TRAFFIC STUDY

SECO Energy Ocala, Florida
W of the Int of CR 475A and SW 128th Ave
Marion County, Florida

April 30, 2025

Prepared for:
Sumter Electric Cooperative Inc

Bowman

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Marion County, Florida

Prepared: April 30, 2025

Prepared for:
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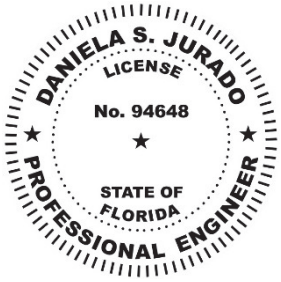

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Bowman Job # 011526-01-001

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PROFESIONAL ENGINEERING CERTIFICATE

I hereby Certify that I am a registered professional engineer in the State of Florida, practicing with Bowman Consulting Group, Ltd., authorized to operate as an engineering business with Certificate of Authorization License No. 30462, by the state of Florida Department of Professional Regulation, Board of Professional Engineers, and I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice herby reported for:

Project:	SECO Energy Ocala, Florida
Prepared for:	Sumter Electric Cooperative Inc
Location	W of the Int of CR 475A and SW 128th Ave, Marion County, Florida
Report date:	4/30/2025

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.

Version	Issue Date	Prepared By	Verified By
V01	4/30/2025	J. Stord	D. Jurado

DANIELA S. JURADO, P.E.
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Executive Summary

This report summarizes the findings of the Traffic Study performed by Bowman for the proposed SECO Energy Facility to be located west of the intersection of CR 475A and SW 128th Ave in Marion County, Florida. The site consists of the following parcels: 41200-012-00, 41200-020-00, 41200-020-01.

Access is proposed via three access driveways along CR 475A, from north to south, the first access is proposed as fleet/truck driveway, the second driveway, located across SW 128th Ln will operate as visitor/employee access to the main building, finally the third driveway is proposed as an emergency only fleet/truck driveway.

The development is expected to be constructed in a single phase and will be fully operational by the year 2027.

The scope and methodology of this study coordinated with Marion County Engineering Department 's Office and Florida Department of Transportation (FDOT) District 5 Traffic Operations.

The purpose for the study is threefold: (*i*) to determine the number of trips generated by the proposed site; (*ii*) to determine the potential impact, if any, of the proposed development on the roadway network; (*iii*) to propose improvements, if required.

The following scenarios were evaluated as part of this study: 2025 Existing, 2027 No Build, 2027 Build.

Based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual* 11th Edition, the development is expected to generate a total of 871 trips (447 utility and 424 warehouse) during the average weekday, 138 trips (85 utility and 53 warehouse) during the morning peak hour, and 135 trips (79 utility and 56 warehouse) during the evening peak hour.

To evaluate the traffic operations at the study intersections, intersection capacity analyses were completed for the morning and evening peak of all analysis scenarios. The results are as follows:

2025 Existing Conditions Capacity Analysis

- All intersections are expected to operate at an acceptable LOS D or better.
- The following approaches are expected to operate at LOS E or F:
  - CR 484 & CR 475A
    - NB: LOS E (AM & PM)
    - SB: LOS F (AM & PM)
  - CR 484 & I-75 NB Ramps
    - NB: LOS F (AM), LOS E (PM)

  - CR 484 & I-75 SB Ramps
    - EB: LOS E (AM)
    - SB: LOS F (AM), LOS E (PM)
- The remaining approaches are expected to operate at an acceptable LOS D or better.

2027 No Build Conditions Capacity Analysis

The following significant changes are anticipated from the 2025 Existing conditions to the 2027 No Build conditions:

- All intersections are expected to operate at acceptable LOS C or better, with improved operational conditions from the Existing Conditions after the inclusion of the background programmed improvements in the area.
- Approach changes:
  - CR 484 & CR 475A
    - NB: LOS E to LOS F (AM)
- The remaining approaches are expected to operate at an acceptable LOS D or better with the following substantial improvements:
  - CR 484 & CR 475A
    - SB: LOS F to LOS E (PM)
  - CR 484 & I-75 SB Ramps
    - EB: LOS F to LOS B (AM)

2027 Build Conditions Capacity Analysis

No significant changes are anticipated from the 2027 No Build conditions to the 2027 Build conditions During the morning or evening peak hours.

The queue analysis results for the morning and evening peak hour show that during the evening peak hour the 95th% queues at the NB left-turn lane for the intersection of CR 484 & I-75 NB Ramps exceed the storage under the 2027 No Build and Build conditions, with no significant increase under Build conditions. Further evaluations showed that although the storage was exceeded the left-turn movement is also served by the ramp which provides the required deceleration length for the turn lane. The 95th% queue results show all remaining queue lengths are not expected to exceed the available storage of the turning lanes and driveways under the 2027 No Build or Build Conditions.

To determine if the roadway network has sufficient capacity for the Proposed Project trips, a roadway capacity analysis of the study area segments was conducted, the analysis considered the directional PM peak hour volumes. Based on the roadway segment analysis, all segments within the study area appear to have sufficient capacity to operate within the adopted LOS capacity with the inclusion of the project trips.

Turn Lane Warrant Analyses were conducted for the proposed driveways to determine the need for auxiliary turn lanes into the site. Based on the Turn Lane Warrant Analysis, the following turn lanes are recommended.

Recommended improvements:

- Left-turn Lane at Driveway 1 (northern truck/fleet driveway) (405 feet including a 50' taper, no storage required)
- Left-turn Lane at Driveway 2 (Visitor/Employee Driveway) (405 feet including a 50' taper and 25 feet storage)
- Right-turn Lane at Driveway 2 (Visitor/Employee Driveway) (405 feet including a 50' taper, no storage required)

Based on the results of the analyses presented in this report, with the inclusion of the recommended improvements, the development of the proposed SECO Energy Facility to be located west of the intersection of CR 475A and SW 128th Ave is not expected to adversely impact the surrounding roadway network.

1 Introduction

This report summarizes the findings of the Traffic Study performed by Bowman for the proposed SECO Energy Facility to be located west of the intersection of CR 475A and SW 128th Ave in Marion County, Florida. The site consists of the following parcels: 41200-012-00, 41200-020-00, 41200-020-01. **Figure 1** depicts the site location. The applicant is proposing a 36,400 SF main building and 246,230 SF warehouse area.

The latest site plan is presented in **Appendix A**.

1.1 Site Access Conditions

Access is proposed via three access driveways along CR 475A, The northernmost access driveway will serve as fleet/truck driveway, the second driveway is proposed across from SW 128th Ln serving visitor/employee access to the main building, finally the third driveway is proposed as an emergency fleet/truck driveway.

1.2 Phases and Build Out Year

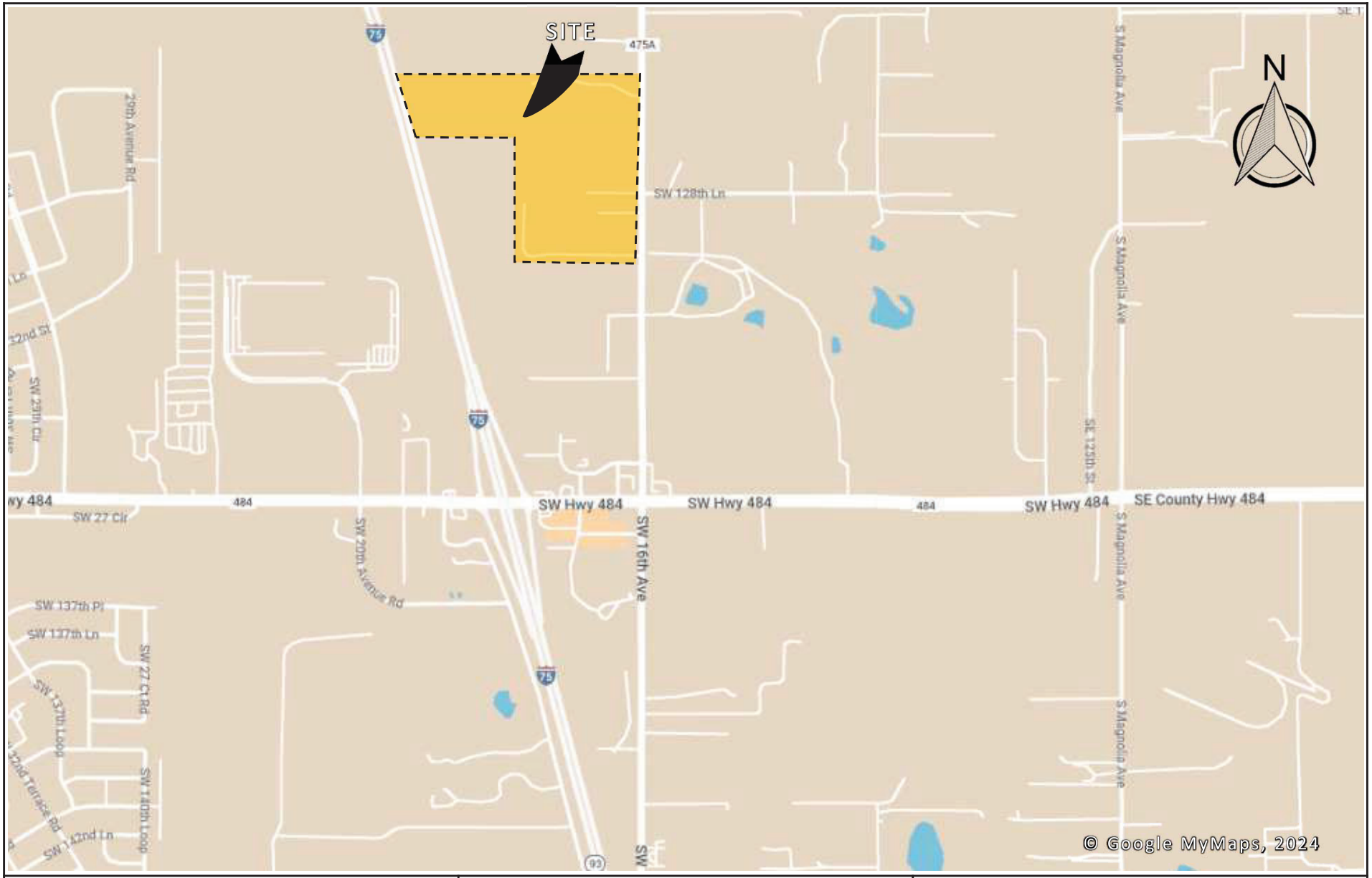
For the purposes of this analysis, the development will be constructed on a single phase and will be fully operational by the year 2027.

1.3 Traffic Impact Analysis Methodology

The scope and methodology of this study was based on the coordination with Marion County Engineering Department 's Office and Florida Department of Transportation (FDOT) District 5 Traffic Operations. A copy of the approved Traffic Study Methodology Statement and email coordination with the agencies is contained in **Appendix B**.

1.4 Traffic Impact Analysis Purpose

The purpose for the study is threefold: (*i*) to determine the number of trips generated by the proposed site; (*ii*) to determine the potential impact, if any, of the proposed development on the roadway network; (*iii*) to propose improvements, if required.



Bowman

LEGEND

Site location

FIGURE 1. SITE LOCATION

SECO ENERGY OCALA

2 Study Area Characteristics

2.1 Roadway Segment Characteristics

Information regarding the study area roadway segment characteristics is presented in **Table 1**.

Table 1. Study Area Roadway Characteristics

Roadway	ID#	From	To	Description[1,2]	Functional Classification[1]	Alignment[2]	Speed Limit (MPH)[2]
CR 475A	1930.1	CR 475B	RaceTrac Drwy	2L-Und-Co	Arterial	North-South	55
		RaceTrac Drwy	CR 484				45
CR 484	2030	SW 45th Ave	I-75 Ramp (W)	4L-Div-Co	Arterial	East-West	35
	2060	I-75 Ramp (W)	I-75 Ramp (E)	6L-Div-Co	Arterial	East-West	35
	2070	I-75 Ramp (E)	CR 475A	4L-Div-Co	Arterial	East-West	35
	2080	CR 475A	CR 475	4L-Div-Co	Arterial	East-West	35
I-75 Ramps	-	CR 484	I-75	2L-Div-St	Interstate	North-South	35

(1) Information from Ocala Marion TPO Congestion Management Process 2023 State of the System Report
(2) Information from Google Maps Street View
#L = Number of Lanes
Div, Und = Divided, Undivided
St , Co, Ci, Pri = State, County, City, Privately -maintained

2.2 Intersection Characteristics

2.2.1 Intersection of CR 484 and CR 475A

This intersection is currently a four-legged signalized intersection where CR 484 has an east-west alignment, and CR 475A has a north-south alignment.

The eastbound and westbound approaches both consist of an exclusive left-turn lane, one through lane, and one shared through/right-turn lane. The northbound and southbound approaches both consist of one exclusive left-turn lane and one shared through/right-turn lane.

Improvements are proposed to the intersection under FPID 433651-1. Post improvements, the eastbound approach consists of two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane. The northbound approach consists of two exclusive left-turn lanes and

one shared through/right-turn lane. The southbound approach consists of one exclusive left-turn lane, one through lane, and one exclusive right-turn lane.

2.2.2 Intersection of CR 484 and I-75 NB Ramps

This intersection is currently a four-legged signalized intersection where CR 484 has an east-west alignment, and I-75 NB Ramps have a north-south alignment.

The eastbound approach consists of two through lanes and one shared through/right-turn lane with a channelized right-turn. The westbound approach consists of one exclusive left-turn lane and two through lanes. The northbound approach consists of one exclusive left-turn lane and one exclusive right-turn lane.

Improvements are proposed to the intersection under FPID 433651-1. Post improvements, the eastbound approach consists of two exclusive left-turn lanes and two through lanes. The westbound approach consists of three through lanes and one exclusive right-turn lane. The northbound approach consists of two exclusive left-turn lanes and one exclusive right-turn lane.

2.2.3 Intersection of CR 484 and I-75 SB Ramps

This intersection is currently a four-legged signalized intersection where CR 484 has an east-west alignment, and I-75 SB Ramps have a north-south alignment.

The eastbound approach consists of two through lanes and one shared through/right-turn lane with a channelized right-turn. The westbound approach consists of one exclusive left-turn lane and three through lanes. The southbound approach consists of two exclusive left-turn lanes and one exclusive right-turn lanes.

Improvements are proposed to the intersection under FPID 433651-1. Post improvements, the eastbound approach consists of three through lanes and one shared through/right-turn lane with a channelized right-turn. The westbound approach consists of one exclusive left-turn lane and two through lanes. The southbound approach consists of two exclusive left-turn lanes and two exclusive right-turn lanes.

2.2.4 Proposed Access Driveways

As mentioned previously, access is proposed via three full-access driveways along CR 475A, two are proposed as fleet and truck access and one as employees and visitor/vendor access. The southern most fleet/access driveway will serve as a secondary access.

3 Data Collection

For the purposes of this study the following data was collected:

- Inspections were conducted to obtain an inventory of existing roadway geometry, traffic control devices, and location of existing and proposed driveways.

- Published FDOT and County roadway information including AADT, and seasonal adjustments.

- Turning movement counts were collected on Wednesday, April 2nd, 2025, during the morning (7:00 am – 9:00 am) and evening (4:00 pm – 6:00 pm) peak periods at the following intersections:

    - CR 484 and CR 475A
    - CR 484 and I-75 NB Ramps
    - CR 484 and I-75 SB Ramps
    - CR 475A and SW 128th Ln

- Traffic Signal Phasing and Timing Information was provided by the Marion County and Florida Department of Transportation (FDOT) District 5.

- Programmed roadway and intersection improvements in the area were included in the future conditions:

    - FPID 433651-1 –52-01 roadway and intersection Improvements along CR 484

    The collected data is presented in **Appendix C**.

4 Traffic Forecast and Background Traffic

As mentioned previously in this report, for the purposes of this analysis, it is anticipated that the proposed development will be constructed and fully operational by the year 2027. The following scenarios were evaluated as part of this study:

- 2025 Existing Conditions
- 2027 No Build Conditions
- 2027 Build Conditions

The Marion County Peak Season Conversion Factor (PSCF) was applied to the 2025 Turning Movement Counts to develop the 2025 Existing Traffic Volumes depicted in **Exhibit 1** in **Appendix D**.

To account for ambient background traffic, the counts were affected by the respective roadway segment average growth rate provided in the Ocala Marion County TPO 2023 *State of the System Report* or a minimum growth rate of 1.00%, whichever was greater. These growth rates were coordinated during the scope methodology coordination process. The background information is presented in **Appendix B**, **Attachment M-4**.

The 2027 No Build Traffic Volumes were calculated by applying the respective roadway segment growth rates to the 2025 Existing Traffic Volumes. The 2027 No Build Traffic Volumes are depicted in **Exhibit 2** in **Appendix D**.

5 Project Traffic

The project traffic considered in this analysis is defined as the anticipated number of vehicles trips of the proposed development. Note that, based on the proposed land use and for a conservative approach, all anticipated project trips were assumed vehicular.

5.1 Trip Generation

Trip generation rates were extracted from the ITE Trip Generation Manual, 11th Edition for the comparable land uses: Utility (LU 170) and Warehousing (LU 150), to determine the anticipated trip generation of the development as presented in **Table 2**. The anticipated truck trip generation for the proposed development is presented in **Table 3**.

Table 2. Site Trip Generation

Land Use	Land Use Code	Intensity	Units	Daily Trips			AM Peak Hour(1)			PM Peak Hour(1)		
				Total	In	Out	Total	In	Out	Total	In	Out
Proposed Development												
Utility	170	36.40	KSF	447	224	223	85	74	11	79	14	65
Warehousing	150	246.23	KSF	424	214	210	53	41	12	56	16	40
			Sub Total	871	438	433	138	115	23	135	30	105

Based on the Institute of Transportation Engineers Trip Generation, 11th Edition

(1) Peak Hour of Adjacent Street

Table 3. Anticipated Site Trip Truck Generation

Land Use	Land Use Code	Intensity	Units	Daily Trips			AM Peak Hour(1)(2)			PM Peak Hour(1)(2)		
				Total	In	Out	Total	In	Out	Total	In	Out
Proposed Development												
Utility	170	36.40	KSF	7	4	3	3	2	1	4	2	2
Warehousing	150	246.23	KSF	148	74	74	5	3	2	7	4	3
			Sub Total	155	78	77	8	5	3	11	6	5

Based on the Institute of Transportation Engineers Trip Generation, 11th Edition

(1) Peak Hour of Adjacent Street

(2) Per ITE no truck trips are anticipated during the AM and PM peak hours for Land Use 170 (Utility) therefore, for a conservative approach, the daily trips were split.

The proposed development is expected to generate a total of 871 trips (447 utility and 424 warehouse) during the average weekday, 138 trips (85 utility and 53 warehouse) during the morning peak hour, and 135 trips (79 utility and 56 warehouse) during the evening peak hour.

5.2 Trip Distribution and Assignment

The anticipated trip distribution was developed based on the review of the population centers, land uses in the surrounding area, and the accessibility to the site.

- The Utility Trip Distribution is presented in **Exhibit 3**, **Appendix D**.

- The Warehouse Trip Distribution is presented in **Exhibit 4**, **Appendix D**.
- The Utility Trips are presented in **Exhibit 6**, **Appendix D**.
- The Warehouse Trips are presented in **Exhibit 6**, **Appendix D**.

The Utility Trips and Warehouse Trips were added together to yield the Site Trips, presented in **Exhibit 7**, **Appendix D**.

The Site Trips were added to the 2027 No Build Traffic Volumes to yield the 2027 Build Traffic Volumes are presented in **Exhibit 8** in **Appendix D**.

6 Capacity Analysis

The study intersections were analyzed for each scenario following the Highway Capacity Manual (HCM 7th edition) methodologies using the computer software Synchro 12. The analysis uses capacity, Level of Service, and control delay as the criteria for the performance of the driveways.

Capacity, as defined by the HCM, is a measure of the maximum number of vehicles in an hour that can travel through an intersection or section of roadway under typical conditions. Level of Service (LOS) is a marker of the driving conditions and perception of drivers while traveling during the given time period. LOS ranges from LOS A which represents free flow conditions, to LOS F which represents breakdown conditions. **Table 4** shows the LOS for intersections as defined by the HCM.

Table 4. HCM Level of Service Criteria

Level of Service (LOS)	Unsignalized Average Control Delay (Sec/ Vehicle)	Signalized Average Control Delay (Sec/ Vehicle)
A	≤10	≤10
B	10-15	10-20
C	15-25	20-35
D	25-35	35-55
E	35-50	55-80
F	>50	>80

Control delay is a measure of the total amount of delay experienced by an individual vehicle and includes delay related to deceleration, queue delay, stopped delay, and acceleration. **Table 4** displays the amount of control delay (in seconds per vehicle) that corresponds to the LOS for signalized and unsignalized intersections.

6.1 Capacity Analysis 2025 Existing Conditions

A capacity analysis was conducted for the 2025 Existing Conditions for the intersections and site driveways previously described in this report. This capacity analysis is based on the existing traffic volumes, lane configurations and intersection configurations. The results are included in **Appendix E**.

Table 5 summarizes the 2025 Existing Conditions capacity analyses results.

Table 5. Study Intersections 2025 Existing Conditions Capacity Analysis

CAPACITY ANALYSIS SUMMARY - 2025 EXISTING CONDITIONS						
INTERSECTION	SCENARIO	EB	WB	NB	SB	Overall
CR 484 & CR 475A (Signalized)	AM	A 2.9	B 18.1	E 76.5	F 90.8	C 20.8
	PM	A 4.1	C 22.8	E 64.9	F 226.6	D 41.9
CR 484 & I-75 NB Ramps (Signalized)	AM	A 3.0	A 0.2	F 104.4		B 11.2
	PM	A 3.6	D 42.5	E 79.5		C 29.7
CR 484 & I-75 SB Ramps (Signalized)	AM	E 61.6	A 6.7		F 85.3	D 41.7
	PM	A 10.0	A 0.5		E 72.5	B 12.9
CR 475A & Drwy 2 (Employee and Visitor/Vendor Access) (Unsignalized)	AM	A 0.0	A 9.57	A 0.0	A 0.13	A 0.3
	PM	A 0.0	B 11.0	A 0.0	A 0.12	A 0.2

Extracted from Synchro 12 HCM 7th Edition

Based on the results of the 2025 Existing capacity analysis during the morning and evening peak hour:

- All intersections are expected to operate at an acceptable LOS D or better.
- The following approaches are expected to operate at LOS E or F:
  - CR 484 & CR 475A
    - NB: LOS E (AM & PM)
    - SB: LOS F (AM & PM)
  - CR 484 & I-75 NB Ramps
    - NB: LOS F (AM), LOS E (PM)
  - CR 484 & I-75 SB Ramps
    - EB: LOS E (AM)
    - SB: LOS F (AM), LOS E (PM)
- The remaining approaches are expected to operate at an acceptable LOS D or better.

6.2 Capacity Analysis Comparison – 2027 No Build vs Build Conditions

A capacity analyses comparison was conducted for the 2027 No Build and Build conditions. The primary purpose for this approach was to compare the results to identify areas impacted by the proposed development. The capacity results are included in **Appendix E**.

Table 6 summarizes the 2027 No Build Conditions capacity analyses results.

Table 6. Study Intersections 2027 No Build Conditions Capacity Analysis

CAPACITY ANALYSIS SUMMARY - 2027 NO BUILD CONDITIONS						
INTERSECTION	SCENARIO	EB	WB	NB	SB	Overall
CR 484 & CR 475A (Signalized)	AM	B 15.7	B 16.6	F 88.2	F 85.6	C 27.0
	PM	C 22.1	B 15.8	E 74.7	E 71.3	C 32.1
CR 484 & I-75 NB Ramps (Signalized)	AM	C 21.0	A 0.2	F 86.8		C 20.8
	PM	A 8.6	C 26.3	E 68.5		C 25.4
CR 484 & I-75 SB Ramps (Signalized)	AM	B 12.8	B 15.7		F 86.2	C 21.5
	PM	B 11.6	A 4.7		E 72.8	B 15.7
CR 475A & Drwy 2 (Employee and Visitor/Vendor Access) (Unsignalized)	AM	A 0.0	A 9.65	A 0.0	A 0.12	A 0.3
	PM	A 0.0	B 11.21	A 0.0	A 0.12	A 0.2

Extracted from Synchro 12 HCM 7th Edition

Based on the results of the 2027 No Build Conditions Capacity Analysis, the following significant changes are anticipated from the 2025 Existing conditions to the 2027 No Build conditions:

- All intersections are expected to operate at acceptable LOS C or better, with improved operational conditions from the Existing Conditions after the inclusion of the background programmed improvements in the area.
- Approach changes:
  - CR 484 & CR 475A
    - NB: LOS E to LOS F (AM)
- The remaining approaches are expected to operate at an acceptable LOS D or better with the following substantial improvements:
  - CR 484 & CR 475A
    - SB: LOS F to LOS E (PM)
  - CR 484 & I-75 SB Ramps
    - EB: LOS F to LOS B (AM)

Table 7 summarizes the 2027 Build Conditions capacity analyses results.

Table 7. Study Intersections 2027 Build Conditions Capacity Analysis

CAPACITY ANALYSIS SUMMARY - 2027 BUILD CONDITIONS						
INTERSECTION	SCENARIO	EB	WB	NB	SB	Overall
CR 484 & CR 475A (Signalized)	AM	C 20.3	B 19.5	F 88.2	F 86.0	C 29.9
	PM	C 30.6	B 15.8	E 74.8	E 71.7	D 37.1
CR 484 & I-75 NB Ramps (Signalized)	AM	C 20.2	A 0.2	F 86.8		C 20.2
	PM	A 8.5	C 26.6	E 68.5		C 25.4
CR 484 & I-75 SB Ramps (Signalized)	AM	B 14.3	B 16.7		F 84.9	C 23.3
	PM	B 12.8	A 8.2		E 72.4	B 17.9
CR 475A & Drwy 1 (Fleet and Truck Access) (Unsignalized)	AM	A 9.41		A 1.03	A 0.0	A 0.8
	PM	B 10.55		A 0.42	A 0.00	A 0.7
CR 475A & Drwy 2 (Employee and Visitor/Vendor Access) (Unsignalized)	AM	A 9.85	B 10.19	A 1.87	A 0.11	A 1.5
	PM	B 11.57	B 12.27	A 0.5	A 0.11	A 1.5

Extracted from Synchro 12 HCM 7th Edition

Based on the results of the 2027 Build Conditions Capacity Analysis during the morning and evening peak hour, no significant changes are anticipated from the 2027 No Build conditions to the 2027 Build conditions.

6.3 Queueing Analysis

Table 8 presents the 95th% queue results comparison for the analyzed scenarios. The queue results are included in **Appendix E**.

Table 8. Study Intersections Queueing Analysis

QUEUEING ANALYSIS SUMMARY			Available Storage (ft)	Morning Peak Hour			Evening Peak Hour		
Intersection	Approach	Movement		2025 EXISTING	2027 NO BUILD	2027 BUILD	2025 EXISTING	2027 NO BUILD	2027 BUILD
CR 484 & CR 475A (Signalized)	EB	L	250/300	108	180	245	155	238	283
		TR	-	13	10	10	20	18	18
	WB	L	310/315	5	18	18	8	5	5
		TR	-	363	348	380	240	205	205
	NB	L	275/265	315	198	198	395	245	245
		TR	-	90	103	103	105	128	128
	SB	L	215/240	75	85	93	100	108	130
		TR	295	160	73	80	570	58	83
CR 484 & I-75 NB Ramps (Signalized)	EB	L	-	215	378	375	148	165	165
	WB	TR/R	-/220	3	0	0	360	0	0
	NB	L	-/330	463	260	260	753	415	415
		R	380/365	0	0	0	0	0	0
CR 484 & I-75 SB Ramps (Signalized)	EB	TR	-	635	235	253	218	188	198
	WB	L	-	155	315	333	30	145	220
	SB	L	270/520	260	268	298	310	315	325
		R	455/485	0	0	0	0	0	0
CR 475A & Drwy 1 (Fleet and Truck Access) (Unsignalized)	EB	Approach	-	0	0	0	0	0	5
	NB	Approach	-	0	0	3	0	0	0
	SB	Approach	-	0	0	0	0	0	0
CR 475A & Drwy 2 (Employee and Visitor/Vendor Access)	EB	Approach	-	0	0	3	0	0	10
	WB	Approach	-	0	0	0	0	0	0
	NB	Approach	-	0	0	5	0	0	0
	SB	Approach	-	0	0	0	0	0	0
CR 475A & Drwy 3 (Fleet and Truck Access) (Unsignalized)	EB	Approach	-	0	0	0	0	0	0
	NB	Approach	-	0	0	0	0	0	0
	SB	Approach	-	0	0	0	0	0	0

Extracted from Synchro 12 HCM 7th Edition
Intersection queue vehicle length was assumed equal to 25 ft

The 95th% queue results for the morning and evening peak hour show that during the evening peak hour the NB left-turn lane at the intersection of CR 484 & I-75 NB Ramps is exceeded under the 2027 No Build and Build conditions, with no significant increase under Build conditions. Moreover, this left-turn movement is also served by the ramp deceleration which provides the required deceleration length for the turn lane therefore there is sufficient amount of storage provided by the ramp.

The 95th% queue results show all remaining queue lengths are not expected to exceed the available storage of the turning lanes and driveways under the 2027 No Build or Build Conditions.

7 Roadway Capacity Analysis

A roadway significance evaluation was performed per the Ocala Marion TPO *Traffic Study Guidelines* for the daily service volume to determine which segments should be fully analyzed for capacity analysis purposes, see **Table 9**.

As included in the methodology statement, the following roadway segments were considered significantly impacted based on the evaluation or were requested to be further analyzed by the reviewing agencies:

- CR 475A (ID# 1930.1) – From CR 475B to CR 484
- CR 484 (ID# 2070) – From I-75 Ramp (E) to CR 475A
- CR 484 (ID# 2080) – From CR 475A to CR 475

A roadway capacity analysis of the segments listed above was performed for the directional PM peak hour service volumes, see **Table 10**.

Based on the roadway segment analysis, all segments within the study area appear to have sufficient capacity to operate within the adopted LOS capacity with the inclusion of the project trips.

Table 9. Weekday Roadway Significance Evaluation

Segment ID[1]	Roadway[1]	Segment[1]	Area Type[1]	# of Lanes[1][2]	2023 AADT[1]	Daily Service Volume[1]	Future Daily Service Volume[3]	LOS Standards[1]	V/C Ratio[1]	2027 AADT[4]	Project Traffic					2027 Build Condition	Percent of Daily Service Volume	Exceed 3% of Daily Service Volume	Exceed MAV?
											Office Trip Dist %[5]	Office Peak Hour Trips[6]	Warehouse Trip Dist %[5]	Warehouse Peak Hour Trips[6]	Total Peak Hour Trips Assigned				
1930.1	CR 475A	From CR 475B to CR 484	Urban	2	7,300	12,744	-	E	0.57	8,103	100%	447	100%	424	871	8,974	6.83%	Yes	No
2030	CR 484	From SW 45 Ave to I-75 Ramp (W)	Urban	4	33,000	35,820	-	E	0.92	34,320	25%	112	5%	21	133	34,453	0.37%	No	No
2060	CR 484	From I-75 Ramp (W) to I-75 Ramp (E)	Urban	6	33,500	53,910	-	D	0.62	34,840	50%	224	50%	212	436	35,276	0.81%	No	No
2070	CR 484	From I-75 Ramp (E) to CR 475A	Urban	4	33,500	35,820	-	D	0.94	34,840	85%	380	95%	403	783	35,623	2.19%	No	No
2080	CR 484	From CR 475A to CR 475	Urban	4	19,900	35,820	-	D	0.56	20,696	15%	67	5%	21	88	20,784	0.25%	No	No
2260.2	I-75	From Urban Area Boundary to CR 484	Urban	6/8	110,800	122,800	163,400	D	0.90	137,481	25%	112	45%	191	303	137,784	0.19%	No	No
2280	I-75	From CR 484 to SR 200	Urban	6/8	84,000	122,800	163,400	D	0.68	87,360	35%	156	45%	191	347	87,707	0.21%	No	No

(1) Extracted from ***Ocala Marion TPO CMP Database - August 2023***

(2) I-75 Expanded Based on ***FDIP 452074-1***

(3) Based on ***FDOT 2023 Multimodal Quality/Level of Service Handbook***

(4) Based Growth Rate Provided in ***Ocala Marion TPO CMP Database - August 2023***

(5) Based on anticipated ***Figure 2. and Figure 3. Site Trip Distribution (for office and warehouse)***

(6) Extracted from ***Table 1. Anticipated Site Trip Generation***

Table 10. PM Peak Hour Roadway Capacity Analysis

Segment ID[1]	Roadway[1]	Segment[1]	Area Type[1]	# of Lanes[1]	PH Directional Service Volume[1]	Direction	2025 PH Directional Volume[2]	2027 No Build PH Directional Volume[3]	2027 No Build V/C Ratio	Project Traffic					2027 Build PH Directional Volume	2027 Build V/C Ratio	Exceed MAV?
										Office Trip Dist %[4]	Office Peak Hour Trips[5]	Warehouse Trip Dist %[4]	Warehouse Peak Hour Trips[5]	Total Peak Hour Trips Assigned			
1930.1	CR 475A	From CR 475B to CR 484	Urban	2	634	NB	266	281	0.44	90%	13	100%	16	29	310	0.49	No
						SB	346	365	0.58	90%	59	100%	40	99	464	0.73	No
2070	CR 484	From I-75 Ramp (E) to CR 475A	Urban	4	1,800	EB	1,349	1,376	0.76	75%	11	95%	15	26	1,402	0.78	No
						WB	1,123	1,145	0.64	75%	49	95%	38	87	1,232	0.68	No
2080	CR 484	From CR 475A to CR 475	Urban	4	1,800	EB	914	932	0.52	15%	10	5%	2	12	944	0.52	No
						WB	491	501	0.28	15%	2	5%	1	3	504	0.28	No

(1) Extracted from ***Ocala Marion TPO CMP Database - August 2023***

(2) Extracted from ***Exhibit 1. 2025 EXISTING VOLUMES***

(3) Based Growth Rate Provided in ***Ocala Marion TPO CMP Database - August 2023***

(4) Based on anticipated ***Figure 2. and Figure 3. Site Trip Distribution (for office and warehouse)***

(5) Extracted from ***Table 1. Anticipated Site Trip Generation***

8 Turn Lane Warrant Analysis

A Turn Lane Warrant Analysis was conducted for the proposed driveways to determine the need for auxiliary turn lanes into the site. The analysis was conducted following the guidelines provided by Section 6.2 and 6.3 of the 2023 *FDOT Multimodal Access Management Guidebook*, specifically the criteria set forth in and NCHRP 457. The volumetric analysis is provided in **Appendix F**.

In addition to the volumetric analysis, an analysis of additional situations where turn lanes are recommended was also performed.

CR 475A & Driveway 1 (Fleet and Truck Access)

The following situations apply to Driveway 1:

- Right-turn Lane:
  - Facilities having high volume of buses, trucks, or trailers.
    Very high operating speeds (such as 55 mph or above) and in rural locations where turns are not expected by through drivers.
    No right turns are anticipated at the driveway, therefore a right turn lane is not proposed.
- Left-turn Lane:
  - Speeds in excess of 45 mph

CR 475A & Driveway 2 (Employee and Visitor/Vendor Access)

The following situations apply to Driveway 2:

- Right-turn Lane:
    Very high operating speeds (such as 55 mph or above) and in rural locations where turns are not expected by through drivers.
  - Gated entrance.
- Left-turn Lane:
  - Speeds in excess of 45 mph

CR 475A & Driveway 3 (Fleet and Truck Access)

No additional situations apply to Driveway 3 as it is proposed to operate as emergency access.

Based on the turn lane warrant analysis, left-turn lanes and right-turn lanes are recommended at site Driveway 2, left turn lane is recommended at Site Driveway 1.

9 Conclusions and Recommendations

The proposed development is expected to generate a total of 871 trips (447 utility and 424 warehouse) during the average weekday, 138 trips (85 utility and 53 warehouse) during the morning peak hour, and 135 trips (79 utility and 56 warehouse) during the evening peak hour.

The results of the **2025 Existing Conditions Capacity Analysis** indicate the following during the morning and evening peak hour:

- All intersections are expected to operate at an acceptable LOS D or better.
- The following approaches are expected to operate at LOS E or F:
  - CR 484 & CR 475A
    - NB: LOS E (AM & PM)
    - SB: LOS F (AM & PM)
  - CR 484 & I-75 NB Ramps
    - NB: LOS F (AM), LOS E (PM)
  - CR 484 & I-75 SB Ramps
    - EB: LOS E (AM)
    - SB: LOS F (AM), LOS E (PM)
- The remaining approaches are expected to operate at an acceptable LOS D or better.

Based on the results of the **2027 No Build Conditions Capacity Analysis**, the following significant changes are anticipated from the 2025 Existing conditions to the 2027 No Build conditions:

- All intersections are expected to operate at acceptable LOS C or better, with improved operational conditions from the Existing Conditions after the inclusion of the background programmed improvements in the area.
- Approach changes:
  - CR 484 & CR 475A
    - NB: LOS E to LOS F (AM)
- The remaining approaches are expected to operate at an acceptable LOS D or better with the following substantial improvements:
  - CR 484 & CR 475A
    - SB: LOS F to LOS E (PM)
  - CR 484 & I-75 SB Ramps
    - EB: LOS F to LOS B (AM)

Based on the results of the **2027 Build Conditions Capacity Analysis** during the morning and evening peak hour, no significant changes are anticipated from the 2027 No Build conditions to the 2027 Build conditions.

The 95th% queue results for the morning and evening peak hour show that during the evening peak hour the NB left-turn lane at the intersection of CR 484 & I-75 NB Ramps is exceeded under

the 2027 No Build and Build conditions, with no significant increase under Build conditions. Moreover, this left-turn movement is also served by the ramp deceleration which provides the required deceleration length for the turn lane therefore there is sufficient amount of storage provided by the ramp.

The 95th% queue results show all remaining queue lengths are not expected to exceed the available storage of the turning lanes and driveways under the 2027 No Build or Build Conditions.

Based on the result of the Roadway Capacity Analysis, none of the study area roadway segments are expected to be exceeded with the inclusion of the proposed project trips. left-turn lanes and right-turn lanes are recommended at site Driveway 2, left turn lane is recommended at Site Driveway 1. No additional situations apply to Driveway 3 as it is proposed to operate as emergency access.

Recommended improvements:

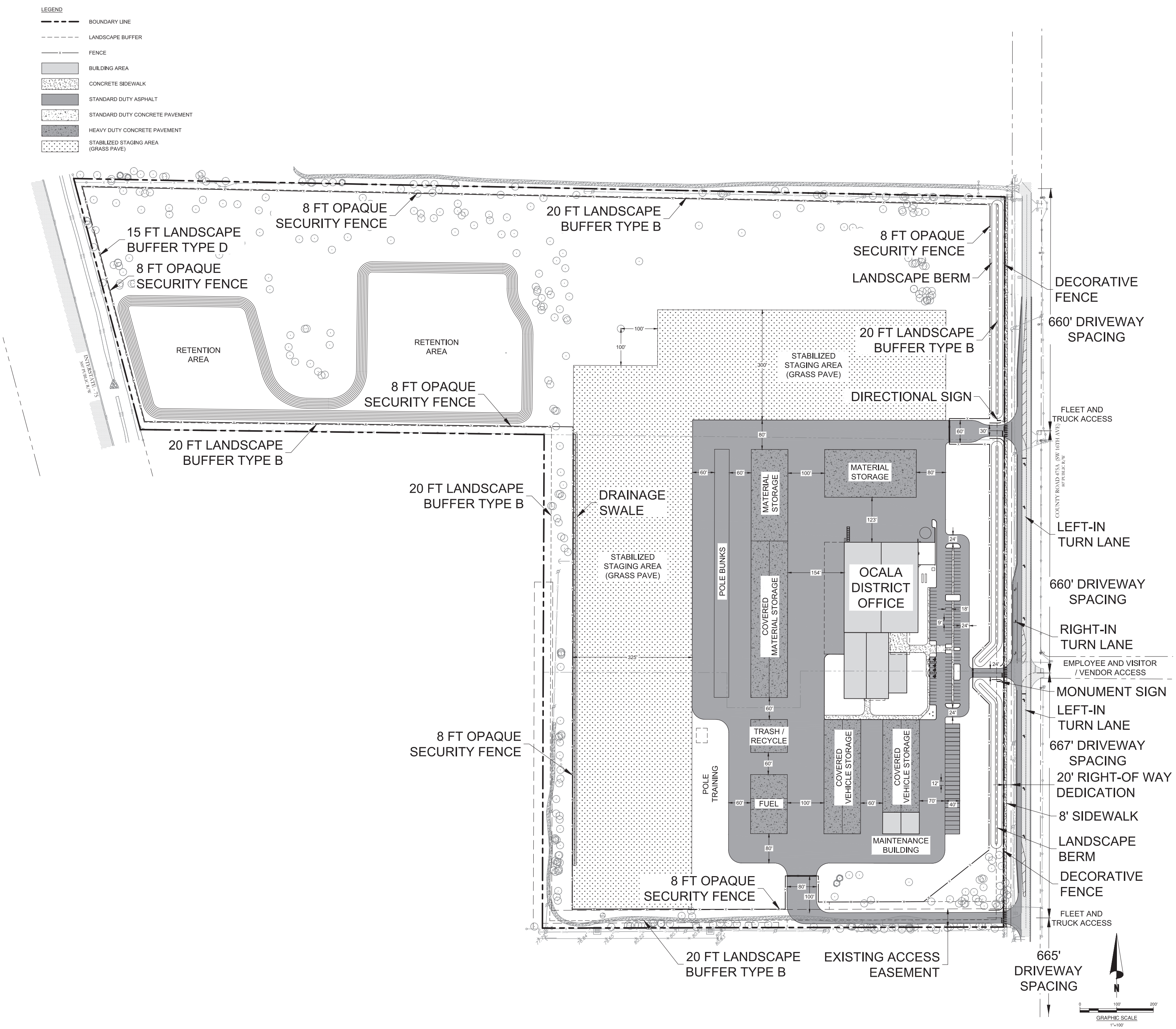
- Left-turn Lane at Driveway 1 (northern truck/fleet driveway) (405 feet including a 50' taper, no storage required)
- Left-turn Lane at Driveway 2 (Visitor/Employee Driveway) (405 feet including a 50' taper and 25 feet storage)
- Right-turn Lane at Driveway 2 (Visitor/Employee Driveway) (405 feet including a 50' taper, no storage required)

Based on the results of the analyses presented in this report, with the inclusion of the recommended improvements, the development of the proposed SECO Energy Facility to be located west of the intersection of CR 475A and SW 128th Ave is not expected to adversely impact the surrounding roadway network.

APPENDIX A

ATTACHMENT F

F-27



SHEET NOTES

GENERAL NOTES

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Date	Description
02/11/2025	ISSUE FOR SCHEMATIC DESIGN

Seal / Signature
DANE FRAY REG. FL NO. 97211

NOT FOR CONSTRUCTION

Project Name
SECO ENERGY
OCALA SITE

Project Number
011526-03-003

Description
PRELIMINARY SITE PLAN EXHIBIT

Scale
AS SHOWN

Site	Type	Sheet
OCA	SITE	EX3

V:\011526 - Project Management Advisors Inc\011526-03-003 (ENG) - SECO Ocala - Gensler\Engineering\Engineering Plans\Schematic Design\Exhibits\011526-SD-003-SIT_3.dwg, SWEBBER 3/6/2025

APPENDIX B

Bowman

Memorandum

To: Marion County - County Engineer's office
FDOT – District 5 – Traffic Operations

From: Daniela Jurado, PE
Jessica Stord, EIT

Date: 2/24/2025

Re: SECO Energy Ocala, Florida – Traffic Study Methodology

This memorandum outlines the proposed methodology of the Traffic Study for the proposed SECO Energy Facility to be located west of the intersection of CR 475A and SW 128th Ave in Marion County, Florida. The site consists of the following parcels: 41200-012-00, 41200-020-00, 41200-020-01. Access is proposed via three full-access driveways along CR 475A, two are proposed as fleet and truck access and one as employees and visitor/vendor access. The southern most fleet/access driveway will serve as a secondary access. The site location and preliminary site plan is presented in **Attachment M-1**.

The purpose for the study is threefold: (*i*) to determine the number of trips generated by the proposed site; (*ii*) to determine the potential impact, if any, of the proposed development on the roadway network; (*iii*) to propose improvements, if required.

Trip Generation. **Table 1** displays the anticipated site trip generation for the proposed development. **Table 2** displays the anticipated truck trip generation for the proposed development. The Land Use Definitions and Rates Information is presented in **Attachment M-2.**

Table 1. Anticipated Site Trip Generation

Land Use	Land Use Code	Intensity	Units	Daily Trips			AM Peak Hour(1)			PM Peak Hour(1)		
				Total	In	Out	Total	In	Out	Total	In	Out
Proposed Development												
Utility	170	36.40	KSF	447	224	223	85	74	11	79	14	65
Warehousing	150	246.23	KSF	424	214	210	53	41	12	56	16	40
			Sub Total	871	438	433	138	115	23	135	30	105

Based on the Institute of Transportation Engineers Trip Generation, 11th Edition

(1) Peak Hour of Adjacent Street

Table 2. Anticipated Site Trip Truck Generation

Land Use	Land Use Code	Intensity	Units	Daily Trips			AM Peak Hour(1)(2)			PM Peak Hour(1)(2)		
				Total	In	Out	Total	In	Out	Total	In	Out
Proposed Development												
Utility	170	36.40	KSF	7	4	3	3	2	1	4	2	2
Warehousing	150	246.23	KSF	148	74	74	5	3	2	7	4	3
			Sub Total	155	78	77	8	5	3	11	6	5

Based on the Institute of Transportation Engineers Trip Generation, 11th Edition

(1) Peak Hour of Adjacent Street

(2) Per ITE no truck trips are anticipated during the AM and PM peak hours for Land Use 170 (Utility) therefore, for a conservative approach, the daily trips were split.

Anticipated Distribution. The anticipated trip distribution was developed based on the review of the population centers, land uses in the surrounding area, and the accessibility to the site. The regional trip distribution and background information is presented in **Attachment M-1.**

Buildout Year. The proposed development is expected to be constructed and fully operational by the year 2027.

Study Area. Per the Ocala Marion TPO *Traffic Study Guidelines* and based on the anticipated roadway impact of the site, see **Attachment M-3**. The following intersections and roadway segment are proposed to be evaluated in the study:

Intersections:	• CR 484 and CR 475A • CR 484 and I-75 NB Ramps • CR 484 and I-75 SB Ramps • Access Driveways
Roadway Segment:	• CR 475A (ID# 1930.1) – From CR 475B to CR 484 • CR 484 (ID# 2070) – From I-75 Ramp (E) to CR 475A • CR 484 (ID# 2080) – From CR 475A to CR 475

Data Collection Elements & Methodologies. Intersection turning movements counts will be collected on an average weekday while the schools are in session during the morning 7:00 AM - 09:00 AM and evening 4:00 PM - 06:00 peak periods at the study area intersections.

Roadway AADT information will be extracted from the *Ocala Marion TPO Congestion Management Process 2023 State of the System Report* for the following roadway segments:

- CR 475A (1930.1) – From CR 475B to CR 484
- CR 484 (2070) – From I-75 Ramp (E) to CR 475A
- CR 484 (ID# 2080) – From CR 475A to CR 475

Growth Rate & Adjustments. To account for the ambient background traffic growth rate, the counts will be affected by the respective roadway segment average growth rate provided in the Ocala Marion County TPO 2023 *State of the System Report* or a minimum growth rate of 1.00%, whichever is greater. The background information is presented in **Attachment M-4**.

The volumes will also be adjusted by the Marion County Seasonal Factor (SF) extracted from Florida Traffic Online. This factor will not be used to reduce volumes.

Background Projects.

- FPID 433651-1 – Intersection Improvements on CR 484
- FDIP 452074-1 – Lane addition to I-75 from SR 44 to SR 326.

Analysis Periods & Times. The analyses will be prepared for the weekday morning (7:00 AM - 09:00 AM) and evening (4:00 PM - 06:00 PM) peak hours for the following scenarios: 2025 Existing Conditions, 2027 No Build Conditions, and 2027 Build Conditions.

Analyses to be Performed. The following analysis will be included in the study:

- *Capacity/LOS Analysis:* Capacity Analysis will be performed for the analysis intersections for the analysis periods and scenarios in the study area section of this memorandum following the Highway Capacity Manual (HCM 6th Edition) methodologies using the computer software package Synchro 11.
- A roadway segment analysis will be performed for study area roadway segments for the directional PM peak hour service volumes.
- *Turn Lane Warrant Analysis:* A turn lane warrant analysis will be completed for the driveways to determine the need for auxiliary turn lanes per guidance provided by Section 6.2 and 6.3 of the 2023 FDOT *Multimodal Access Management Guidebook*, the analysis will be conducted per the criteria set forth in NCHRP 745 and NCHRP 457 unless engineering judgement indicates otherwise.
- *Queue Analysis:* 95th percentile queue lengths at the proposed driveways.

Should you have any questions please do not hesitate to contact me at djurado@bowman.com or 321.608.0498.

Sincerely,

Daniela S. Jurado, PE
Project Manager-Traffic Engineering
Bowman

Attachments

Attachment M-1. Site Location and Trip Distribution

Attachment M-2. Land Use Definitions and Rates Information

Attachment M-3. Study Area Determination

Attachment M-4. Growth Rate Background Information

ATTACHMENT M-1

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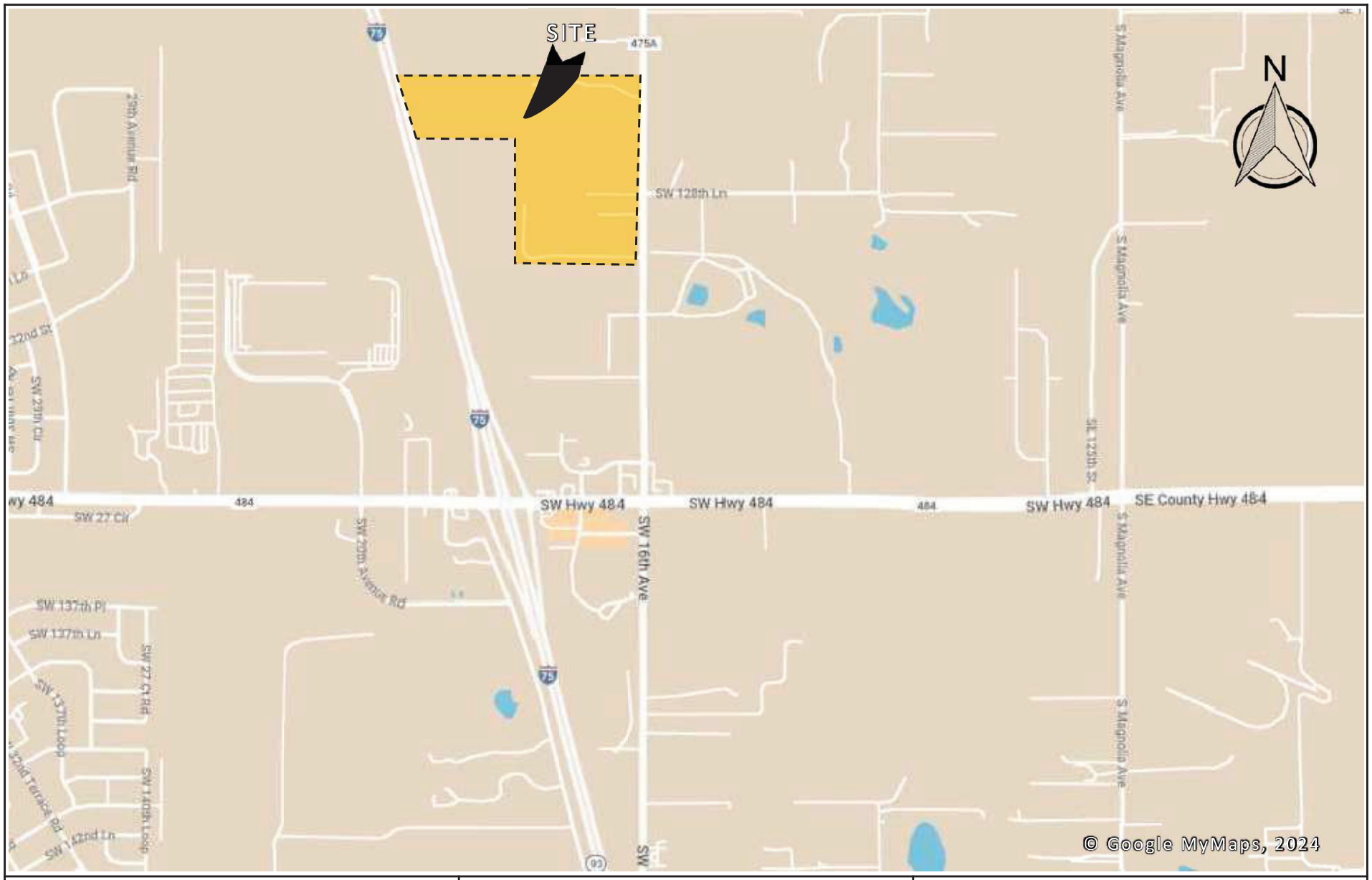
ATTACHMENT F



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LEGEND

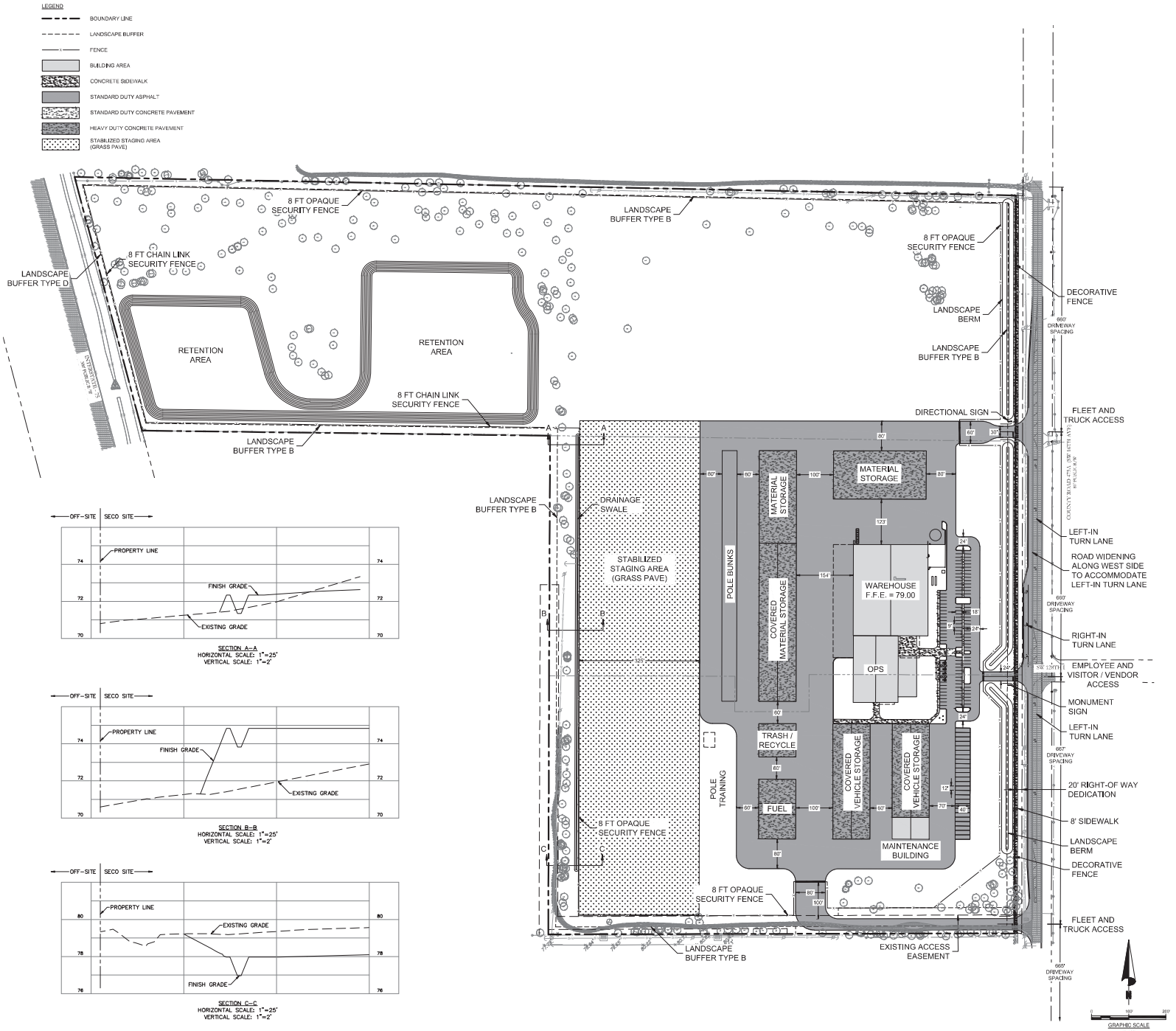
Site location

FIGURE 1. SITE LOCATION

SECO ENERGY OCALA

F-34

ATTACHMENT F



SHEET NOTES

GENERAL NOTES

KEY PLAN

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Δ	Date	Description
-	02/11/2025	ISSUE FOR SCHEMATIC DESIGN

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OCALA SITE

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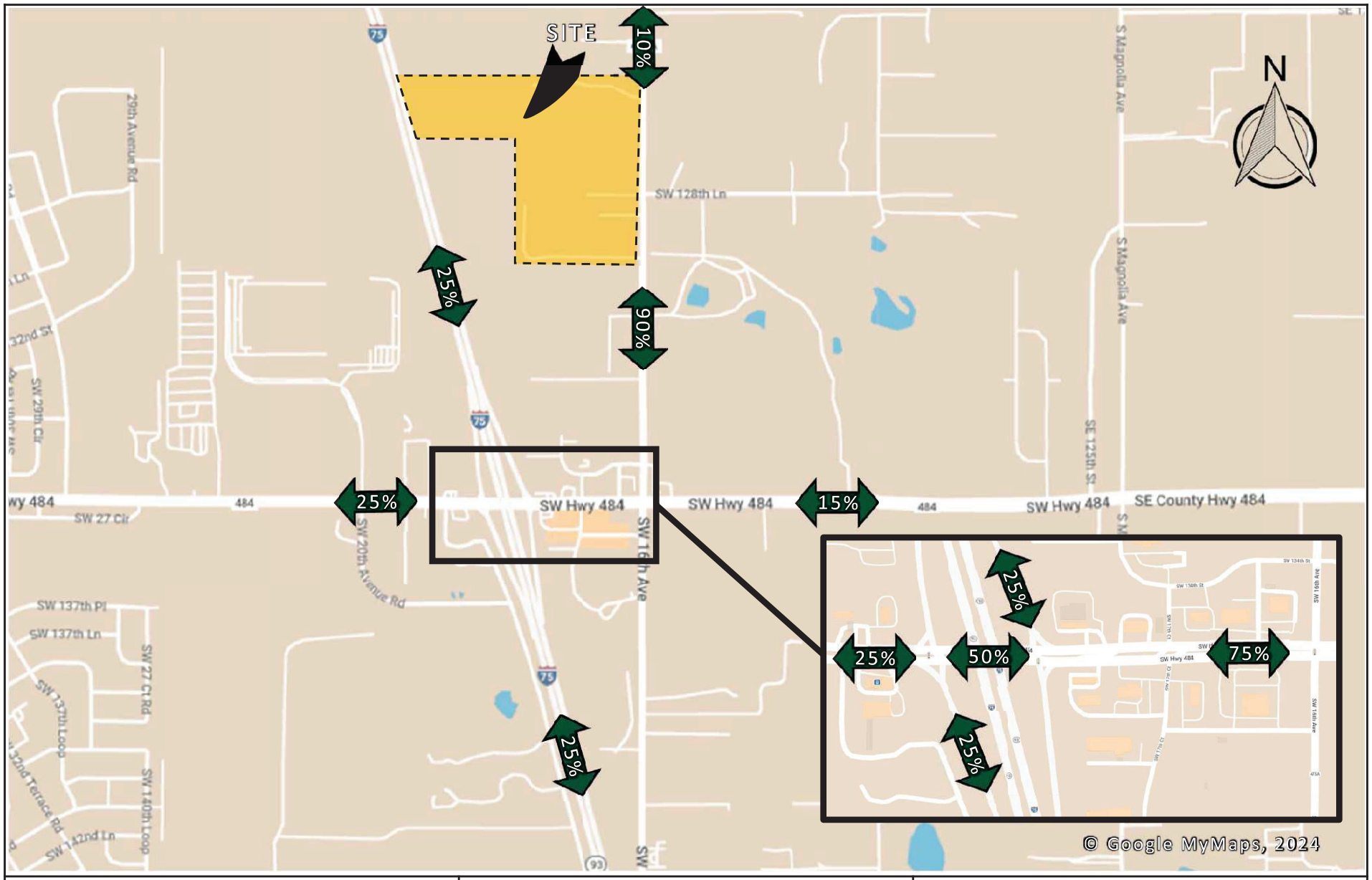
OCA	SITE	EX3



Bowman

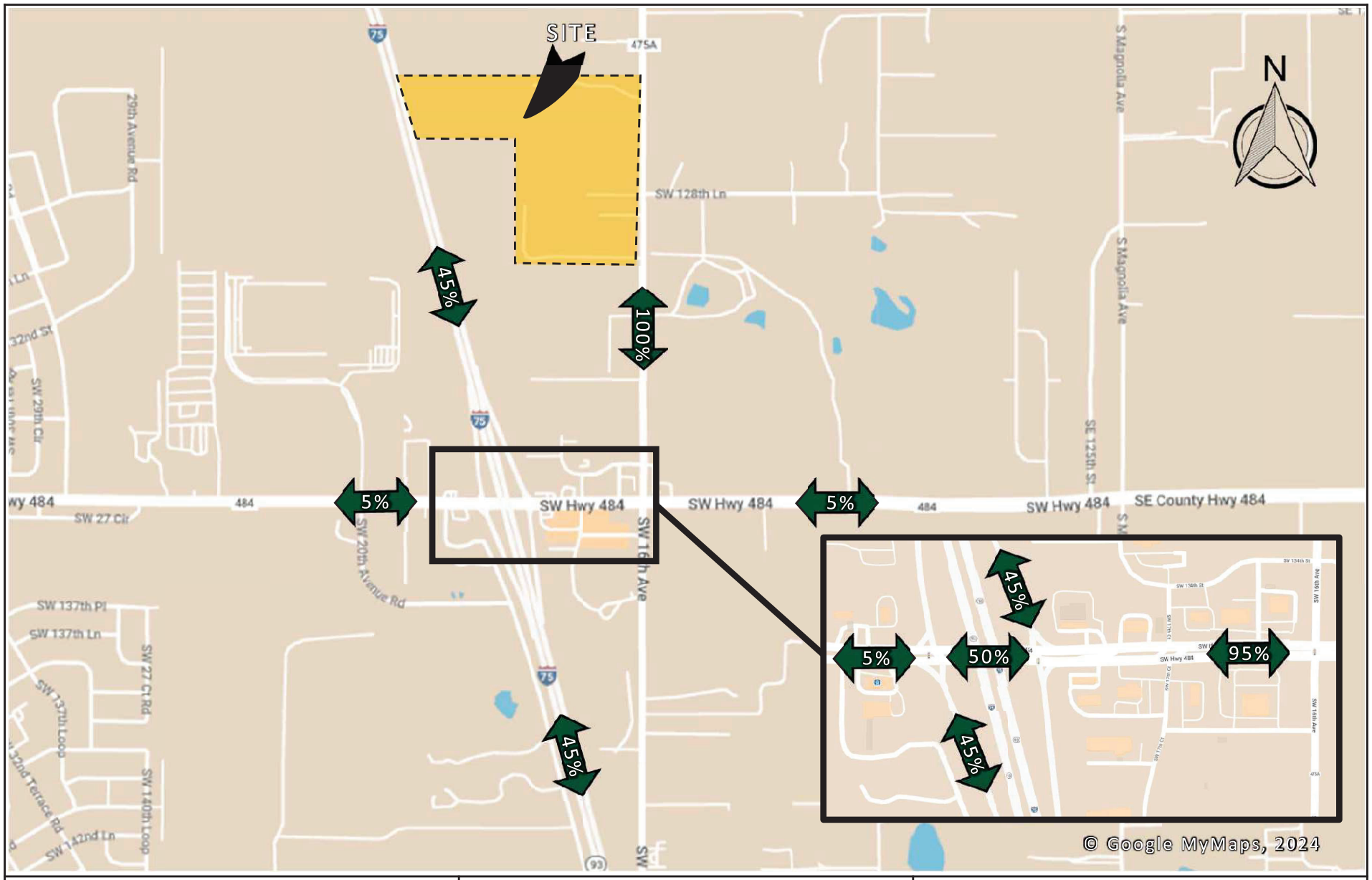
LEGEND

SITE LOCATION

% DISTRIBUTION

FIGURE 2. OFFICE TRIP DISTRIBUTION

SECO ENERGY OCALA



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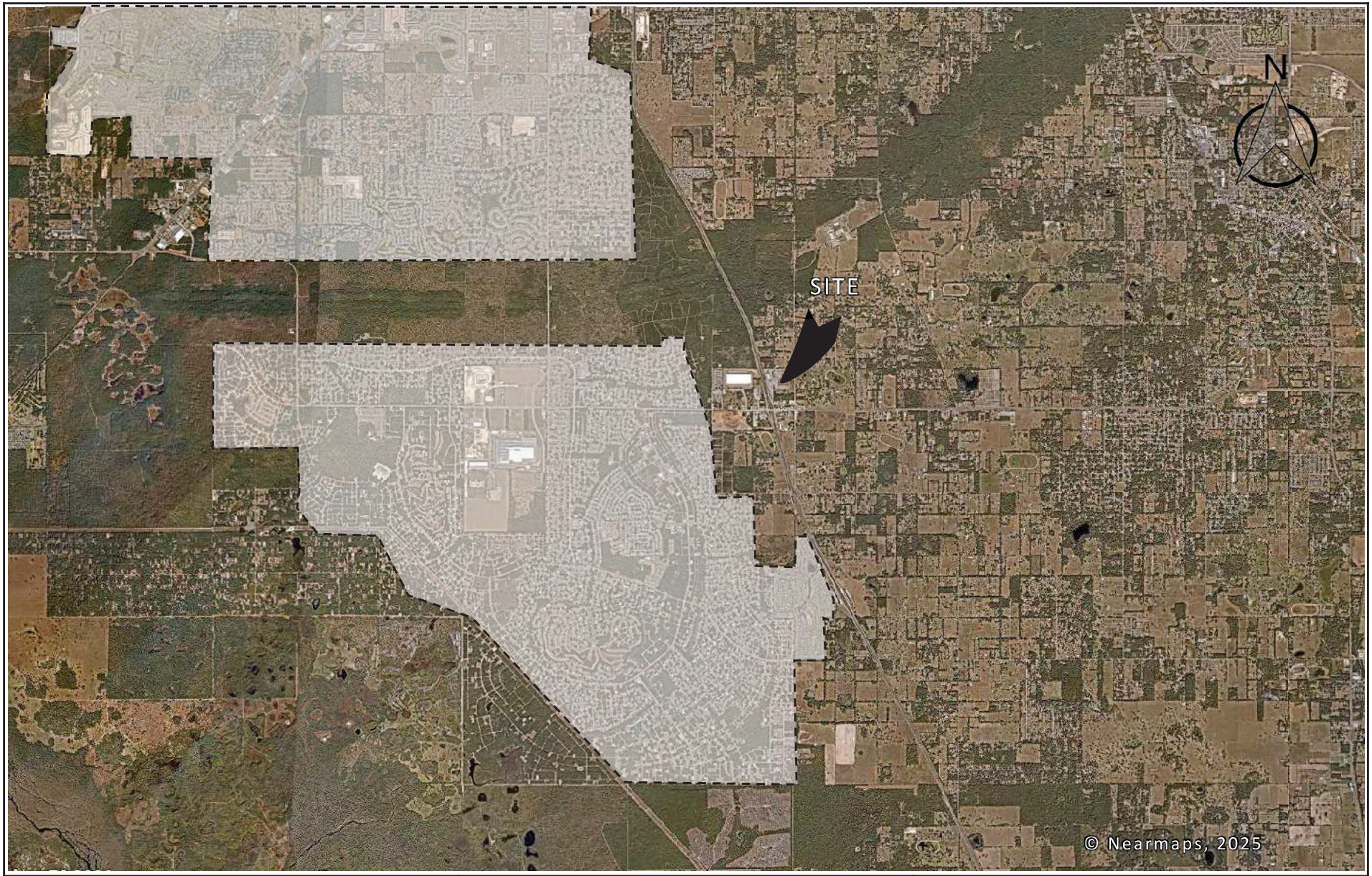
LEGEND

SITE LOCATION

% DISTRIBUTION

FIGURE 3. WAREHOUSE TRIP DISTRIBUTION

SECO ENERGY OCALA



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LEGEND

Dense Residential Population Centers

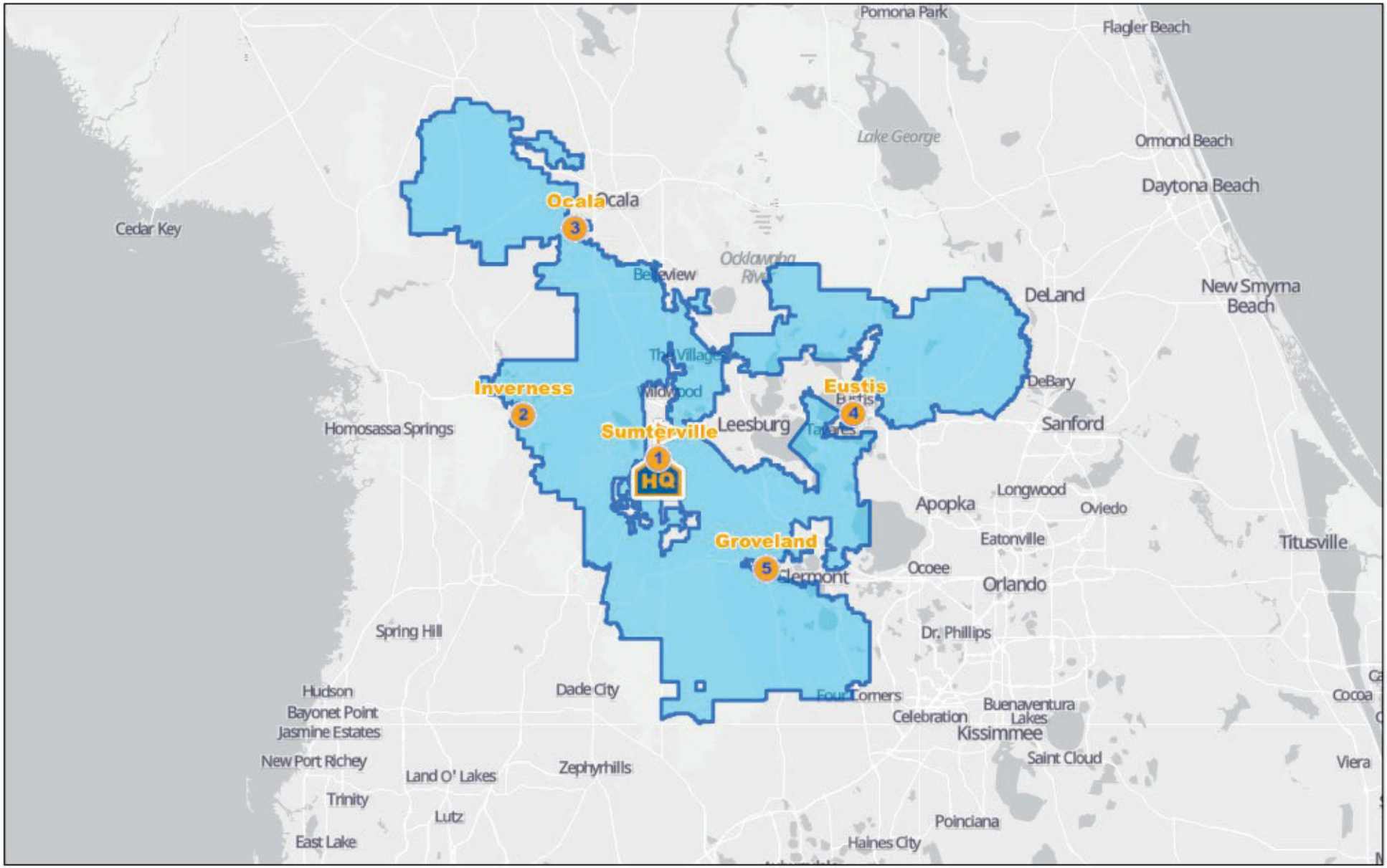
FIGURE 4. POPULATION CENTERS

SECO ENERGY OCALA

F-38

ATTACHMENT F

SECO Energy Service Area



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Member Service Centers

1 - Sumterville

2 - Inverness

3 - Ocala

4 - Eustis (Ardice)

5 - Groveland

HQ Corporate Office

Area served by SECO Energy

1:1,155,581

0 5 10 20 mi

0 12.5 25 50 km