



**Marion County  
Board of County Commissioners**

Office of the County Engineer

412 SE 25th Ave.  
Ocala, FL 34471  
Phone: 352-671-8686  
Fax: 352-671-8687

May 13, 2025

KITTELSON & ASSOCIATES, INC.  
KOK WAN MAH  
225 EAST ROBINSON STREET  
ORLANDO, FL 32801

**SUBJECT: TRAFFIC METHODOLOGY APPROVAL LETTER**  
**PROJECT NAME: ENCLAVE HOUSING CR 42 TRAFFIC IMPACT STUDY**  
**PROJECT #2025010062    APPLICATION: #32409    PARCEL #47667-004-00**

Dear Kok Wan,

The Traffic Methodology dated April 28, 2025 for the above referenced project was approved by Marion County on May 13, 2025. Please submit the Traffic Study in accordance with this approved Methodology.

Feel free to contact the Office of the County Engineer at (352) 671-8686 or [DevelopmentReview@marionfl.org](mailto:DevelopmentReview@marionfl.org) should you have questions.

Sincerely,

*Your Development Review Team*  
**Office of the County Engineer**

225 East Robinson Street, Suite 355  
Orlando, FL 32801  
P 407.540.0555

# TECHNICAL MEMORANDUM

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Date:	April 28, 2025	Project #: 31313
To:	Development Review Marion County Board of County Commissioners 412 SE 25 <sup>th</sup> Avenue Ocala, FL 34471	
From:	Emmanuel Masindoki, P.E. 225 E Robinson Street, Suite 355 Orlando, FL 32801	
CC:	Kok Wan Mah, P.E.	
Project:	Enclave Housing CR 42	
Subject:	Proposed Methodology for Enclave Housing CR 42	

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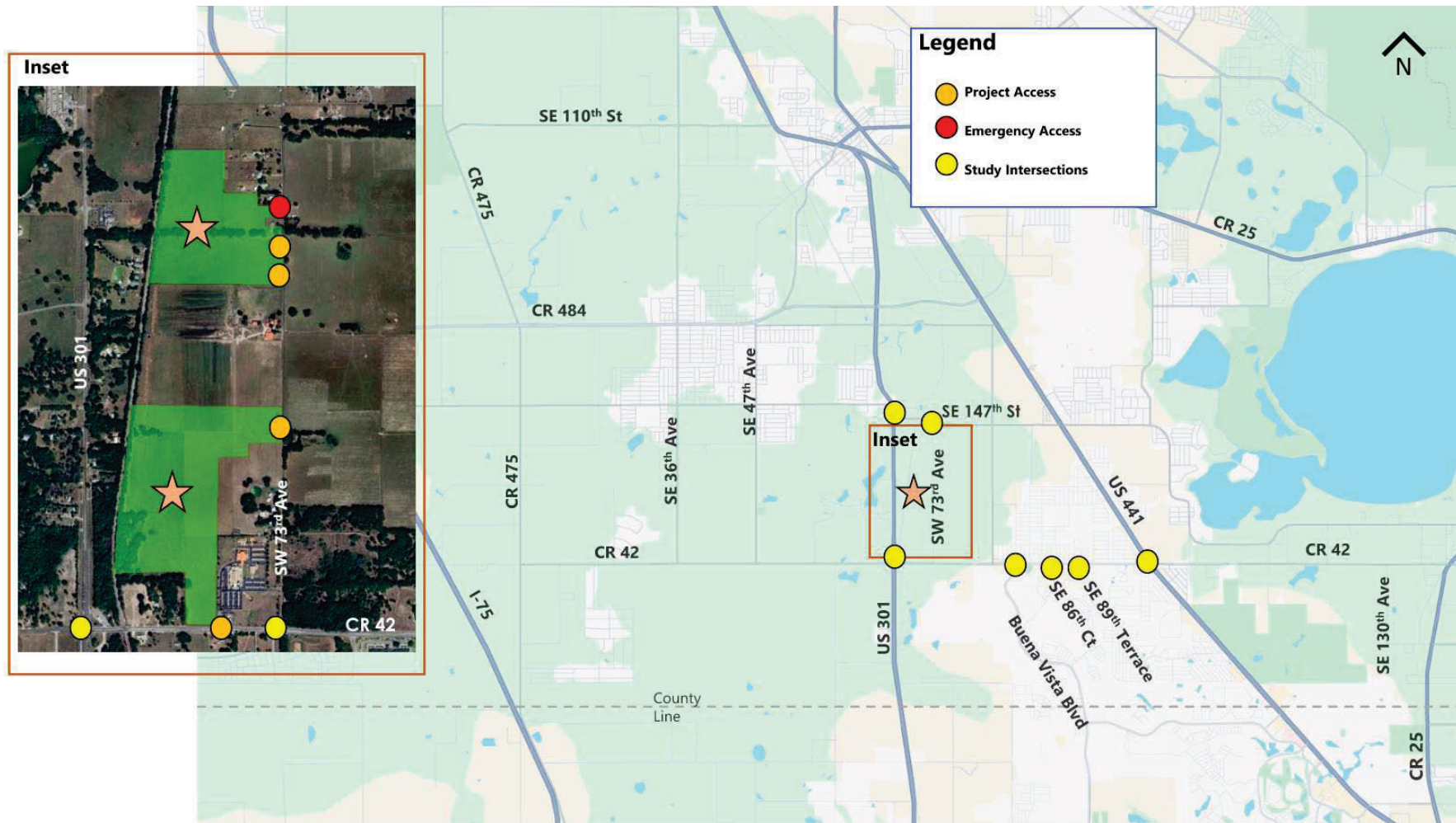
## Introduction

This technical memorandum provides a recommended Transportation Impact Study (TIS) methodology for the proposed Enclave Housing CR 42, in Marion County, Florida. The ±140.7 project site is located on the north side of CR 42, east of US 30 and consists of parcels 47667-004-00, 47667-005-02, 47667-006-00, and portions of 47667-003-01 and 47667-006-00. The project location is shown in **Figure 1**.

The development is planned to include up to 475 single-family residential units. Based upon the generated project trips, a Transportation Impact Study (TIS) will be conducted per the Marion County TRAFFIC IMPACT ANALYSIS GUIDELINES.

The development is planned to be constructed in a single phase, with an anticipated buildout year of 2028. It will be accessed from CR 42 via an existing full-access driveway currently serving a church and an animal hospital. Additionally, the development will feature four full-access driveways on SE 73rd Avenue, including one emergency access only. The preliminary site plan included in **Attachments**.

Figure 1. Project Location



## TRIP GENERATION

The trip generation analysis was conducted using information published by the Institute of Transportation Engineers (ITE) *Trip Generation (11<sup>th</sup> Edition)*. **Table 1** summarizes the resulting trip generation analysis. The ITE trip generation information sheets are included in the **Attachments**.

**Table 1: Trip Generation**

Land Use Type	ITE Code	Intensity	Daily	AM Peak-Hour Trips Ends			PM Peak-Hour Trips Ends		
				In	Out	Total	In	Out	Total
Single Family Residential	210	475 DU	4,231	77	231	308	270	160	430
Net New External Trips Ends (Existing Development)			4,026	77	231	308	270	160	430

The proposed development is projected to generate 4,231 new net external daily trips of which 308 trips occur during the AM peak hour and 430 trips occur during the PM peak hour.

## TRIP DISTRIBUTION AND ASSIGNMENT.

The project trip distribution and assignment were estimated based on a select zone analysis using the Central Florida Regional Planning Model, Version 7. Raw model output (included in **Attachments**) was slightly adjusted to capture the anticipated travelling pattern in vicinity of the project site on US 301 and SE 73<sup>rd</sup> Avenue. The raw model assigned 42% on SE 73<sup>rd</sup> Avenue and 0% on a parallel corridor (US 301). The proposed adjustments result in 26% on SE 73<sup>rd</sup> Avenue and 16% on US 301. The proposed distribution for the future year is included in **Figure 2** and **Figure 3**.

Figure 2. Project Trip Distribution

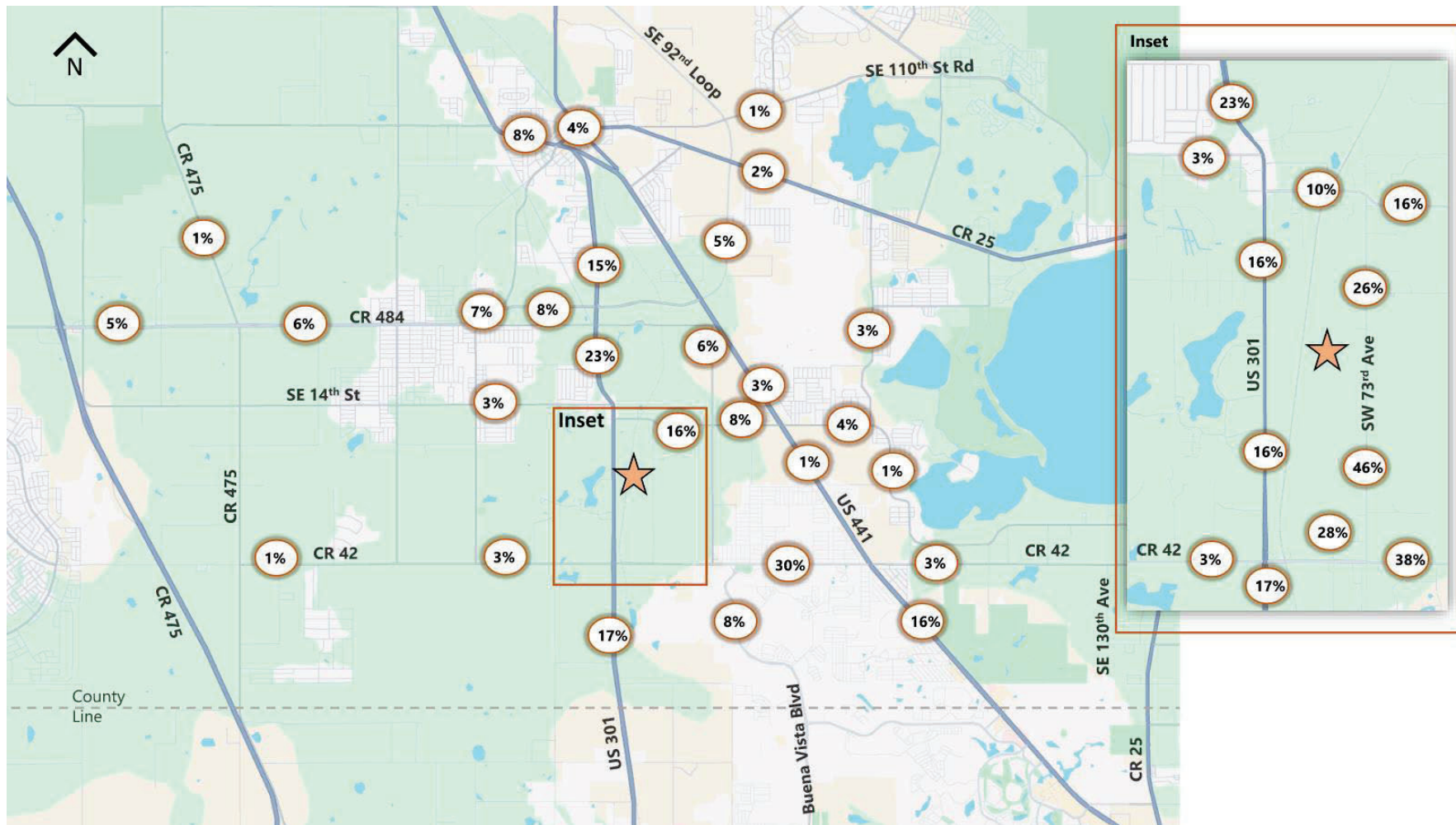
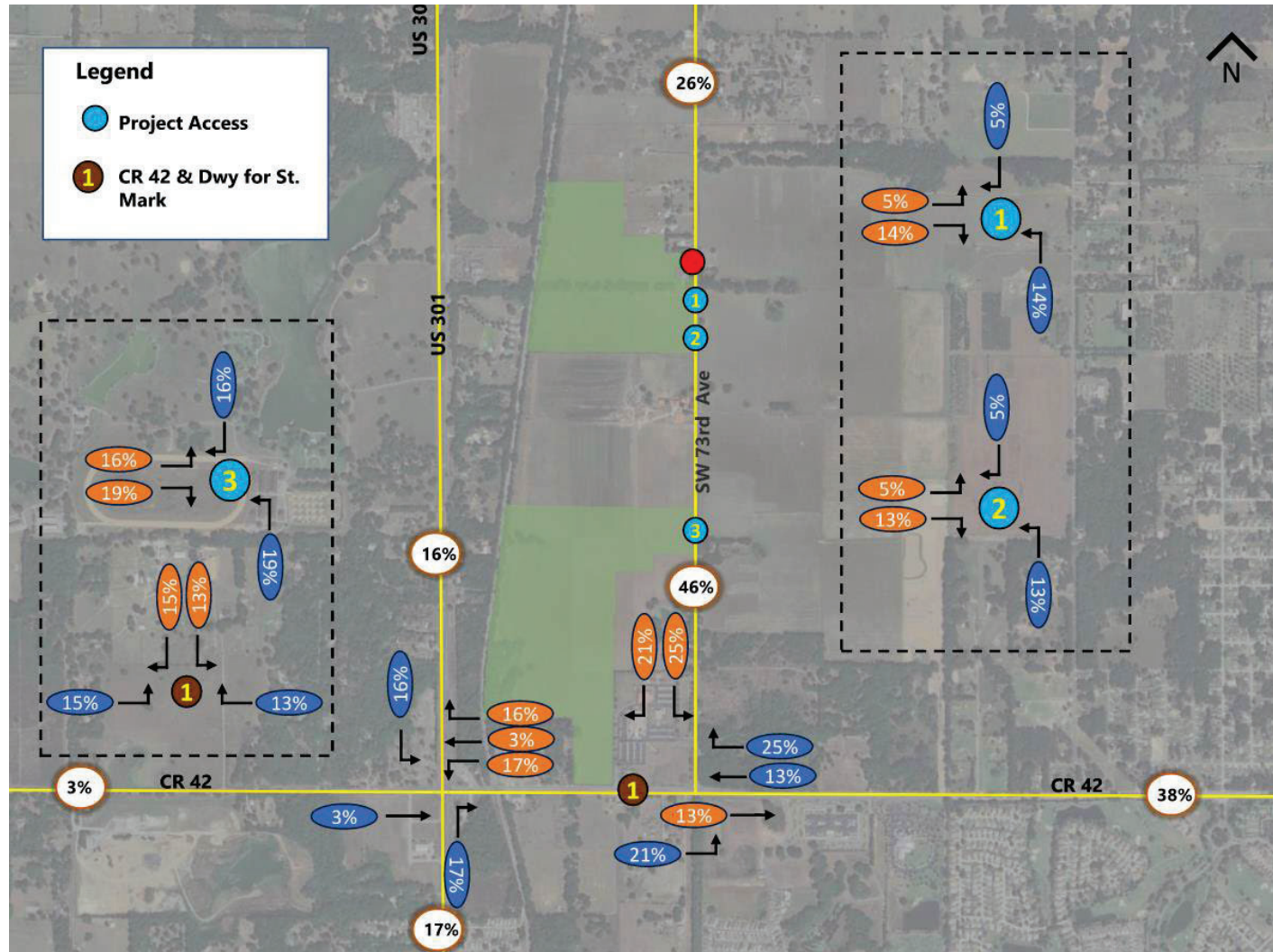




Figure 3. Project Trip Distribution at Project Driveways



## STUDY AREA DETERMINATION

Per MARION COUNTY TRAFFIC IMPACT ANALYSIS GUIDELINES, a study area for a Traffic Study level of analysis includes any public roadway where the net new project's traffic consumes at least three percent of the maximum service volume based on the adopted level of service. **Table 2** presents the project's significance review, which indicates that seven of the reviewed segments are projected to have project trips that consume at least three percent of their maximum service volume. Roadway segment maximum service volumes and the existing traffic counts were obtained from the Ocala Marion Congestion Management Process (CMP), dated August 2023, included in the **Attachments**. Project trips were calculated using trips generated by the proposed development and trip distribution presented in previous sections. Based on the expected trip generation, distribution, assignment, and significance review, it is recommended that the following roadway segments and intersections to be evaluated in the TIA.

### Study Roadways:

- CR 42
  - US 301 to SE 77 Ave
  - SE 77 Ave to US 441
- SE 147 Place
  - US 301 to US 441
- US 301
  - SE 147 Place to US 441
  - County Line to CR 42
  - CR 42 to SE 147 Place
- SE 73rd Avenue
  - CR 42 to SE 147 Place
- US 441
  - County Line to CR 42
  - SE 147 Place to SE 92 Place Loop

### Study Intersections:

- CR 42 & US 301 (signalized)
- CR 42 & SW 73<sup>rd</sup> Avenue (unsignalized)
- CR 42 & US 441 (signalized)
- US 301 & SE 147<sup>th</sup> Street (signalized)
- SE 147<sup>th</sup> Street & SW 73<sup>rd</sup> Avenue (signalized)
- CR 42 & right-in/right-out access (unsignalized)
- SW 73<sup>rd</sup> Avenue & access driveways (unsignalized)
- CR 42 at Driveway for Saint Mark The Evangelist/Mulberry Grove Animal Hospital (unsignalized)
- CR 42 at Buena Vista Blvd/SE 83rd Ave (signalized)
- CR 42 at SE 86th Belle Meade Cir/SE 86th Ct (signalized)
- CR 42 at SE 89th Sweetwater Ter/SE 89th Ter (signalized)

Table 2: Project Trip Significance Review

Segment ID	Road Name	Roadway Segment		Roadway Attributes <sup>1</sup>				PM Peak Project Trips <sup>2</sup>		Significant Test <sup>3</sup>		
		From	To	No. Lns	Functional Class.	LOS Std	PK - Dir Cap	Assign %	Dir Trips	Max % Impact	Sign?	In Study?
1550.1	CR 42	CR 475	US 301	2	COLLECTOR	D	999	3%	8	0.80%	NO	NO
1560	CR 42	US 301	SE 77 AV	4	ARTERIAL	E	1,800	38%	103	5.72%	YES	YES
1570	CR 42	SE 77 AV	US 441	4	ARTERIAL	E	1,800	38%	103	5.72%	YES	YES
1610.1	CR 42	US 441	SE 130 AVE	2	COLLECTOR	E	1,449	3%	8	0.55%	NO	NO
1610.2	CR 42	SE 130 AVE	CR 25	2	COLLECTOR	E	1,449	2%	5	0.35%	NO	NO
3880	SE 147 PL	US 301	US 441	2	MAJOR LOCAL	E	576	16%	43	7.47%	YES	YES
6530.1	US 301	COUNTY LINE (S)	CR 42	4	ARTERIAL	D	2,910	17%	46	1.58%	NO	YES
6540	US 301	CR 42	SE 147 ST	2	ARTERIAL	D	730	16%	43	5.89%	YES	YES
6550.1	US 301	SE 147 ST	US 441	4	ARTERIAL	D	987	23%	62	6.28%	YES	YES
6700	US 441	COUNTY LINE (S)	CR 42	4	ARTERIAL	D	1,996	16%	43	2.15%	NO	YES
6730	US 441	CR 42	SE 147 PL	4	ARTERIAL	D	1,901	1%	3	0.16%	NO	NO
6740	US 441	SE 147 PL	SE 92 PLACE LOOP	4	COLLECTOR	E	1,901	3%	8	0.42%	NO	YES
8200	BUENA VISTA BLVD	SUMTER CO LINE	CR 42	4	COLLECTOR	E	792	8%	22	2.78%	NO	NO
N/A	SE 73 <sup>rd</sup> AV <sup>4</sup>	CR 42	SE 147 PL	2	MAJOR LOCAL	E	576	46%	124	21.56%	YES	YES

## Notes:

1. Data obtained from the latest Ocala TPO Marion CMP Database
2. Directional trips calculated as the maximum of the PM Peak entry and exit trips
3. Percent Impact was calculated as the PM peak directional project trips divided by the PM peak directional service volume
4. This segment is not included in Ocala TPO Marion CMP Database. Traffic counts will be used for analysis.
- 5 The minimum threshold for significance is at least 3% impact of the directional capacity



## STUDY SCENARIOS

The proposed TIS report will document the study of roadway segments and intersections analysis for the existing scenario, no-buildout (base) scenario, and buildout (proposed) scenario. The existing scenario will provide the existing capacity and operations condition at the study facilities, which is to be used as a benchmark for the base scenario and proposed scenario. The existing scenario analysis for the roadway segments will document the existing roadway volume, existing and available roadway capacity using the information provided in the latest Ocala Marion Congestion Management Process (CMP). The existing (2025) condition intersections analysis will be conducted using field counts that will be collected within a 12-month period of the approval of this study methodology. The counts will include passenger cars and heavy vehicles. Seasonal adjustments, if needed, will be made to the raw field counts.

No-buildout scenario traffic volume will constitute the 2028 projected background traffic and committed trips (Utopia PUD, 9494 Summerfield PUD & Heritage Oaks). Buildout scenarios will be analyzed using the projected buildout volume, which is the summation of 2028 projected background volume and project trips.

Projected background traffic volume will be calculated by using a weighted average annual growth of 2.65%, which was calculated based on the growth rate presented in the Ocala Marion Congestion Management Process (CMP) as shown in **Table 3**.

**Table 3. Growth Rate Determination**

Segment ID	Road Name	Roadway Segment		2023 AADT	Annual Growth Rate
		From	To		CMP Database
1560	CR 42	US 301	SE 77 AV	18,300	5.05%
1570.0	CR 42	SE 77 AV	US 441	18,300	5.05%
3880	SE 147 PL	US 301	US 441	6,000	6.96%
6530.1	US 301	COUNTY LINE (S)	CR 42	24,100	4.94%
6540	US 301	CR 42	SE 147 ST	17,700	1.00%
6550.1	US 301	SE 147 ST	US 441	13,200	1.00%
6700	US 441	COUNTY LINE (S)	CR 42	38,400	1.00%
6740.0	US 441	SE 147 PL	SE 92 PLACE LOOP	33,300	1.00%
Weighted Average Growth					2.65%

*Note*

*The latest (2024) Ocala TPO Marion CMP Database would be used if available.*

## OPERATIONAL ANALYSIS

The Traffic Impact Study will provide an analysis of weekday PM peak hours traffic operations at study intersections. The AM analysis will also be conducted at the site access driveways and for the intersection of CR 42 at SE 73rd Avenue, CR 42 at US 301, CR 42 at Driveway for Saint Mark The Evangelist/Mulberry Grove Animal Hospital and 147th Place at SE 73rd Avenue. HCM 7th Edition methodology included in Synchro 12 software will be used for intersection operational analyses. The intersection operational analyses will include an assessment of overall intersection delay and level of service (LOS), as well as queues, delays, and LOS by movement, for the study intersections. The need for turn lanes at the proposed project driveways will be conducted using guidance provided in Chapter 6 of FDOT's Access Management Guidebook.

Roadway segments will be analyzed using roadway capacities published in the latest Ocala Marion TPO CMP Database. FDOT 2020 Generalized LOS Tables will be used for County roadway segments. For roadways or intersections found to be operating deficiently due to the addition of project trips, recommendations will be provided to address the identified deficiencies).

## SIGNAL WARRANT ANALYSIS

Signal Warrant Analysis (SWA) will be conducted to determine the need for a signal at the intersection of CR 42 and SE 73rd Avenue, based on the Chapter 4c of the Manual on Uniform Traffic Control Devices (MUTCD) 11<sup>th</sup> Edition and Marion County standards, and incorporating professional engineering judgment. This analysis will be supported by a 12-hour traffic count at the intersection, and the results will be documented in the Traffic Impact Study report. The analysis will include the project trips from the development of Utopia PUD and other committed developments that would impact the analyzed intersection.

225 East Robinson Street, Suite 355  
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P 407.540.0555

# MEMORANDUM

April 28, 2025

Project #: 31313

To: Development Review  
Office of the County Engineer  
412 SE 25<sup>th</sup> Avenue  
Ocala, FL 34471

From: Emmanuel Masindoki, PE and Kok Wan Mah, PE

RE: Enclave Housing CR 42 Response to Comments

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This memorandum has been prepared to provide responses to the comments from Marion County on April 23, 2025. The revised TIA methodology memorandum is provided under separate cover.

## TRANSPORTATION

1. Response to Original Comment #22 - The traffic methodology continues to propose 3 driveways on SE 73rd Ave for the northernmost parcel (47667-000-00). These driveways do not meet the minimum 245 ft spacing requirements as mentioned in the previous comments. Traffic staff cannot approve a methodology that violates the driveway spacing standards. The traffic study must analyze an access scenario that meets the driveway spacing criteria (i.e., 1 or 2 driveways for Parcel 47667-000-00). A second scenario that does not meet driveway spacing criteria can also be analyzed. However, the approval/disapproval of any driveway deviations will not occur until review of the site plan

***Response: The northern driveway of the northernmost parcel will be designated for emergency access only; therefore, the parcel will have two full-access driveways.***

2. PDF pg. 4 & 5, Figures 2 & 3 - Figures 2 & 3 show different distributions to/from the south on SE 73rd Ave. Figure 2 shows 54% while Figure 3 shows 39%. Update the figures to show the same distributions on SE 73rd Ave. Ensure the distributions used in Table 2 also match the distributions shown on Figures 2 & 3.

***Response: Agreed, and Figures 2 & 3 are updated accordingly.***

3. Response to Original Comment #6 - After addressing the first comment by increasing the total number of residential units to 505, update the driveway distributions in Figures 3 & 5. The total distribution at Driveways 1, 2, & 3 should be 44% in both figures (220 units / 505 units = 0.44).

***Response: The latest site plan proposes a maximum of 175 units for the northern parcel and 300 units for the southern parcel, for a total of 475 units. Based on this distribution, approximately 37% (175 units / 475 units) of the site traffic is expected to use Driveways 2 and 3, as Driveway 1 is now designated for emergency access only.***

4. PDF pg. 5, Figure 3 - The 39% to/from the south on SE 73rd Ave needs to be changed to 46% based on the distributions shown at the driveways on SE 73rd Ave

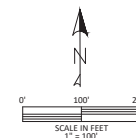
***Response: Figure 3 has been updated to show 46% to/from the south on SE 73rd Ave.***

5. PDF pg. 5, Figure 3 - The 15% of eastbound through traffic on CR 42 at SE 73rd Ave needs to be changed to 13%.

***Response: Figure 3 has been updated to show 13% eastbound through traffic on CR 42 at SE 73rd Avenue.***

6. PDF pg. 12 & 13 - The site data shows the number of units proposed but does not show the proposed access locations. Provide an updated concept plan showing the proposed access locations on CR 42 and SE 73rd Ave.

***Response: The concept plan showing the access locations is attached to the revised methodology.***





SITE DATA TABLE

OWNER/DEVELOPER:  
STRATEGIC DEVELOPMENT, LLC.

JAKE BEREN  
880 AIRPORT ROAD, SUITE 113  
ORMOND BEACH, FL 32174  
PH: (732) 552-5154

PARCEL: 47667-000-00

PROJECT AREA:

TOTAL = 55.00 ± AC.

LAND USE & ZONING:

EXISTING FUTURE LAND USE: RURAL LAND

EXISTING ZONING: A-1

PROPOSED ZONING: PUD

MINIMUM BUILDING LOT

LINE SETBACKS:

FRONT - 20'

REAR - 15' (5') ACCESSORY

SIDE - 5' (5') ACCESSORY

MAX BUILDING HEIGHT:

40'

PROPOSED LOTS:

☐ (A) 50' X 115' MIN. LOTS 114 UNITS

☐ (B) 60' X 115' MIN. LOTS 51 UNITS

TOTAL 165 UNITS

☐ PROPOSED BUFFERS:

AS SHOWN ON CONCEPT PLAN

REQUIRED:

OPEN SPACE 11.00 ± AC. (20% of 55.00 Ac.)

IMPROVED OPEN SPACE: 0.55 ± AC. ( 5% of 11.00 Ac.)

PROVIDED:

OPEN SPACE: 8.63 ± AC.

IMPROVED OPEN SPACE: 2.97 ± AC.

DRA: 2.10 ± AC. (25% of 8.41 Ac.)

BUFFERS: 1.38 ± AC.

TOTAL AS SHOWN: 15.08 ± AC. (27% of 55.00 Ac.)

DRA: 8.41 ± AC. (15% OF 55.00 Ac.)

DENSITY:

TOTAL ALLOWABLE = 220 UNITS

TOTAL SHOWN = 165 UNITS

TOTAL DENSITY NOT TO EXCEED 175 UNITS

***Tillman & Associates***  
ENGINEERING, LLC.

CIVIL ENGINEERING - PLANNING - LANDSCAPE ARCHITECTURE - ENVIRONMENTAL  
1720 SE 16th Ave. Bldg 100, Ocala, FL 34471  
Office: (352) 387-4540 Fax: (352) 387-4545

STRATEGIC DEVELOPMENT, COVENTRY SQUARE  
MARION COUNTY, FLORIDA

*SITE DATA*

DATE 3/18/25

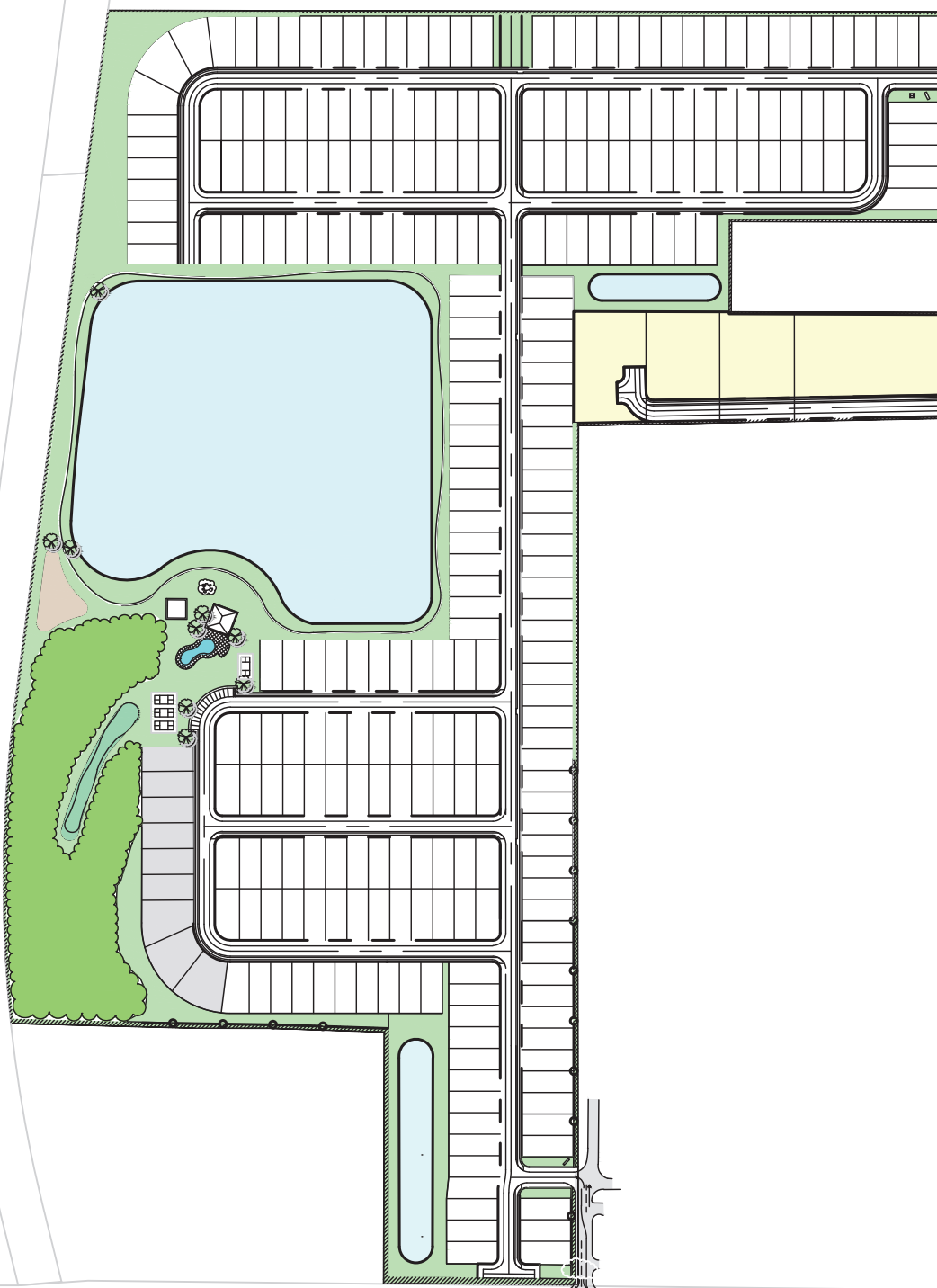
DRAWN BY

CHKD. BY JH

JOB NO. 24-9157

SCALE

SHT 04-A



### OPEN SPACE CALCULATIONS

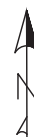
#### REQUIRED:

1. OPEN SPACE: (20% OF PROJECT AREA)  $0.20 \times 90.69 = 18.14 \pm \text{AC}$ .
2. IMPROVED OPEN SPACE (AMENITY): (5% OF OPEN SPACE)  $0.05 \times 18.14 = 0.91 \pm \text{AC}$ .

#### PROVIDED:

TOTAL PROVIDED OPEN SPACE:  $22.46 \pm \text{AC}$ .

- |  |   |
|--|---|
|  | 1. OPEN SPACE: $13.37 \pm \text{AC}$ .            |
|  | 2. IMPROVED OPEN SPACE: $3.62 \pm \text{AC}$ .    |
|  | 3. DRA: $3.67 \pm \text{AC}$ . (25% of 14.68 Ac.) |
|  | 4. BUFFERS: $1.80 \pm \text{AC}$ .                |



**Tillman & Associates**  
ENGINEERING, LLC.

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1720 SE 16th Ave. Bldg 100, Ocala, FL 34471  
Office: (352) 387-4540 Fax: (352) 387-4545

STRATEGIC DEVELOPMENT, PICCADILLY SQUARE  
MARION COUNTY, FLORIDA

## OPEN SPACE MAP AND CALCULATIONS

DATE 3/18/25  
DRAWN BY SM  
CHKD. BY JH  
JOB NO. 24-9157  
SCALE 1"=400'  
SHT. 11



# Single-Family Detached Housing

## (210)

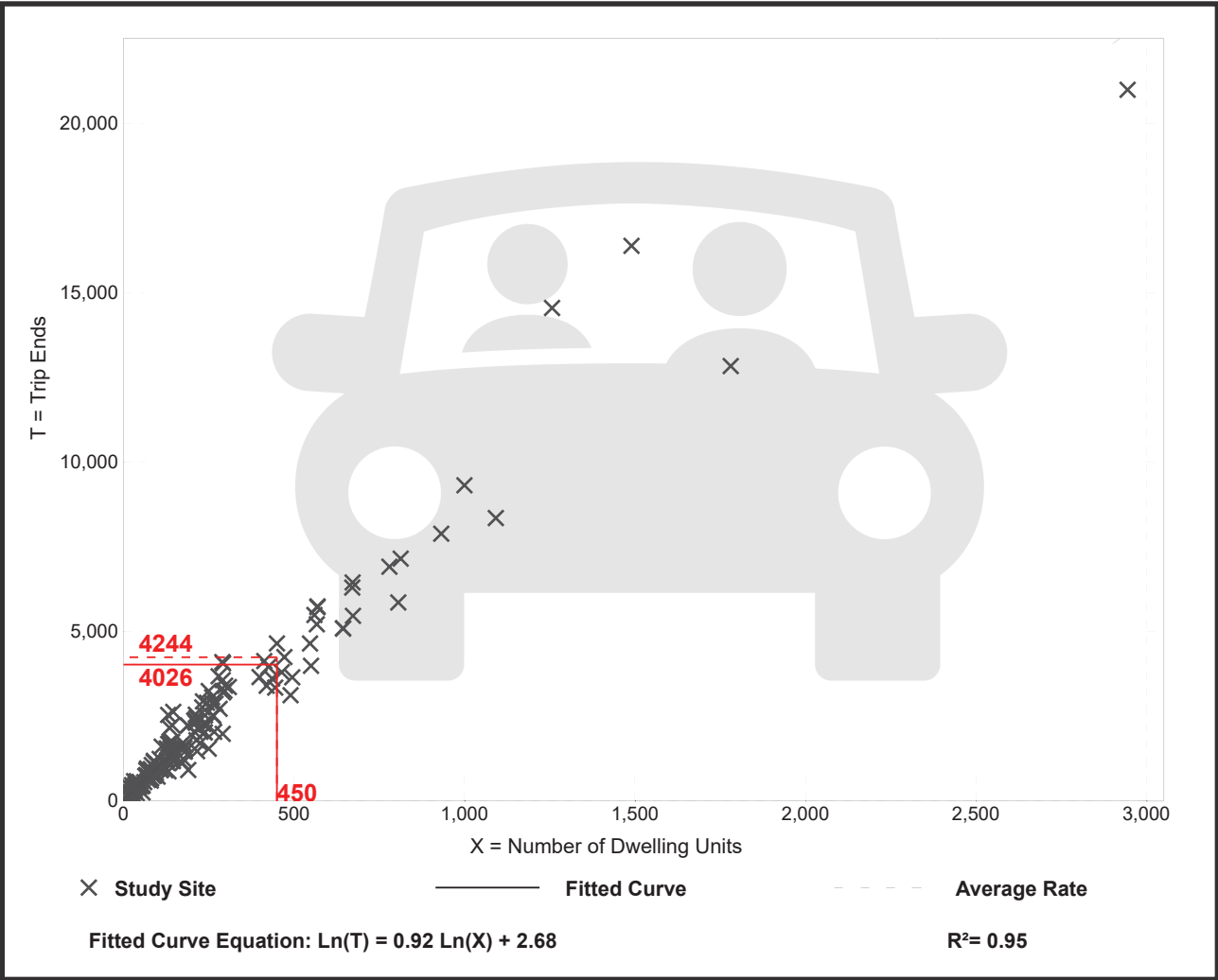
Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday

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

### Vehicle Trip Generation per Dwelling Unit

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

### Data Plot and Equation



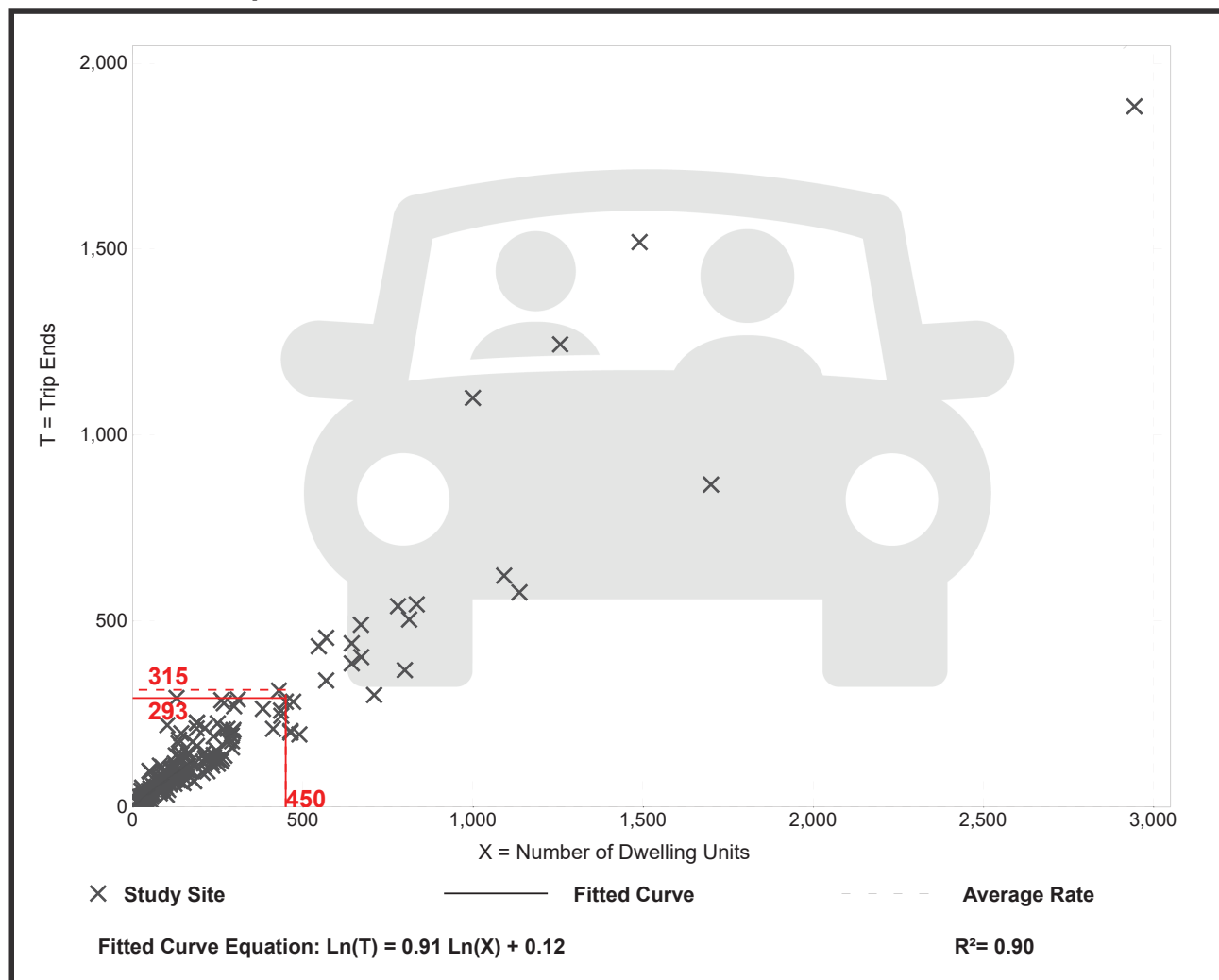
# Single-Family Detached Housing (210)

**Vehicle Trip Ends vs: Dwelling Units**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location: General Urban/Suburban**  
Number of Studies: 192  
Avg. Num. of Dwelling Units: 226  
Directional Distribution: 25% entering, 75% exiting

## Vehicle Trip Generation per Dwelling Unit

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

## Data Plot and Equation





# Single-Family Detached Housing

## (210)

Vehicle Trip Ends vs:

Dwelling Units

On a:

Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Number of Studies:

208

Avg. Num. of Dwelling Units:

248

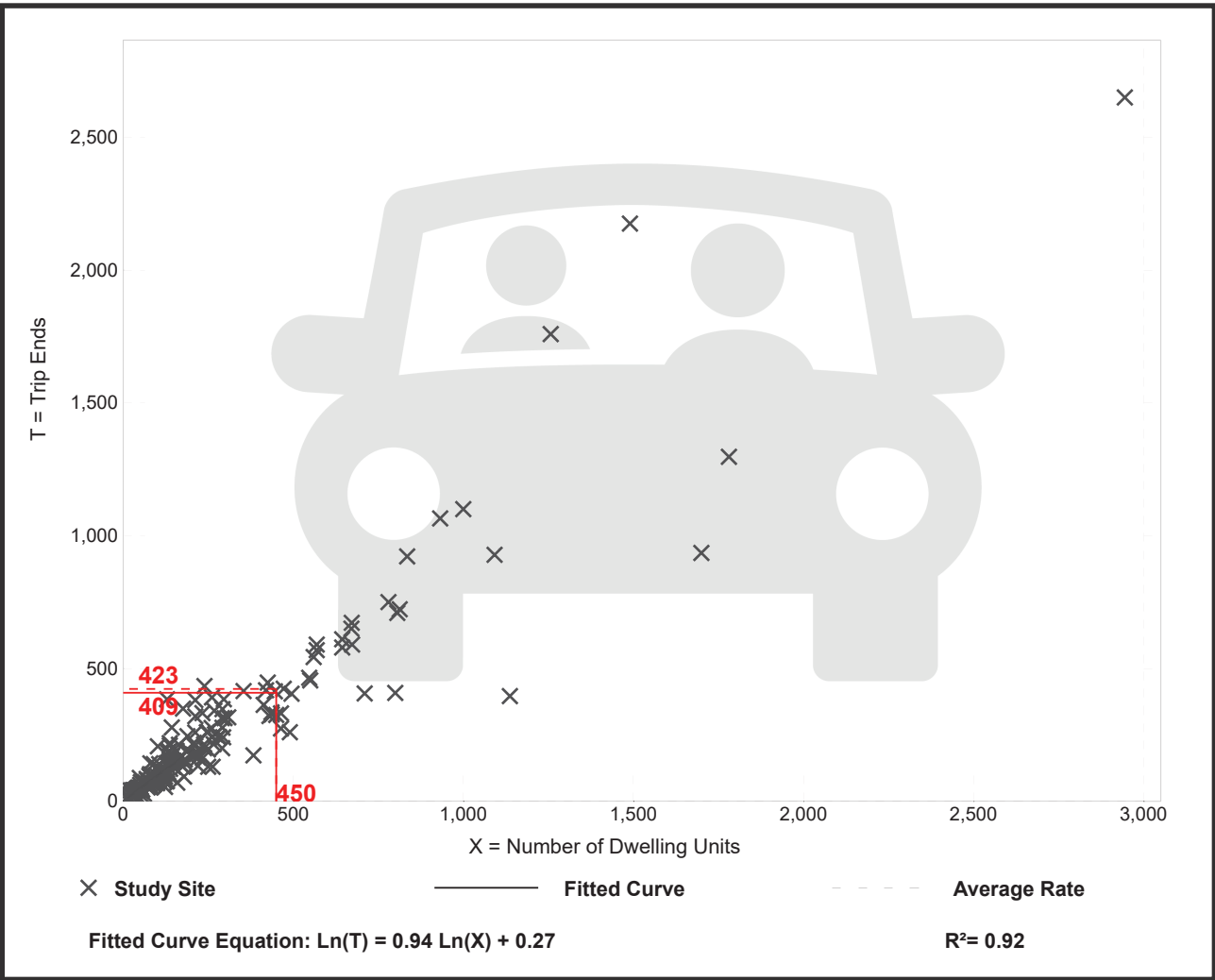
Directional Distribution:

63% entering, 37% exiting

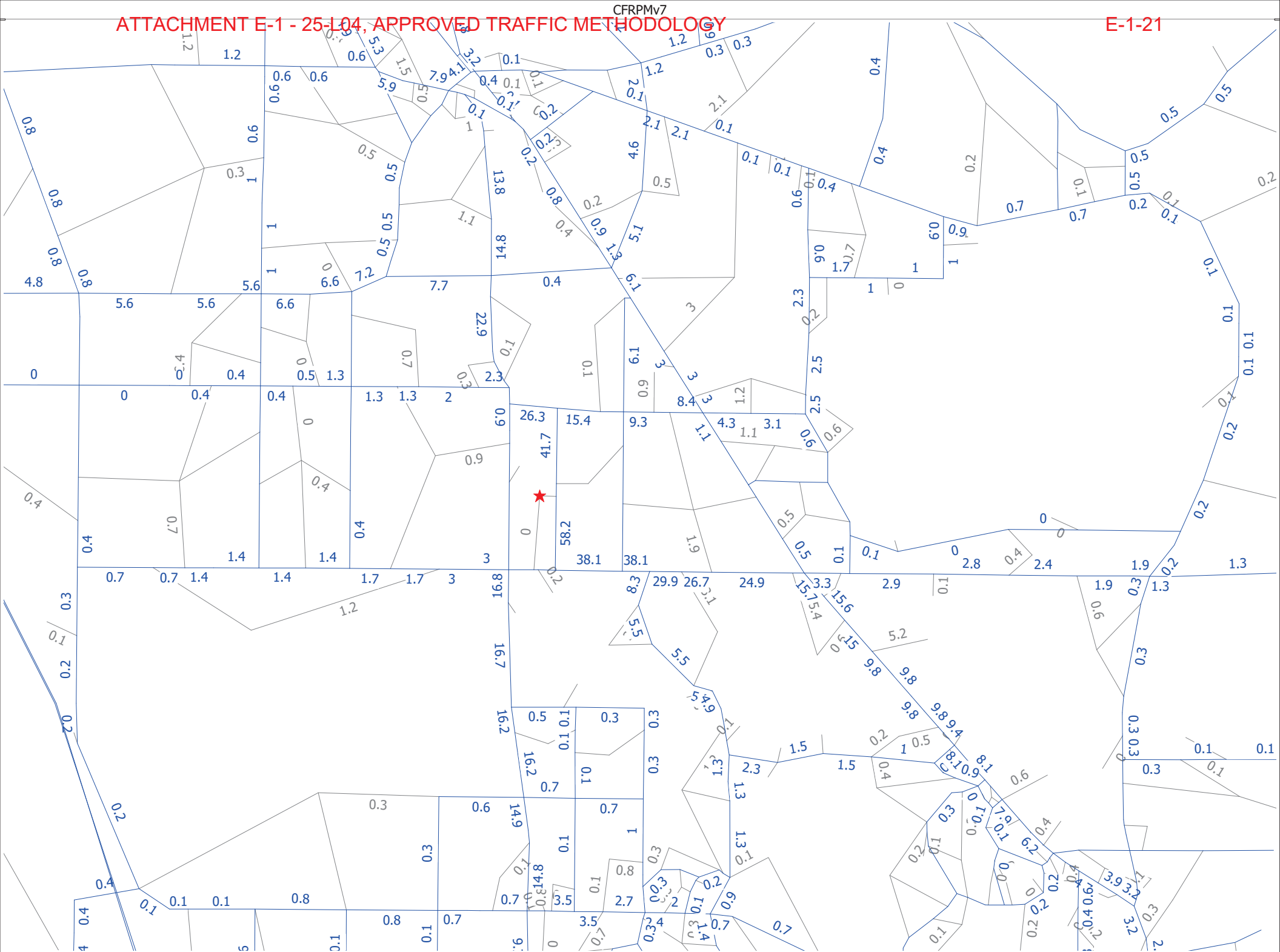
### Vehicle Trip Generation per Dwelling Unit

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

### Data Plot and Equation







CFRPMv7