



## MEMORANDUM

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Date: May 27, 2024 (Updated July 15, 2024) Project #: 30417  
 To: Ms. Tracy Straub  
 Assistant County Administrator  
 Marion County  
 412 SE 25<sup>th</sup> Avenue  
 Ocala, FL 344471  
 From: Kok Wan Mah, PE  
 Project: Whisper Woods PUD  
 Subject: Traffic Assessment to Support Future Land Use and Zoning

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### Introduction

The purpose of this memorandum is to provide a high level of traffic impact assessment for the proposed Whisper Woods PUD project to support the PUD Amendment. The current PUD includes entitlements for up to 82 townhome units at the southeast corner of Pine Road and Bahia Road. The proposed PUD Amendment consists of a maximum of 82 single family attached units. The property ID is 9007-0000-12 and is approximately 10.33 acres. The site plan is attached. Access to the proposed property will be two (2) driveways, one on Pine Road (full access) and the other on Bahia Road (full access).

### Trip Generation – Current PUD Zoning

The number of vehicle trips that will originate from, or are destined to, a development is dependent upon the type of land uses contained within that development. Trip rates used in this analysis are from the ITE publication, Trip Generation Manual, 11<sup>th</sup> Edition, see attached. The current PUD zoning allows for 82 units of multi-family residential use (townhomes). **Table 1** summarizes the maximum trip generation under the current zoning.

*Table 1: Whisper Woods PUD Current Zoning Entitlements*

Land Use	ITE Code	Intensity	Daily Trip Ends	AM Peak Period			PM Peak Period			Total			
				%	In Trips	Out Trips	%	In Trips	Out Trips				
Multi-Family (Low-Rise)	220	82 DU	601	24%	12	76%	36	48	63%	35	37%	21	56
<b>Total</b>			<b>601</b>		<b>12</b>		<b>36</b>	<b>48</b>		<b>35</b>		<b>21</b>	<b>56</b>

Source: ITE Trip Generation, 11<sup>th</sup> Edition

**Trip Generation – Proposed Zoning**

The PUD is being amended to change the land use type from townhomes to single family detached residential units with the same maximum of 82 units. As shown in the trip generation table, **Table 2**, no internal capture was applied between residential uses. This is because the property is for residential use and internalization trips are not anticipated.

*Table 2: Whisper Woods Proposed Development Plan*

Land Use	ITE Code	Intensity	Daily Trip Ends	AM Peak Period				PM Peak Period				Total	
				%	In Trips	%	Out Trips	%	In Trips	%	Out Trips		
Single Family Detached	210	82 DU	841	25%	16	75%	46	62	63	52	37%	30	82
<b>Total</b>			<b>841</b>		<b>16</b>		<b>46</b>	<b>62</b>		<b>52</b>		<b>30</b>	<b>82</b>

Source: ITE Trip Generation, 11<sup>th</sup> Edition

**Trip Generation Summary**

The proposed change in the PUD will result in a net increase of 240 daily trips, 14 additional AM peak-hour trips (4 entering and 10 exiting), and 26 additional PM peak-hour trips (17 entering and 9 exiting). The trip generation shows that the proposed development program will also be below the threshold requiring a full traffic study.

**Roadway Capacity Assessment**

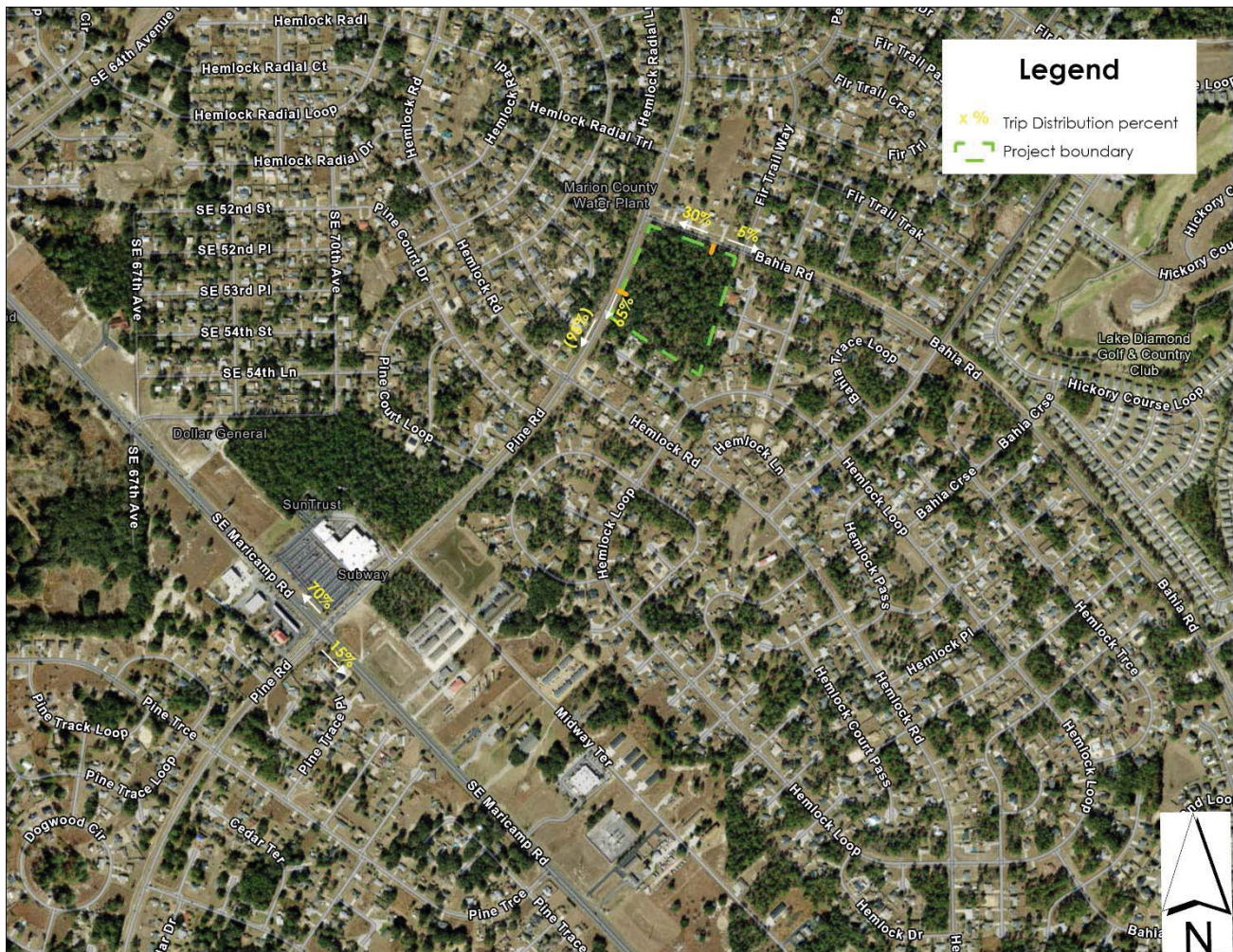
Pine Road is a suburban two-lane undivided arterial within the study limits of Whisper Woods PUD. The speed limit is posted at 30 miles per hour (mph). Bahia Road is a suburban two-lane undivided arterial with a speed limit of 30 mph. Data were not available for Pine Road or Bahia Road, thus capacity analysis was conducted for CR 464 (Maricamp Road). CR 464 is a four-lane undivided urban arterial with a two-way left turning lane (TWLTL); its posted speed limit is 50 mph. The existing conditions along CR 464 are presented in **Table 3**. Existing traffic data is acquired from the 2023 Ocala Marion CMP Roadway Database. Additional information from the FDOT Traffic Online Database was used to convert the daily traffic information into PM peak-hour volumes using a K factor of 0.09 and a D of 52.5%. As shown in the table, CR 464 has an adopted level of service standard of E. CR 464 corresponds to a capacity of 3,385 peak-hour peak-direction trips. Currently, the segment utilizes 96% of its capacity.

To determine if the facility has the capacity to accommodate the project trips from the Whisper Woods PUD, a future condition roadway analysis is conducted. Engineering judgment was utilized to determine project distribution. Sixty-five percent (65%) of project trips were assumed to utilize the driveway on Pine Road and the remaining thirty-five percent (35%) were assumed to utilize the driveway on Bahia Road. On Bahia Road, five percent (5%) of projects were assumed to travel east while the remaining thirty percent (30%) were assumed to travel west toward Pine Road. On Pine Road, the combined ninety-five

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percent (95%) of project trips from both driveways were assumed to travel south toward CR 464 (Maricamp Road). On CR 464, seventy percent (70%) of project trips were distributed to the west with the remaining fifteen percent (15%) of project trips traveling east. **Figure 1** illustrates the project trip distribution. The project trips were then adjusted for direction by applying the ratio of the project trip ins and outs to the trips generated.

Figure 1: Project Trip Distribution



An annual growth rate of one percent (1.0%) obtained from the Marion Ocala CMP Roadway Database was applied to the segment of CR 464. For the segments of Pine Road and Bahia Road, the growth was not provided or was less than 1% so a growth rate of 1% obtained from the Ocala Marion TPO CMP database 2023 was applied to the existing peak hour volumes on those segments. Project trip impacts were added to background traffic to determine the total build-out future condition. **Table 4** summarizes the future conditions analysis. The results show that there are no capacity deficiencies. Therefore, the proposed development will not negatively impact CR 464.



Table 3: Existing Roadway Condition Analysis

Segment ID	Road Name	From/To	No. Lanes	Area Type	Functional Class.	LOS Std.	Daily Capacity	Pk-Hr Pk-Dir Capacity	AADT	PM Pk Hr 2-Way Total	PH PD Vol NB/EB	PH PD Vol SB/WB	v/c
1710	CR 464	SR 35 to Emerald Rd (N)	4	U	Arterial	E	35,820	1,800	34,300	3,087	1,621	1,466	0.96

Source: Ocala Marion TPO CMP Database 2023  
 2021 FDOT Traffic Online  
 FDOT Site: 360249 K factor 9, D factor 52.5

Table 4: 2029 Future Roadway Condition Analysis

Segment ID	Road Name	From/To	No. Lanes	Area Type	Functional Class.	LOS Std.	Daily Capacity	Pk-Hr Pk-Dir Capacity	Annual Growth	Bkgd Pk-Hr Pk-Dir Vol		Whisper Woods PUD			Total Pk-Hr Pk-Dir Vol		Total v/c
										NB/EB	SB/WB	Dist. %	NB/EB	SB/WB	NB/EB	SB/WB	
1710	CR 464	SR 35 to Emerald Rd (N)	4	U	Arterial	E	35,820	1,800	1.0%	1,718	1,554	70%	36	21	1,754	1,575	0.97

Source: Ocala Marion TPO CMP Database 2023  
 2021 FDOT Traffic Online  
 FDOT Site: 368113 K factor 9, D factor 53.2  
 FDOT Site: 367035 K factor 9, D factor 53.2



**Driveway Turn Lane Need Analysis**

Based on the project distribution, the turning volumes at the site driveways would fall below the thresholds requiring exclusive turn lanes.

In conclusion, the trip generation resulting from the PUD change in residential use from multi-family rental units to single family residential units results in an increase in trips of 240 additional daily trips, 14 additional AM peak-hour trips (4 entering and 10 exiting), and 26 additional PM peak-hour trips (17 entering and 9 exiting). The roadway capacity results show that there are no capacity deficiencies resulting from the trips generated by the proposed PUD Amendment. Therefore, the proposed development will not negatively impact CR 464. The trips generated for the site fall below the threshold requiring a full traffic study.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Kok Wan Mah', is written over a light blue circular stamp.

Kok Wan Mah, P.E.  
Principal Transportation Engineer  
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