Intersection #4 would meet the minimum requirements for an auxiliary left-turn lane. Again, procedures documented in the *NCHRP Report 457: Evaluating Intersection Improvements* and the projected traffic counts utilized in this analysis were used to evaluate the need for the auxiliary major street left-turn lane. The results of this analysis indicate that based on the projected traffic volumes, an auxiliary major street left-turn lane is recommended for Intersection #4. See **Appendix E** for the auxiliary turn lane analysis worksheets. The proposed major street right turn lanes and left turn lane at the Project entrances are shown in **Figure 3**, **Figure 5** and **Figure 6** as dashed red arrows.

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SUMMARY / CONCLUSIONS

A traffic operations study was performed for the proposed Amber Ridge residential site in Citrus County, Florida. This study evaluates conditions at build-out of the development.

The site is located in the northwest quadrant of CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) in Citrus County, Florida. The property is currently undeveloped. Access will be via with seven (7) proposed access points, along CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway).

The development scenario consists of two residential subdivisions, a 300-dwelling unit multi-family subdivision and a 787-dwelling unit single family subdivision. Build-out is proposed by 2027.

It is estimated that the Amber Ridge Multi-family residential subdivision Project will generate 1,384 external daily trips, 96 external AM peak hour trips (25 entering and 71 exiting) and 89 external PM peak hour trips (54 entering and 35 exiting).

It is estimated that the Amber Ridge Single-family residential subdivision Project will generate 4,746 external daily trips, 405 external AM peak hour trips (121 entering and 284 exiting) and 399 external PM peak hour trips (242 entering and 157 exiting).

The adjacent roadway segments of CR 486 (Norvell Bryant Highway) and CR 491 (Lecanto Highway) are estimated to operate at a LOS C or better condition at build-out of the Project.

At Build-out of the proposed developments, the signalized study intersection (Intersection #1) continues to operate at an acceptable LOS C.

For the unsignalized study intersections, all but one of the major streets left turn movements operate at a LOS C or better condition. The unsignalized intersection Lecanto Highway (CR 491) and Beverly Hills Cleaner/Project Entrance (Intersection #3) northbound left turn movement operates at a LOS D condition. However, the volume to capacity ratio (Lane V/C Ratio) for this northbound movement is less than 1.0 (0.526), which indicates a delay issue due to the main street opposing traffic volumes and is not a capacity issue.

The unsignalized intersection of Lecanto Highway (CR 491) and Beverly Hills Cleaner/Project Entrance (Intersection #3) and the unsignalized intersection of Lecanto Highway (CR 491) and West Flare Lane/Project Entrance (Intersection #4) have minor street movements that operate at LOS F conditions. Due to the high eastbound left turn volume, Intersection #3 may warrant a traffic signal. Should a signal be installed at this intersection it would operate at an acceptable

level of service. Intersection #4 has low minor street volumes which will not warrant a traffic signal. Exiting vehicles will experience long delays in exiting.

The results of this analysis indicate that based on the projected traffic volumes, an auxiliary major street left-turn lane is recommended for Intersection #4 and auxiliary major street right-turn lanes are recommended for Intersection #4 and Intersection #5.

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APPENDIX

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Appendix A – Existing Turning Movement Volumes

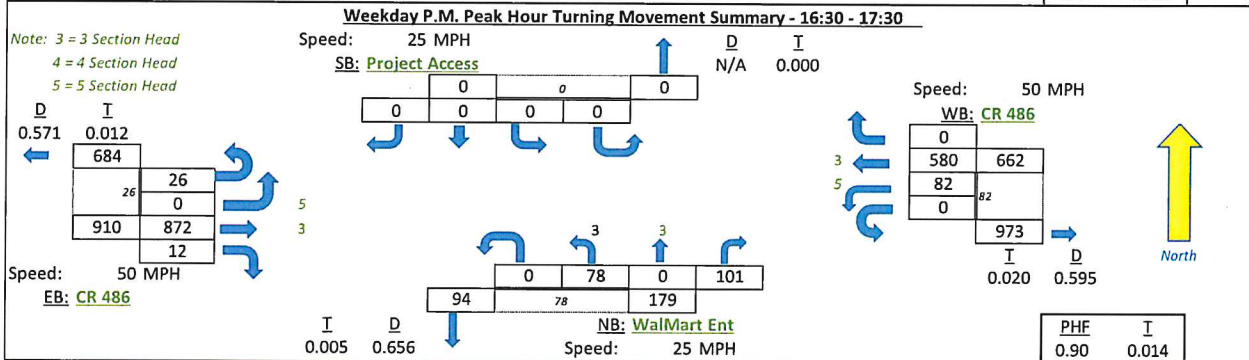
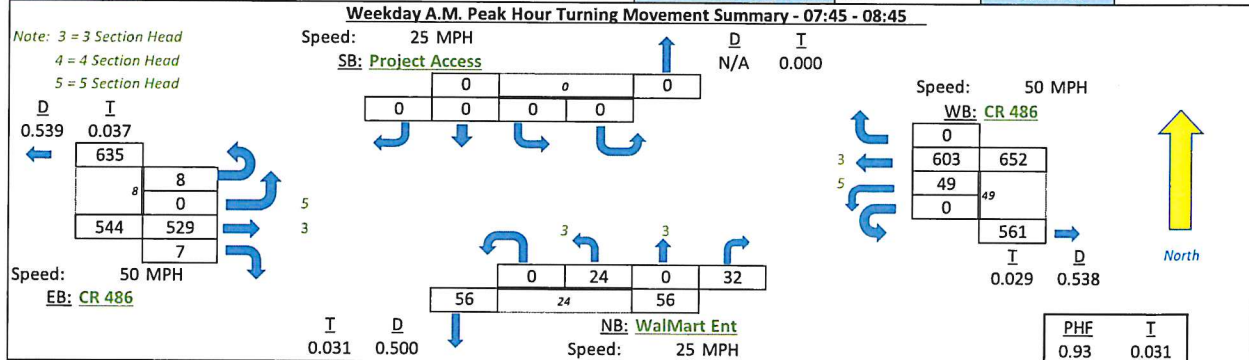
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Summary of Vehicle Movements

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Project: Amber Ridge Apts & SF DU's	LTEC 22-4101	
N/S Road: WalMart Ent	Observer: LTEC	
E/W Road: CR 486	Weather: Clear	
Date: Thursday, October 13, 2022	Rd Condition: Ok	
City: Lecanto	Signal: Yes	
County: Citrus	Major St Movement: -	Latitude: 28.892524°
FDOT SF: 0.96	PM Pk Hr Factor: 0.90	Longitude: -82.487640°
		Station #: 1



Peak Hour	WalMart Ent Northbound				Project Access Southbound				CR 486 Eastbound				CR 486 Westbound			
	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt
# Lanes	<				1				1				>			
Length	175								370				245			
7:00 - 7:15	0	6	0	8	0	0	0	0	2	1	70	1	0	7	122	0
7:15 - 7:30	0	9	0	8	0	0	0	0	1	0	92	1	0	9	146	0
7:30 - 7:45	0	8	0	8	0	0	0	0	3	0	105	4	0	15	168	0
7:45 - 8:00	0	7	0	8	0	0	0	0	1	0	125	2	0	9	198	0
Hourly Sum	0	30	0	32	0	0	0	0	7	1	392	8	0	40	634	0
8:00 - 8:15	0	5	0	9	0	0	0	0	4	0	127	2	0	17	132	0
8:15 - 8:30	0	8	0	6	0	0	0	0	0	0	158	0	0	11	134	0
8:30 - 8:45	0	5	0	10	0	0	0	0	3	0	140	3	0	14	163	0
8:45 - 9:00	0	16	0	12	0	0	0	0	2	0	127	3	0	17	122	0
Hourly Sum	0	34	0	37	0	0	0	0	9	0	552	8	0	59	551	0
16:00 - 16:15	0	22	0	32	0	0	0	0	8	0	198	1	0	23	166	0
16:15 - 16:30	0	15	0	20	0	0	0	0	6	0	196	3	0	27	130	0
16:30 - 16:45	0	22	0	27	0	0	0	0	6	0	194	2	0	26	149	0
16:45 - 17:00	0	16	0	30	0	0	0	0	7	0	199	2	0	20	141	0
Hourly Sum	0	75	0	109	0	0	0	0	27	0	787	8	0	96	586	0
17:00 - 17:15	0	20	0	26	0	0	0	0	6	0	269	3	0	15	169	0
17:15 - 17:30	0	23	0	22	0	0	0	0	8	0	246	5	0	24	145	0
17:30 - 17:45	0	13	0	24	0	0	0	0	5	0	225	5	0	11	125	0
17:45 - 18:00	0	16	0	28	0	0	0	0	3	0	183	2	0	18	115	0
Hourly Sum	0	72	0	100	0	0	0	0	22	0	923	15	0	68	554	0
A.M. Peak Hour Summary - Seasonally Adjusted with FDOT Factor Adjustment Factor																
7:45 - 8:45	0	24	0	32	0	0	0	0	8	0	529	7	0	49	603	0
% Turns		42.9%		57.1%					1.5%		97.2%	1.3%		7.5%	92.5%	
P.M. Peak Hour Summary - Seasonally Adjusted with FDOT Factor Adjustment Factor																
16:30 - 17:30	0	78	0	101	0	0	0	0	26	0	872	12	0	82	580	0
% Turns		43.6%		56.4%					2.9%		95.8%	1.3%		12.4%	87.6%	

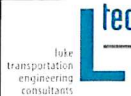
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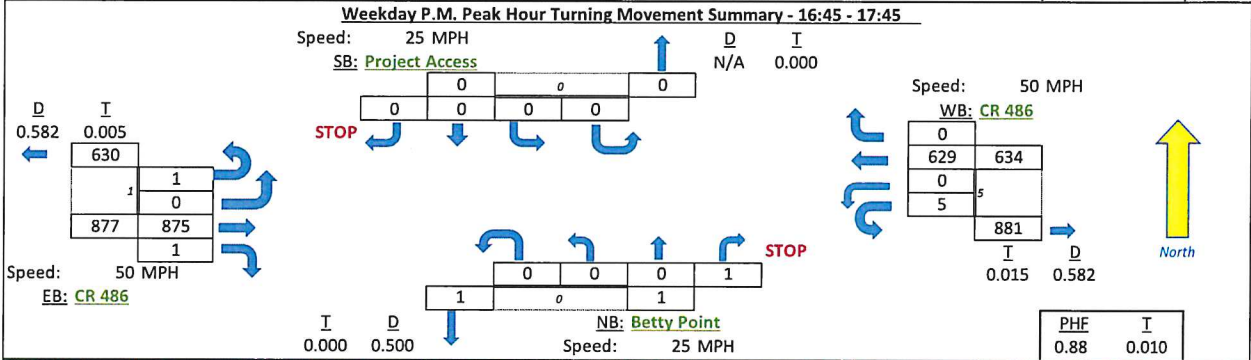
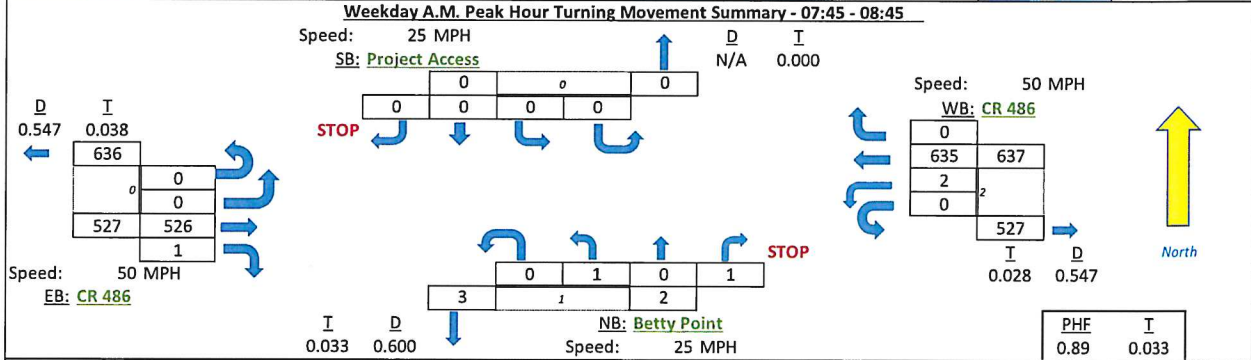
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Summary of Vehicle Movements

Luke Transportation Engineering Consultants

Project:	Amber Ridge Apts & SF DU's			LTEC 22-4101					
N/S Road:	Betty Point			Observer:	LTEC				
E/W Road:	CR 486			Weather:	Clear				
Date:	Thursday, October 13, 2022			Rd Condition:	Ok				
City:	Lecanto			Signal:	No				
County:	Citrus			Major St Movement:	East/West			Latitude:	28.892574°
FDOT SF:	0.96			PM Pk Hr Factor:	0.89			Longitude:	-82.490834°
							Station #:	2	



Peak Hour	Time Interval	Betty Point Northbound				Project Access Southbound				CR 486 Eastbound				CR 486 Westbound			
		Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt
	# Lanes	1				1				1				2			
	Length	150				150				370				345			
	7:00 7:15	0	0	0	0	0	0	0	0	0	0	78	0	0	0	0	120
	7:15 7:30	0	0	0	0	0	0	0	0	0	0	95	0	0	0	1	154
	7:30 7:45	0	0	0	0	0	0	0	0	0	0	103	0	0	0	0	177
	7:45 8:00	0	0	0	0	0	0	0	0	0	0	127	0	0	0	0	213
	Hourly Sum	0	0	0	0	0	0	0	0	0	0	403	0	0	0	1	664
	8:00 8:15	0	0	0	0	0	0	0	0	0	0	131	1	0	0	0	138
	8:15 8:30	0	0	0	1	0	0	0	0	0	0	147	0	0	0	1	141
	8:30 8:45	0	1	0	0	0	0	0	0	0	0	142	0	0	0	1	168
	8:45 9:00	0	0	0	1	0	0	0	0	0	0	127	0	0	0	0	137
	Hourly Sum	0	1	0	2	0	0	0	0	0	0	547	1	0	2	2	584
	16:00 16:15	0	0	0	0	0	0	0	0	0	0	177	0	1	0	0	182
	16:15 16:30	0	0	0	2	0	0	0	0	0	0	192	1	0	0	2	152
	16:30 16:45	0	0	0	0	0	0	0	0	0	0	189	0	0	2	0	163
	16:45 17:00	0	0	0	0	0	0	0	0	1	0	185	0	0	0	0	162
	Hourly Sum	0	0	0	2	0	0	0	0	1	0	743	1	1	4	2	659
	17:00 17:15	0	0	0	0	0	0	0	0	0	0	259	0	1	0	0	185
	17:15 17:30	0	0	0	0	0	0	0	0	0	0	248	0	1	0	0	165
	17:30 17:45	0	0	0	1	0	0	0	0	0	0	219	1	3	0	0	143
	17:45 18:00	0	0	0	2	0	0	0	0	0	0	170	1	2	1	1	132
	Hourly Sum	0	0	0	3	0	0	0	0	0	0	896	2	7	1	1	625

A.M. Peak Hour Summary - Seasonally Adjusted with FDOT Factor Adjustment Factor

7:45 8:45	0	1	0	1	0	0	0	0	0	0	526	1	0	2	635	0
% Turns		50.0%		50.0%							99.8%	0.2%		0.3%	99.7%	

P.M. Peak Hour Summary - Seasonally Adjusted with FDOT Factor Adjustment Factor

16:45 17:45	0	0	0	1	0	0	0	0	1	0	875	1	5	0	629	0
% Turns				100.0%							99.8%	0.1%	0.8%		99.2%	


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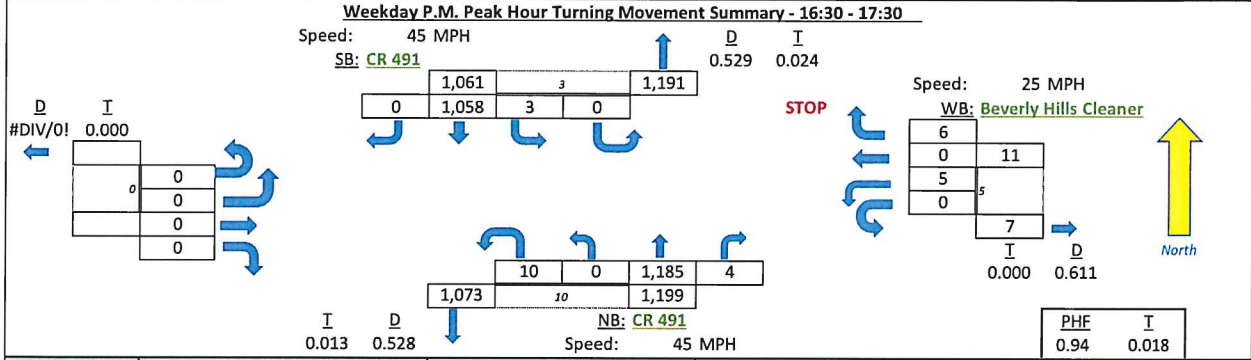
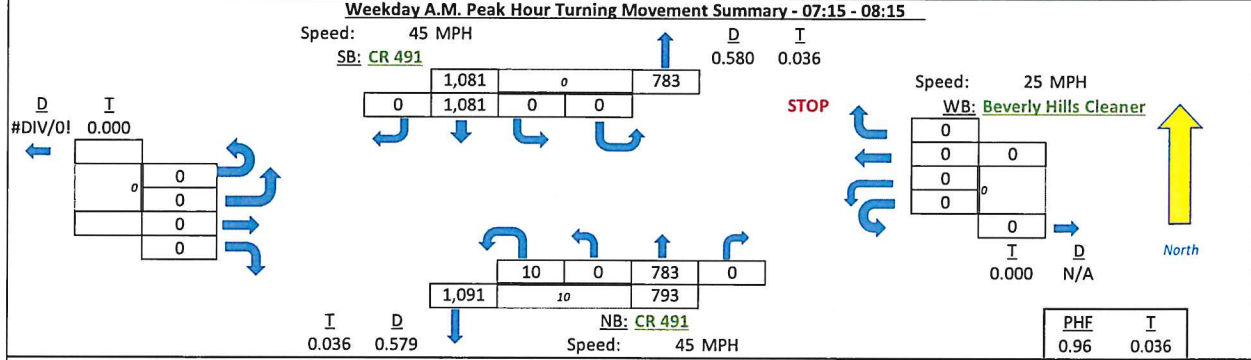
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Summary of Vehicle Movements

Luke Transportation Engineering Consultants

Project: Amber Ridge Apts & SF DU's	LTEC 22-4101	
N/S Road: CR 491	Observer: LTEC	
E/W Road: Beverly Hills Cleaner	Weather: Clear	
Date: Thursday, October 13, 2022	Rd Condition: Ok	
City: Lecanto	Signal: No	
County: Citrus	Major St Movement: North/South	Latitude: 28.895264°
FDOT SF: 0.96	PM Pk Hr Factor: 0.94	Longitude: -82.482913°
		Station #: 3



Peak Hour	CR 491 Northbound				CR 491 Southbound				Eastbound				Beverly Hills Cleaner Westbound			
	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt
Time Interval																
# Lanes	1				1				2				1			
Length	355				245				260				<			
7:00 7:15	0	0	145	0	0	0	257	0	0	0	0	0	0	0	0	0
7:15 7:30	1	0	168	0	0	0	326	0	0	0	0	0	0	0	0	0
7:30 7:45	4	0	185	0	0	0	317	0	0	0	0	0	0	0	0	0
7:45 8:00	4	0	226	0	0	0	263	0	0	0	0	0	0	0	0	0
Hourly Sum	9	0	724	0	0	0	1,163	0	0	0	0	0	0	0	0	0
8:00 8:15	1	0	235	0	0	0	217	0	0	0	0	0	0	0	0	0
8:15 8:30	3	0	197	0	0	2	225	0	0	0	0	0	0	1	0	0
8:30 8:45	0	0	170	0	0	0	237	0	0	0	0	0	0	0	0	0
8:45 9:00	2	0	204	0	0	1	240	0	0	0	0	0	0	0	0	0
Hourly Sum	6	0	806	0	0	3	919	0	0	0	0	0	0	1	0	0
16:00 16:15	12	0	293	0	0	1	282	0	0	0	0	0	0	0	0	1
16:15 16:30	2	0	292	4	0	0	235	0	0	0	0	0	0	2	0	4
16:30 16:45	6	0	280	2	0	0	286	0	0	0	0	0	0	2	0	2
16:45 17:00	2	0	305	2	0	1	278	0	0	0	0	0	0	3	0	1
Hourly Sum	22	0	1,170	8	0	2	1,081	0	0	0	0	0	0	7	0	8
17:00 17:15	0	0	335	0	0	2	289	0	0	0	0	0	0	0	0	2
17:15 17:30	2	0	311	0	0	0	249	0	0	0	0	0	0	0	0	1
17:30 17:45	2	0	321	0	0	1	225	0	0	0	0	0	0	0	0	0
17:45 18:00	2	0	273	0	0	2	200	0	0	0	0	0	0	2	0	2
Hourly Sum	6	0	1,240	0	0	5	963	0	0	0	0	0	0	2	0	5

A.M. Peak Hour Summary - Seasonally Adjusted with FDOT Factor Adjustment Factor

7:15 8:15	10	0	783	0	0	0	1,081	0	0	0	0	0	0	0	0	0
% Turns	1.3%		98.7%				100.0%									

P.M. Peak Hour Summary - Seasonally Adjusted with FDOT Factor Adjustment Factor

16:30 17:30	10	0	1,182	4	0	3	1,058	0	0	0	0	0	0	5	0	6
% Turns	0.8%		98.8%	0.3%		0.3%	99.7%							45.5%		54.5%


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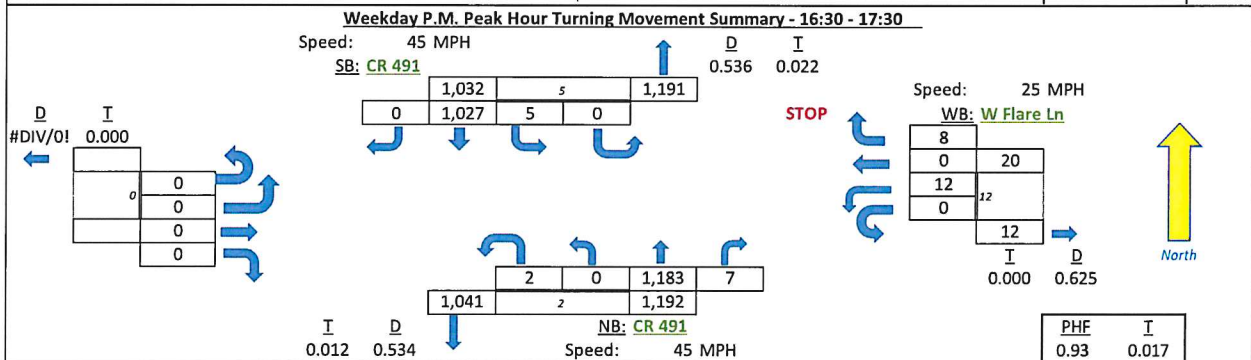
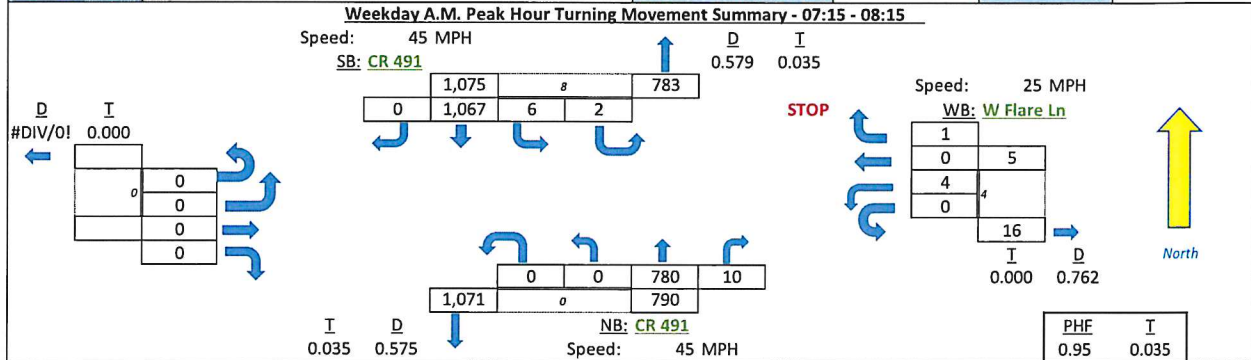
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Summary of Vehicle Movements

Luke Transportation Engineering Consultants

Project:	Amber Ridge Apts & SF DU's	LTEC 22-4101	
N/S Road:	CR 491	Observer: LTEC	
E/W Road:	W Flare Ln	Weather: Clear	
Date:	Thursday, October 13, 2022	Rd Condition: Ok	
City:	Lecanto	Signal: No	Latitude: 28.897939°
County:	Citrus	Major St Movement: North/South	Longitude: -82.481587°
FDOT SF:	0.96	PM Pk Hr Factor: 0.93	Station #: 4



Peak Hour	CR 491 Northbound				CR 491 Southbound				Eastbound				W Flare Ln Westbound			
	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt	Uturn	Lt	Thru	Rt
Time Interval																
# Lanes			2	>	1		2							<		>
Length					240											
7:00 7:15	0	0	142	1	1	1	271	0	0	0	0	0	0	2	0	0
7:15 7:30	0	0	169	1	0	1	334	0	0	0	0	0	0	2	0	0
7:30 7:45	0	0	186	1	0	1	288	0	0	0	0	0	0	0	0	0
7:45 8:00	0	0	232	3	1	2	271	0	0	0	0	0	0	1	0	1
Hourly Sum	0	0	729	6	2	5	1,164	0	0	0	0	0	0	5	0	1
8:00 8:15	0	0	223	5	1	2	216	0	0	0	0	0	0	1	0	0
8:15 8:30	0	0	185	6	0	4	244	0	0	0	0	0	0	3	0	1
8:30 8:45	0	0	169	4	1	3	245	0	0	0	0	0	0	1	0	0
8:45 9:00	0	0	197	7	0	2	209	0	0	0	0	0	0	1	0	6
Hourly Sum	0	0	774	22	2	11	914	0	0	0	0	0	0	6	0	7
16:00 16:15	1	0	289	1	1	4	272	0	0	0	0	0	0	0	0	2
16:15 16:30	0	0	299	1	0	2	238	0	0	0	0	0	0	3	0	2
16:30 16:45	0	0	295	2	0	1	274	0	0	0	0	0	0	2	0	0
16:45 17:00	0	0	285	2	0	1	277	0	0	0	0	0	0	3	0	1
Hourly Sum	1	0	1,168	6	1	8	1,061	0	0	0	0	0	0	8	0	5
17:00 17:15	1	0	341	1	0	2	275	0	0	0	0	0	0	6	0	4
17:15 17:30	1	0	308	2	0	1	244	0	0	0	0	0	0	2	0	3
17:30 17:45	1	0	314	2	0	1	228	0	0	0	0	0	0	2	0	0
17:45 18:00	0	0	265	2	0	0	199	0	0	0	0	0	0	0	0	0
Hourly Sum	3	0	1,228	7	0	4	946	0	0	0	0	0	0	10	0	7
A.M. Peak Hour Summary - Seasonally Adjusted with FDOT Factor Adjustment Factor																
7:15 8:15	0	0	780	10	2	6	1,067	0	0	0	0	0	0	4	0	1
% Turns			98.7%	1.3%	0.2%	0.6%	99.3%							80.0%		20.0%
P.M. Peak Hour Summary - Seasonally Adjusted with FDOT Factor Adjustment Factor																
16:30 17:30	2	0	1,180	7	0	5	1,027	0	0	0	0	0	0	12	0	8
% Turns	0.2%		99.2%	0.6%		0.5%	99.5%							60.0%		40.0%

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Appendix B – Synchro Reports

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MAY 10 2023

HCM 6th Signalized Intersection Summary
1: WalMart Ent & CR 486

Existing AM Peak Hour
12/16/2022

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↙	↑↑	↗	↙
Traffic Volume (veh/h)	529	7	49	603	24	32
Future Volume (veh/h)	529	7	49	603	24	32
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1856	1856	1856	1856
Adj Flow Rate, veh/h	569	8	53	648	26	34
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	4	3	3	3	3
Cap, veh/h	2592	1156	721	2962	75	66
Arrive On Green	0.74	0.74	0.04	0.84	0.04	0.04
Sat Flow, veh/h	3589	1560	1767	3618	1767	1572
Grp Volume(v), veh/h	569	8	53	648	26	34
Grp Sat Flow(s),veh/h/ln	1749	1560	1767	1763	1767	1572
Q Serve(g_s), s	4.7	0.1	0.6	3.4	1.3	2.0
Cycle Q Clear(g_c), s	4.7	0.1	0.6	3.4	1.3	2.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2592	1156	721	2962	75	66
V/C Ratio(X)	0.22	0.01	0.07	0.22	0.35	0.51
Avail Cap(c_a), veh/h	2592	1156	925	2962	577	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.7	3.1	2.1	1.5	43.5	43.8
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	2.8	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.0	0.2	1.0	1.1	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.9	3.2	2.2	1.6	46.3	49.8
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	577			701	60	
Approach Delay, s/veh	3.9			1.7	48.3	
Approach LOS	A			A	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.2	74.8			84.0	9.4
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	14.5	58.5			78.5	30.5
Max Q Clear Time (g_c+I1), s	2.6	6.7			5.4	4.0
Green Ext Time (p_c), s	0.1	3.8			5.3	0.1
Intersection Summary						
HCM 6th Ctrl Delay			4.7			
HCM 6th LOS			A			

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HCM 6th TWSC
2: Betty Point & CR 486

Existing AM Peak Hour
 12/16/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↔	↑↑	↔	↔
Traffic Vol, veh/h	526	1	2	635	1	1
Future Vol, veh/h	526	1	2	635	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	345	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	4	4	3	3	3	3
Mvmt Flow	591	1	2	713	1	1
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	592	0	953	296
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	361	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	973	-	255	697
Stage 1	-	-	-	-	513	-
Stage 2	-	-	-	-	673	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	973	-	254	697
Mov Cap-2 Maneuver	-	-	-	-	440	-
Stage 1	-	-	-	-	513	-
Stage 2	-	-	-	-	672	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	11.7			
HCM LOS						B
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	539	-	-	973	-	
HCM Lane V/C Ratio	0.004	-	-	0.002	-	
HCM Control Delay (s)	11.7	-	-	8.7	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

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HCM 6th TWSC
3: CR 491 & Beverly Hills Cleaner

Existing AM Peak Hour
 12/16/2022

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕↔		↔	↕↕
Traffic Vol, veh/h	0	0	783	0	0	1081
Future Vol, veh/h	0	0	783	0	0	1081
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	245	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	4	4	44	4
Mvmt Flow	0	0	816	0	0	1126
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1379	408	0	0	816	0
Stage 1	816	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.98	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.64	-
Pot Cap-1 Maneuver	136	593	-	-	586	-
Stage 1	395	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	136	593	-	-	586	-
Mov Cap-2 Maneuver	325	-	-	-	-	-
Stage 1	395	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	0	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	586	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

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Land Development Division

HCM 6th TWSC
4: CR 491 & W Flare Ln

Existing AM Peak Hour
 12/16/2022

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Traffic Vol, veh/h	4	1	780	10	8	1067
Future Vol, veh/h	4	1	780	10	8	1067
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	240	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	4	1	821	11	8	1123
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1405	416	0	0	832	0
Stage 1	827	-	-	-	-	-
Stage 2	578	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.18	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.24	-
Pot Cap-1 Maneuver	130	585	-	-	784	-
Stage 1	390	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	129	585	-	-	784	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	390	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	15.4	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	350	784		
HCM Lane V/C Ratio	-	-	0.015	0.011		
HCM Control Delay (s)	-	-	15.4	9.6		
HCM Lane LOS	-	-	C	A		
HCM 95th %tile Q(veh)	-	-	0	0		

Scenario 1 Existing 1:00 am 12/15/2022 AM Peak Hour
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Synchro 11 Report
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HCM 6th Signalized Intersection Summary
1: WalMart Ent & CR 486

Existing PM Peak Hour
12/16/2022

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (veh/h)	872	12	82	580	78	101
Future Volume (veh/h)	872	12	82	580	78	101
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1574	1870	1870	1870
Adj Flow Rate, veh/h	969	13	91	644	87	112
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	22	2	2	2
Cap, veh/h	2460	1097	421	2823	168	150
Arrive On Green	0.69	0.69	0.05	0.79	0.09	0.09
Sat Flow, veh/h	3647	1585	1499	3647	1781	1585
Grp Volume(v), veh/h	969	13	91	644	87	112
Grp Sat Flow(s),veh/h/ln	1777	1585	1499	1777	1781	1585
Q Serve(g_s), s	11.4	0.3	1.5	4.5	4.6	6.8
Cycle Q Clear(g_c), s	11.4	0.3	1.5	4.5	4.6	6.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2460	1097	421	2823	168	150
V/C Ratio(X)	0.39	0.01	0.22	0.23	0.52	0.75
Avail Cap(c_a), veh/h	2460	1097	571	2823	550	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.4	4.7	4.2	2.6	42.6	43.6
Incr Delay (d2), s/veh	0.5	0.0	0.3	0.2	2.5	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.9	0.1	0.7	2.1	3.8	5.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.9	4.7	4.4	2.7	45.1	50.9
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	982			735	199	
Approach Delay, s/veh	6.9			3.0	48.3	
Approach LOS	A			A	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.1	73.9			84.0	14.8
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	14.5	58.5			78.5	30.5
Max Q Clear Time (g_c+I1), s	3.5	13.4			6.5	8.8
Green Ext Time (p_c), s	0.1	7.4			5.2	0.6
Intersection Summary						
HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			

Scenario 2 Existing 1:31 am 12/15/2022 PM Peak Hour

Synchro 11 Report
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Land Development Division

HCM 6th TWSC
2: Betty Point & CR 486

Existing PM Peak Hour
 12/16/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↔	↑↑	↔	
Traffic Vol, veh/h	875	1	5	629	0	1
Future Vol, veh/h	875	1	5	629	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	345	-	0	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	994	1	6	715	0	1
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	995	0	1365	498
Stage 1	-	-	-	-	995	-
Stage 2	-	-	-	-	370	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	691	-	139	518
Stage 1	-	-	-	-	318	-
Stage 2	-	-	-	-	669	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	691	-	138	518
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	318	-
Stage 2	-	-	-	-	663	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.1	12			
HCM LOS						B
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	518	-	-	691	-	
HCM Lane V/C Ratio	0.002	-	-	0.008	-	
HCM Control Delay (s)	12	-	-	10.3	-	
HCM Lane LOS	B	-	-	B	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

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HCM 6th TWSC
3: CR 491 & Beverly Hills Cleaner

Existing PM Peak Hour
 12/16/2022

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕↕		↔	↕↕
Traffic Vol, veh/h	5	6	1185	4	3	1058
Future Vol, veh/h	5	6	1185	4	3	1058
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	245	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	6	1261	4	3	1126
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1832	633	0	0	1265	0
Stage 1	1263	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	68	422	-	-	545	-
Stage 1	230	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	68	422	-	-	545	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	230	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	18.2	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	285	545		
HCM Lane V/C Ratio	-	-	0.041	0.006		
HCM Control Delay (s)	-	-	18.2	11.6		
HCM Lane LOS	-	-	C	B		
HCM 95th %tile Q(veh)	-	-	0.1	0		

Scenario 2 Existing 1:31 am 12/15/2022 PM Peak Hour

Synchro 11 Report
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HCM 6th TWSC
 4: CR 491 & W Flare Ln

Existing PM Peak Hour
 12/16/2022

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕↔		↔	↕↕
Traffic Vol, veh/h	12	8	1183	7	5	1027
Future Vol, veh/h	12	8	1183	7	5	1027
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	240	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	9	1272	8	5	1104
Major/Minor	Minor1	Major1	Major2	Major3	Major4	Major5
Conflicting Flow All	1838	640	0	0	1280	0
Stage 1	1276	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	67	418	-	-	538	-
Stage 1	226	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	66	418	-	-	538	-
Mov Cap-2 Maneuver	202	-	-	-	-	-
Stage 1	226	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Approach	WB	NB	SB	SB	SB	SB
HCM Control Delay, s	20.4	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT	SBT	SBT
Capacity (veh/h)	-	-	255	538	-	-
HCM Lane V/C Ratio	-	-	0.084	0.01	-	-
HCM Control Delay (s)	-	-	20.4	11.8	-	-
HCM Lane LOS	-	-	C	B	-	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-	-

Scenario 2 Existing 1:31 am 12/15/2022 PM Peak Hour

Synchro 11 Report
 Page 4

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Appendix C – Internal Capture Worksheets & NWC Trip Gen

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NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	Amber Ridge Residential			Organization:	LTEC
Project Location:				Performed By:	JTR
Scenario Description:	Build-out			Date:	12/16/2022
Analysis Year:	2027			Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	720	25,000	SF	69	55	14
Retail	820 & 850	168,500	SF	628	334	294
Restaurant	934 & 937	22,500	SF	1170	597	573
Cinema/Entertainment				0	0	0
Residential	210, 215 & 220	1,087	DU's	611	158	453
Hotel				0	0	0
All Other Land Uses ²				0	0	0
Total				2478	1144	1334

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	9	0	0	0
Retail	2		38	0	3	0
Restaurant	8	27		0	8	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	5	91	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	2,478	1,144	1,334
Internal Capture Percentage	16%	17%	15%
External Vehicle-Trips ³	2,084	947	1,137
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	22%	93%
Retail	11%	15%
Restaurant	23%	8%
Cinema/Entertainment	N/A	N/A
Residential	7%	22%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

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NCHRP 8-51 Internal Trip Capture Estimation Tool				
Project Name:	Amber Ridge Residential		Organization:	LTEC
Project Location:			Performed By:	JTR
Scenario Description:	Build-out		Date:	12/16/2022
Analysis Year:	2027		Checked By:	
Analysis Period:	PM Street Peak Hour		Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	720	25,000	SF	99	30	69
Retail	820 & 850	168,500	SF	1102	542	560
Restaurant	934 & 937	22,500	SF	767	395	372
Cinema/Entertainment				0	0	0
Residential	210, 215 & 220	1,087	DU's	823	511	312
Hotel				0	0	0
All Other Land Uses ²				0	0	0
Total				2791	1478	1313

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		14	3	0	1	0
Retail	9		115	0	146	0
Restaurant	8	153		0	67	0
Cinema/Entertainment	0	0	0		0	0
Residential	12	54	55	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	2,791	1,478	1,313
Internal Capture Percentage	46%	43%	49%
External Vehicle-Trips ³	1,517	841	676
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	97%	26%
Retail	41%	48%
Restaurant	44%	61%
Cinema/Entertainment	N/A	N/A
Residential	42%	39%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.
²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
⁴Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas Transportation Institute

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TRANSPORTATION ANALYSIS

CR 486 and CR 491 - NWC

Prepared for:
Ferber Construction Management LLC



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Table 1. Estimated Daily Project Traffic

<u>Land Use</u>	<u>ITE LUC</u>	<u>Size</u>	<u>Daily Trip Ends (1)</u>	<u>Passerby Capture (2)</u>	<u>New Daily Trip Ends</u>
Supermarket	850	22,000 SF	2,374	855	1,519
Fast Food Restaurant	934	6,000 SF	2,805	1,374	1,431
Coffe Shop	937	4,000 SF	2,134	1,046	1,088
Convenience Market	945	7,000 SF/14 FP	4,841	3,050	1,791
Fast Food Restaurant	934	4500 SF	2,104	1,031	1,073
Fast Food Restaurant	934	3,000 SF	1,402	687	715
Shopping Center	820	6,500 SF	241	82	159
Fast Food Restaurant	934	5,000 SF	2,337	1,145	1,192
Medical/Dental Office	720	25,000 SF	900	0	900
Shopping Center	820	140,000 SF	<u>5,181</u>	<u>1,762</u>	<u>3,419</u>
		Total	24,319	11,032	13,287

(1) Source: ITE Trip Generation, 11th Edition, 2021.

(2) Source: ITE Trip Generation Handbook, 3rd Edition.

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Table 2. AM Peak Hour Project Traffic

Land Use	ITE LUC	Size	AM Peak Hour Trip Ends (1)			Passerby Capture (2)			New AM Peak Hour Trip Ends		
			In	Out	Total	In	Out	Total	In	Out	Total
Supermarket	850	22,000 SF	37	26	63	4	4	8	33	22	55
Fast Food Restaurant	934	6,000 SF	137	131	268	23	22	45	114	109	223
Coffe Shop	937	4,000 SF	175	169	344	30	29	59	145	140	285
Convenience Market	945	7,000 SF/14 FP	221	221	442	49	49	98	172	172	344
Fast Food Restaurant	934	4500 SF	103	98	201	17	17	34	86	81	167
Fast Food Restaurant	934	3,000 SF	68	66	134	12	11	23	56	55	111
Shopping Center	820	6,500 SF	3	2	5	0	0	0	3	2	5
Fast Food Restaurant	934	5,000 SF	114	109	223	19	19	38	95	90	185
Medical/Dental Office	720	25,000 SF	55	14	69	0	0	0	55	14	69
Shopping Center	820	140,000 SF	<u>73</u>	<u>45</u>	<u>118</u>	<u>9</u>	<u>5</u>	<u>14</u>	<u>64</u>	<u>40</u>	<u>104</u>
Total			986	881	1,867	163	156	319	823	725	1,548

(1) Source: ITE Trip Generation, 11th Edition, 2021.

(2) Source: ITE Trip Generation Handbook, 3rd Edition.

Passerby traffic not to exceed 10% of the background traffic.

$3,191 (a) \times 0.10 = 319 < 916$. Passerby traffic reduced to 319.

(a) 2023 background traffic at the intersection of CR 486 and CR 491.

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Table 3. PM Peak Hour Project Traffic

Land Use	ITE LUC	Size	PM Peak Hour Trip Ends (1)			Passerby Capture (2)			New PM Peak Hour Trip Ends		
			In	Out	Total	In	Out	Total	In	Out	Total
Supermarket	850	22,000 SF	114	113	227	16	16	32	98	97	195
Fast Food Restaurant	934	6,000 SF	103	95	198	20	19	39	83	76	159
Coffe Shop	937	4,000 SF	78	78	156	15	15	30	63	63	126
Convenience Market	945	7,000 SF/14 FP	189	188	377	49	49	98	140	139	279
Fast Food Restaurant	934	4500 SF	77	72	149	15	14	29	62	58	120
Fast Food Restaurant	934	3,000 SF	51	48	99	10	9	19	41	39	80
Shopping Center	820	6,500 SF	11	11	22	2	1	3	9	10	19
Fast Food Restaurant	934	5,000 SF	86	79	165	17	16	33	69	63	132
Medical/Dental Office	720	25,000 SF	30	69	99	0	0	0	30	69	99
Shopping Center	820	140,000 SF	<u>228</u>	<u>248</u>	<u>476</u>	<u>31</u>	<u>33</u>	<u>64</u>	<u>197</u>	<u>215</u>	<u>412</u>
Total			967	1,001	1,968	175	172	347	792	829	1,621

(1) Source: ITE Trip Generation, 11th Edition, 2021.

(2) Source: ITE Trip Generation Handbook, 3rd Edition.

Passerby traffic not to exceed 10% of the background traffic.

$3,472 (a) \times 0.10 = 347 < 885$. Passerby traffic reduced to 347.

(a) 2023 background traffic at the intersection of CR 486 and CR 491.

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Appendix D – FDOT Trend Analysis and CR486 & CR491 -NWC Study Project Trips

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Historical Traffic Counts - FDOT Trend Analysis Calculations

Roadway Name	Max RSQ	Station Number	Citrus County					FDOT Trends Analysis - V2.0				Projected Growth Factor - 2027		Annual Growth Rate	
			2017	2018	2019	2020	2021	Linear Regression RSQ	Exponential Growth RSQ	Decaying Growth RSQ	Best Fit RSQ < 0.7	RSQ >= 0.7 5 Year			
Norvell Bryant Highway (CR 486)	0.71	02-9041	11,500	12,500	12,500	12,500	12,500	13,900	0.50	14,101	0.71	13,154	1.05	N/A	0.9%
Lecanto Highway (CR 491)	0.64	02-9037	5,600	5,800	5,900	5,800	6,200	0.42	6,235	0.64	6,022	N/A	1.04	0.6%	

1. From FDOT 2021 Traffic Counts

Luke Transportation Engineering Consultants, Inc., 2022

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TRANSPORTATION ANALYSIS

CR 486 and CR 491 - NWC

Prepared for:

Ferber Construction Management LLC



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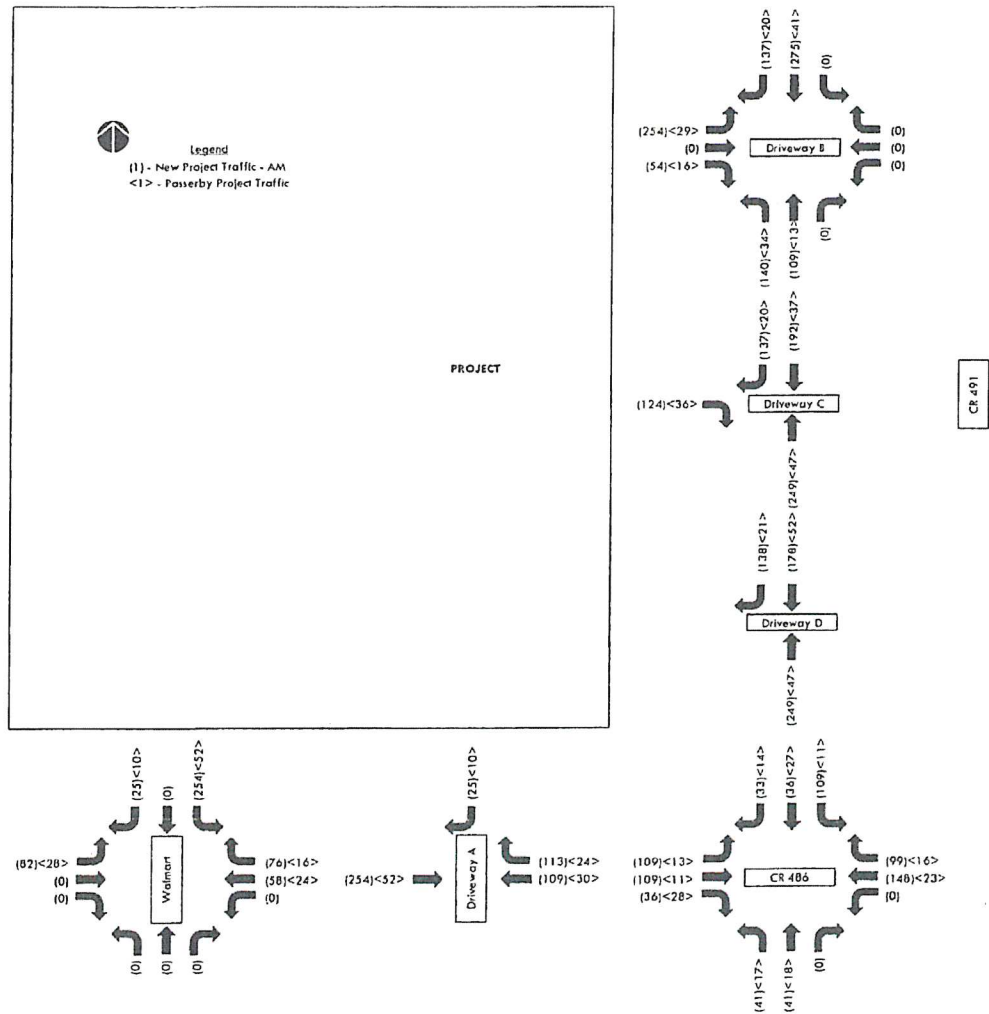
PUD-22-01

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Figure 2. Project Traffic - AM Peak Hour

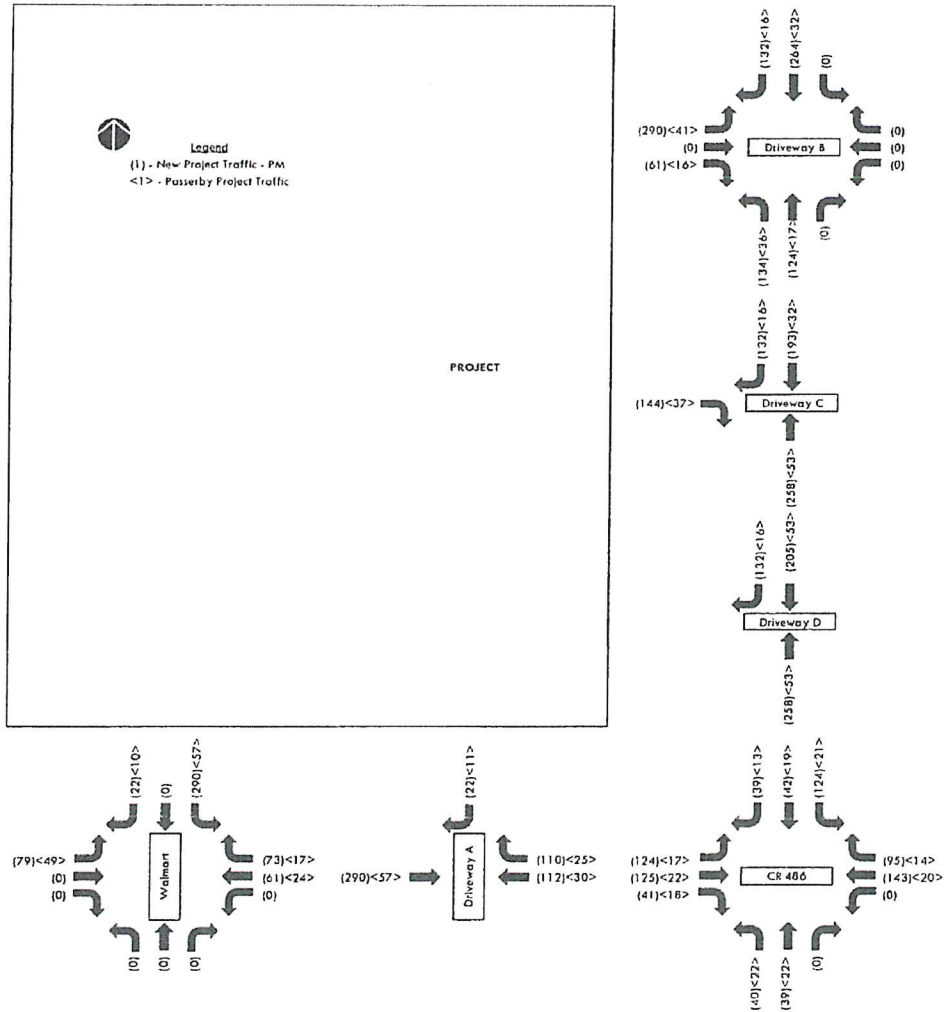


Transportation Analysis CR 486 and CR 491 – NWC 9

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Figure 3. Project Traffic – PM Peak Hour



Transportation Analysis CR 486 and CR 491 – NWC 10

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Appendix E – Auxiliary Turn Lane Worksheets

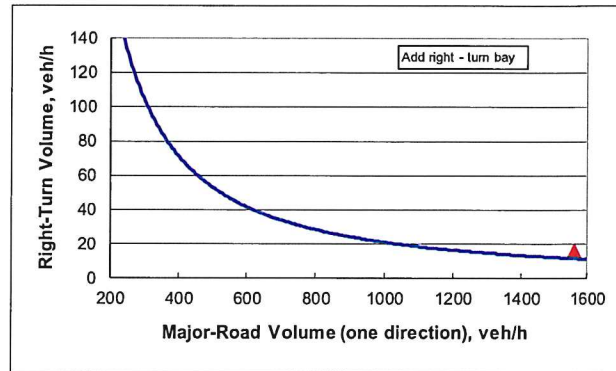
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Intersection #4 – Right Turn Lane Analysis – PM Peak Hour

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

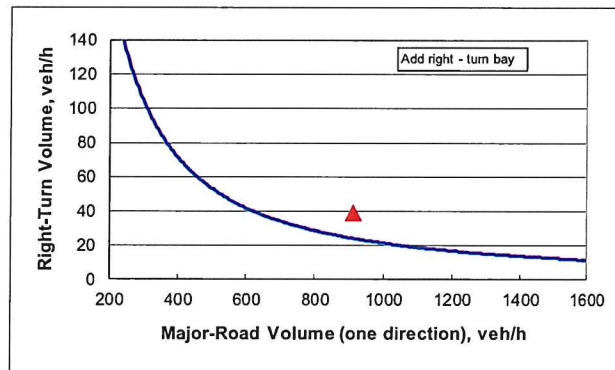
INPUT	
Roadway geometry:	4-lane roadway
Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	1559
Right-turn volume, veh/h:	16
OUTPUT	
Variable	Value
Limiting right-turn volume, veh/h:	12
Guidance for determining the need for a major-road right-turn bay for a 4-lane roadway:	
Add right-turn bay.	



Intersection #5 – Right Turn Lane Analysis – PM Peak Hour

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT	
Roadway geometry:	4-lane roadway
Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	909
Right-turn volume, veh/h:	39
OUTPUT	
Variable	Value
Limiting right-turn volume, veh/h:	24
Guidance for determining the need for a major-road right-turn bay for a 4-lane roadway:	
Add right-turn bay.	



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Intersection #4 – Left Turn Lane Analysis – AM Peak Hour

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

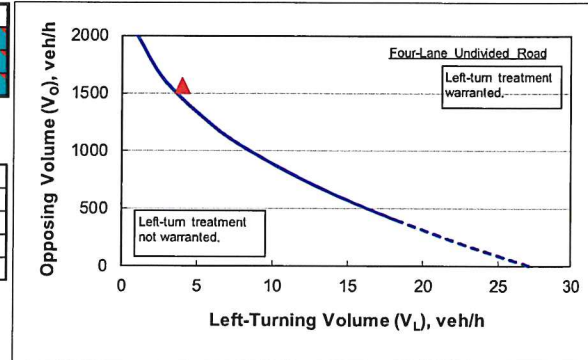
4-lane roadway

INPUT

Variable	Value
Left-turning volume (V_L), veh/h:	4
Advancing volume (V_A), veh/h:	1266
Opposing volume (V_O), veh/h:	1570

OUTPUT

Variable	Message
Opposing volume (V_O) check:	O.K.
Combined volume (V_A and V_O) check:	O.K.
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



Note: When $V_O < 400$ veh/h (dashed line), a left-turn lane is not normally warranted unless the advancing volume (V_A) in the same direction as the left-turning traffic exceeds 400 veh/h ($V_A > 400$ veh/h).

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	4.0
Critical headway, s:	6.0

Intersection #4 – Left Turn Lane Analysis – PM Peak Hour

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

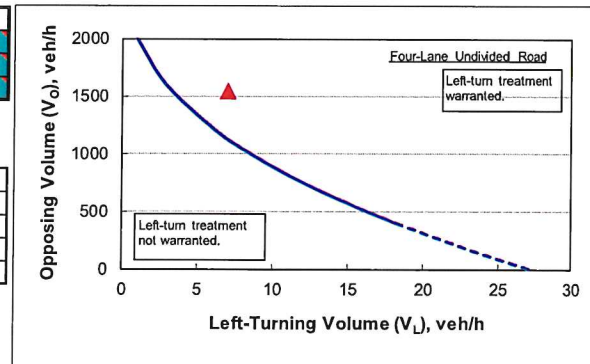
4-lane roadway

INPUT

Variable	Value
Left-turning volume (V_L), veh/h:	7
Advancing volume (V_A), veh/h:	1677
Opposing volume (V_O), veh/h:	1543

OUTPUT

Variable	Message
Opposing volume (V_O) check:	O.K.
Combined volume (V_A and V_O) check:	O.K.
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



Note: When $V_O < 400$ veh/h (dashed line), a left-turn lane is not normally warranted unless the advancing volume (V_A) in the same direction as the left-turning traffic exceeds 400 veh/h ($V_A > 400$ veh/h).

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	4.0
Critical headway, s:	6.0

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[phone] 407 423 8055 [fax] 407 423 8022

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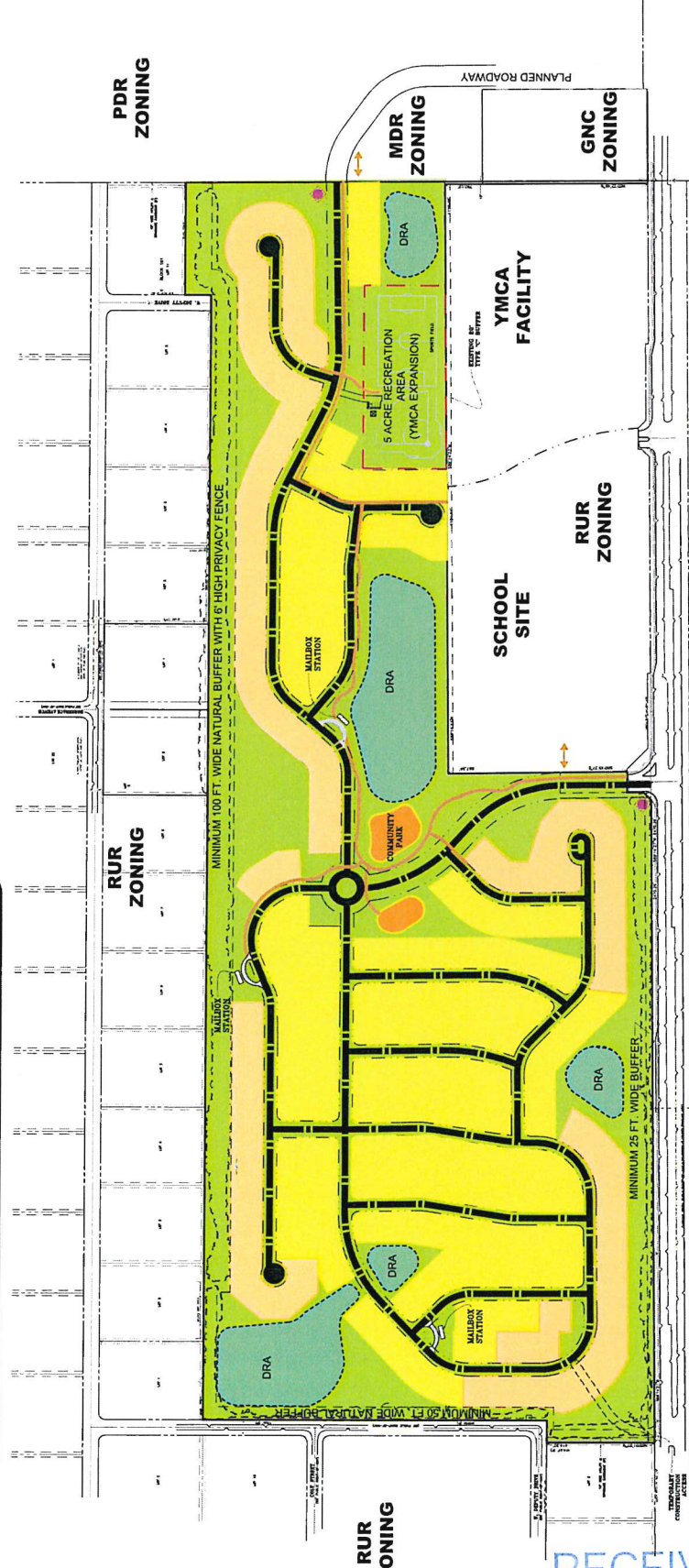
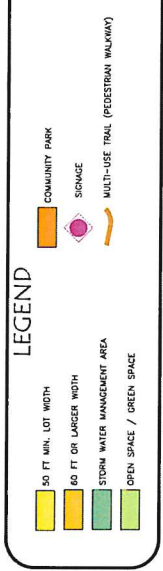
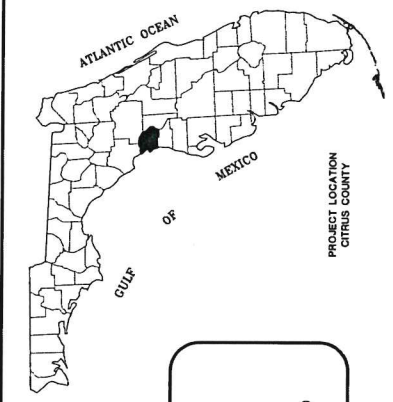
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PROPERTY DATA
 PROPERTY ID: 18618520 22000 (ALT. KEY No. 3320013)
 PARCEL: 147259 Acres +/-
 FLOOD ZONE INFORMATION:
 FLOOD ZONE: X
 ZONING SUMMARY:
 ZONING (RUR) RESIDENTIAL UNDEVELOPED USE
 ZONING (RUR) RESIDENTIAL DENSER USE
 DEVELOPMENT PINE RIDGE ESTATES/CITRUS SPRINGS; BINDING LETTER #05-2010-001
 DENSITY: PER APPROVED MASTER PLAN
 ADJACENT ZONING: RUR (NORTH AND WEST); MDR-MEDIUM DENSITY RESIDENTIAL (EAST).

SITE ADDRESS:
 4439 W. NORVELL BRYANT HIGHWAY
 LEGANEO, FLORIDA
BUILDING SETBACKS:
 25 FT. FRONT
 10 FT. REAR
UTILITIES:
 PUBLIC WATER SUPPLY: CITRUS COUNTY UTILITIES
 WASTEWATER SERVICE: CITRUS COUNTY UTILITIES
 ELECTRIC SERVICE: DUKANE ENERGY
 GAS SERVICE: FLORIDA PUBLIC UTILITIES
OWNER:
 GULF TO LAKES ASSOCIATES, LLP
 LEGANEO, FL 34460

DELTA LAND GROUP, LLC
 CONCEPT D
 Graphic Scale
 1" = 200'
 (AT 24" X 36" SIZE)
DEVELOPMENT SUMMARY
 TOTAL DEVELOPMENT AREA: 14630 Acres +/-
 PLANNED RESIDENTIAL LOT AREA: 11250 Acres +/-
 OPEN SPACE AREA (Required): 2940 Acres +/-
 TOTAL NUMBER OF HOMESITES: 332 Lots
 PLANNED DEVELOPMENT DENSITY: 2.60 Units/Acre (MEDIUM DENSITY)
 RECREATION AREA (YMCA EXPANSION): 9 Acres +/-



PREPARED FOR
DELTA LAND GROUP, LLC
 SECTION 205, TOWNSHIP 18 SOUTH, RANGE 18 EAST, CITRUS COUNTY, FLORIDA
 DATE: 03/23/23
 SHEET: 01 OF 01

CERTIFICATE OF AUTHORIZATION
 CIVIL ENGINEERS & PLANNERS
 926 E. 7TH STREET
 TAMPA, FL 33602
 PHONE: 813.274.2000
 FAX: 813.274.2001
 LICENSE NO. 0001788
 PROJECT NO. 22000
 SHEET NO. 01 OF 01

EXHIBIT A
PD MASTER PLAN - EXHIBIT A
(PINE RIDGE UNIT II PARCEL)
 CITRUS COUNTY, FLORIDA