



To: Francis Franco, GISP, Lake-Sumter MPO

Date: September 20, 2016

Memorandum

From: Melody Butler, P.E.  
Transportation Engineer

Project #: 62438.00

CC: Fabricio Ponce, P.E.

Re: Windmill 27 Proposed Traffic Study Methodology

---

The purpose of this memorandum is to provide the City of Leesburg and Lake-Sumter MPO (LSMPO) with the methodology to evaluate the transportation impacts associated with the proposed Windmill 27 residential development. Per the *Lake-Sumter MPO TIS Guidelines*, this project is considered a Tier 3 project and will follow the requirements for the associated level of study and analysis.

### **Project Description**

The proposed development program for the site includes approximately 250 single-family dwelling units. The development is anticipated to be completed by 2020. The project will be developed as a PD on 62.6 acres.

### **Site Location & Site Plan**

The site is located east of US 27, north of SR 91, and south of CR 470. The project location is illustrated on *Figure 1*. The site is 62.6 acres and is currently undeveloped. Access to the development is proposed at the existing intersection of US 27 and El Presidente Boulevard. There is currently a full median opening at this intersection.

The location of this driveway can be observed in *Figure 2* – Preliminary Site Plan.

### **Area of Influence / Study Area Intersections**

We propose the following intersections will be analyzed in the traffic study:

1. US 27 @ SR 91 Northbound On-ramp
2. US 27 @ Bridges Road
3. US 27 @ Plantation Boulevard
4. US 27 @ El Presidente Boulevard
5. US 27 @ CR 48/CR 470

The study area will be expanded to include one roadway segment beyond project significance (5%), but will at a minimum, include:

- US 27 – Florida Turnpike to CR 33
- CR 470 – CR 33 to US 27
- CR 48 – US 27 to SR 19

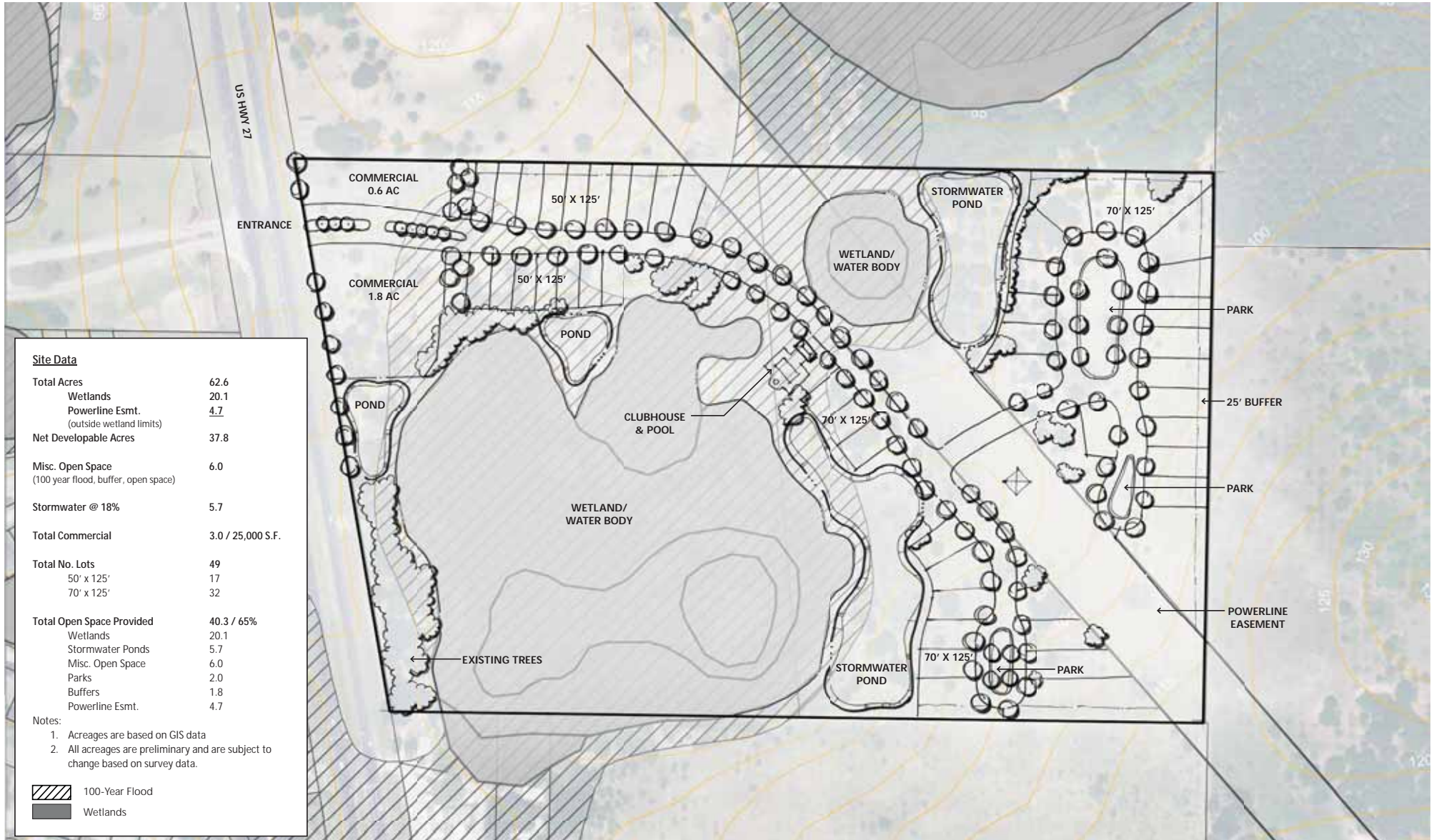
225 E. Robinson Street, Suite 300  
Landmark Center Two  
Orlando, FL 32801  
P 407.839.4006



WINDMILL 27  
Traffic Impact Study

FIGURE  
1





**Site Data**

Total Acres	62.6
Wetlands	20.1
Powerline Esmt. (outside wetland limits)	4.7
Net Developable Acres	37.8
Misc. Open Space (100 year flood, buffer, open space)	6.0
Stormwater @ 18%	5.7
Total Commercial	3.0 / 25,000 S.F.
Total No. Lots	49
50' x 125'	17
70' x 125'	32
Total Open Space Provided	40.3 / 65%
Wetlands	20.1
Stormwater Ponds	5.7
Misc. Open Space	6.0
Parks	2.0
Buffers	1.8
Powerline Esmt.	4.7

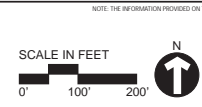
**Notes:**

1. Acreages are based on GIS data
2. All acreages are preliminary and are subject to change based on survey data.

**Legend:**

- 100-Year Flood
- Wetlands

CONCEPT PLAN  
**WINDMILL 27**  
 LEESBURG • FLORIDA





**Planned and Programmed Improvements**

According to the LSMPO Transportation Improvement Program (TIP), the segment of CR 470 from CR 527 to the Florida Turnpike is scheduled to be widened from two lanes to four lanes by 2020. In addition, the LSMPO Long Range Transportation Plan (LRTP) identifies the following planned improvements nearby the project location:

- CR 470 from Florida Turnpike to CR 33: widen from two to four lanes
- SR 44 from Orange Avenue to US 441: widen from two to four lanes
- US 441 from Perkins Street to SR 44: widen from four to six lanes

The study will assume the construction of these widening projects and will be included in the travel demand model forecast that will be used for the project distribution.

**Committed Development**

The Windmill Road development, located on the east of US 27 south of the Windmill 27 development, will be included as background traffic in the future analysis. We will coordinate with LSMPO to include any additional vested trips from other projects in the area.

**Trip Generation**

To estimate the trip-generating characteristics for the proposed development, traffic projections were derived from trip generation regression equations published by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9<sup>th</sup> Edition. ITE Land Use Code (LUC) 210 for single-family residential was used. A summary of the trip generation is included in *Table 1*. No reduction was taken for internal capture, pass-by or mode split.

**Table 1: Trip Generation Summary**

Land Use	ITE Code	Intensity	Daily Trip Ends	AM Peak Period					PM Peak Period				
				In		Out		Total	In		Out		Total
				%	Trips	%	Trips		%	Trips	%	Trips	
Single Family	210	250 DU	2,440	25%	47	75%	138	185	63%	151	37%	89	240
<b>Total</b>			<b>2,440</b>	<b>25%</b>	<b>47</b>	<b>75%</b>	<b>138</b>	<b>185</b>	<b>63%</b>	<b>151</b>	<b>37%</b>	<b>89</b>	<b>240</b>

Source: ITE Trip Generation Manual, 9<sup>th</sup> Edition

**Trip Distribution and Assignment**

The project traffic distribution pattern will be developed using the Central Florida Regional Planning Model (CFRPM v6.1), which will be modified to add the land use data associated with the proposed development plus the roadway improvements identified above. The project distribution, when produced, will be provided to LSMPO for review before developing future traffic projections. The future traffic volumes will be discussed in the report and represented graphically. Model files will be submitted on CD with the study.

225 E. Robinson Street, Suite 300  
 Landmark Center Two  
 Orlando, FL 32801  
 P 407.839.4006



## Memorandum

Ref: 62438.00  
September 14, 2016  
Page 5

### **Traffic Impact Assessment**

To assess the traffic impacts associated with the proposed development, traffic counts will be required. Where available, existing traffic volumes collected as part of other traffic efforts conducted in the immediate vicinity will be utilized. VHB will collect peak hour turning movement counts on a typical weekday morning and evening at the five (5) study area intersections identified earlier. Appropriate PSCF will be applied to the raw counts. Future background volumes will be derived from vested trips and historic growth rates, utilizing the last 5 years of available AADT, with a minimum of 1% per year. As part of this study, VHB will provide analysis for the following conditions:

- Existing 2016 conditions
- Future 2020 conditions, without project (roadway segments and intersections during AM and PM peak hour periods)
- Future 2020 conditions, with project (roadway segments and intersections during AM and PM peak hour periods)
- Turn lanes assessment at the site access driveway for future conditions

The traffic assessment will be conducted utilizing methodologies from the 2010 Highway Capacity Manual. For roadway segments analysis, VHB will compare the peak hour directional volumes along study area roadway segments against the latest FDOT Generalized Service Volumes Tables or applicable Lake County roadway network capacities to identify if excess capacity is available. For intersection analysis, VHB will use Synchro 8 for all intersection analyses, providing results using the HCS 2010 methodologies.

### **Traffic Report**

VHB will prepare a Traffic Report summarizing the study methodology, existing and future conditions for the buildout of the development, project impacts, and potential mitigation requirements.

If you have any questions, please do not hesitate to contact us.

Sincerely,

Melody Butler, P.E.  
Transportation Engineer  
VHB  
mbutler@vhb.com  
407.893.4727

225 E. Robinson Street, Suite 300  
Landmark Center Two  
Orlando, FL 32801  
P 407.839.4006