Preserve at Green Cove Springs

City of Green Cove Springs, Florida

Traffic Impact Analysis

Prepared for:

PC Acquisitions, LLC

Prepared by:

Chindalur Traffic Solutions, Inc.
8833 Perimeter Park Boulevard, Suite 103
Jacksonville, FL 32216
904.619.3368

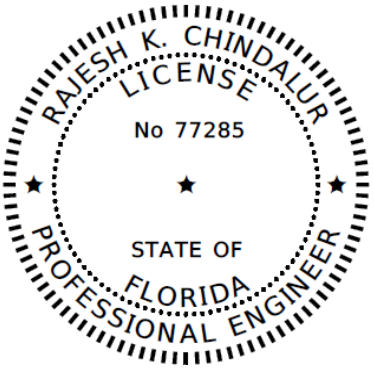
Project No.: 1146-220-007
Date: 05/16/2022

PROFESSIONAL ENGINEER CERTIFICATE

I, Rajesh Ramn K. Chindalur, PE #77285, certify that I currently hold an active license in the state of Florida and am competent through education or experience to provide engineering services in the civil discipline contained in this plan, print, specification, or report.

PROJECT:	**Preserve at Green Cove Springs – Traffic Impact Analysis**
LOCATION:	City of Green Cove Springs, Clay County, Florida
CLIENT:	PC Acquisitions, LLC

I further certify that this plan, print, specification, or report was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. Moreover, if offered by a corporation, partnership, or through a fictitious name, I certify that the company offering the engineering services, Chindalur Traffic Solutions, Inc., 8833 Perimeter Park Boulevard, Suite 103, Jacksonville, Florida 32216, holds an active certificate of authorization #30806 to provide engineering service.



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

Rajesh Ramn K Chindalur
2022.05.16 15:59:09 -04'00'

ON THE DATE ADJACENT TO THE SEAL.

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VIRIFIED ON ANY ELECTRONIC COPIES.

CHINDALUR TRAFFIC SOLUTIONS, INC.
8833 PERIMETER PARK BOULEVARD, SUITE 103
JACKSONVILLE, FL 32216
CERTIFICATE OF AUTHORIZATION #30806
RAJESH RAMN K. CHINDALUR, P.E. NO. 77285

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THIS DOCUMENT IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

Table of Contents

	Summary and Conclusions	1
	Introduction	3
	Trip Generation	3
	US 17 and CR 209 South Existing Conditions	3
	Study Area Segments and Intersections	3
	Planned and Programmed Improvements	3
	Project Traffic Distribution and Assignment	3
	Future Traffic Volumes	4
	Roadway Segment Analysis	4
	Intersection Capacity Analysis and Access Intersections	4
	Figures	
Figure 01	Location Map	
Figure 02	US 17 and CR 209 South Existing Conditions	
Figure 03	Roadway Segments Project Traffic Distribution and Assignment	
Figure 04	Year 2022 Peak Hour Traffic Volumes at Study Intersections	
Figure 05	Year 2027 Background Traffic Volumes	
Figure 06	Project Traffic Distribution and Assignment at Study Intersections	
Figure 07	Year 2027 Build-Out Conditions Traffic Volumes	
	Tables	
Table 01	Trip Generation	
Table 02	Study Area Segments and Existing Conditions	
Table 03	Project Traffic Distribution and Assignment	
Table 04	Roadway Segment Analysis	
Table 05	HCM Delay and LOS Summary	
	Attachments	
Attachment A	Conceptual Site Plan	
Attachment B	Methodology Document	
Attachment C	Planned and Programmed Improvements (Source: FDOT)	
Attachment D	Travel Demand Model Plots	
Attachment E	Historical AADT and Trends Analysis Plots	
Attachment F	Traffic Counts Data and FDOT Season Factors	
Attachment G	Right Turn Lane Criteria and Guidance	
Attachment H	HCM Worksheets	
Attachment H1	Year 2022 HCM Worksheets	
Attachment H2	Year 2027 Background Conditions HCM Worksheets	
Attachment H3	Year 2027 Build-Out Conditions HCM Worksheets	

Summary and Conclusions

A multi-family residential development that is anticipated to include 260 dwelling units is proposed for construction in the City of Green Cove Springs, FL. The proposed development will be located on the northeast quadrant of US 17 and CR 209. Access to the proposed development will be provided via a right-in-right-out driveway on US 17 and a second driveway on CR 209. Please note that the zoning allows for a maximum of 278 dwelling units. However, based on the current site plan a maximum of 260 dwelling is proposed for construction.

US 17 is a four-lane divided highway with a posted speed of 60 miles per hour (mph) and CR 209 South is a two-lane undivided roadway with a posted speed of 55 mph.

The proposed residential development is anticipated to generate 1,742 Daily trips which includes 103 AM peak and 132 PM peak trips.

The study area will include all the roadway segments and intersections where in the project traffic is anticipated to be equal to or greater than five percent (5%) of the roadway segment adopted LOS maximum service volume (MSV).

Project traffic distribution percentages on the study roadway segments using the interim year 2025 NERPM_ABv3 travel demand model run.

The proposed development is anticipated to be constructed and occupied by the end of year 2025. However, the traffic impact analysis will be performed under the year 2027 conditions. The future traffic volumes on the study roadway segments were estimated by applying a growth rate to the year 2019 and 2022 traffic volumes. The growth rate was estimated by performing trends analysis of the study roadway segments historical AADT.

The roadway segment will be considered impacted if the project traffic assignment (new trips) is equal to or greater than 5% of its adopted LOS maximum service volume (MSV). A study area roadway segment will be considered adversely impacted if that roadway segment is impacted (project new trips 5% of its adopted LOS MSV) and the total traffic (Existing trips + Reserved Trips + New Project Traffic) exceed 100% of the roadway segments adopted LOS MSV.

None of the study roadway segments are anticipated to be either impacted or adversely impacted under the build-out conditions of the proposed development. Additionally, all the study roadway segments are anticipated to continue operating at LOS D or better under the year 2027 background and project build-out conditions, except for the segment of US 17 between the City of Green Cove Springs City Limits to SR 16 West/Ferris Street. The segment of US 17 between the City of Green Cove Springs City Limits to SR 16 West/Ferris Street is anticipated to operate at LOS F under the year 2027 background and build-out conditions of the proposed development.

Please note that the proposed First Coast Expressway and other proposed roadway improvements (Clay County Programmed Bonded Roadway Improvements) are anticipated to reduce traffic volumes on US 17 roadway segments within the City of Green Cove Springs.

Based on the discussions with FDOT staff, the project access on US 17 will be a right-in-right-out just north of CR 209 intersection and a full access roadway connection on CR 209 South just east of US 17. The above-mentioned access locations are shown in previously mentioned site plan. FDOT staff require the access evaluation to determine the following:

- The need for a northbound right turn lane on US 17 at the proposed project access driveway
- Adequacy of the existing southbound left turn lane on US 17 at CR 209 South intersection

A northbound right turn lane is anticipated to be warranted on US 17 at the proposed Project Access Driveway. As per the guidance included in Chapter 212 of the FDOT Design Manual and the FDOT Median Handbook, for a roadway with a posted speed of 60 mph (design speed of 65 mph), a right turn lane should include 460 feet deceleration and taper distance.

All the critical movements are currently operating at LOS D or better and are anticipated to continue operating at LOS D or better under the future year 2027 background and year 2027 build-out conditions of the proposed development.

The existing southbound left turn on US 17 at CR 209 South is approximately 430 feet long (250 feet full width turn lane + 180 feet taper distance). The 95^{th} percentile queue length on the southbound left turn is anticipated to be no greater than 50 feet. Hence, the existing southbound left turn lane on US 17 at CR 209 South is anticipated to be adequate under the build-out conditions of the proposed development.

Introduction

A multi-family residential development that is anticipated to include 260 units is proposed for construction in the City of Green Cove Springs, FL. The proposed development will be located on the northeast quadrant of US 17 and CR 209. Access to the proposed development will be provided via a right-in-right-out driveway on US 17 and a second driveway on CR 209. A copy of the site plan provided by Matthews Design Group, Inc. is included as **Attachment A**. Please note that the zoning allows for a maximum of 278 dwelling units. However, based on the current site plan a maximum of 260 dwelling is proposed for construction.

The methodology used in this study is consistent with the methodology document provided to the City of Green Cove Springs on 05/10/2022. A copy of the methodology provided to the staff is included as **Attachment B**.

Trip Generation

Trip generation and for the proposed residential portion of the development will be estimated using the rates and equations included in the Trip Generation Manual, 11th Edition published by the ITE. Attached **Table 01** summarizes the Daily, AM and PM peak trips anticipated by the proposed development. As shown in this table, the proposed residential development is anticipated to generate 1,742 Daily trips which includes 103 AM peak and 132 PM peak trips.

US 17 and CR 209 South Existing Conditions

US 17 is a four-lane divided highway with a posted speed of 60 miles per hour (mph) and CR 209 South is a two-lane undivided roadway with a posted speed of 55 mph. **Figure 02** shows the existing conditions on US 17 and CR 209 at the proposed project access locations.

Study Roadway Segments and Intersections

Since the proposed development is anticipated to generate a total of 132 PM peak trips, the study area will include all the roadway segments and intersections where in the project traffic is anticipated to be equal to or greater than five percent (5%) of the roadway segment adopted LOS maximum service volume (MSV). **Table 02** shows the existing conditions of the roadway segments within the vicinity of the proposed development. The existing conditions data for the study roadway segments were obtained from the FDOT traffic counts and Clay County Transportation Analysis Spreadsheet. As shown in this table, all the study roadway segments are currently operating at LOS D or better.

Planned and Programmed Roadways:

The County Capital Improvement Plan (CIP), FDOT Planned and Programmed Improvements and NFTPO LRTP will be reviewed to determine any planned and programmed roadways within study roadway segments. **Attachment C** includes a list of planned and programmed roadways within Clay County in addition to the First Coast Expressway between existing SR 23/Old Jennings Road to US 17.

Project Traffic Distribution & Assignment:

Project traffic distribution percentages on the study roadway segments using the interim year 2025 NERPM_ABv3 travel demand model run. **Attachment D** includes copies of the travel

demand model plots. **Table 03** summarizes the project traffic distribution and assignment on the roadway segments in the vicinity of the proposed development. **Figure 03** shows project traffic distribution and assignment on the study roadway segments.

Future Traffic Volumes:

The proposed development is anticipated to be constructed and occupied by the end of year 2025. However, the traffic impact analysis will be performed under the year 2027 conditions. The future traffic volumes on the study roadway segments were estimated by applying a growth rate to the year 2019 and 2022 traffic volumes. The growth rate was estimated by performing trends analysis of the study roadway segments historical AADT. The historical AADT of the study roadway segments was obtained from the FDOT Traffic Counts Online Portal. **Attachment E** includes copies of the historical AADT, and the trends analysis of the study roadway segments.

Roadway Segment Analysis:

The segment analysis of the study area roadway segments will be performed to determine any impacts and adverse impacts due to the additional trips from the proposed development. The roadway segment will be considered impacted if the project traffic assignment (new trips) is equal to or greater than 5% of its adopted LOS maximum service volume (MSV). A study area roadway segment will be considered adversely impacted if that roadway segment is impacted (project new trips 5% of its adopted LOS MSV) and the total traffic (Existing trips + Reserved Trips + New Project Traffic) exceed 100% of the roadway segments adopted LOS MSV.

Table 04 summarizes the roadway segments analysis of the study roadway segments. As shown in this table, none of the study roadway segments are anticipated to be either impacted or adversely impacted under the build-out conditions of the proposed development. Additionally, all the study roadway segments are anticipated to continue operating at LOS D or better under the year 2027 background and project build-out conditions, except for the segment of US 17 between the City of Green Cove Springs City Limits to SR 16 West/Ferris Street. The segment of US 17 between the City of Green Cove Springs City Limits to SR 16 West/Ferris Street is anticipated to operate at LOS F under the year 2027 background and build-out conditions of the proposed development.

Please note that the proposed First Coast Expressway and other proposed roadway improvements (Clay County Programmed Bonded Roadway Improvements) are anticipated to reduce traffic volumes on US 17 roadway segments within the City of Green Cove Springs.

Intersection Capacity Analysis and Access Intersections:

Based on the discussions with FDOT staff, the project access on US 17 will be a right-in-right-out just north of CR 209 intersection and a full access roadway connection on CR 209 South just east of US 17. The above-mentioned access locations are shown in previously mentioned site plan. FDOT staff require the access evaluation to determine the following:

- The need for a northbound right turn lane on US 17 at the proposed project access driveway
- Adequacy of the existing southbound left turn lane on US 17 at CR 209 South intersection

Since the project traffic is not anticipated to be equal or greater than the study roadway segments' adopted LOS maximum service volume (MSV), intersection analysis other than the above stated intersections is not anticipated to be required.

Existing Traffic Volumes: AM peak and PM peak hour traffic volumes at the above stated study intersections were obtained on April 26th, 2022. These counts were further adjusted with a season factor of 1.19 to account for seasonal variations. This season factor was obtained from the Florida Department of Transportation (FDOT) traffic counts online portal. **Attachment F** includes copies of the traffic counts data and the FDOT season factors. **Figure 04** shows the year 2022 peak hour traffic volumes at the above stated study intersections.

Year 2027 Background Traffic Volumes: The year 2027 background traffic volumes at the above stated study intersections were estimated by applying a growth factor of 1.30 to the year 2022 traffic volumes. This growth factor was estimated by performing trends analysis of the historical AADT on US 17 north of CR 209 South (included in previously stated **Attachment E**). The year 2027 background conditions peak hour traffic volumes at the study intersections are shown in **Figure 05**.

Project Traffic Distribution and Assignment: Project traffic assignment at the above stated study intersections were established by applying the project traffic distribution obtained from the travel demand model run to the peak hour net external trips shown in previously stated **Table 01**. **Figure 06** shows the AM peak and PM peak project traffic assignment at the above stated study intersections.

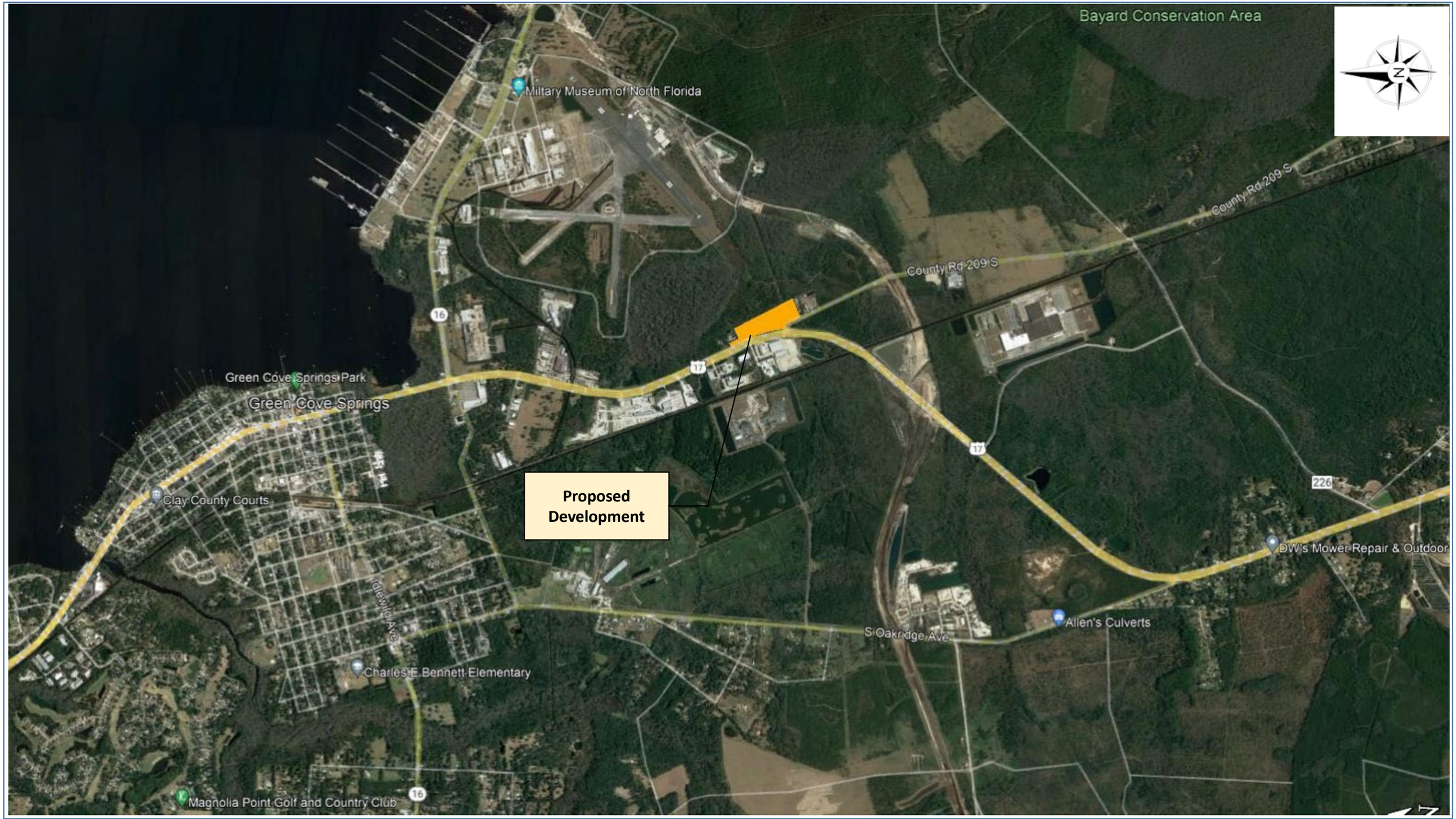
Year 2027 Build-out Traffic Volumes: The year 2027 build-out traffic volumes include the year 2027 background traffic volumes and the peak hour project related traffic assignment at the study intersections. **Figure 07** includes the year 2027 build-out conditions AM peak and PM peak hour traffic volumes at the study intersections.

Right Turn Lane Evaluation: The need for a northbound right turn lane on US 17 at the proposed project access roadway was evaluated using the right turn lane criteria included in the in the FDOT Access Management Guidebook (**Attachment G**). As shown in previously stated **Figure 07**, about 30 northbound right turns are anticipated on US 17 which is very close to the right turn lane threshold of 35 peak hour turns. Hence, a northbound right turn lane is anticipated to be warranted on US 17 at the proposed Project Access Driveway. As per the guidance included in Chapter 212 of the FDOT Design Manual and the FDOT Median Handbook, for a roadway with a posted speed of 60 mph (design speed of 65 mph), a right turn lane should include 460 feet deceleration and taper distance.

Intersection Capacity Analysis: Intersection capacity analysis of the study intersections under the year 2022 existing conditions, year 2027 background and year 2027 build-out conditions was performed using the Synchro 11 software. This software uses the HCM 6 criteria and methodology to determine the LOS and delay at un-signalized intersections. **Table 05** summarizes the delay and LOS for all the critical movements at the study intersections. As shown in this table, all the critical movements are currently operating at LOS D or better and are anticipated to continue operating at

LOS D or better under the future year 2027 background and year 2027 build-out conditions of the proposed development. **Attachment H** includes copies of the HCM Worksheets.

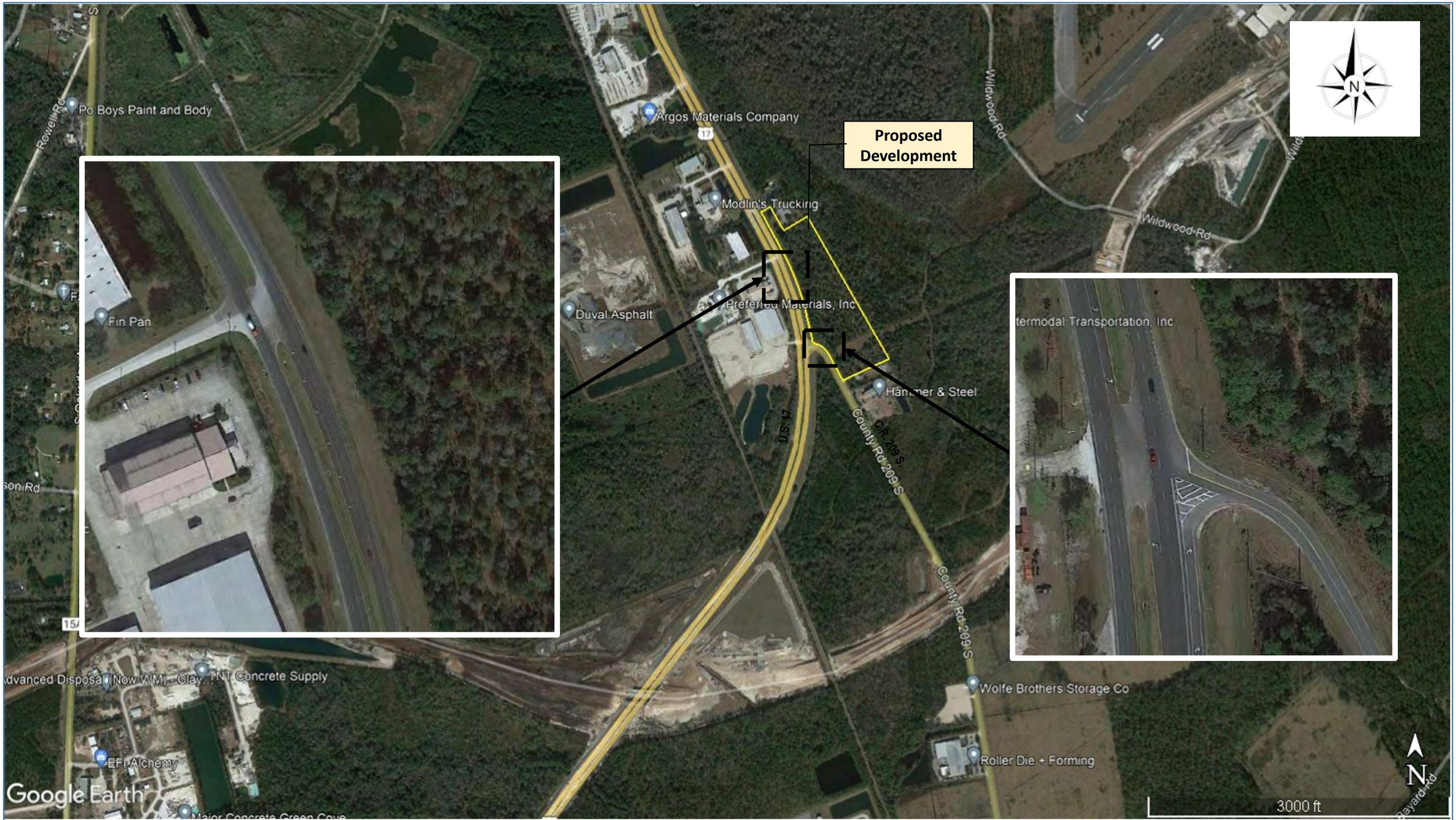
This table also summarizes the 95th percentile queue length on the southbound left turn at the US 17 and CR 209 South intersection under the existing, year 2027 background and year 2027 build-out conditions. The existing southbound left turn on US 17 at CR 209 South is approximately 430 feet long (250 feet full width turn lane + 180 feet taper distance). As shown in this table, the 95th percentile queue length on the southbound left turn is anticipated to be no greater than 50 feet. Hence, the existing southbound left turn lane on US 17 at CR 209 South is anticipated to be adequate under the build-out conditions of the proposed development.



Chindalur Traffic Solutions, Inc.
8833 Perimeter Park Blvd., Suite 103
Jacksonville FL 32216
(904) 619-3368 | www.ctrafficsolutions.com

Figure 01 – Location Map

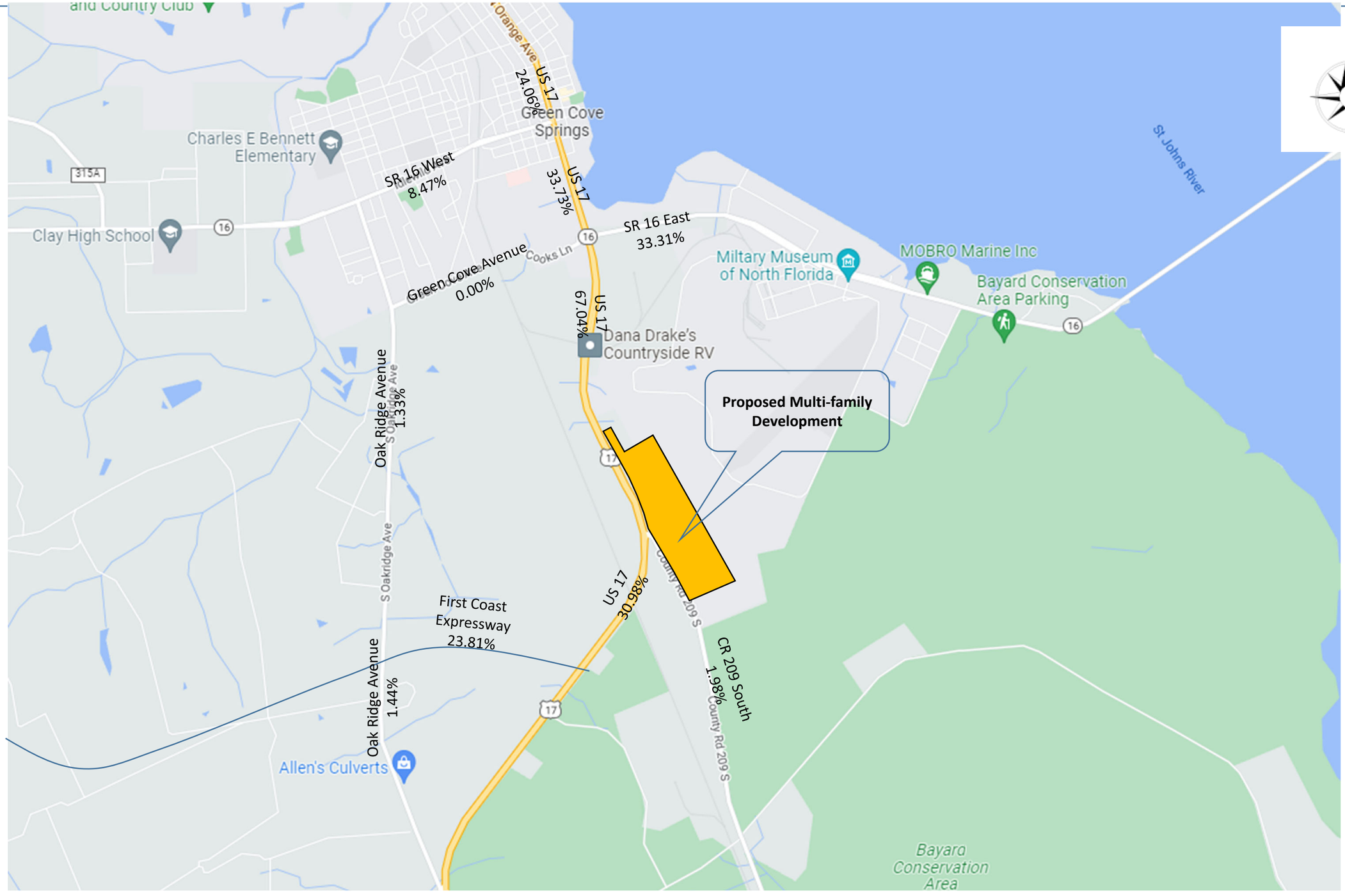
Preserve at Green Cove Springs – Traffic Impact Study
City of Green Cove Springs, Clay County, Florida



Chindalur Traffic Solutions, Inc.
8833 Perimeter Park Blvd., Suite 103
Jacksonville FL 32216
(904) 619-3368 | www.ctrafficsolutions.com

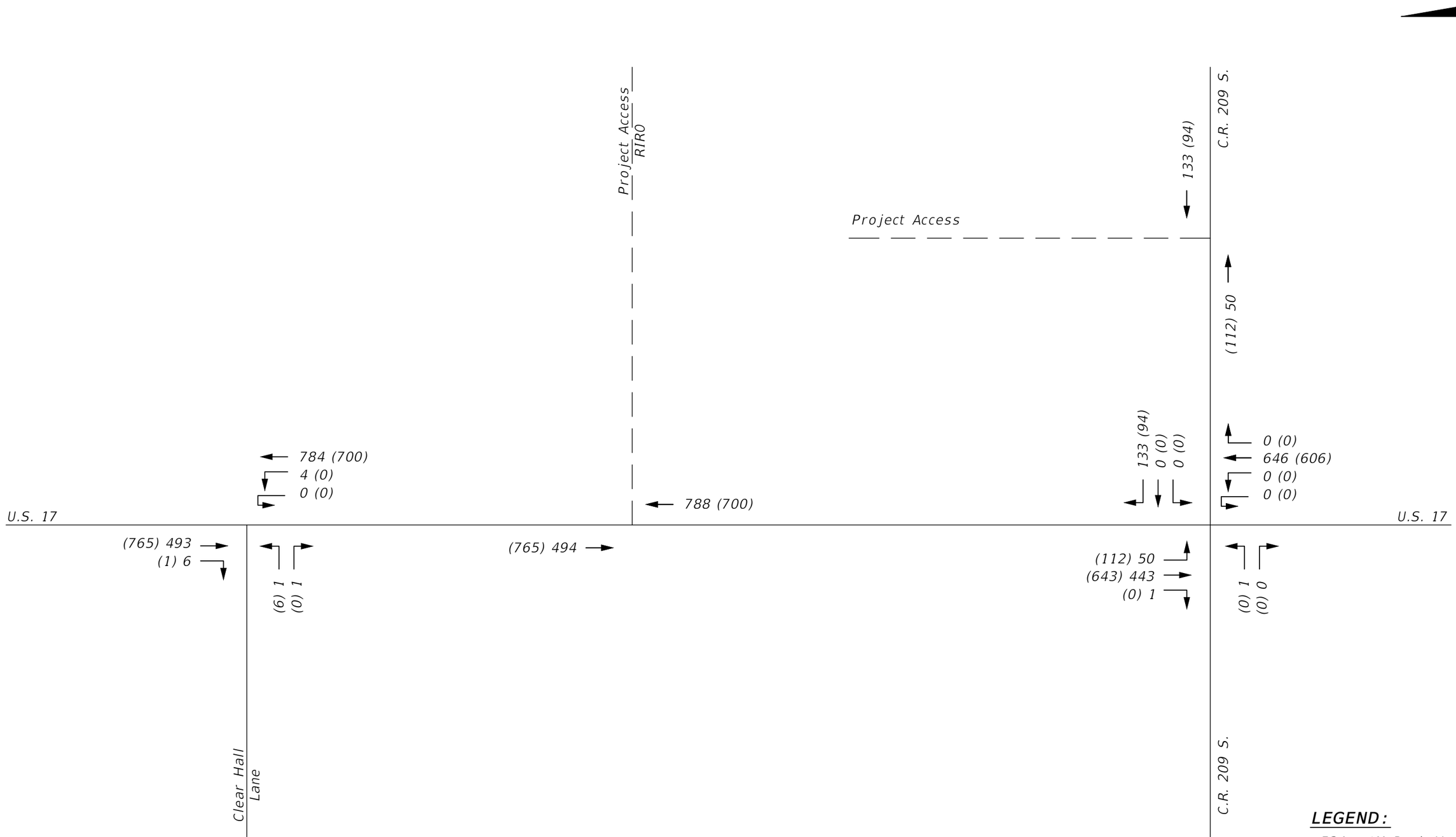
Figure 02 – Existing Conditions

Preserve at Green Cove Springs – Traffic Impact Study
City of Green Cove Springs, Clay County, Florida



Chindalur Traffic Solutions, Inc.
8833 Perimeter Park Blvd., Suite 103
Jacksonville FL 32216
(904) 619-3368 | www.ctrafficsolutions.com

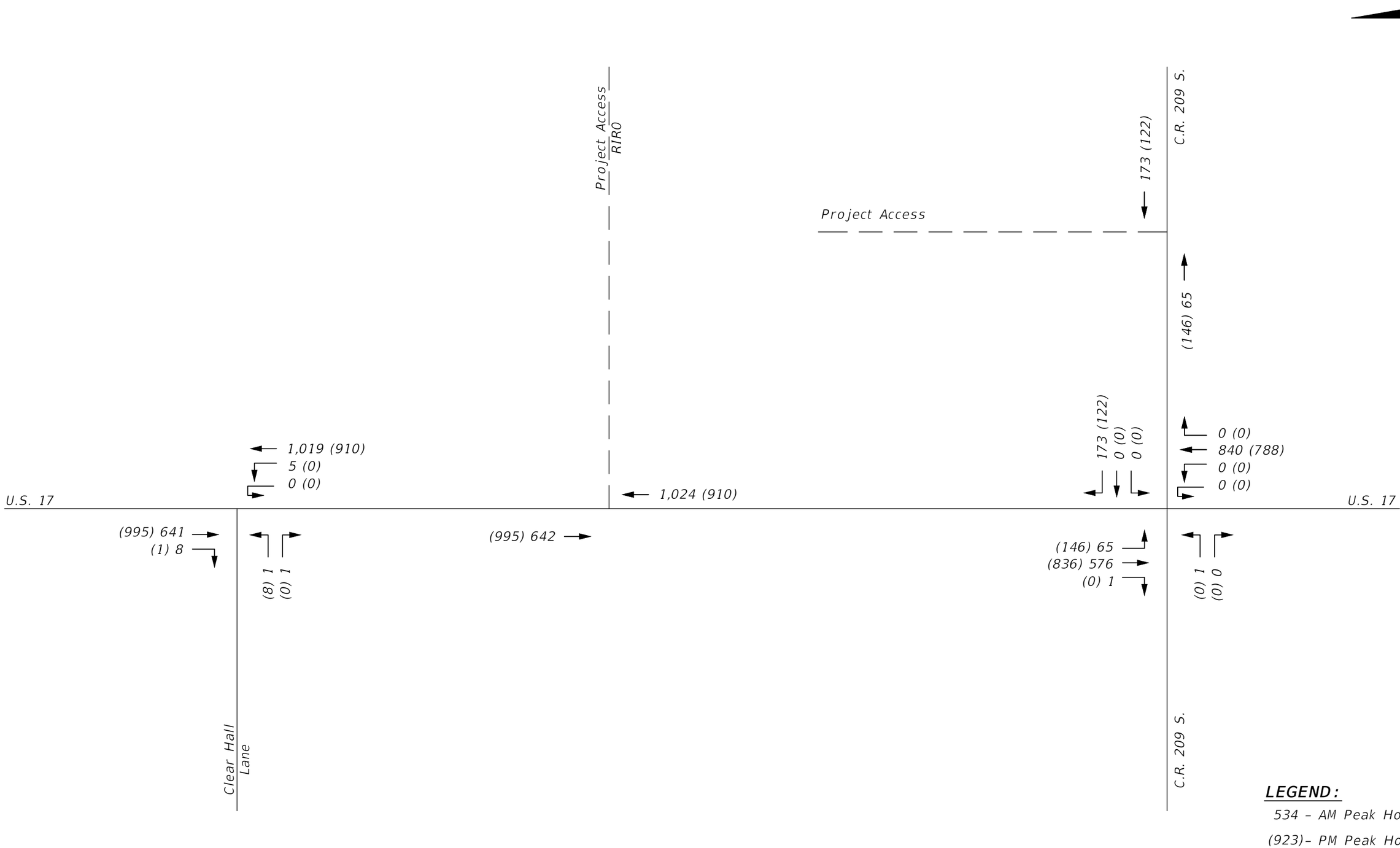
Figure 03 – Project Traffic Distribution and Assignment
Preserve at Green Cove Springs – Traffic Impact Study
City of Green Cove Springs, Clay County, Florida



Chindalur Traffic Solutions, Inc.
8833 Perimeter Park Boulevard,
Suite 103
Jacksonville, FL 32216
Phone: (904) 619–3368
www.ctrafficsolutions.com

Figure 04 – Year 2022 AM and PM Peak Hour Traffic Volumes

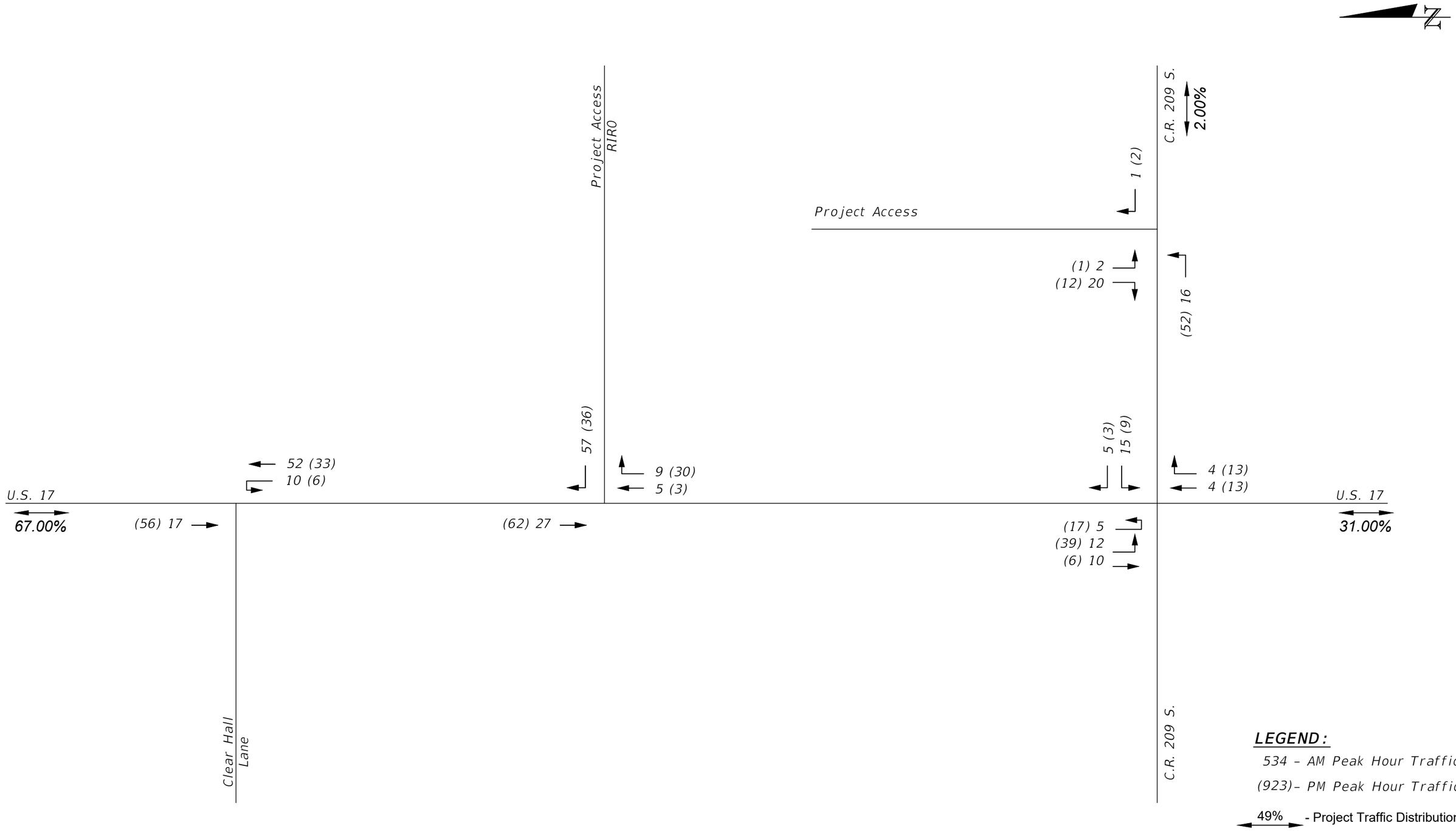
Preserve at Green Cove Springs – Traffic Study
Clay County, Florida



Chindalur Traffic Solutions, Inc.
8833 Perimeter Park Boulevard,
Suite 103
Jacksonville, FL 32216
Phone: (904) 619-3368
www.ctrafficsolutions.com

Figure 05 – Year 2027 AM and PM Peak Hour Background Traffic Volumes

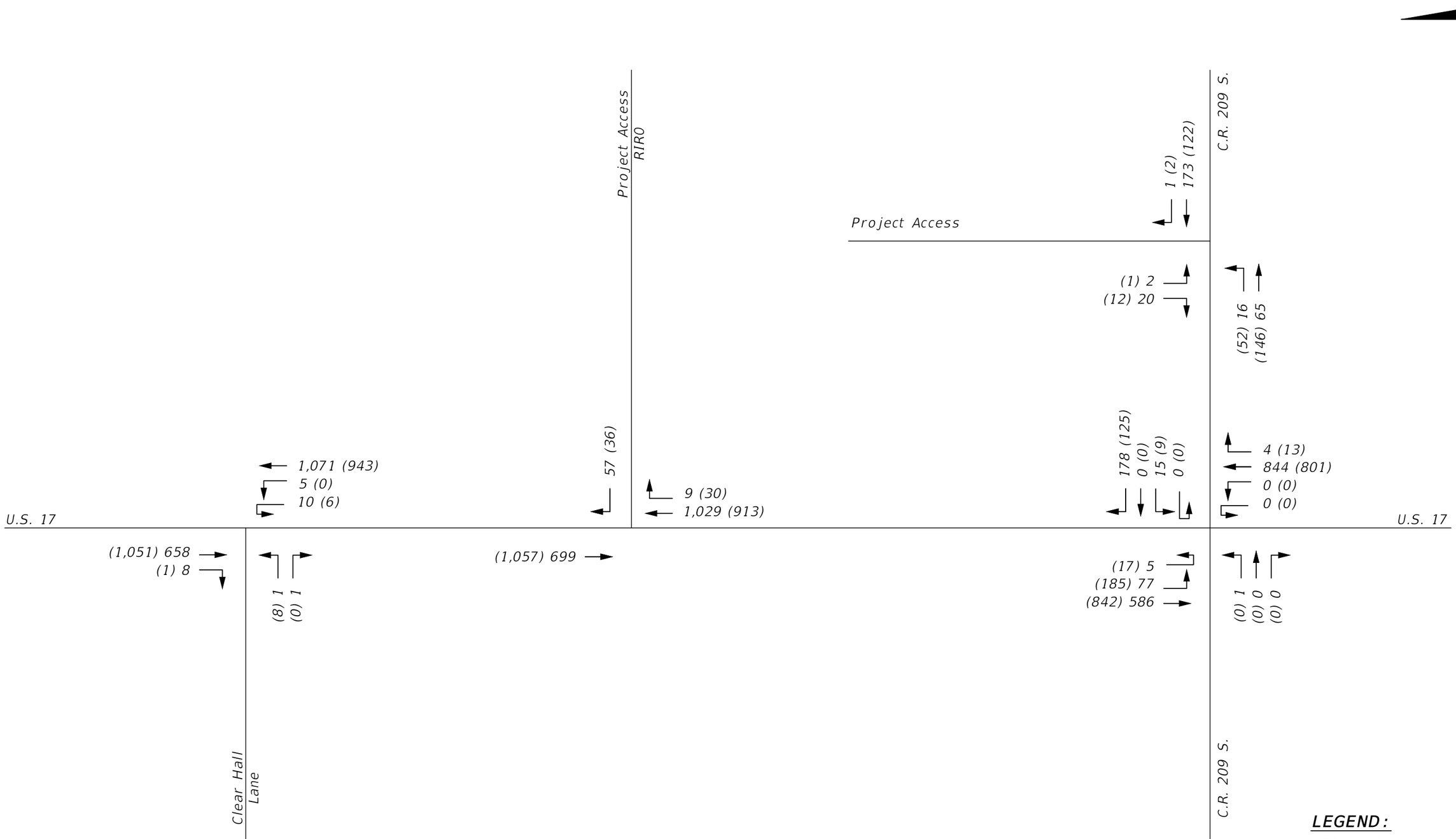
Preserve at Green Cove Springs – Traffic Study
Clay County, Florida



Chindalur Traffic Solutions, Inc.
8833 Perimeter Park Boulevard,
Suite 103
Jacksonville, FL 32216
Phone: (904) 619-3368
www.ctrafficsolutions.com

Figure 06 – Year 2027 AM and PM Peak Hour Project Traffic Distribution and Assignment

Preserve at Green Cove Springs – Traffic Study
Clay County, Florida



Chindalur Traffic Solutions, Inc.
8833 Perimeter Park Boulevard,
Suite 103
Jacksonville, FL 32216
Phone: (904) 619-3368
www.ctrafficsolutions.com

Figure 07 – Year 2027 AM and PM Peak Hour Build-Out Traffic Volumes

Preserve at Green Cove Springs – Traffic Study
Clay County, Florida

Table 01
Trip Generation
Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL

ITE Land Use Code	Description	Quantity	Units	Time Period	Rate or Equation	Percent Traffic		Project Trips		
						Entering	Exiting	Total	Entering	Exiting
220	Multi-family Residential (Apartments)	260	Dwelling Units	Daily	T = 6.41(X) + 75.31	50%	50%	1,742	871	871
				AM Peak	T = 0.31(X) + 22.85	24%	76%	103	25	78
				PM Peak	T = 0.43(X) + 20.55	63%	37%	132	83	49

Source: Trip Generation Manual, 11th Edition, ITE

Note: Please note that the zoning allows for a maximum of 278 dwelling units.
However, based on the current site plan a maximum of 260 dwelling is proposed for construction.

Table 02
Roadway Characteristics Inventory
Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL

Roadway	Segment	Agency	Speed Limit	Adopted LOS	Adopted LOS Peak Hour MSV	Length (Miles)	Lanes	Facility Type	Area Type	Source	2019 ADT Collected	Year 2019 Peak Hour Traffic Volumes	Growth Rate	Year 2022 Peak Hour Traffic Volumes	Existing Conditions V/C Ratio	Existing Conditions LOS
US 17	Green Cove Springs to SR 16 West	FDOT	35	D	2,920	1.26	4 - DIV	Prin. Arterial	Urban	FDOT	24,000	2,160	4.07%	2,435	83.39%	D
US 17	SR 16 West to SR 16 East	FDOT	55	D	3,580	0.63	4 - DIV	Prin. Arterial	Urban	FDOT	21,500	1,935	3.93%	2,172	60.67%	D
US 17	SR 16 East to CR 209	FDOT	55	D	3,580	1.61	4 - DIV	Prin. Arterial	Transition	FDOT	14,100	1,269	5.37%	1,485	41.48%	C
US 17	CR 209 to CR 226	FDOT	55	D	3,580	3.18	4 - DIV	Prin. Arterial	Transition	FDOT	10,900	981	1.14%	1,015	28.35%	C
US 17	CR 226 to Putnam County Line	FDOT	60	B	4,460	10.20	4 - DIV	Highway	Rural	FDOT	12,803	1,152	6.01%	1,372	30.76%	C
SR 16	Oak Ridge Avenue to US 17	FDOT	35	D	2,774	1.12	4-Un Div	Major Arterial	Urban	FDOT	11,500	1,035	4.13%	1,169	42.14%	C
SR 16	US 17 to Slow Tide Road	FDOT	45	E	3,070	1.26	4 - Div	Highway	Transition	FDOT	19,694	1,772	5.92%	2,106	68.60%	D
Oak Ridge Avenue	SR 16 to Green Cove Avenue	GCS	35	D	1,161	0.59	2	Minor Collector	Urban	FDOT	2,200	198	5.26%	231	19.90%	C
Oak Ridge Avenue	Green Cove Avenue to US 17	GCS	35	D	1,161	3.1	2	Minor Collector	Urban	FDOT	2,200	198	5.26%	231	19.90%	C
Green Cove Avenue	US 17 to Oak Ridge Avenue	GCS	25	D	1,161	1.14	2	Local Road	Urban	FDOT	1,600	144	3.85%	161	13.87%	C
First Coast Expressway	SR 16 to US 17	FDOT	65	D	6,700	6.45	4 - DIV	Freeway	Urban	FDOT	-	-	2.00%	-	0.00%	C
CR 209	East of US 17	Clay County	55	D	2,110	1.69	2	Highway	Rural	All Traffic Data	-	-	0.00%	174	8.25%	C

Attachment B - FDOT Traffic Counts Data

Table 03
Project Traffic Distribution and Assignment
Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL

132

Roadway	From/To	Adopted LOS Peak Hour MSV	Residential Project Traffic Distribution	Residential Project Traffic Assignment	Project Traffic % of MSV
US 17	Green Cove Springs to SR 16 West	2,920	24.06%	32	1.10%
US 17	SR 16 West to SR 16 East	3,580	33.73%	45	1.26%
US 17	SR 16 East to CR 209	3,580	67.04%	88	2.46%
US 17	CR 209 to CR 226	3,580	30.98%	41	1.15%
US 17	CR 226 to Putnam County Line	4,460	7.18%	9	0.20%
SR 16	Oak Ridge Avenue to US 17	2,774	8.47%	11	0.40%
SR 16	US 17 to Slow Tide Road	3,070	33.31%	44	1.43%
Oak Ridge Avenue	SR 16 to Green Cove Avenue	1,161	1.33%	2	0.17%
Oak Ridge Avenue	Green Cove Avenue to US 17	1,161	1.45%	2	0.17%
Green Cove Avenue	US 17 to Oak Ridge Avenue	1,161	0.00%	-	0.00%
First Coast Expressway	SR 16 to US 17	6,700	23.81%	31	0.46%
CR 209	East of US 17	2,110	1.98%	3	0.14%

Attachment D - Travel Demand Model Plots

Table 04
Roadway Characteristics Inventory
Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL

Roadway	Segment	Agency	Speed Limit	Adopted LOS	Adopted LOS Peak Hour MSV	Growth Rate	Year 2022 Peak Hour Traffic Volumes	Existing Conditions V/C Ratio	Year 2027 Background Peak Hour Traffic Volumes	Year 2027 Background Peak Hour V/C Ratio	Year 2027 Background LOS	Residential Project Traffic Assignment	Project Traffic % of MSV	Roadway Segment Impacted	Year 2027 Build-Out Peak Hour Traffic Volumes	Year 2027 Build-Out Traffic % of MSV	Roadway Segment Adversely Impacted	Year 2027 Build-Out LOS
US 17	Green Cove Springs to SR 16 West	FDOT	35	D	2,920	4.07%	2,435	83.39%	2,973	101.82%	F	32	1.10%	No	3,005	102.91%	No	F
US 17	SR 16 West to SR 16 East	FDOT	55	D	3,580	3.93%	2,172	60.67%	2,634	73.58%	D	45	1.26%	No	2,679	74.83%	No	D
US 17	SR 16 East to CR 209	FDOT	55	D	3,580	5.37%	1,485	41.48%	1,929	53.88%	D	88	2.46%	No	2,017	56.34%	No	D
US 17	CR 209 to CR 226	FDOT	55	D	3,580	2.00%	1,015	28.35%	1,121	31.31%	C	41	1.15%	No	1,162	32.46%	No	C
US 17	CR 226 to Putnam County Line	FDOT	60	B	4,460	6.01%	1,372	30.76%	1,837	41.19%	C	9	0.20%	No	1,846	41.39%	No	C
SR 16	Oak Ridge Avenue to US 17	FDOT	35	D	2,774	4.13%	1,169	42.14%	1,431	51.59%	D	11	0.40%	No	1,442	51.98%	No	D
SR 16	US 17 to Slow Tide Road	FDOT	45	E	3,070	5.92%	2,106	68.60%	2,808	91.47%	D	44	1.43%	No	2,852	92.90%	No	D
Oak Ridge Avenue	SR 16 to Green Cove Avenue	GCS	35	D	1,161	5.26%	231	19.90%	298	25.67%	C	2	0.17%	No	300	25.84%	No	C
Oak Ridge Avenue	Green Cove Avenue to US 17	GCS	35	D	1,161	5.26%	231	19.90%	298	25.67%	C	2	0.17%	No	300	25.84%	No	C
Green Cove Avenue	US 17 to Oak Ridge Avenue	GCS	25	D	1,161	3.85%	161	13.87%	194	16.71%	C	-	0.00%	No	194	16.71%	No	C
First Coast Expressway	SR 16 to US 17	FDOT	65	D	6,700	2.00%	-	0.00%	-	0.00%	C	31	0.46%	No	31	0.46%	No	C
CR 209	East of US 17	Clay County	55	D	2,110	2.00%	174	8.25%	192	9.10%	C	3	0.14%	No	195	9.24%	No	C

Note: A minimum of 2.0% Growth Rate was applied to US 17, First Coast Expressway and CR 209

Table 05
Intersection Capacity Analysis - HCM Delay and LOS Summary
Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL

Intersection	Approach	Traffic Control	AM Peak			PM Peak		
			Delay	LOS	95th Percentile Queue (Feet)	Delay	LOS	95th Percentile Queue (Feet)
Year 2022 Existing Conditions								
US 17 at Clear Hall Lane	NBL	Yield	8.60	A	0	0.00	A	0
	EB	Stop	15.9	C	0	17.5	C	25
US 17 at CR 209 South	NBL	Yield	0.00	A	0	0.00	A	0
	SBL	Yield	9.9	A	25	9.5	A	25
	EB	Stop	18.80	C	0	0.00	A	0
	WB	Stop	12.5	B	25	11.4	B	25
Year 2027 Background Conditions								
US 17 at Clear Hall Lane	NBL	Yield	9.10	A	0	0.00	A	0
	EB	Stop	19.6	C	0	22.6	C	25
US 17 at CR 209 South	NBL	Yield	0.00	A	0	0.00	A	0
	SBL	Yield	11.2	B	25	10.8	B	25
	EB	Stop	26.70	D	25	0.00	A	0
	WB	Stop	15.5	C	50	13.1	B	25
Year 2027 Build-Out Conditions								
US 17 at Clear Hall Lane	NBL	Yield	11.60	B	25	18.70	C	25
	EB	Stop	20.7	C	25	24.4	C	25
US 17 at Proposed Project Access Driveway	WBR	Stop	15.40	C	25	13.90	B	25
US 17 at CR 209 South	NBL	Yield	0.00	A	0	0.00	A	0
	SBL	Yield	12.3	B	25	12.8	B	50
	EB	Stop	29.00	D	25	0.00	A	0
	WB	Stop	19.1	C	75	16.3	C	50
CR 209 South at Project Access Driveway	EBL	Yield	7.60	A	0	7.60	A	25
	SB	Stop	9.4	A	25	9.2	A	0

Attachment H - HCM Worksheets

Attachment A

Project Site Plan

Source: Matthews Design Group, Inc.

SITE DATA TABLE

TOTAL SITE AREA	13.93 AC	606,739 SF
PROPOSED BUILDING		100,285 SF
PROPOSED IMPERVIOUS AREA		210,773 SF
PROPOSED POND AREA (NWL)		47,788 SF
PROPOSED RECREATION AREA		125,720 SF
TOTAL IMPERVIOUS		358,847 SF
TOTAL PERVIOUS		247,892 SF
TOTAL IMPERVIOUS %		59%
TOTAL PERVIOUS %		41%
% BUILDING COVERAGE		17%
TOTAL FLOOR AREA		354,174 SF
FLOOR AREA RATIO (FAR)		58.4%
PARCEL NUMBER(S)		38-06-26-016499-007-00
911 ADDRESS		US HIGHWAY 17 AND CR 209 SOUTH
FEMA PANEL NUMBER		12019C0283E
FLOOD ZONE		ZONE X & A

PARKING CALCULATIONS

TOTAL MINIMUM REQUIRED	=	457 SPACES
TOTAL PROVIDED	=	467 SPACES

DENSITY

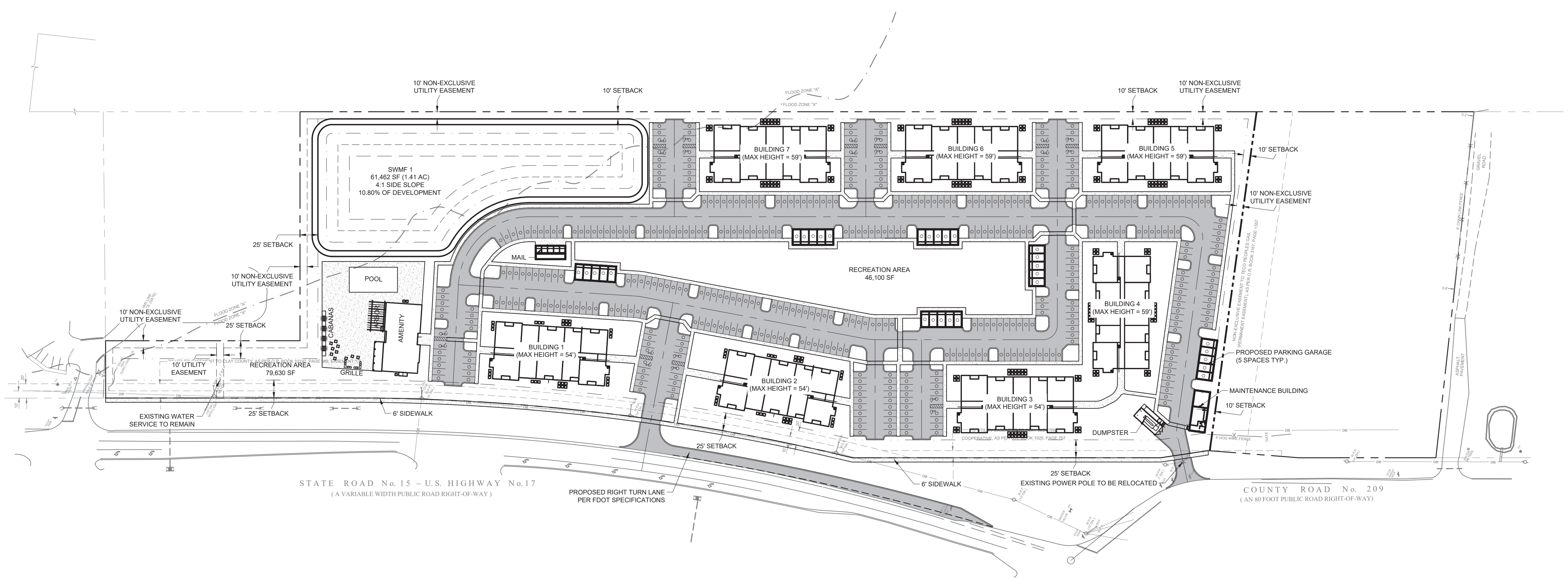
MAXIMUM ALLOWED DENSITY	=	278 UNITS 20 UNITS / ACRE
DENSITY AS DEPICTED	=	260 UNITS

CONCEPT SITE PLAN IS SUBJECT TO REVISIONS BASED ON FINAL SITE PLAN APPROVAL AND CONSTRUCTION PLAN APPROVAL

HATCH LEGEND

ASPHALT PAVEMENT	
CONCRETE SIDEWALK	

GRAPHIC SCALE
0 80' 120' 160'
1" = 80'

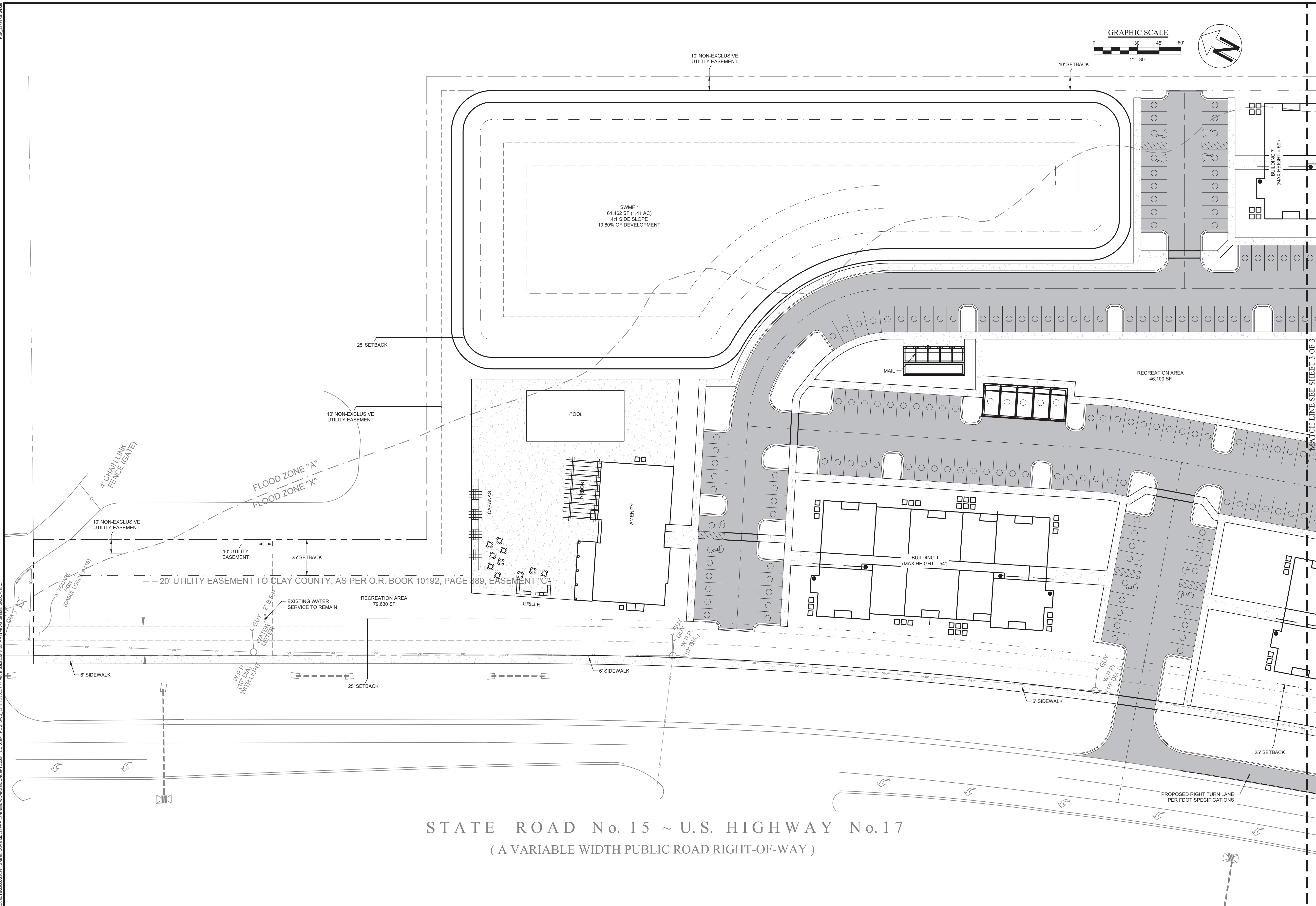


REVISIONS		
NO.	DATE	DESCRIPTION

DSGN BY:	DTS
DWG BY:	DTS
CHK BY:	ARA
DATE:	04-12-2022
JOB No.:	22034

MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM

MASTER SITE PLAN
GREEN COVE MULTI FAMILY
GREEN COVE SPRINGS, FLORIDA
PREPARED FOR
PIEDMONT PRIVATE EQUITY


GRAPHIC SCALE
0
30'
45'
60'
1" = 30'
10' NON-EXCLUSIVE UTILITY EASEMENT
10' SETBACK
SWMF 1
61,462 SF (1.41 AC)
4:1 SIDE SLOPE
10.80% OF DEVELOPMENT
BUILDING 7 (MAX HEIGHT = 59')
25' SETBACK
MAIL
RECREATION AREA
46,100 SF
POOL
10' NON-EXCLUSIVE UTILITY EASEMENT
4' CHAIN LINK FENCE (GATE)
FLOOD ZONE "A"
FLOOD ZONE "X"
CABANAS
ARBOR
AMENITY
BUILDING 1 (MAX HEIGHT = 54')
10' NON-EXCLUSIVE UTILITY EASEMENT
10' UTILITY EASEMENT
25' SETBACK
20' UTILITY EASEMENT TO CLAY COUNTY, AS PER O.R. BOOK 10192, PAGE 389, EASEMENT "C"
EXISTING WATER SERVICE TO REMAIN
RECREATION AREA
79,630 SF
GRILLE
WATER METER
6' SIDEWALK
25' SETBACK
6' SIDEWALK
6' SIDEWALK
25' SETBACK
PROPOSED RIGHT TURN LANE PER FDOT SPECIFICATIONS
STATE ROAD No. 15 ~ U.S. HIGHWAY No. 17
(A VARIABLE WIDTH PUBLIC ROAD RIGHT-OF-WAY)
MATCH LINE SEE SHEET 3 OF 3

REVISIONS

NO.	DATE	DESCRIPTION

DSGN BY:	DTS
DWG BY:	DTS
CHK BY:	ARA
DATE:	04-12-2022
JOB No.:	22034

MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM

SITE PLAN

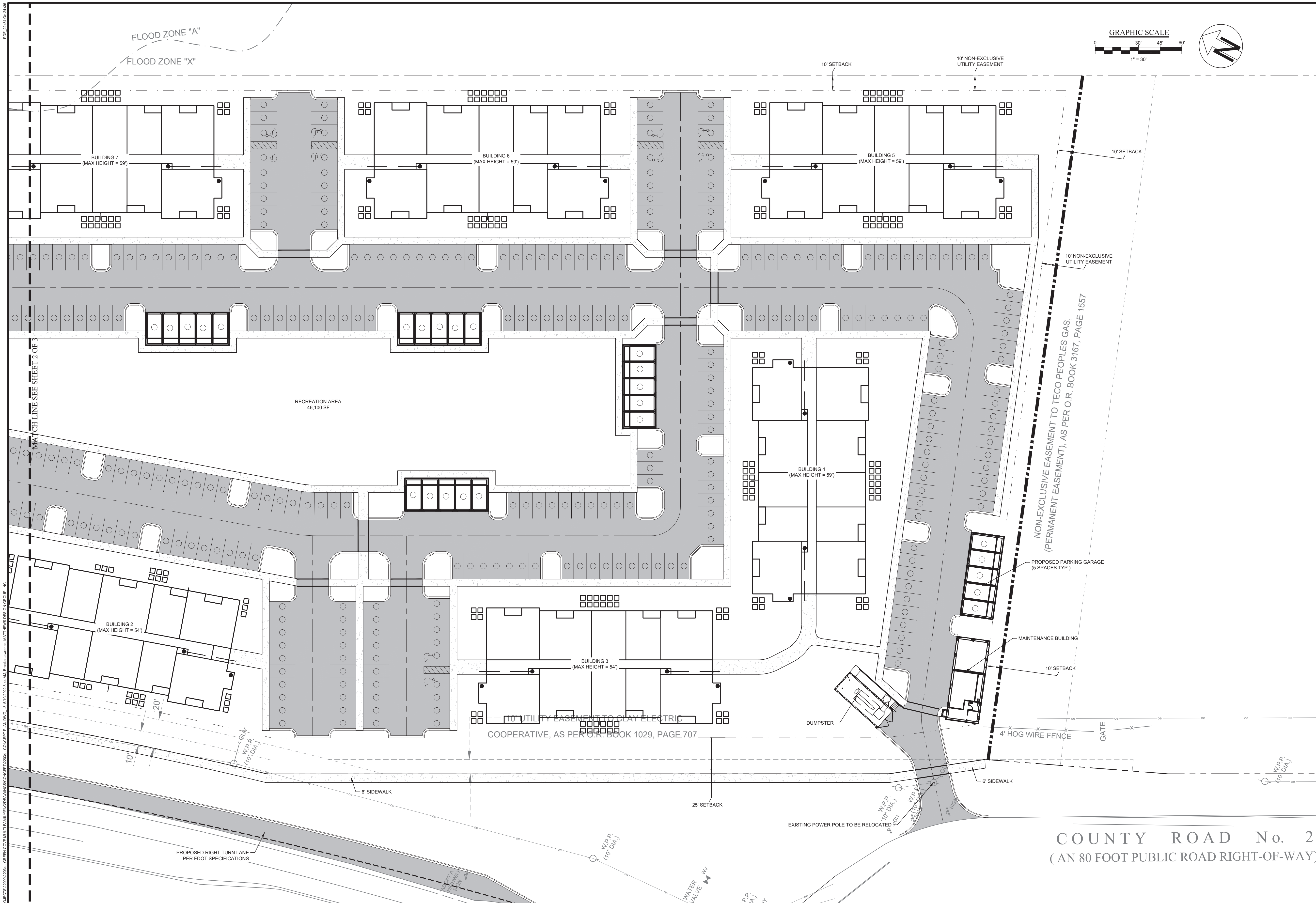
GREEN COVE MULTI FAMILY

GREEN COVE SPRINGS, FLORIDA

PREPARED FOR

PIEDMONT PRIVATE EQUITY

SHEET No.: 2 OF 3



GRAPHIC SCALE
0 30' 45' 60'
1" = 30'
FLOOD ZONE "A"
FLOOD ZONE "X"
10' SETBACK
10' NON-EXCLUSIVE UTILITY EASEMENT
BUILDING 7 (MAX HEIGHT = 59')
BUILDING 6 (MAX HEIGHT = 59')
BUILDING 5 (MAX HEIGHT = 59')
10' SETBACK
10' NON-EXCLUSIVE UTILITY EASEMENT
RECREATION AREA 46,100 SF
MATCH LINE SEE SHEET 2 OF 3
BUILDING 4 (MAX HEIGHT = 59')
NON-EXCLUSIVE EASEMENT TO TECO PEOPLES GAS, (PERMANENT EASEMENT), AS PER O.R. BOOK 3167, PAGE 1557
PROPOSED PARKING GARAGE (5 SPACES TYP.)
BUILDING 2 (MAX HEIGHT = 54')
BUILDING 3 (MAX HEIGHT = 54')
MAINTENANCE BUILDING
10' SETBACK
DUMPSTER
10' UTILITY EASEMENT TO CLAY ELECTRIC COOPERATIVE, AS PER O.R. BOOK 1029, PAGE 707
4' HOG WIRE FENCE
GATE
6' SIDEWALK
6' SIDEWALK
25' SETBACK
EXISTING POWER POLE TO BE RELOCATED
W.P.P. (10" DIA.)
GUY
WATER VALVE
PROPOSED RIGHT TURN LANE PER FDOT SPECIFICATIONS
COUNTY ROAD No. 20
(AN 80 FOOT PUBLIC ROAD RIGHT-OF-WAY)

REVISIONS		
NO.	DATE	DESCRIPTION

DSGN BY: DTS
DWG BY: DTS
CHK BY: ARA
DATE: 04-12-2022
JOB No.: 22034

MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM

SITE PLAN

GREEN COVE MULTI FAMILY

GREEN COVE SPRINGS, FLORIDA

PREPARED FOR
PIEDMONT PRIVATE EQUITY

Attachment B

Methodology Document

To: Mr. Michael Daniels, AICP
Planning and Zoning Director
City of Green Cove Springs, FL

From: Rajesh K. Chindalur, P.E., PTOE
Project: Green Cove Springs – Multi-family
Client: PC Acquisitions, LLC
Project No.: 1146-220-007
Date: 05/03/2022

Introduction:

A multi-family residential development that is anticipated to include 260 units is proposed for construction in the City of Green Cove Springs, FL. The proposed development will be located on the northeast quadrant of US 17 and CR 209. Access to the proposed development will be provided via a right-in-right-out driveway on US 17 and a second driveway on CR 209. The following methodology will be adopted to complete the traffic impact study (TIS) to determine the impacts of the proposed development. A copy of the site plan provided by Matthews Design Group, Inc. is included as **Attachment A**.

Trip Generation:

Trip generation and for the proposed residential portion of the development will be estimated using the rates and equations included in the Trip Generation Manual, 11th Edition published by the ITE. Attached **Table 01** summarizes the Daily, AM and PM peak trips anticipated by the proposed development. As shown in this table, the proposed residential development is anticipated to generate 1,742 Daily trips which includes 103 AM peak and 132 PM peak trips.

Study Roadway Segments and Intersections:

Since the proposed development is anticipated to generate a total of 132 PM peak trips (greater than the 50 PM peak trips threshold), the study area will include all the roadway segments and intersections where in the project traffic is anticipated to be equal to or greater than five percent (5%) of the roadway segment adopted LOS maximum service volume (MSV). **Table 02** shows the existing conditions of the roadway segments within the vicinity of the proposed development. The existing conditions data for the study roadway segments were obtained from the FDOT traffic counts and Clay County Transportation Analysis Spreadsheet.

Planned and Programmed Roadways:

The County Capital Improvement Plan (CIP), FDOT Planned and Programmed Improvements and NFTPO LRTP will be reviewed to determine any planned and programmed roadways within study roadway segments. The following projects are anticipated to be planned and programmed roadways:

- First Coast Expressway – SR 16 to US 17

Project Traffic Distribution & Assignment:

Project traffic distribution percentages on the study roadway segments using the interim year 2025 NERPM_ABv3 travel demand model run. **Attachment B** includes copies of the travel demand model plots. **Table 03** summarizes the project traffic distribution and assignment on the roadway segments in the vicinity of the proposed development.

Future Traffic Volumes:

The proposed development is anticipated to be constructed and occupied by the end of year 2025. However, the traffic impact analysis will be performed under the year 2027 conditions. The future traffic volumes on the study roadway segments were estimated by applying a growth rate to the year 2019 and 2022 traffic volumes. The growth rate was estimated by performing trends analysis of the study roadway

segments historical AADT. The historical AADT of the study roadway segments was obtained from the FDOT Traffic Counts Online Portal. **Attachment C** includes copies of the historical AADT, and the trends analysis of the study roadway segments.

Roadway Segment Analysis:
The segment analysis of the study area roadway segments will be performed to determine any impacts and adverse impacts due to the additional trips from the proposed development. The roadway segment will be considered impacted if the project traffic assignment (new trips) is equal to or greater than 5% of its adopted LOS maximum service volume (MSV). A study area roadway segment will be considered adversely impacted if that roadway segment is impacted (project new trips 5% of its adopted LOS MSV) and the total traffic (Existing trips + Reserved Trips + New Project Traffic) exceed 100% of the roadway segments adopted LOS MSV. **Table 04** summarizes the roadway segments analysis of the study roadway segments. As shown in this table, none of the study roadway segments are anticipated to be either impacted or adversely impacted under the build-out conditions of the proposed development.

Access Intersections:
Based on the discussions with FDOT staff, the project access on US 17 will be a right-in-right-out just north of CR 209 intersection and a full access roadway connection on CR 209 South just east of US 17. The above-mentioned access locations are shown in previously mentioned site plan. FDOT staff require the access evaluation to determine the following:

- The need for a northbound right turn lane on US 17 at the proposed project access driveway
- Adequacy of the existing southbound left turn lane on US 17 at CR 209 South intersection

Intersection Capacity Analysis:
Since the project traffic is not anticipated to be equal or greater than the study roadway segments' adopted LOS maximum service volume (MSV), intersection analysis other than the above stated intersections is not anticipated to be required.

TIA Report:
A report summarizing the above tasks and the outcome of the analysis will be prepared for submittal to FDOT and the City of Green Cove Springs.

If you have any questions or comments, please give me a call at (904) 422 6923.

Sincerely,
Chindalur Traffic Solutions, Inc.

Rajesh K. Chindalur, P.E., PTOE
8833 Perimeter Park Boulevard, Suite 103, Jacksonville, FL 32216
(904) 619-3368 | Chindalur@ctrafficsolutions.com

cc: Mr. John Cattano (cattanoj@aol.com)
Ms. Ellen Avery Smith (eaverysmith@rtlaw.com)

Attachment C

Planned and Programmed Improvements

Attachment C
Planned and Programmed Improvements in Clay County, Florida
Green Cove Springs Multi-family TIA

Project Description	Project Limits	Length	No. Of Lanes	Description	Budeget	Construction	
						Start Date	End Date
Middleburg, CR 218	Cosmos Ave to Pine Tree Lane	2.7	4	Widen from 2 to 4 Lanes	$ 21,116,633.00	Summer 2022	Fall 2024
Lake Asbury CR 209 (Russell Rd)	CR 315B to US 17 and from CR 315 to South of Peter's Creek	1.1	4	Widen from 2 to 4 Lanes	$ 11,318,996.00	Summer 2022	Summer 2024
Lake Asbury CR 209 (Russell Rd),	Sandridge Road to Peter's Creek Bridge	3.1	3	Widen from 2 to 3 Lanes	$ 20,600,481.00	Summer 2023	Fall 2024
Lake Asbury CR739B (Sandridge)	Henley Road to CR 209 (Russell)	2.8	3	Widen from 2 to 3 Lanes	$ 18,933,785.00	Spring 2023	Fall 2024
Middleburg, CR 220	Baxley Road to West of Henley Road	1.2	4	Widen from 2 to 4 Lanes	$ 11,101,379.00	Summer 2022	Fall 2024
Green Cove Springs / Lake Asbury (First Coast Connector)	Maryland Avenue to US 17	1.2	4	Widen from 2 to 4 Lanes	$ 9,604,889.00	Fall 2022	Summer 2024
Green Cove Springs (First Coast Connector)	SR 23 to CR 315/Maryland Ave Intersection	3.3	2	New 2 Lane Roadway	$ 38,553,380.00	Fall 2022	Summer 2024
					$ 131,229,543.00		

Source: https://www.claycountygov.com/government/bonded-transportation-program

Commissioner /District	Project Description	Project Limits	Length	# Lanes	Lane Mileage	WGI Project Manager	Contractor/Designer	Typical Section /Description	Clay County Budget	Construction Start Date	Construction End Date
Betsy Condon/D4	**No. 1 Middleburg CR 218**	Cosmos Ave to Pine Tree Lane	2.70	4.0	10.8	C. Campos	D-Michael Baker, C- Anderson Columbia	Design and reconstruct two lane urban roadway section into four lanes with median/turn lanes, bike lanes, curb & gutter, and sidewalks on CR218 from Cosmos Avenue to Pine Tree Lane.	$ 21,116,633	Summer 2022	Fall 2024
Mike Cella/D1	**No. 2 Lake Asbury CR 209 (Russell Rd)**	**From CR 315B to US 17 and from CR 315 to South of Peter's Creek**	1.10	4.0	4.4	E. Lanning	D-Jacobs, C-Superior	Design and reconstruct two lane urban roadway into four lanes with median/turn lanes, bike lanes, curb & gutters, and sidewalks on CR209 from Peters Creek bridge south to US 17.	$ 11,318,996	Summer 2022	Summer 2024
Kristen Burke/D5	**No. 3 Lake Asbury CR 209 (Russell Rd)**	From Sandridge to Peter's Creek Bridge	3.10	3.0	9.3	C. Campos	D-GAI,C-Kiewit	Design and reconstruct two lane urban roadway section into three lanes with turn lanes, bike lanes, and sidewalks on CR209 from and including Peters Creek bridge, north then turning west onto Sandridge Road.	$ 20,600,481	Summer 2023	Fall 2024
Kristen Burke/D5	**No. 4 Lake Asbury CR739B (Sandridge)**	From Henley to CR-209 (Russell)	2.80	3.0	8.4	C. Campos	D-GAI,C-Kiewit	Design and reconstruct two lane urban roadway section into three lanes with turn lanes, bike paths, curb & gutter, and sidewalks on CR739B from Henley Road to just west of CR209.	$ 18,933,785	Spring 2023	Fall 2024
Kristen Burke/D5	**No. 5 Middleburg CR 220**	**From Baxley Rd to West of Henley Rd**	1.20	4.0	4.8	E. Lanning	D-Jacobs, C-Superior	Design and reconstruct two lane urban roadway into four lanes with median/turn lanes, bike lanes, curb & gutters, and sidewalks on CR220 from Baxley Road to just west of Henley Road.	$ 11,101,379	Summer 2022	Fall 2024
Mike Cella/D1	**No. 6A Green Cove Springs / Lake Asbury (First Coast Connector)**	**From Maryland Ave to US 17**	1.20	4.0	4.8	E. Lanning	D-Jacobs, C-Superior	Design and reconstruct two lane urban roadway section into four lanes with median/turn lanes, bike lanes, curb & gutters, and sidewalks on CR315 (part of First Coast Connector (FCC)) from Maryland Avenue to US 17.	$ 9,604,889	Fall 2022	Summer 2024
Kristen Burke/D5	**No. 6B Green Cove Springs (First Coast Connector)**	From SR 23 to the Intersection of CR 315 and Maryland Ave.	3.30	2.0	6.6	T. Richards	D-RS&H, C-Superior	Design and construct two new roadway lanes with a grass median, bike lanes, and sidewalks from SR23 to the intersection of CR315 and Maryland Avenue.	$ 38,553,380	Fall 2022	Summer 2024
			15.4		**49.1**			**TOTAL BUDGET**	**$ 131,229,543**		

1. County Road 218 from Pine Tree Ln to Cosmos Ave - DB

Safety:
CEI RIR

Project:
Total Cost

Preliminary Engineering (WGI)

Design/Build Milestones:

1) 30% Survey (11/2020)
2) 90% Conceptual (01/2021)
3) 100% Permit (07/2021)

Engineering Design (Michael Baker)

Engineering Design Milestones:

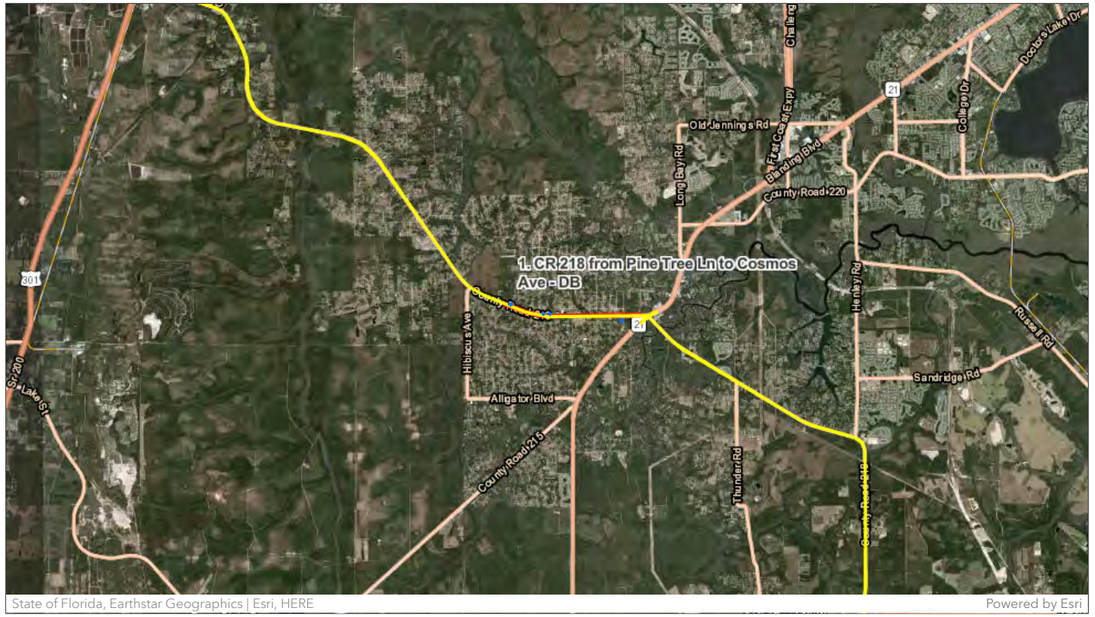
1) 90% Construction Plans (6/2022)
2) 100% Release for Construction (08/2022)

Construction (Anderson Columbia, Inc.

Construction Milestones:

1) 25% Mobilize & Clearing and Grubbing Complete (08/2022)
2) 50% Drainage & Ponds Complete (01/2023)
3) 75% Widening and Pavement Complete (01/2023)
4) 100% Project

Land clearing for pond sites to begin April 25, 2022, estimated duration 4 weeks.



Commissioner /District	Project Description	Project Limits	Length	# Lanes	Lane Mileage	WGI Project Manager	Contractor/Designer

Total Cost

Safety - Recordable Incident Rate (RIR)

RIR = # Incidents x 200,000 / Hours Worked

0

Temporary Construction Easements (TCE)

31 of 35 TCEs

TCE Milestones:

1) Submit written offers to property owners (05/2021)
2) Settlement

2. County Road 209 from CR 315B to US 17 and from CR 315 to South of Peters Creek - Group 2

Safety:
CEI RIR

Project:
Total Cost

Preliminary Engineering (WGI)

100%

Preliminary Engineering Milestones:

1) 25% Survey (11/2020)
2) 50% Environmental (12/2020)
3) 75% Pond Site Reports (02/2021)
4) 100% Right of

Engineering Design (Jacobs)

30%

Engineering Design Milestones:

1) 30% Plans (09/2021)
2) 60% Plans (03/2022)
3) 90% Plans (04/2022)
4) Release for

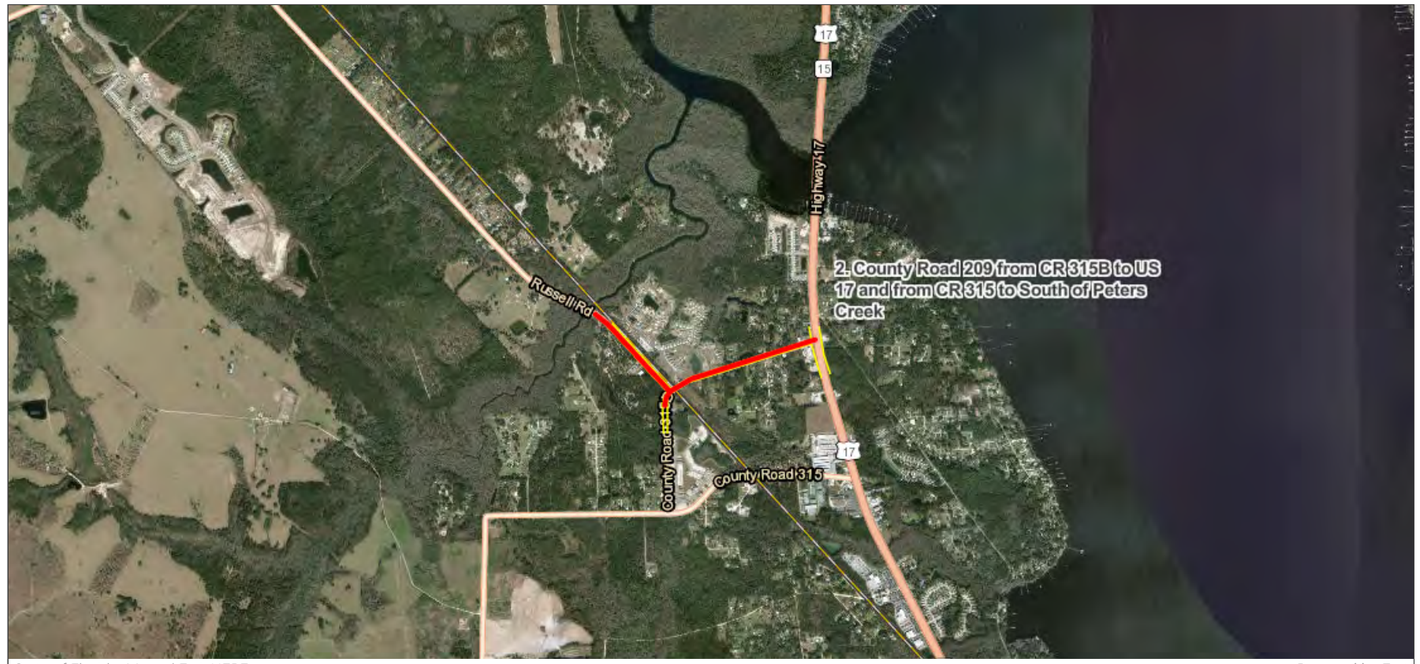
Construction (Superior)

0%

Construction Milestones:

1) 25% Mobilize & Clearing and Grubbing Complete (07/2022)
2) 50% Drainage and Ponds Complete

Tentative Construction Date - Summer 2022



State of Florida, Maxar | Esri, HERE — Powered by Esri

Project Status Report

Commissioner /District	Project Description	Project Limits	Length	# Lanes	Lane Mileage	WGI Project Manager	Contractor/Designer	Typical Section

Total Cost

Safety - Recordable Incident Rate (RIR)

RIR = # Incidents x 200,000 / Hours Worked

0

Right of Way Acquisition

25%

RW Acquisition Milestones:

1) 25% RW Maps, Legal Desriptions, and RW Plans (01/2022)
2) 50% Submit written offer(s) to property

3. County Road 209 from Sandridge to Peters Creek Bridge - Group 1

Safety:
CEI RIR

Project:
Total Cost

Preliminary Engineering (WGI)

100%

Preliminary Engineering Milestones:

1) 25% Survey (01/2021)
2) 50% Environmental (03/2021)
3) 75% Pond Site Reports (04/2021)
4) 100% Right-of-

Engineering Design (GAI)

30%

Engineering Design Milestones:

1) 30% Plans (02/2022)
2) 60% Plans (07/2022)
3) 90% Plans (GMP) (12/2022)
4) Release for

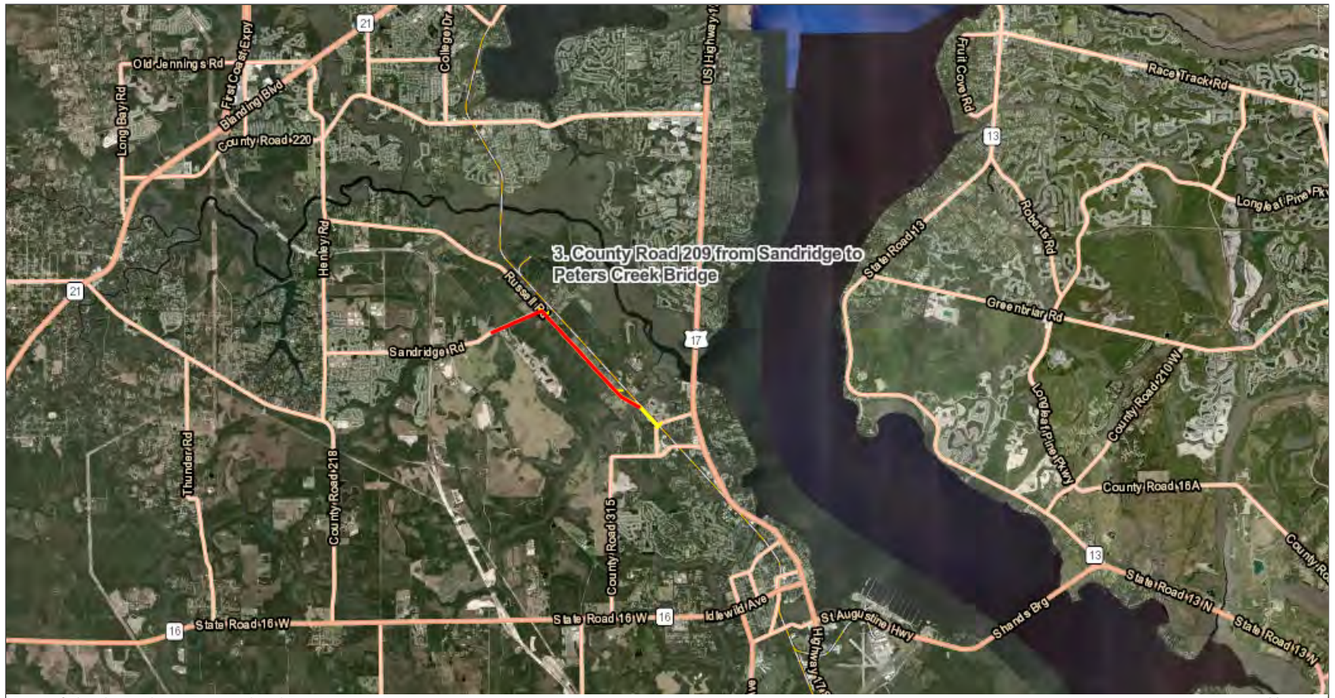
Construction (Kiewit)

0%

Construction Milestones:

1) 25% Mobilize & Clearing and Grubbing Complete (04/2023)
2) 50% Drainage and Ponds Complete

Tentative Construction Date - Summer 2023



State of Florida, Earthstar Geographics | Esri, HERE — Powered by Esri

Project Status Report

Commissioner /District	Project Description	Project Limits	Length	# Lanes	Lane Mileage	WGI Project Manager	Contractor/Designer	Typic

Total Cost

Safety - Recordable Incident Rate (RIR)

RIR = # Incidents x 200,000 / Hours Worked

0

Right of Way Acquisition

0%

RW Acquisition Milestones:

1) 25% RW Maps, Legal Desriptions, and RW Plans (05/2022)
2) 50% Submit written offer(s) to property owners

All Clay County Bonded Projects | 1. CR 218 | 2. CR 209 Group 2 | 3. CR 209 Group 1 | 4. Sandridge Rd | 5. CR 220 | 6A. FCC Group 2 | 6B. FCC DB.

4. Sandridge from Henley Rd to West of CR 209 - Group 1

Safety: CEI RIR

Project: Total Cost

Preliminary Engineering (WGI)

100%

Preliminary Engineering Milestones:

1) 25% Survey (12/2020)
2) 50% Environmental (12/2020)
3) 75% Pond Site Reports

Engineering Design (GAI)

60%

Engineering Design Milestones:

1) 30% Plans (01/2022)
2) 60% Plans (05/2022)
3) 90% Plans (GMP) (09/2022)
4) Release for

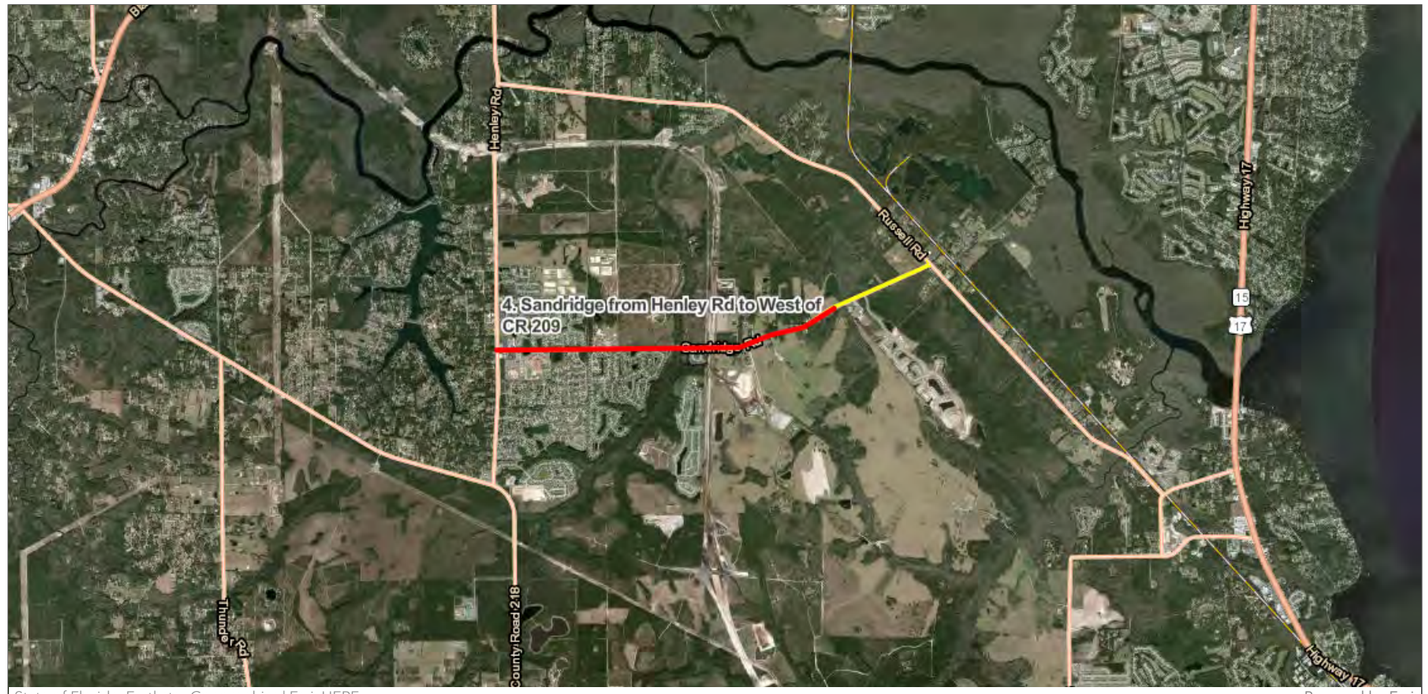
Construction (Kiewit)

0%

Construction Milestones:

1) 25% Mobilize & Clearing and Grubbing Complete (12/2022)
2) 50% Drainage and Ponds Complete

Tentative Construction Date - Spring 2023



Project Status Report

Commissioner /District	Project Description	Project Limits	Length	# Lanes	Lane Mileage	WGI Project Manager	Contractor/Designer	Typical Section

Total Cost

Safety - Recordable Incident Rate (RIR)

RIR = # Incidents x 200,000 / Hours Worked

0

Right of Way Acquisition

25%

RW Acquisition Milestones:

1) 25% RW Maps, Legal Desriptions, and RW Plans (03/2022)
2) 50% Submit written offer(s) to

5. County Road 220 from Baxley Rd to West of Henley Rd - Group 2

Safety:
CEI RIR

Project:
Total Cost

Preliminary Engineering (WGI)

100%

Preliminary Engineering Milestones:

1) 25% Survey (02/2021)
2) 50% Environmental (03/2021)
3) 75% Pond Site Reports (04/2021)

Engineering Design (Jacobs)

30%

Engineering Design Milestones:

1) 30% Plans (11/2021)
2) 60% Plans (04/2022)
3) 90% Plans (GMP) (05/2022)
4) Release for

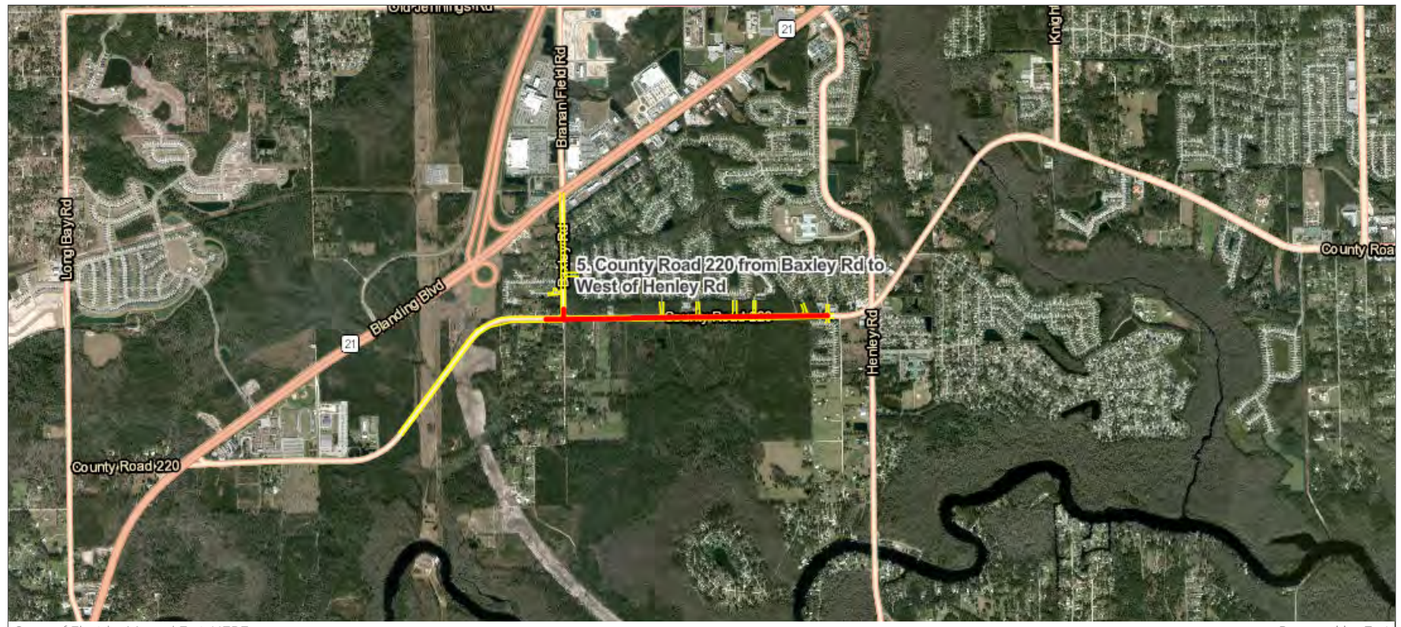
Construction (Superior)

0%

Construction Milestones:

1) 25% Mobilize & Clearing and Grubbing Complete (09/2022)
2) 50% Drainage and Ponds Complete

Tentative Construction Start Date - Summer 2022



Project Status Report

Commissioner /District	Project Description	Project Limits	Length	# Lanes	Lane Mileage	WGI Project Manager	Contractor/Designer	Typical Sect

Total Cost

Safety - Recordable Incident Rate (RIR)

RIR = # Incidents x 200,000 / Hours Worked

0

Right of Way Acquisition

25%

RW Acquisition Milestones:

1) 25% RW Maps, Legal Desriptions, and RW Plans (01/2022)
2) 50% Submit written offer(s) to property owners (05/2022)

All Clay County Bonded Projects | 1. CR 218 | 2. CR 209 Group 2 | 3. CR 209 Group 1 | 4. Sandridge Rd | 5. CR 220 | 6A. FCC Group 2 | 6B. FCC DB.

6A. County Road 315 from Maryland Ave to US 17 - Group 2

Safety:
CEI RIR

Project:
Total Cost

Preliminary Engineering (WGI)

100%

Preliminary Engineering Milestones:

1) 25% Survey (12/2020)
2) 50% Environmental (11/2020)
3) 75% Pond Site Reports (04/2021)

Engineering Design (Jacobs)

30%

Engineering Design Milestones:

1) 30% Plans (03/2022)
2) 60% Plans (06/2022)
3) 90% Plans (GMP) (09/2022)
4) Release for

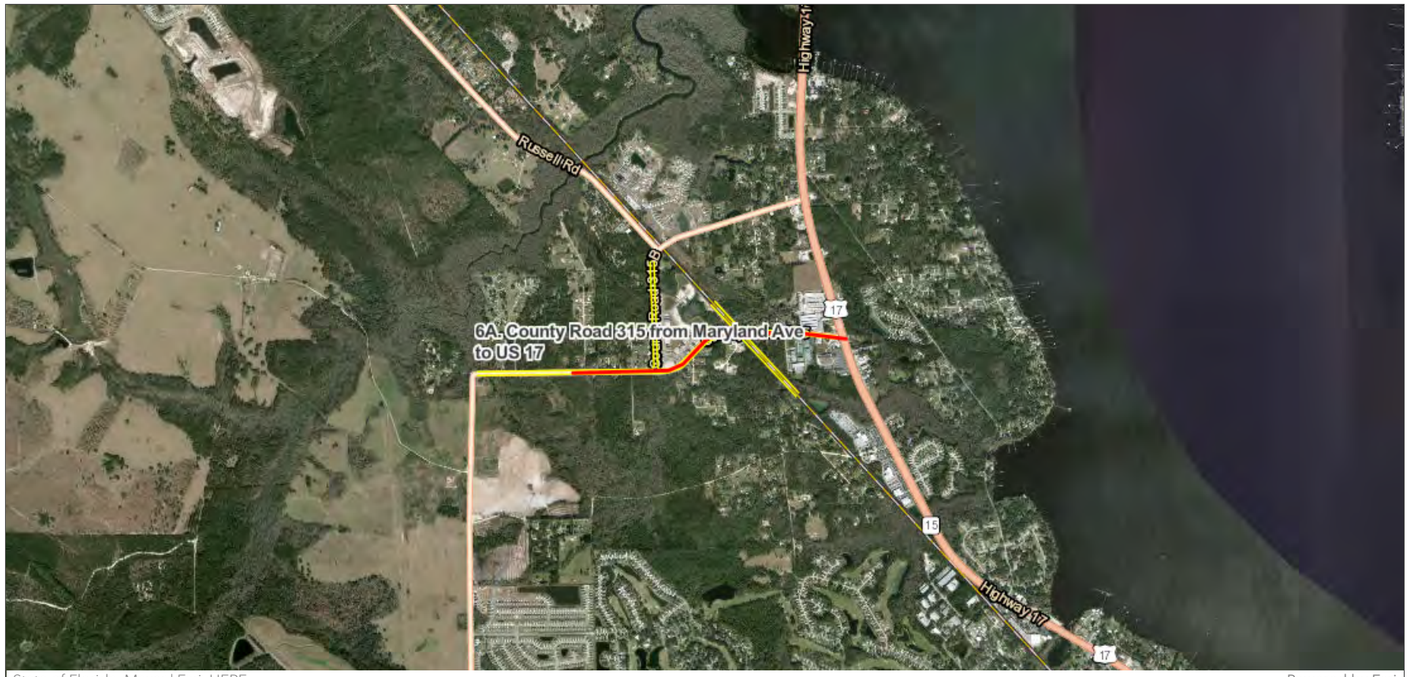
Construction (Superior)

0%

Construction Milestones:

1) 25% Mobilize & Clearing and Grubbing Complete (01/2023)
2) 50% Drainage and Ponds Complete

Tentative Construction Date - Fall 2022



State of Florida, Maxar | Esri, HERE — Powered by Esri

Project Status Report

Commissioner /District	Project Description	Project Limits	Length	# Lanes	Lane Mileage	WGI Project Manager	Contractor/Designer	Typical Sectio

Total Cost

Safety - Recordable Incident Rate (RIR)

RIR = # Incidents x 200,000 / Hours Worked

0

Right of Way Acquisition

0%

RW Acquisition Milestones:

1) 25% RW Maps, Legal Desriptions, and RW Plans (05/2022)
2) 50% Submit written offer(s) to

All Clay County Bonded Projects | 1. CR 218 | 2. CR 209 Group 2 | 3. CR 209 Group 1 | 4. Sandridge Rd | 5. CR 220 | 6A. FCC Group 2 | 6B. FCC DB.

6B. First Coast Connector from SR 23 to the Intersection of CR 315 and Maryland Ave - DB

Safety: CEI RIR

Project: Total Cost

Preliminary Engineering (WGI)

90%

Preliminary Engineering Milestones:

1) 30% Survey (05/2021)
2) 90% Conceptual (09/2021)
3) 100% Permit (4/2022)

Engineering Design

0%

Engineering Design Milestones:

1) 90% Construction Plans (08/2022)
2) 100% Release for Construction (11/2022)

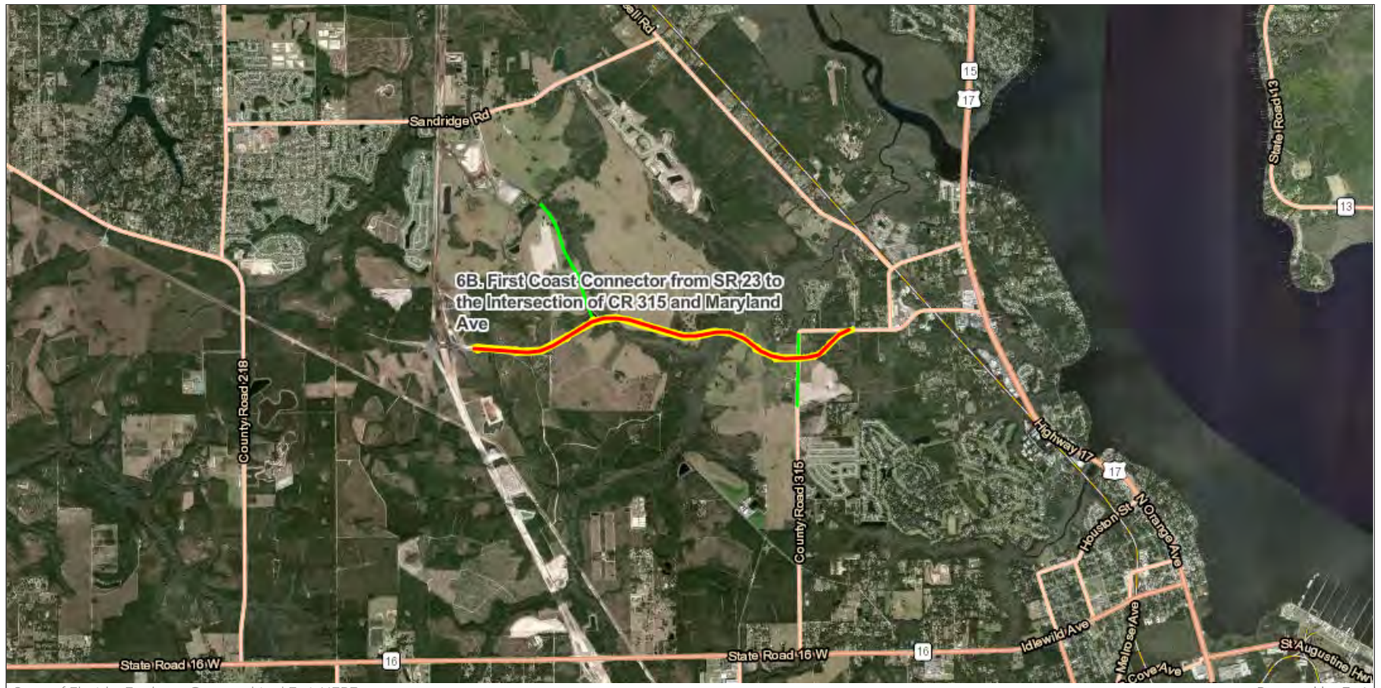
Construction

0%

Construction Milestones:

1) 25% Mobilize & Clearing and Grubbing Complete (12/2022)
2) 50% Drainage and Ponds Complete

Tentative Construction Date - Fall 2022



Project Status Report

Commissioner /District	Project Description	Project Limits	Length	# Lanes	Lane Mileage	WGI Project Manager	Contractor/Designer	Typical Se

6B. FCC (New)

Safety - Recordable Incident Rate (RIR)

RIR = # Incidents x 200,000 / Hours Worked

0

Temporary Construction Easements (TCE)

0%

TCE Milestones:

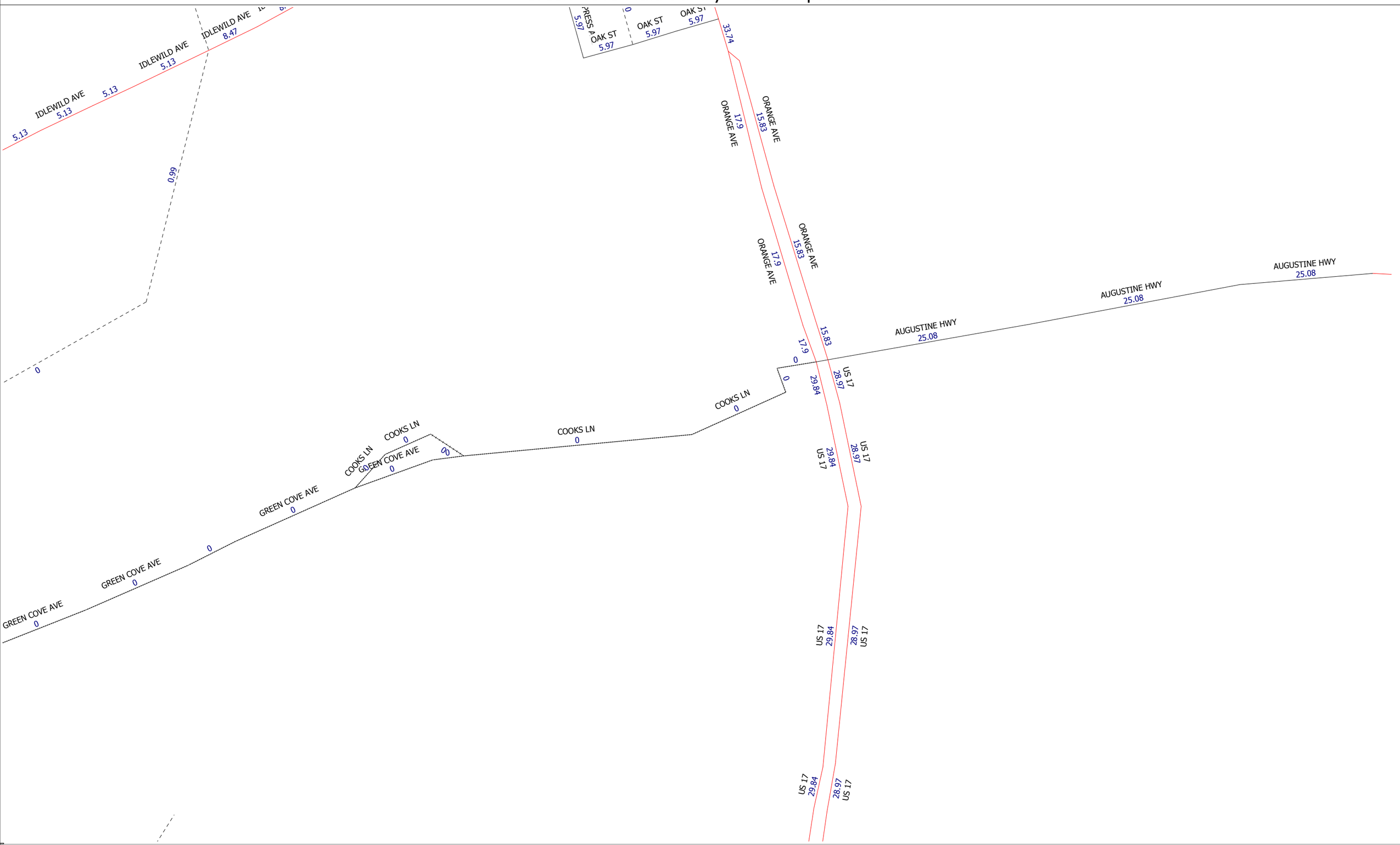
1) Submit written offers to property oweners (05/2021)
2) Settlement on TCE (08/2021)
3) County acquisition of property (01/2022)

Attachment D

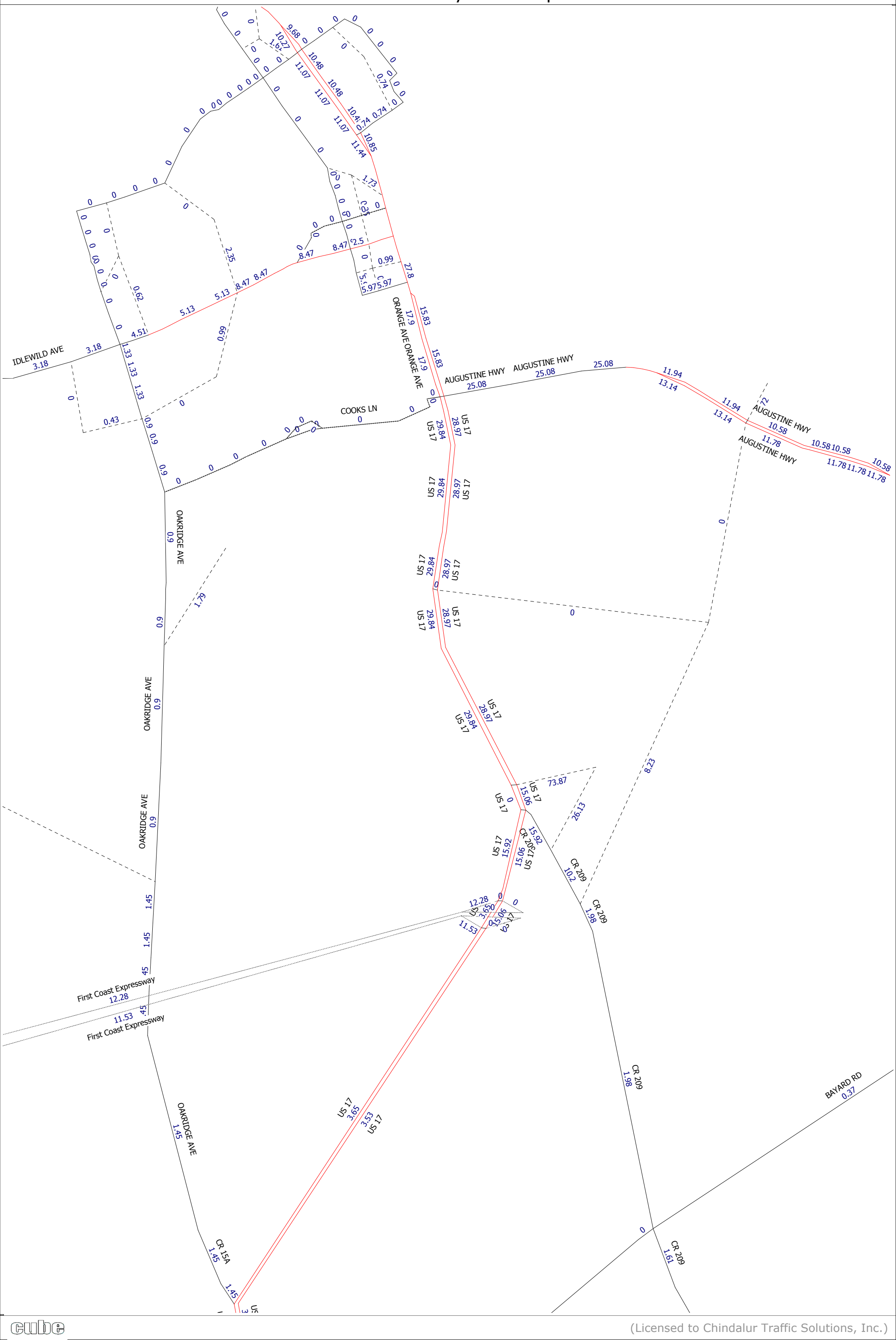
Travel Demand Model Plots

2025 Project Traffic Distribution
Green Cove Multi-Family - US-17 Apartments

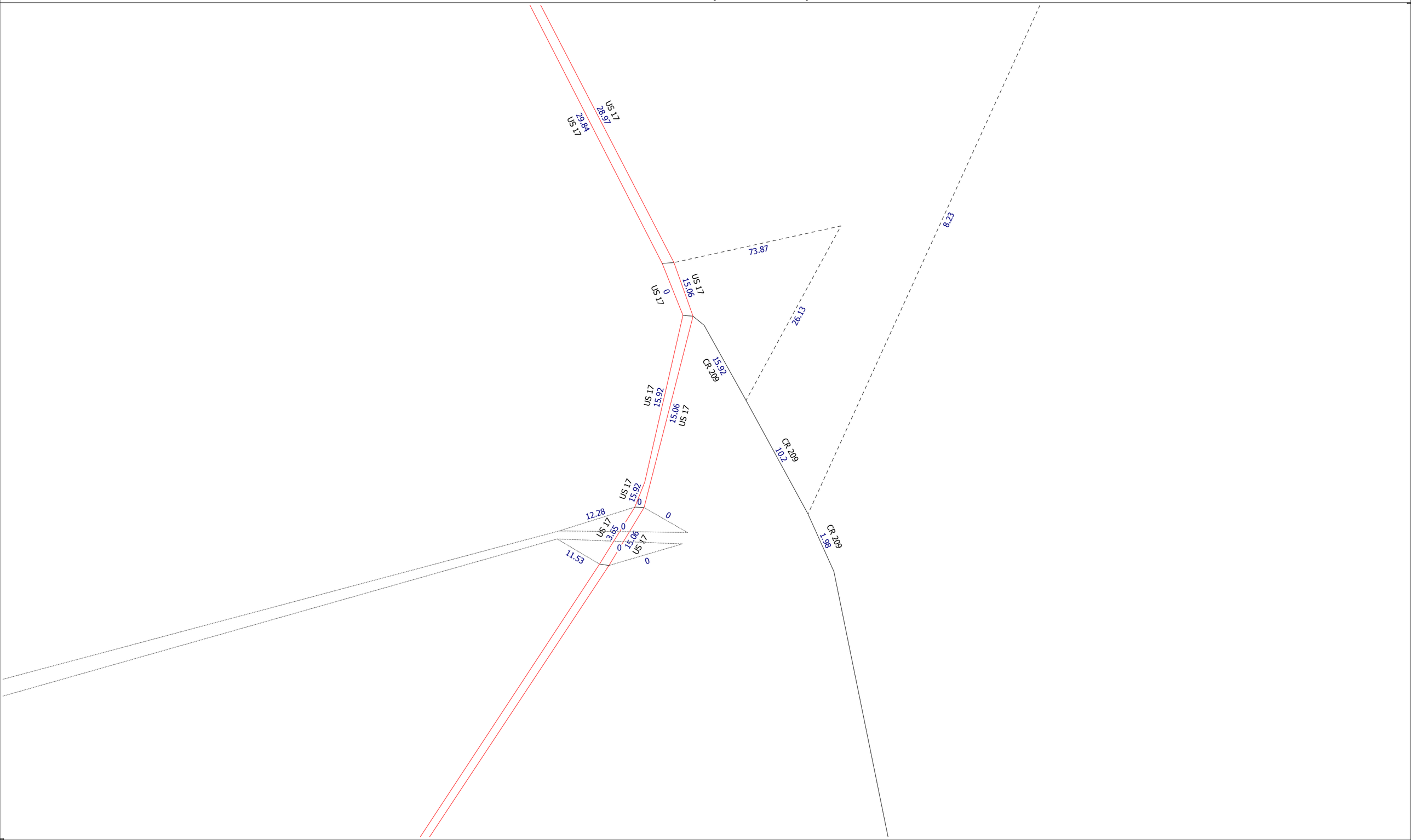
2025 Project Traffic Distribution
Green Cove Multi-Family - US-17 Apartments



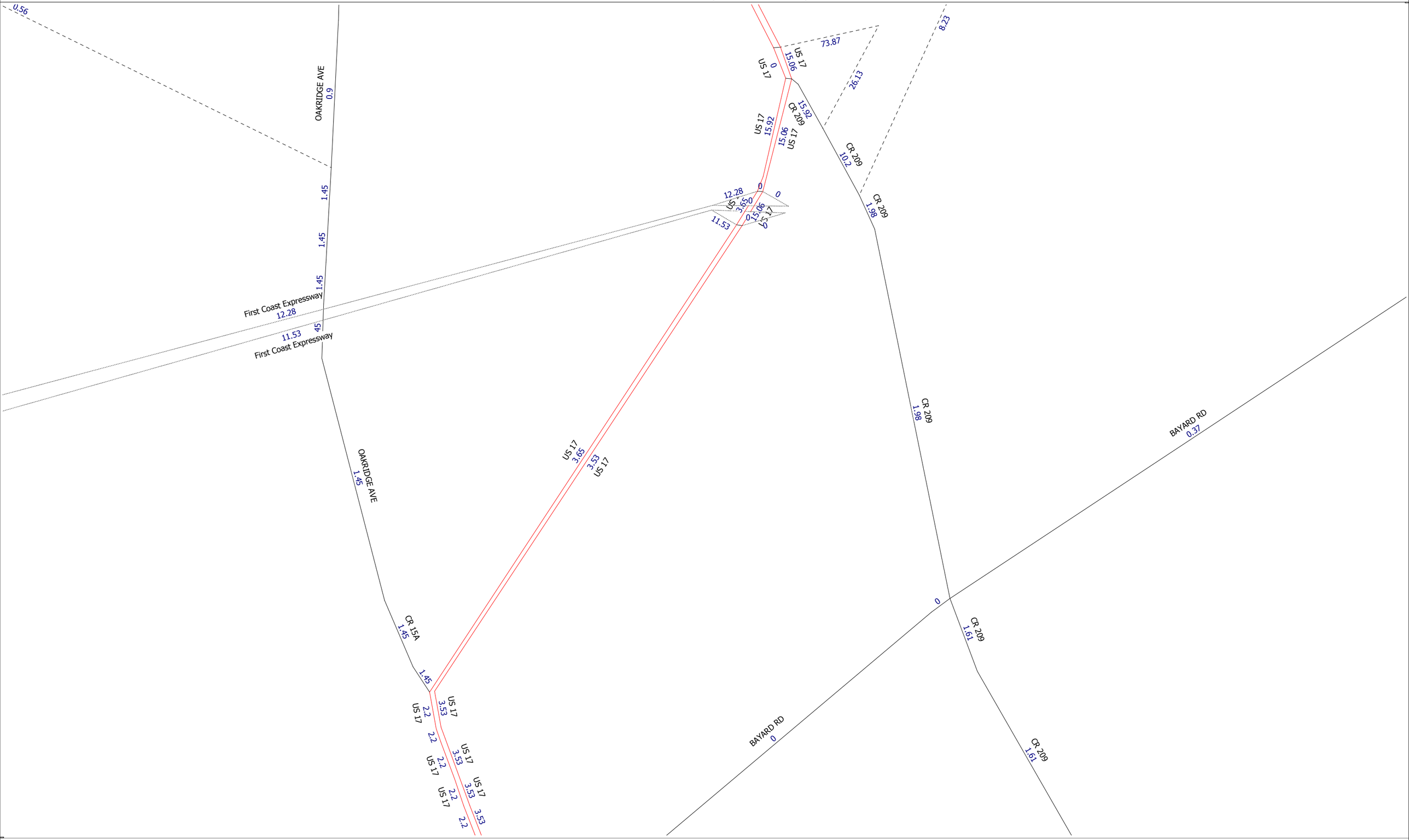
2025 Project Traffic Distribution
Green Cove Multi-Family - US-17 Apartments



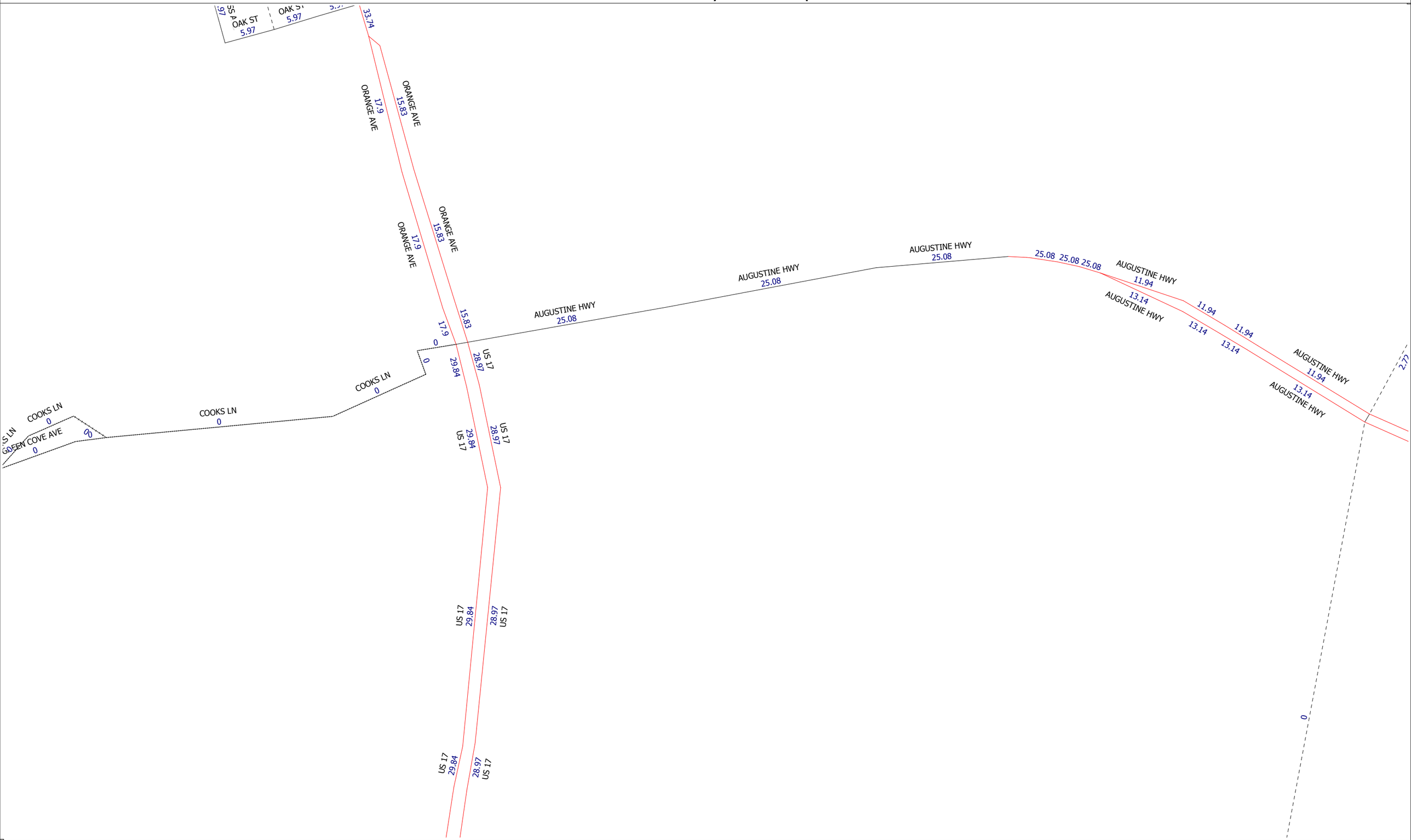
2025 Project Traffic Distribution
Green Cove Multi-Family - US-17 Apartments



2025 Project Traffic Distribution
Green Cove Multi-Family - US-17 Apartments



2025 Project Traffic Distribution
Green Cove Multi-Family - US-17 Apartments



Attachment E

Historical AADT and Trends
Analysis Plots

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 9115 - GREEN COVE AVE. .1 MI. W. OF US 17

YEAR	AADT	DIRECTION 1		DIRECTION 2		*K FACTOR	D FACTOR	T FACTOR
2020	1600 C	E	0	W	0	9.00	54.50	1.30
2019	1600 C	E	0	W	0	9.00	54.10	1.30
2018	1300 C	E	0	W	0	9.00	54.20	1.20
2017	1500 C	E	0	W	0	9.00	54.50	1.10
2016	1400 C	E	0	W	0	9.00	54.30	1.70
2015	1300 C	E	0	W	0	9.00	54.50	1.40
2014	1100 C	E		W		9.00	54.50	1.60
2013	1300 S		0		0	9.00	55.10	1.50
2012	1300 F		0		0	9.00	54.60	2.00
2011	1300 C	E	0	W	0	9.00	54.70	1.50

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 9117 - CR 15A .1 MI. N. OF US 17

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	2200 R	0	0	9.50	54.50	1.30
2019	2200 T	0	0	9.50	54.10	1.30
2018	2200 S	0	0	9.50	54.20	1.20
2017	2200 F	0	0	9.50	54.50	1.10
2016	2100 C	N 0	S 0	9.50	54.30	1.70
2015	1700 R	0	0	9.50	54.50	1.40
2014	1700 T			9.50	54.50	1.60
2013	1700 S	0	0	9.50	55.10	1.50
2012	1700 F	0	0	9.50	54.60	2.00
2011	1700 C	N 0	S 0	9.50	54.70	1.50

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 0113 - SR 16 .75 MI. E. OF SR 15

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	17900 C	E 8800	W 9100	9.00	54.50	9.30
2019	17800 C	E 8600	W 9200	9.00	54.10	7.00
2018	18300 C	E 9100	W 9200	9.00	54.20	8.10
2017	18300 C	E 9000	W 9300	9.00	54.50	6.50
2016	16200 C	E 7900	W 8300	9.00	54.30	5.80
2015	14400 C	E 7100	W 7300	9.00	54.50	5.70
2014	14300 C	E 7200	W 7100	9.00	54.50	5.50
2013	13700 C	E 6800	W 6900	9.00	55.10	6.20
2012	12400 C	E 6200	W 6200	9.00	54.60	5.50
2011	12300 C	E 6100	W 6200	9.00	54.70	5.40
2010	13300 C	E 6600	W 6700	9.86	54.07	5.40
2009	14300 C	E 7100	W 7200	9.76	54.11	6.50
2008	15400 C	E 7600	W 7800	9.71	55.26	7.60
2007	15500 C	E 7800	W 7700	9.36	55.25	8.80
2006	16600 C	E 8300	W 8300	9.36	55.56	9.20
2005	16500 C	E 8000	W 8500	9.00	54.20	10.70

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 0151 - SR 16 W. OF SR 15

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	12300 C	E 6300	W 6000	9.00	54.50	11.60
2019	11500 C	E 5800	W 5700	9.00	54.10	10.20
2018	12100 C	E 6200	W 5900	9.00	54.20	9.40
2017	11500 C	E 5900	W 5600	9.00	54.50	7.70
2016	10600 C	E 5400	W 5200	9.00	54.30	10.00
2015	10100 C	E 5100	W 5000	9.00	54.50	7.70
2014	11000 C	E 5700	W 5300	9.00	54.50	8.40
2013	10400 C	E 5300	W 5100	9.00	55.10	8.90
2012	10500 C	E 5400	W 5100	9.00	54.60	7.90
2011	10300 C	E 5200	W 5100	9.00	54.70	8.20
2010	10200 C	E 5100	W 5100	9.86	54.07	7.70
2009	11400 C	E 5700	W 5700	9.76	54.11	8.20
2008	11200 C	E 5700	W 5500	9.71	55.26	10.80
2007	11500 C	E 5800	W 5700	9.36	55.25	12.60
2006	12200 C	E 6200	W 6000	9.36	55.56	14.70
2005	12000 C	E 6200	W 5800	9.00	54.20	5.30

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 0142 - SR 15 .1 MI. N. OF SR 16 TO E.

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	19200 C	N 9700	S 9500	9.00	54.50	21.90
2019	21500 C	N 11000	S 10500	9.00	54.10	18.10
2018	23000 C	N 11500	S 11500	9.00	54.20	11.80
2017	22500 C	N 11000	S 11500	9.00	54.50	9.70
2016	20000 C	N 10000	S 10000	9.00	54.30	10.50
2015	19100 C	N 9700	S 9400	9.00	54.50	11.20
2014	17900 C	N 9000	S 8900	9.00	54.50	10.90
2013	17500 C	N 8800	S 8700	9.00	55.10	12.30
2012	16600 C	N 8400	S 8200	9.00	54.60	11.10
2011	17900 C	N 9200	S 8700	9.00	54.70	11.80
2010	18100 C	N 9200	S 8900	9.86	54.07	11.10
2009	18500 C	N 9300	S 9200	9.76	54.11	10.90
2008	19600 C	N 9900	S 9700	9.71	55.26	13.00
2007	21000 C	N 10500	S 10500	9.36	55.25	12.50
2006	23000 C	N 11500	S 11500	9.36	55.56	14.80
2005	24500 C	N 12500	S 12000	9.00	54.20	5.30

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 5019 - SR 15 200' N. OF NORTH ST.

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	22500 C	N 11500	S 11000	9.00	54.50	6.60
2019	24000 C	N 12500	S 11500	9.00	54.10	5.90
2018	24500 C	N 12500	S 12000	9.00	54.20	5.80
2017	23000 C	N 11500	S 11500	9.00	54.50	5.70
2016	23000 C	N 12000	S 11000	9.00	54.30	5.40
2015	20400 C	N 10500	S 9900	9.00	54.50	5.20
2014	20500 C	N 10500	S 10000	9.00	54.50	5.00
2013	20500 C	N 10500	S 10000	9.00	55.10	5.20
2012	19800 C	N 10000	S 9800	9.00	54.60	5.00
2011	21000 C	N 10500	S 10500	9.00	54.70	5.10
2010	21500 C	N 11000	S 10500	9.86	54.07	5.10
2009	22500 C	N 11500	S 11000	9.76	54.11	5.10
2008	22500 C	N 11500	S 11000	9.71	55.26	6.20
2007	24000 C	N 12000	S 12000	9.36	55.25	6.80
2006	24500 C	N 12500	S 12000	9.36	55.56	7.40
2005	29000 C	N 15000	S 14000	9.00	54.20	7.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 0195 - SR 15 350' S. OF CR 209

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	10900 C	N 5500	S 5400	9.50	54.50	21.90
2019	9000 C	N 4400	S 4600	9.50	54.10	18.10
2018	10500 C	N 5300	S 5200	9.50	54.20	11.80
2017	10500 C	N 5400	S 5100	9.50	54.50	9.70
2016	9800 C	N 5000	S 4800	9.00	54.30	10.50
2015	8800 C	N 4500	S 4300	9.00	54.50	11.20
2014	8300 C	N 4200	S 4100	9.00	54.50	10.90
2013	8400 C	N 4300	S 4100	9.00	55.10	12.30
2012	8200 C	N 4200	S 4000	9.00	54.60	11.10
2011	8400 C	N 4300	S 4100	9.00	54.70	11.80
2010	7900 C	N 3900	S 4000	9.86	54.07	11.10
2009	8100 C	N 4000	S 4100	9.76	54.11	10.90
2008	8500 C	N 4300	S 4200	9.71	55.26	13.00
2007	8900 C	N 4400	S 4500	9.36	55.25	12.50
2006	11600 C	N 5800	S 5800	9.36	55.56	14.80
2005	11900 C	N 6000	S 5900	9.00	54.20	19.60

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 0030 - SR 15 .5 MI N. CLARKES CREEK BRIDGE

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	9700 C	N 4900	S 4800	9.50	54.50	21.90
2019	9900 C	N 5000	S 4900	9.50	54.10	18.10
2018	8400 C	N 4100	S 4300	9.50	54.20	11.80
2017	9700 C	N 5000	S 4700	9.50	54.50	9.70
2016	8800 C	N 4500	S 4300	9.50	54.30	10.50
2015	7400 C	N 3800	S 3600	9.50	54.50	11.20
2014	7600 C	N 4000	S 3600	9.50	54.50	10.90
2013	6400 C	N 3300	S 3100	9.50	55.10	12.30
2012	6700 C	N 3300	S 3400	9.50	54.60	11.10
2011	6800 C	N 3400	S 3400	9.50	54.70	11.80
2010	7000 C	N 3600	S 3400	9.86	54.07	11.10
2009	7700 C	N 3900	S 3800	9.76	54.11	10.90
2008	7700 C	N 3900	S 3800	9.71	55.26	13.00
2007	8400 C	N 4200	S 4200	9.36	55.25	12.50
2006	9100 C	N 4600	S 4500	9.36	55.56	14.80
2005	11800 F	N 6000	S 5800	9.00	54.20	19.60

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 0196 - SR 15/US 17 .3 MI. S. OF SR 16 TO E.

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	15000 C	N 7500	S 7500	9.00	54.50	14.00
2019	14100 C	N 7100	S 7000	9.00	54.10	10.70
2018	14500 C	N 7200	S 7300	9.00	54.20	11.80
2017	13800 C	N 6900	S 6900	9.00	54.50	9.70
2016	12900 C	N 6500	S 6400	9.00	54.30	10.50
2015	11600 C	N 5800	S 5800	9.00	54.50	11.20
2014	11100 C	N 5600	S 5500	9.00	54.50	10.90
2013	11200 C	N 5700	S 5500	9.00	55.10	12.30
2012	11400 C	N 5800	S 5600	9.00	54.60	11.10
2011	11400 C	N 5700	S 5700	9.00	54.70	11.80
2010	11600 C	N 5800	S 5800	9.86	54.07	11.10
2009	11800 C	N 5900	S 5900	9.76	54.11	10.90
2008	12400 C	N 6700	S 5700	9.71	55.26	13.00
2007	13500 C	N 6800	S 6700	9.36	55.25	12.50
2006	14400 C	N 7200	S 7200	9.36	55.56	14.80
2005	15700 C	N 7600	S 8100	9.00	54.20	14.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 71 - CLAY

SITE: 5016 - SR 15 100' SE. OF SR 16

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	19400 C	N 9900	S 9500	9.00	54.50	21.90
2019	20000 C	N 10500	S 9500	9.00	54.10	18.10
2018	20500 C	N 10500	S 10000	9.00	54.20	11.80
2017	21500 C	N 10500	S 11000	9.00	54.50	9.70
2016	21000 C	N 10500	S 10500	9.00	54.30	10.50
2015	18400 C	N 9000	S 9400	9.00	54.50	11.20
2014	18800 C	N 9300	S 9500	9.00	54.50	10.90
2013	17900 C	N 9100	S 8800	9.00	55.10	12.30
2012	17300 C	N 8800	S 8500	9.00	54.60	11.10
2011	17300 C	N 8800	S 8500	9.00	54.70	11.80
2010	18000 C	N 9100	S 8900	9.86	54.07	11.10
2009	18500 C	N 9400	S 9100	9.76	54.11	10.90
2008	20500 C	N 10500	S 10000	9.71	55.26	13.00
2007	21000 C	N 10500	S 10500	9.36	55.25	12.50
2006	23000 C	N 11500	S 11500	9.36	55.56	14.80
2005	25000 C	N 12500	S 12500	9.00	54.20	5.30

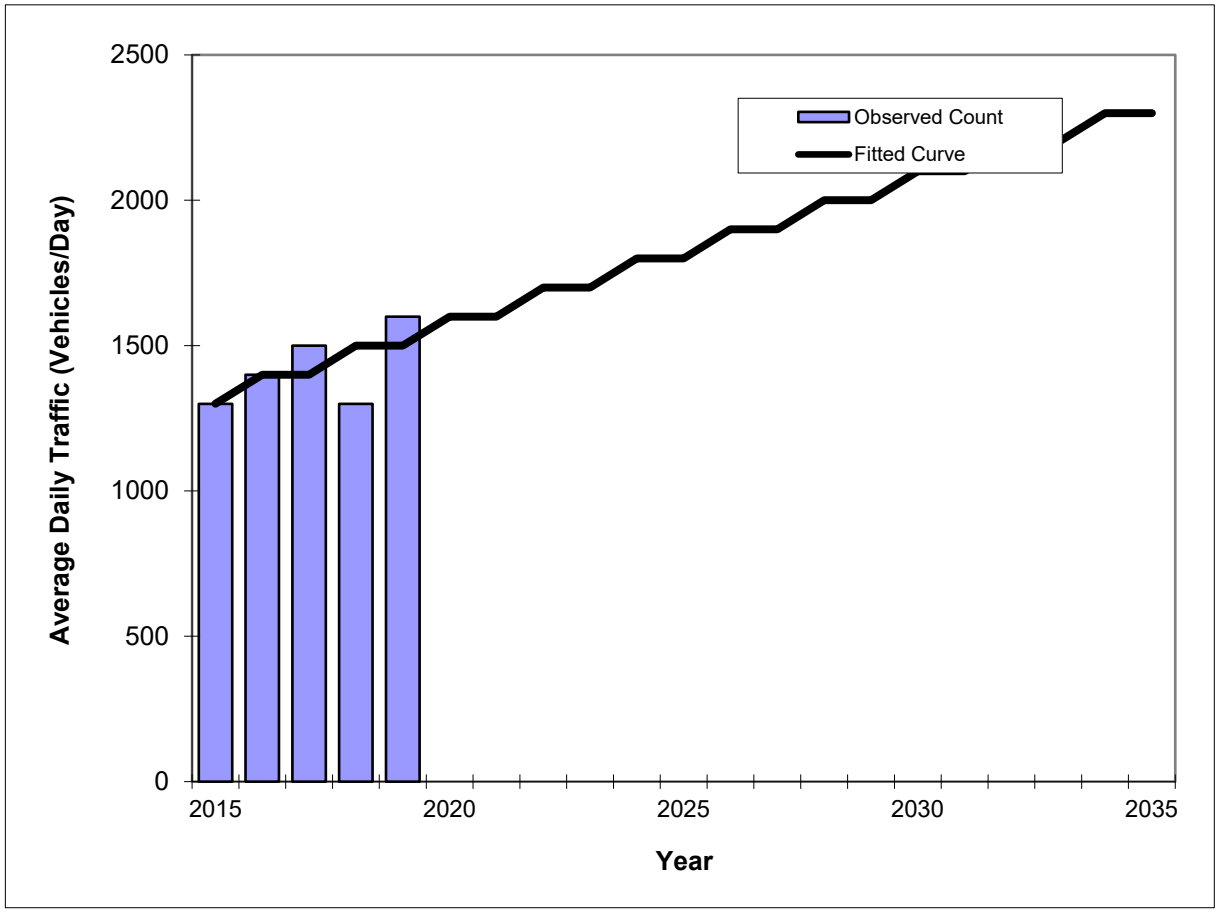
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V03.a

GREEN COVE AVE -- West of US 17

FIN#	220-016
Location	1

County:	Clay (71)
Station #:	0
Highway:	GREEN COVE AVE



Year	Traffic (ADT/AADT) Count*	Trend**
2015	1300	1300
2016	1400	1400
2017	1500	1400
2018	1300	1500
2019	1600	1500
2022 Opening Year Trend		
2022	N/A	1700
2025 Mid-Year Trend		
2025	N/A	1800
2027 Design Year Trend		
2027	N/A	1900
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	50
Trend R-squared:	36.76%
Trend Annual Historic Growth Rate:	3.85%
Trend Growth Rate (2019 to Design Year):	3.33%
Printed:	9-May-22

Straight Line Growth Option

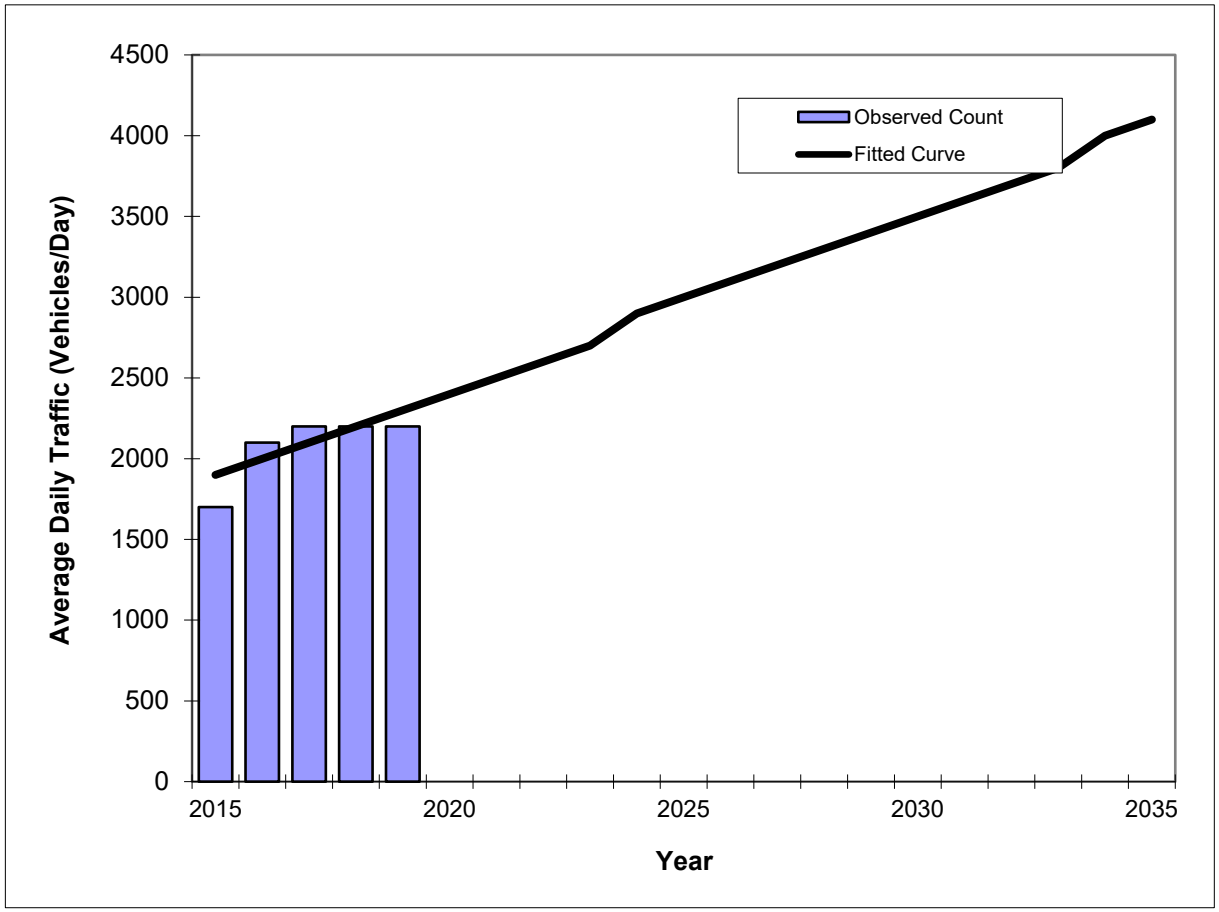
*Axle-Adjusted

Traffic Trends - V03.a

OAK RIDGE AVENUE -- West of US 17

FIN#	220-016
Location	1

County:	Clay (71)
Station #:	0
Highway:	OAK RIDGE AVENUE



Year	Traffic (ADT/AADT) Count*	Trend**
2015	1700	1900
2016	2100	2000
2017	2200	2100
2018	2200	2200
2019	2200	2300
2022 Opening Year Trend		
2022	N/A	2600
2025 Mid-Year Trend		
2025	N/A	3000
2027 Design Year Trend		
2027	N/A	3200
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	110
Trend R-squared:	64.36%
Trend Annual Historic Growth Rate:	5.26%
Trend Growth Rate (2019 to Design Year):	4.89%
Printed:	9-May-22

Straight Line Growth Option

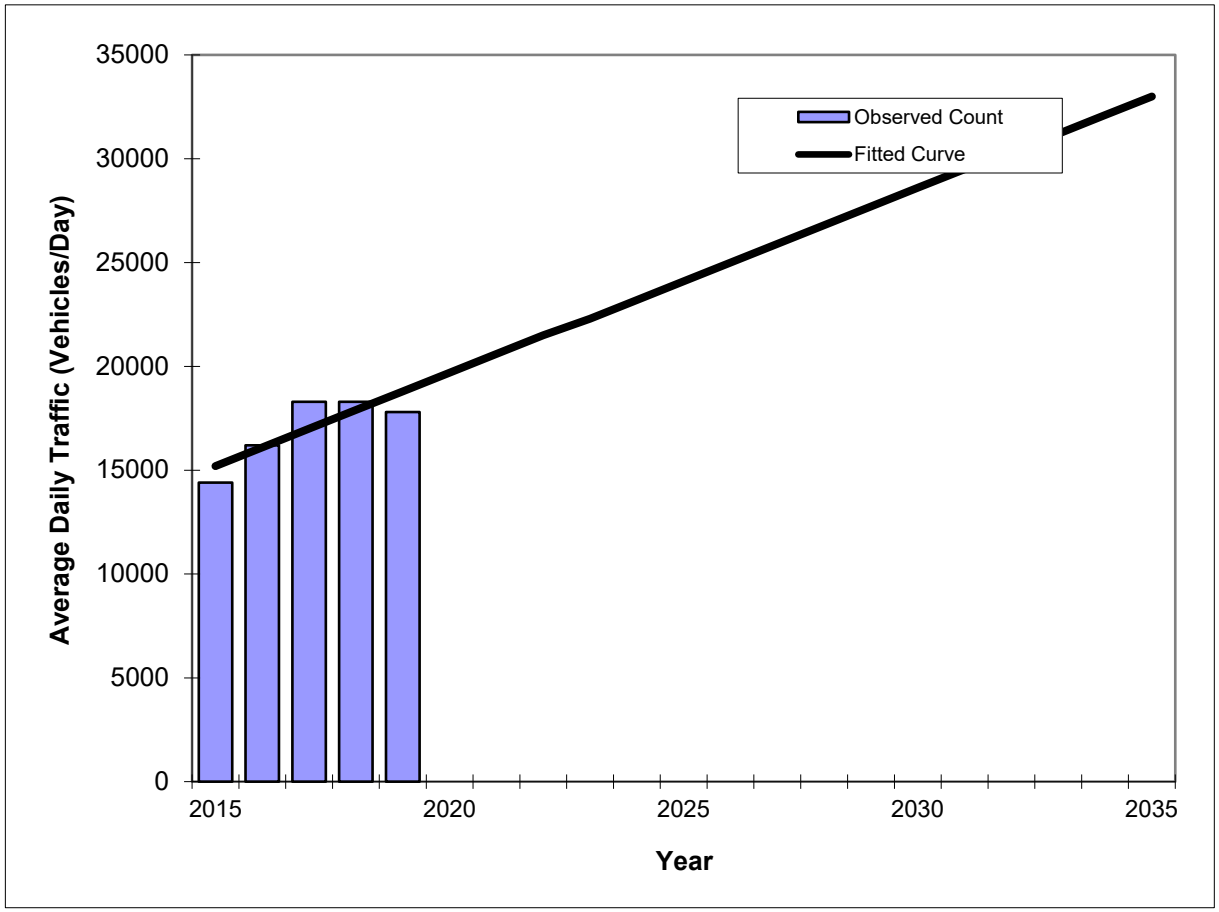
*Axle-Adjusted

Traffic Trends - V03.a

SR 16 East -- East of US 17

FIN#	220-016
Location	1

County:	Clay (71)
Station #:	0
Highway:	SR 16 East



Year	Traffic (ADT/AADT) Count*	Trend**
2015	14400	15200
2016	16200	16100
2017	18300	17000
2018	18300	17900
2019	17800	18800
2022 Opening Year Trend		
2022	N/A	21500
2025 Mid-Year Trend		
2025	N/A	24100
2027 Design Year Trend		
2027	N/A	25900
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	890
Trend R-squared:	69.36%
Trend Annual Historic Growth Rate:	5.92%
Trend Growth Rate (2019 to Design Year):	4.72%
Printed:	9-May-22

Straight Line Growth Option

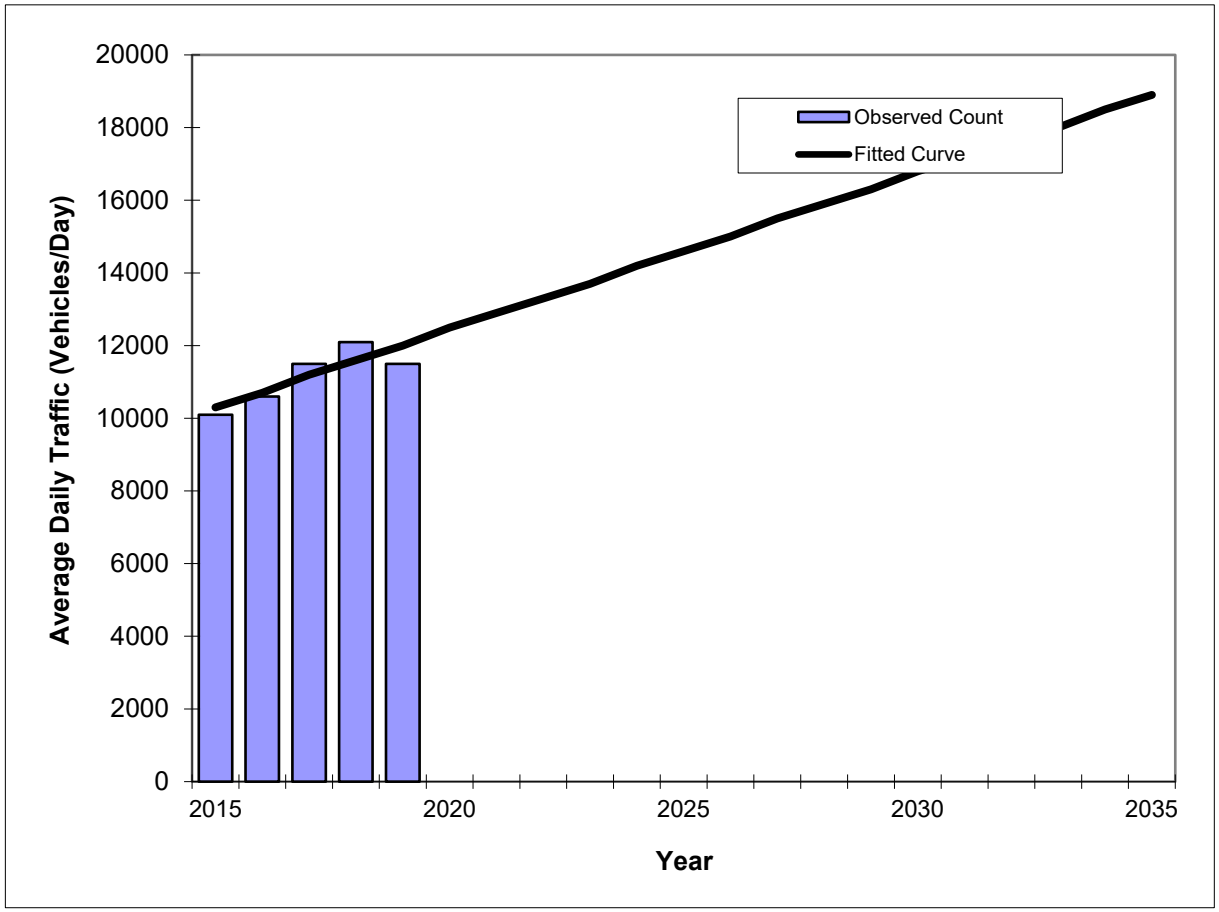
***Axle-Adjusted**

Traffic Trends - V03.a

SR 16 West -- Oak Ridge Avenue to US 17

FIN#	220-016
Location	1

County:	Clay (71)
Station #:	0
Highway:	SR 16 West



Year	Traffic (ADT/AADT) Count*	Trend**
2015	10100	10300
2016	10600	10700
2017	11500	11200
2018	12100	11600
2019	11500	12000
2022 Opening Year Trend		
2022	N/A	13300
2025 Mid-Year Trend		
2025	N/A	14600
2027 Design Year Trend		
2027	N/A	15500
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	430
Trend R-squared:	72.45%
Trend Annual Historic Growth Rate:	4.13%
Trend Growth Rate (2019 to Design Year):	3.65%
Printed:	9-May-22

Straight Line Growth Option

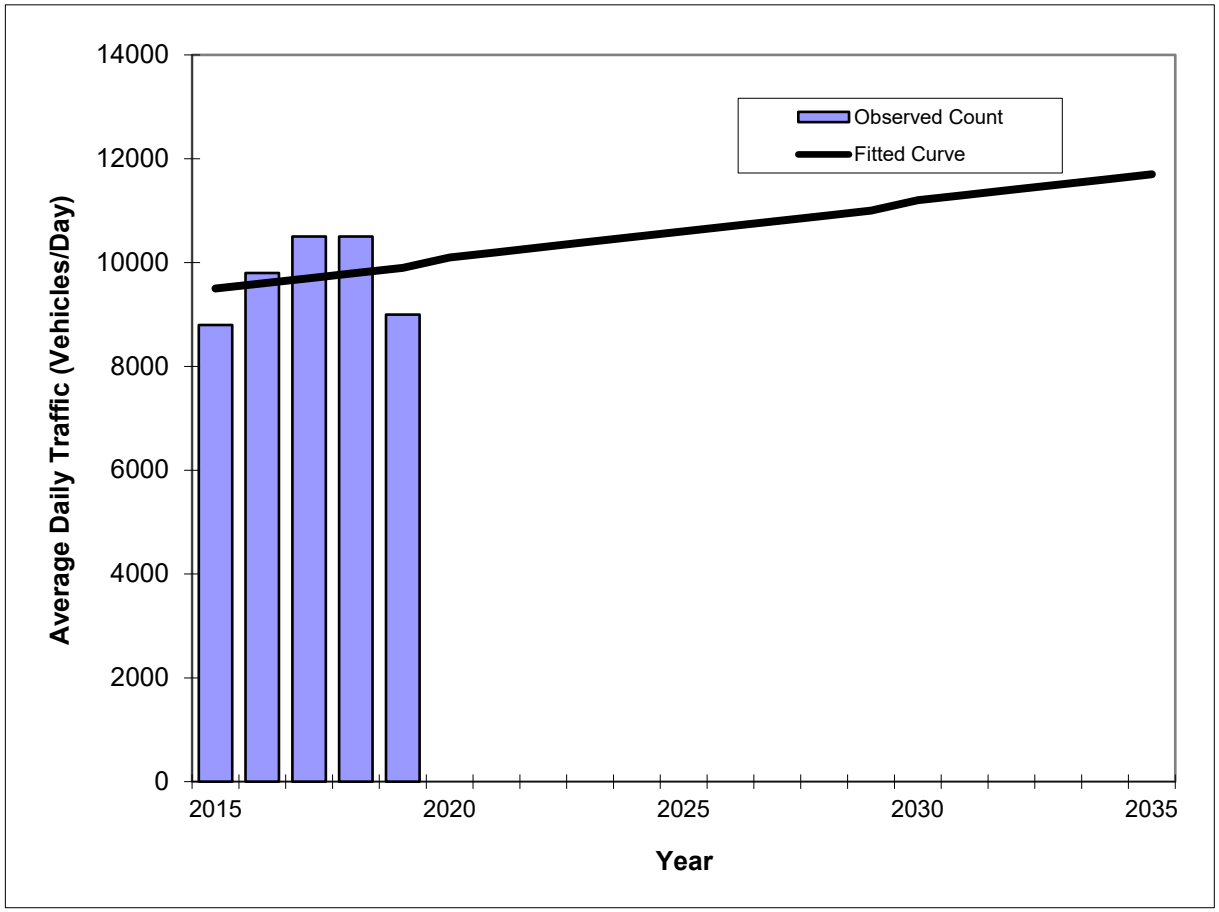
***Axle-Adjusted**

Traffic Trends - V03.a

US 17 -- CR 209 to Oak Ridge Avenue

FIN#	220-016
Location	1

County:	Clay (71)
Station #:	0
Highway:	US 17



Year	Traffic (ADT/AADT) Count*	Trend**
2015	8800	9500
2016	9800	9600
2017	10500	9700
2018	10500	9800
2019	9000	9900
2022 Opening Year Trend		
2022	N/A	10300
2025 Mid-Year Trend		
2025	N/A	10600
2027 Design Year Trend		
2027	N/A	10800
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	110
Trend R-squared:	4.68%
Trend Annual Historic Growth Rate:	1.05%
Trend Growth Rate (2019 to Design Year):	1.14%
Printed:	9-May-22

Straight Line Growth Option

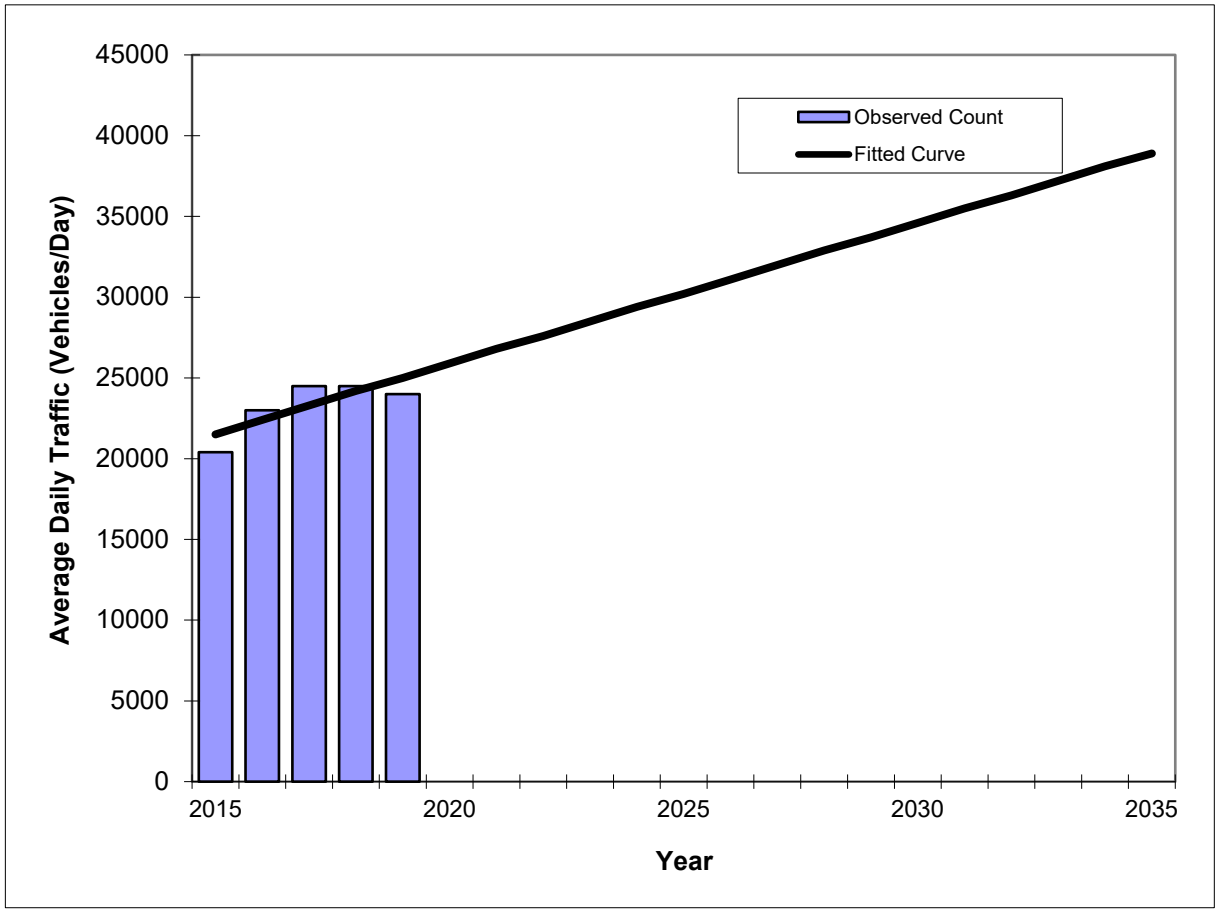
***Axle-Adjusted**

Traffic Trends - V03.a

US 17 -- North of SR 16 West

FIN#	220-016
Location	1

County:	Clay (71)
Station #:	0
Highway:	US 17



Year	Traffic (ADT/AADT) Count*	Trend**
2015	20400	21500
2016	23000	22400
2017	24500	23300
2018	24500	24200
2019	24000	25000
2022 Opening Year Trend		
2022	N/A	27600
2025 Mid-Year Trend		
2025	N/A	30200
2027 Design Year Trend		
2027	N/A	32000
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	870
Trend R-squared:	63.78%
Trend Annual Historic Growth Rate:	4.07%
Trend Growth Rate (2019 to Design Year):	3.50%
Printed:	9-May-22

Straight Line Growth Option

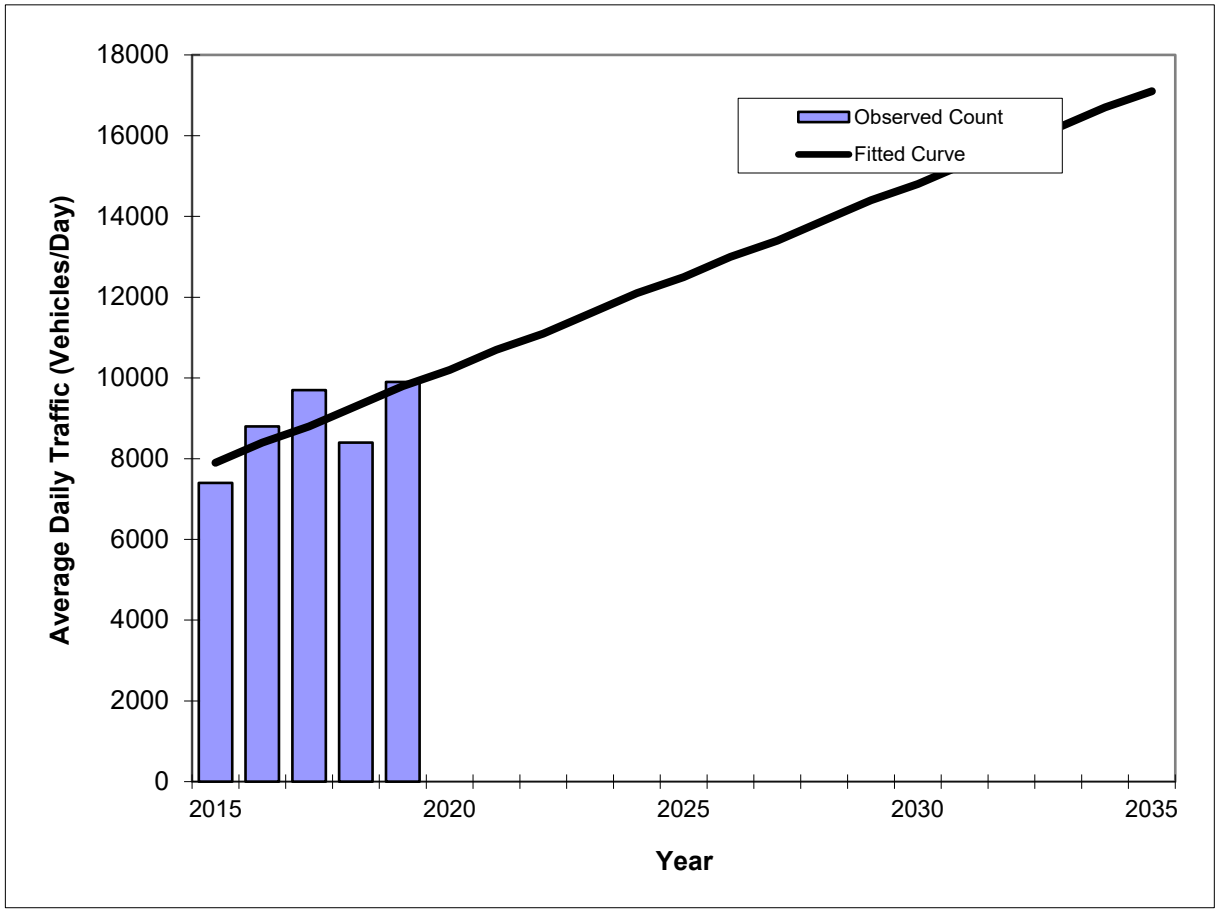
***Axle-Adjusted**

Traffic Trends - V03.a

US 17 -- South of Oak Ridge Avenue

FIN#	220-016
Location	1

County:	Clay (71)
Station #:	0
Highway:	US 17



Year	Traffic (ADT/AADT) Count*	Trend**
2015	7400	7900
2016	8800	8400
2017	9700	8800
2018	8400	9300
2019	9900	9800
2022 Opening Year Trend		
2022	N/A	11100
2025 Mid-Year Trend		
2025	N/A	12500
2027 Design Year Trend		
2027	N/A	13400
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	460
Trend R-squared:	51.21%
Trend Annual Historic Growth Rate:	6.01%
Trend Growth Rate (2019 to Design Year):	4.59%
Printed:	9-May-22

Straight Line Growth Option

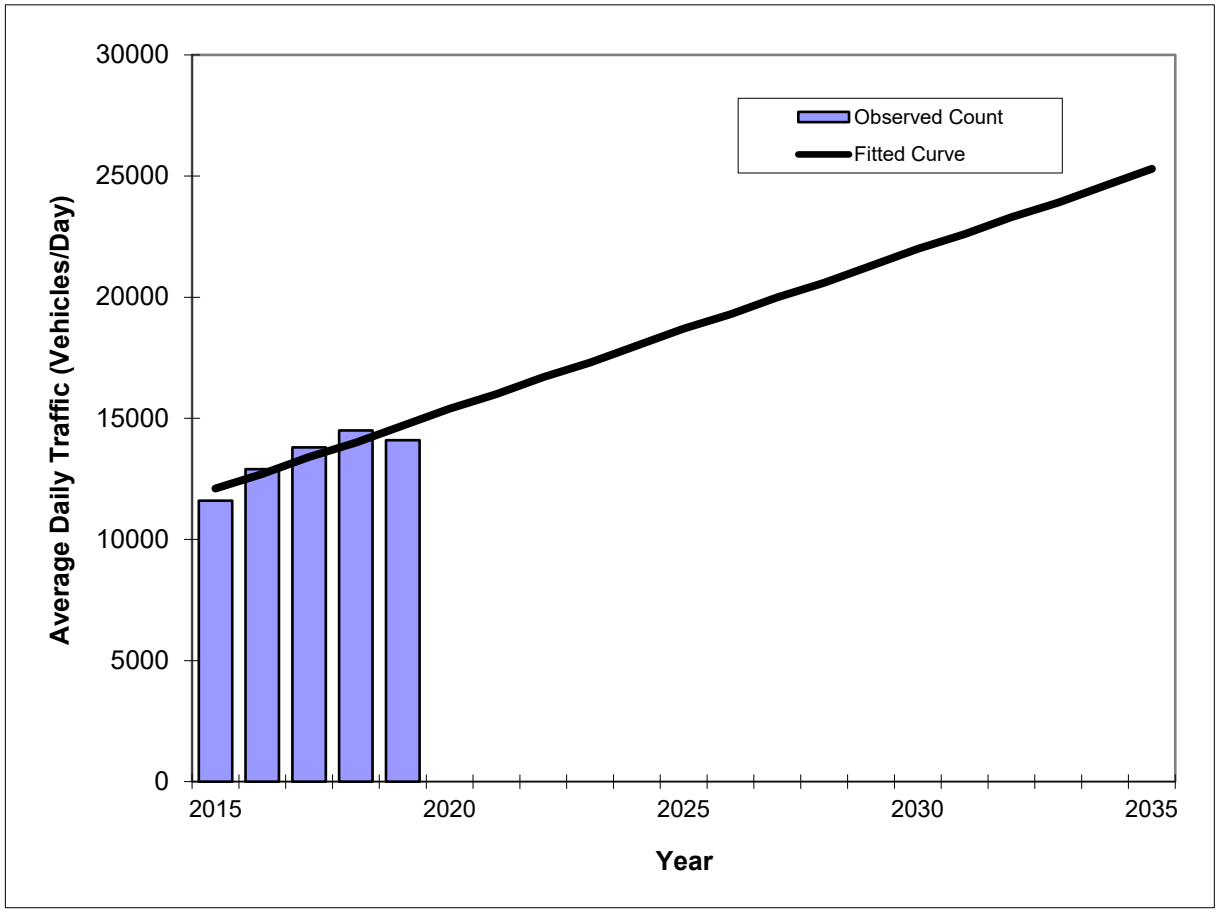
***Axle-Adjusted**

Traffic Trends - V03.a

US 17 -- SR 16 East to CR 209

FIN#	220-016
Location	1

County:	Clay (71)
Station #:	0
Highway:	US 17



Year	Traffic (ADT/AADT) Count*	Trend**
2015	11600	12100
2016	12900	12700
2017	13800	13400
2018	14500	14000
2019	14100	14700
2022 Opening Year Trend		
2022	N/A	16700
2025 Mid-Year Trend		
2025	N/A	18700
2027 Design Year Trend		
2027	N/A	20000
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	660
Trend R-squared:	81.45%
Trend Annual Historic Growth Rate:	5.37%
Trend Growth Rate (2019 to Design Year):	4.51%
Printed:	9-May-22

Straight Line Growth Option

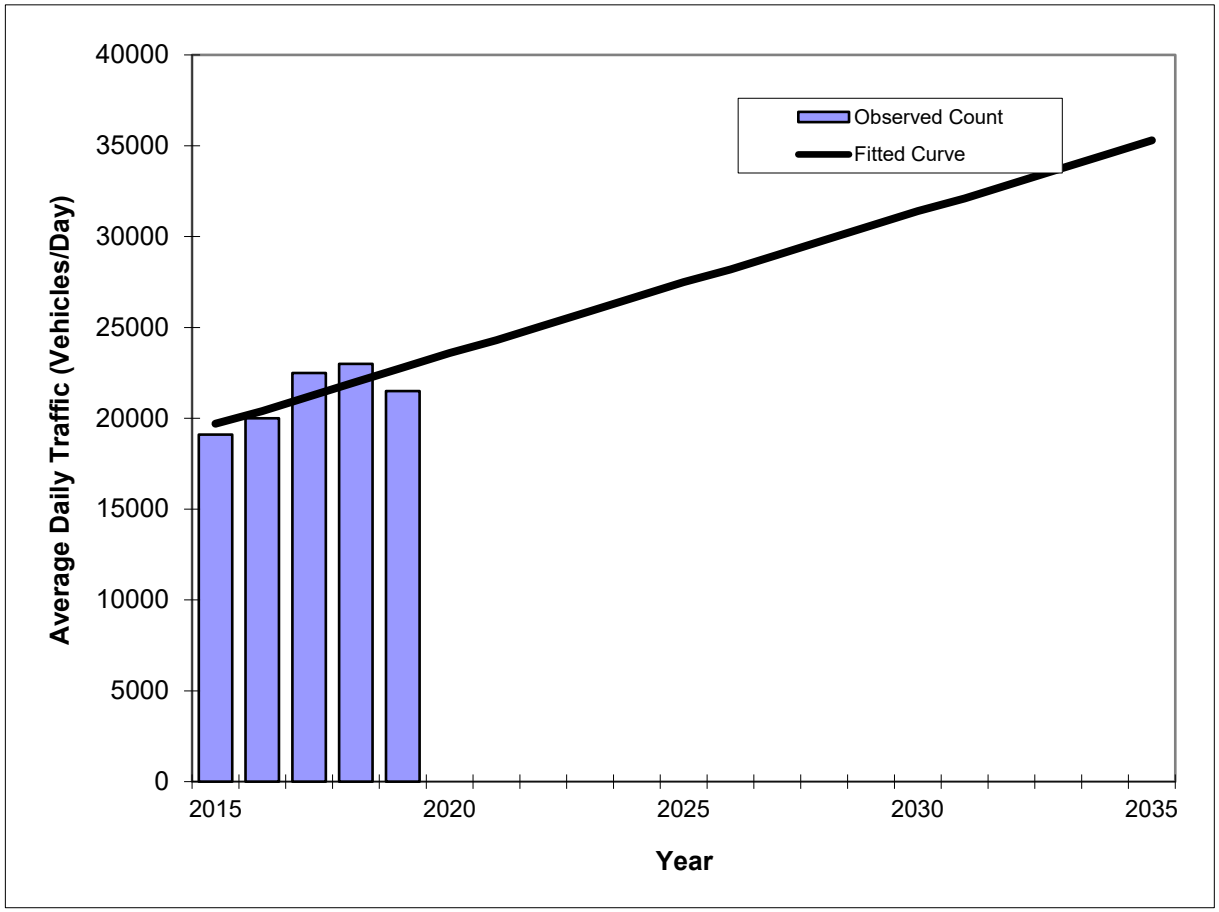
***Axle-Adjusted**

Traffic Trends - V03.a

US 17 -- SR 16 West to SR 16 East

FIN#	220-016
Location	1

County:	Clay (71)
Station #:	0
Highway:	US 17



Year	Traffic (ADT/AADT) Count*	Trend**
2015	19100	19700
2016	20000	20400
2017	22500	21200
2018	23000	22000
2019	21500	22800
2022 Opening Year Trend		
2022	N/A	25100
2025 Mid-Year Trend		
2025	N/A	27500
2027 Design Year Trend		
2027	N/A	29000
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	780
Trend R-squared:	55.98%
Trend Annual Historic Growth Rate:	3.93%
Trend Growth Rate (2019 to Design Year):	3.40%
Printed:	9-May-22

Straight Line Growth Option

***Axle-Adjusted**

Attachment F

Traffic Counts Data and FDOT Season Factors

2020 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 7100 CLAY COUNTYWIDE

MOCF: 0.97

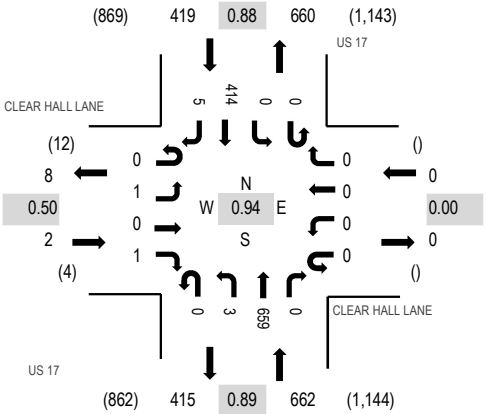
WEEK	DATES	SF	PSCF
1	01/01/2020 - 01/04/2020	0.99	1.02
2	01/05/2020 - 01/11/2020	0.98	1.01
3	01/12/2020 - 01/18/2020	0.96	0.99
4	01/19/2020 - 01/25/2020	0.95	0.98
5	01/26/2020 - 02/01/2020	0.94	0.97
6	02/02/2020 - 02/08/2020	0.93	0.96
7	02/09/2020 - 02/15/2020	0.93	0.96
8	02/16/2020 - 02/22/2020	0.95	0.98
9	02/23/2020 - 02/29/2020	0.97	1.00
10	03/01/2020 - 03/07/2020	0.99	1.02
11	03/08/2020 - 03/14/2020	1.01	1.04
12	03/15/2020 - 03/21/2020	1.04	1.07
13	03/22/2020 - 03/28/2020	1.11	1.14
14	03/29/2020 - 04/04/2020	1.19	1.23
15	04/05/2020 - 04/11/2020	1.27	1.31
16	04/12/2020 - 04/18/2020	1.34	1.38
17	04/19/2020 - 04/25/2020	1.26	1.30
18	04/26/2020 - 05/02/2020	1.19	1.23
19	05/03/2020 - 05/09/2020	1.11	1.14
20	05/10/2020 - 05/16/2020	1.03	1.06
21	05/17/2020 - 05/23/2020	1.02	1.05
22	05/24/2020 - 05/30/2020	1.01	1.04
23	05/31/2020 - 06/06/2020	0.99	1.02
24	06/07/2020 - 06/13/2020	0.98	1.01
25	06/14/2020 - 06/20/2020	0.97	1.00
26	06/21/2020 - 06/27/2020	0.98	1.01
27	06/28/2020 - 07/04/2020	0.98	1.01
28	07/05/2020 - 07/11/2020	0.99	1.02
29	07/12/2020 - 07/18/2020	1.00	1.03
30	07/19/2020 - 07/25/2020	1.00	1.03
31	07/26/2020 - 08/01/2020	1.00	1.03
32	08/02/2020 - 08/08/2020	1.00	1.03
33	08/09/2020 - 08/15/2020	1.00	1.03
34	08/16/2020 - 08/22/2020	1.00	1.03
35	08/23/2020 - 08/29/2020	0.99	1.02
36	08/30/2020 - 09/05/2020	0.99	1.02
37	09/06/2020 - 09/12/2020	0.99	1.02
38	09/13/2020 - 09/19/2020	0.98	1.01
39	09/20/2020 - 09/26/2020	0.98	1.01
40	09/27/2020 - 10/03/2020	0.97	1.00
*41	10/04/2020 - 10/10/2020	0.96	0.99
*42	10/11/2020 - 10/17/2020	0.95	0.98
*43	10/18/2020 - 10/24/2020	0.96	0.99
*44	10/25/2020 - 10/31/2020	0.96	0.99
*45	11/01/2020 - 11/07/2020	0.97	1.00
*46	11/08/2020 - 11/14/2020	0.98	1.01
*47	11/15/2020 - 11/21/2020	0.98	1.01
*48	11/22/2020 - 11/28/2020	0.98	1.01
*49	11/29/2020 - 12/05/2020	0.99	1.02
*50	12/06/2020 - 12/12/2020	0.99	1.02
*51	12/13/2020 - 12/19/2020	0.99	1.02
*52	12/20/2020 - 12/26/2020	0.98	1.01
*53	12/27/2020 - 12/31/2020	0.96	0.99

* PEAK SEASON

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

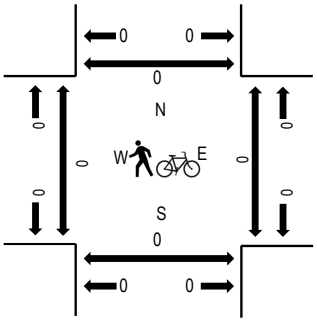
Location: 1 US 17 & CLEAR HALL LANE AM
Date: Tuesday, April 26, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	CLEAR HALL LANE Eastbound				CLEAR HALL LANE Westbound				US 17 Northbound				US 17 Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	0	0	0	0	0	185	0	0	0	103	0	288	1,083	0	0	0	0
7:15 AM	0	0	0	1	0	0	0	0	0	2	165	0	0	0	98	1	267	1,047	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	151	0	0	0	106	2	260	1,001	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	158	0	0	0	107	2	268	976	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	122	0	0	0	130	0	252	934	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0	1	107	0	0	0	111	1	221		0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	134	0	0	0	100	0	235		0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	118	0	0	0	106	2	226		0	0	0	0

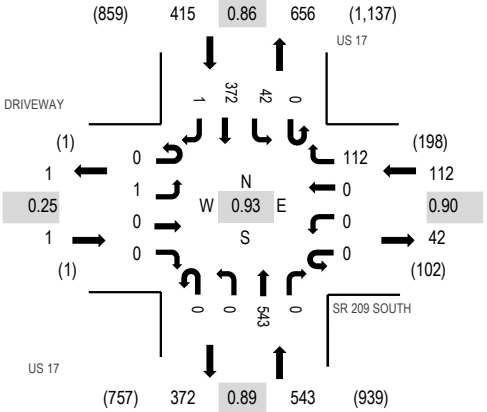
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	0	0	0	0	0	0	0	0	42	0	0	0	36	0	79
Lights	0	0	0	1	0	0	0	0	0	3	581	0	0	0	352	4	941
Mediums	0	0	0	0	0	0	0	0	0	0	36	0	0	0	26	1	63
Total	0	1	0	1	0	0	0	0	0	3	659	0	0	0	414	5	1,083

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

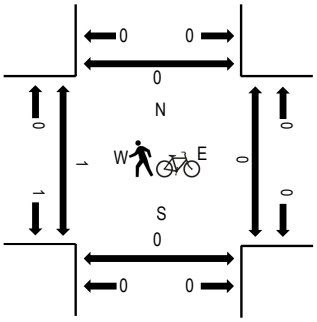
Location: 2 US 17 & SR 209 SOUTH AM
Date: Tuesday, April 26, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	DRIVEWAY Eastbound				SR 209 SOUTH Westbound				US 17 Northbound				US 17 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	0	0	0	0	0	30	0	0	153	0	0	12	93	0	288	1,071	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	24	0	0	139	0	0	9	90	1	264	1,034	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	31	0	0	120	0	0	4	102	0	257	989	1	0	0	0
7:45 AM	0	0	0	0	0	0	0	27	0	0	131	0	0	17	87	0	262	965	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	22	0	0	98	0	0	15	116	0	251	926	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	23	0	0	85	2	1	14	94	0	219		0	0	0	0
8:30 AM	0	0	0	0	0	0	0	24	0	0	110	0	0	12	87	0	233		0	0	0	0
8:45 AM	0	0	0	0	0	0	0	17	0	0	101	0	0	17	88	0	223		0	0	0	0

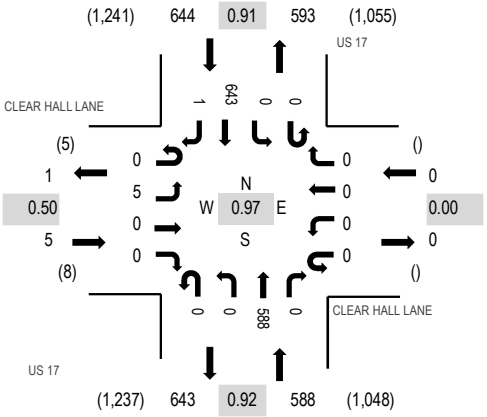
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	39	0	0	3	30	0	72
Lights	0	1	0	0	0	0	0	108	0	0	465	0	0	36	316	1	927
Mediums	0	0	0	0	0	0	0	4	0	0	39	0	0	3	26	0	72
Total	0	1	0	0	0	0	0	112	0	0	543	0	0	42	372	1	1,071

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

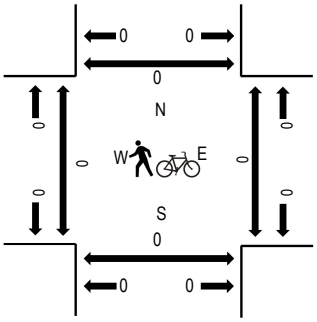
Location: 1 US 17 & CLEAR HALL LANE PM
Date: Tuesday, April 26, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	CLEAR HALL LANE Eastbound				CLEAR HALL LANE Westbound				US 17 Northbound				US 17 Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	0	0	0	0	0	112	0	1	0	163	1	277	1,160	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	102	0	0	0	141	1	245	1,195	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	160	0	0	0	158	0	319	1,237	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	141	0	0	0	177	0	319	1,173	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	151	0	0	0	161	0	312	1,137	0	0	0	0
5:15 PM	0	3	0	0	0	0	0	0	0	0	136	0	0	0	147	1	287		0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	1	108	0	0	0	145	0	255		0	0	0	0
5:45 PM	0	2	0	0	0	0	0	0	0	0	136	0	0	0	145	0	283		0	0	0	0

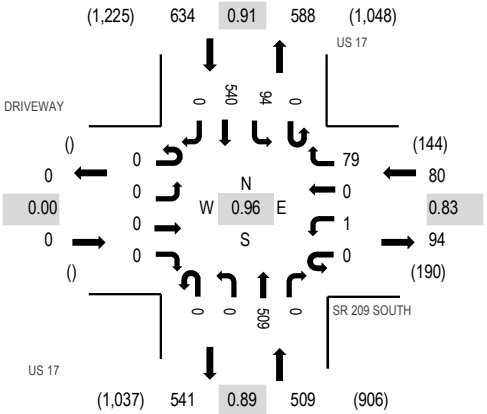
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	13	0	0	0	11	0	24
Lights	0	5	0	0	0	0	0	0	0	0	557	0	0	0	611	0	1,173
Mediums	0	0	0	0	0	0	0	0	0	0	18	0	0	0	21	1	40
Total	0	5	0	0	0	0	0	0	0	0	588	0	0	0	643	1	1,237

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

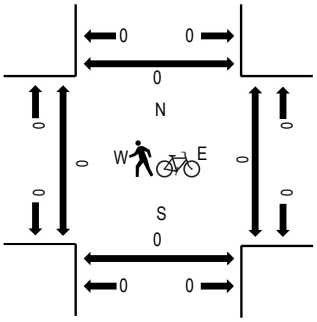
Location: 2 US 17 & SR 209 SOUTH PM
Date: Tuesday, April 26, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	DRIVEWAY Eastbound				SR 209 SOUTH Westbound				US 17 Northbound				US 17 Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	1	0	22	0	0	89	0	0	23	133	0	268	1,151	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	15	0	0	90	0	0	31	112	0	249	1,187	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	16	0	0	143	0	0	16	139	0	314	1,223	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	19	0	0	125	0	0	33	142	0	320	1,163	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	20	0	0	127	0	0	22	135	0	304	1,124	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	24	0	0	114	0	0	23	124	0	285		0	0	0	0
5:30 PM	0	0	0	0	0	0	0	10	0	0	96	0	1	18	129	0	254		0	0	0	0
5:45 PM	0	0	0	0	0	0	0	15	0	0	122	0	0	24	120	0	281		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	11	0	0	0	12	0	23
Lights	0	0	0	0	0	1	0	77	0	0	481	0	0	92	510	0	1,161
Mediums	0	0	0	0	0	0	0	2	0	0	17	0	0	2	18	0	39
Total	0	0	0	0	0	1	0	79	0	0	509	0	0	94	540	0	1,223

Attachment G

Right Turn Lane Criteria and Guidance

Chapter 6: Turn Lanes and U-Turns

6.1 Overview

For driveways, medians and median openings, the placement and design of turn lanes and U-turns are critical to avoid potential traffic safety issues. For example, a median opening placed across a left-turn lane at an intersection could create conditions leading to a vehicular crash (See ***Figure 16*** or ***Figure 17***). The locating of these roadway openings is discussed in greater detail in ***Locating Roadway Openings***. This chapter will instead focus on where to locate and design turn lanes and U-turns and how they relate to driveways, medians and median openings.

6.2 Exclusive Right-Turn Lanes

Exclusive right-turn lanes are useful where a combination of high roadway speeds, and high right-turn volumes into a driveway are expected. Congestion on the roadway may also be a good reason to use an exclusive right-turn lane. If properly built, they remove the turning vehicle from the through lanes, thereby decreasing the operational and safety impact of right turning vehicles on the through traffic.

Previous requirements in Standard Index 301 were removed and placed into FDM 212 – Intersections. There is no specific guidance on warrants for right-turn lanes based on number of turns in and out of unsignalized driveways, but the guidelines in this chapter were developed to assist in the decision-making process. *FDM 212* does contain the standards needed to design right-turn lanes.

6.2.1 When to Consider Exclusive Right-Turn Lanes

Here are some additional situations when adding an exclusive right-turn lane may be required:

- Facilities having a high volume of buses, trucks or trailers (2 or 3 per hour)
- Poor internal site design of a driveway facility causing potential backups in the through lanes
- Heavier than normal peak flows on the main roadway
- Very high operating speeds (such as 55 mph or above) and in rural locations where turns are not expected by through drivers
- Highways with curves or hills where sight distance is impacted
- Gated entrances
- Crash experience, especially rear end collisions
- Intersections or driveways just after signalized intersections where acceleration or driver expectancy would make a separate right-turn lane desirable
- Severe skewed angle of intersection requiring right-turn vehicle to slow greatly

When Not to Consider Exclusive Right-Turn Lanes

- Dense or built-out corridors with limited space
- Right-turn lane that would negatively impact pedestrians or bicyclists
- Vehicular movements from driveways or median openings that cross the right-turn lane resulting in multiple threat crashes
- Context classifications C2T, C4, C5, or C6

When Exclusive Right-Turn Lanes are Beneficial

There are instances when adding an exclusive right-turn lane for unsignalized driveways are beneficial to traffic operations and safety. ***Table 27*** provides some guidance for this situation based on the speed limit of the roadway and how many right turns occur per hour. Locations where the Auto and Truck Modal Emphasis is "High" may be appropriate for consideration of Exclusive Right Turn Lanes.

Table 27 – Recommended Guidelines for Exclusive Right-Turn Lanes to Unsignalized Driveway[10]

Roadway Posted Speed Limit	Number of Right Turns Per Hour
45 mph or less	80 – 125[1]
Over 45 mph	35 – 55[2]
Note: A posted speed limit of 45 mph may be used with these thresholds if the operating speeds are known to be over 45 mph during the time of peak right turn demand.	
Note on traffic projections: Projecting turning volumes is, at best, a knowledgeable estimate. Keep this in mind especially if the projections of right turns are close to meeting the guidelines. In that case, consider requiring the turn lane.	
[1] The lower threshold of 80 right-turn vehicles per hour would be most used for higher volume (greater than 600 vehicles per hour, per lane in one direction on the major roadway) or two-lane roads where lateral movement is restricted. The 125 right-turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with a large entry radius (50 feet or greater).	
[2] The lower threshold of 35 right-turn vehicles per hour would be most appropriately used on higher volume two-lane roadways where lateral movement is restricted. The 55 right-turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with large entry radius (50 feet or greater).	

Source: *NCHRP Report 420 (Impacts of Access Management Techniques)*

These recommendations are primarily based on the research done in NCHRP Report 420, Impacts of Access Management Techniques, Chapter 4 – Unsignalized Access Spacing (Technique 1B), and Use of Speed Differential as a Measure to Evaluate the Need for Right-Turn Deceleration Lane at Unsignalized Intersections.

In the *NCHRP Report 420*, the observed high-speed roads, 30 to 40 right-turn vehicles per hour caused evasive maneuvers on 5 - 10 percent of the following through vehicles. For lower speed roadways, 80 to 110 right-turn vehicles caused 15 - 20 percent of the following through vehicles to make evasive maneuvers. The choice of acceptable percentages of through vehicles impacted is a decision based on reasonable expectations of the different roadways.

In this study, by modeling speed differentials, a better understanding of the impacts of through volume and driveway radius was discovered.

[10] May not be appropriate for signalized locations where signal phasing plays an important role in determining the need for right turn lanes.

6.2.2 Exclusive Right-Turn Lane Design

For information on exclusive right-turn lane design, refer to FDM 212 Intersections and Standard Plans, Index 711-001. The FDM states that "Right-turn lane tapers and lengths are identical to left turn lanes under stop control conditions. Right-turn lane tapers and lengths are site-specific for free-flow or yield conditions." Sheet 11 of Standard Plans, Index 711-001 provides requirements for clearance distance, brake to stop distance and deceleration distance by design speed for both curbed and uncurbed roadways. ***Section 3.4.2*** provides discussion on the various parameters used in turn lane design such as decision distance, stopping distance etc.

6.2.3 Important Considerations

Right-Turns and Large Vehicles

The speed and the volume of right-turns should not be the only criteria used to determine the requirement for an exclusive right-turn lane at unsignalized intersections. To minimize the rear-end collision potential of some situations, a right-turn lane may be required where large and slow-moving vehicles need to turn right such as;

- Trucking facilities (or locations that have a high volume of large vehicle traffic such as water ports, train stations, etc.)
- Recreational facilities attracting boats, trailers and other large recreation vehicles
- Transit facilities
- Schools driveways to drop-off and pick-up areas

Right-Turn Channelization

Where right turn exiting channelization is used, be careful to provide a traffic entry angle that is easy for the exiting driver to negotiate while trying to enter traffic. ***Figure 62*** illustrates how driver head turn angles between 120°-125° (Tighter Angle) are more comfortable than the 145°-150° (Wide Angle) associated with more traditional designs. The tighter angle also encourages drivers to slow down, which provides more time for a thorough scan for conflicts.

Attachment H

HCM Worksheets

Attachment H1

Year 2022 Existing Conditions
HCM Worksheets

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	4	784	493	6
Future Vol, veh/h	1	1	4	784	493	6
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	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	89	89	88	88
Heavy Vehicles, %	100	0	0	12	20	15
Mvmt Flow	2	2	4	881	560	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1013	284	567	0	-	0
Stage 1	564	-	-	-	-	-
Stage 2	449	-	-	-	-	-
Critical Hdwy	8.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	7.8	-	-	-	-	-
Critical Hdwy Stg 2	7.8	-	-	-	-	-
Follow-up Hdwy	4.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	119	719	1015	-	-	-
Stage 1	328	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	119	719	1015	-	-	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	327	-	-	-	-	-
Stage 2	395	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1015	-	333	-	-
HCM Lane V/C Ratio	0.004	-	0.012	-	-
HCM Control Delay (s)	8.6	-	15.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	0	0	133	0	646	0	50	443	1
Future Vol, veh/h	1	0	0	0	0	133	0	646	0	50	443	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	325	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	90	90	90	89	89	89	86	86	86
Heavy Vehicles, %	0	0	0	0	0	4	0	14	0	14	15	0
Mvmt Flow	4	0	0	0	0	148	0	726	0	58	515	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	995	1358	258	1100	1358	363	516	0	0	726	0	0
Stage 1	632	632	-	726	726	-	-	-	-	-	-	-
Stage 2	363	726	-	374	632	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.38	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.34	-	-
Pot Cap-1 Maneuver	202	150	747	169	150	628	1060	-	-	798	-	-
Stage 1	440	477	-	387	433	-	-	-	-	-	-	-
Stage 2	634	433	-	624	477	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	146	139	747	160	139	628	1060	-	-	798	-	-
Mov Cap-2 Maneuver	264	248	-	280	263	-	-	-	-	-	-	-
Stage 1	440	442	-	387	433	-	-	-	-	-	-	-
Stage 2	485	433	-	579	442	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.8	12.5	0	1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1060	-	-	264	628	798	-	-
HCM Lane V/C Ratio	-	-	-	0.015	0.235	0.073	-	-
HCM Control Delay (s)	0	-	-	18.8	12.5	9.9	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.9	0.2	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	0	0	700	765	1
Future Vol, veh/h	6	0	0	700	765	1
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	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	0	0	761	832	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1214	417	833	0	-	0
Stage 1	833	-	-	-	-	-
Stage 2	381	-	-	-	-	-
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	174	585	796	-	-	-
Stage 1	387	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	174	585	796	-	-	-
Mov Cap-2 Maneuver	294	-	-	-	-	-
Stage 1	387	-	-	-	-	-
Stage 2	660	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	796	-	294	-	-
HCM Lane V/C Ratio	-	-	0.022	-	-
HCM Control Delay (s)	0	-	17.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	94	0	606	0	112	643	0
Future Vol, veh/h	0	0	0	0	0	94	0	606	0	112	643	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	325	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	102	0	659	0	122	699	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1273	1602	350	1253	1602	330	699	0	0	659	0	0
Stage 1	943	943	-	659	659	-	-	-	-	-	-	-
Stage 2	330	659	-	594	943	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	124	105	646	129	105	666	893	-	-	925	-	-
Stage 1	282	339	-	419	459	-	-	-	-	-	-	-
Stage 2	657	459	-	458	339	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	94	91	646	116	91	666	893	-	-	925	-	-
Mov Cap-2 Maneuver	196	185	-	239	202	-	-	-	-	-	-	-
Stage 1	282	294	-	419	459	-	-	-	-	-	-	-
Stage 2	556	459	-	398	294	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	11.4	0	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	893	-	-	-	666	925	-	-
HCM Lane V/C Ratio	-	-	-	-	0.153	0.132	-	-
HCM Control Delay (s)	0	-	-	0	11.4	9.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.5	0.5	-	-

Attachment H2

Year 2027 Background Conditions
HCM Worksheets

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	5	1019	641	8
Future Vol, veh/h	1	1	5	1019	641	8
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	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	89	89	88	88
Heavy Vehicles, %	100	0	0	12	20	15
Mvmt Flow	2	2	6	1145	728	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1318	369	737	0	-	0
Stage 1	733	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Critical Hdwy	8.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	7.8	-	-	-	-	-
Critical Hdwy Stg 2	7.8	-	-	-	-	-
Follow-up Hdwy	4.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	65	634	878	-	-	-
Stage 1	250	-	-	-	-	-
Stage 2	318	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	65	634	878	-	-	-
Mov Cap-2 Maneuver	156	-	-	-	-	-
Stage 1	248	-	-	-	-	-
Stage 2	318	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	878	-	250	-	-
HCM Lane V/C Ratio	0.006	-	0.016	-	-
HCM Control Delay (s)	9.1	-	19.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	0	0	173	0	840	0	65	576	1
Future Vol, veh/h	1	0	0	0	0	173	0	840	0	65	576	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	325	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	90	90	90	89	89	89	86	86	86
Heavy Vehicles, %	0	0	0	0	0	4	0	14	0	14	15	0
Mvmt Flow	4	0	0	0	0	192	0	944	0	76	670	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1295	1767	336	1431	1767	472	671	0	0	944	0	0
Stage 1	823	823	-	944	944	-	-	-	-	-	-	-
Stage 2	472	944	-	487	823	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	4.38	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.34	-	-
Pot Cap-1 Maneuver	122	85	666	97	85	533	929	-	-	653	-	-
Stage 1	338	391	-	286	344	-	-	-	-	-	-	-
Stage 2	547	344	-	536	391	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	71	75	666	88	75	533	929	-	-	653	-	-
Mov Cap-2 Maneuver	170	171	-	200	192	-	-	-	-	-	-	-
Stage 1	338	346	-	286	344	-	-	-	-	-	-	-
Stage 2	350	344	-	474	346	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.7	15.5	0	1.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	929	-	-	170	533	653	-	-
HCM Lane V/C Ratio	-	-	-	0.024	0.361	0.116	-	-
HCM Control Delay (s)	0	-	-	26.7	15.5	11.2	-	-
HCM Lane LOS	A	-	-	D	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.6	0.4	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	0	0	910	995	1
Future Vol, veh/h	8	0	0	910	995	1
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	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	0	989	1082	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1578	542	1083	0	-	0
Stage 1	1083	-	-	-	-	-
Stage 2	495	-	-	-	-	-
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	100	485	640	-	-	-
Stage 1	286	-	-	-	-	-
Stage 2	578	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	100	485	640	-	-	-
Mov Cap-2 Maneuver	213	-	-	-	-	-
Stage 1	286	-	-	-	-	-
Stage 2	578	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	640	-	213	-	-
HCM Lane V/C Ratio	-	-	0.041	-	-
HCM Control Delay (s)	0	-	22.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	122	0	788	0	146	836	0
Future Vol, veh/h	0	0	0	0	0	122	0	788	0	146	836	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	325	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	133	0	857	0	159	909	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1656	2084	455	1630	2084	429	909	0	0	857	0	0
Stage 1	1227	1227	-	857	857	-	-	-	-	-	-	-
Stage 2	429	857	-	773	1227	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	64	52	552	67	52	574	745	-	-	779	-	-
Stage 1	189	249	-	318	372	-	-	-	-	-	-	-
Stage 2	574	372	-	358	249	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	41	41	552	56	41	574	745	-	-	779	-	-
Mov Cap-2 Maneuver	121	112	-	163	135	-	-	-	-	-	-	-
Stage 1	189	198	-	318	372	-	-	-	-	-	-	-
Stage 2	441	372	-	285	198	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.1	0	1.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	745	-	-	-	574	779	-	-
HCM Lane V/C Ratio	-	-	-	-	0.231	0.204	-	-
HCM Control Delay (s)	0	-	-	0	13.1	10.8	-	-
HCM Lane LOS	A	-	-	A	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.9	0.8	-	-

Attachment H3

Year 2027 Build-Out Conditions
HCM Worksheets

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	1	1	10	5	1071	658	8
Future Vol, veh/h	1	1	10	5	1071	658	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	-	-	0	-	-	-
Veh in Median Storage, #	1	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	50	50	92	89	89	88	88
Heavy Vehicles, %	100	0	2	0	12	20	15
Mvmt Flow	2	2	11	6	1203	748	9

Major/Minor	Minor2		Major1			Major2	
Conflicting Flow All	1389	379	757	757	0	-	0
Stage 1	753	-	-	-	-	-	-
Stage 2	636	-	-	-	-	-	-
Critical Hdwy	8.8	6.9	6.44	4.1	-	-	-
Critical Hdwy Stg 1	7.8	-	-	-	-	-	-
Critical Hdwy Stg 2	7.8	-	-	-	-	-	-
Follow-up Hdwy	4.5	3.3	2.52	2.2	-	-	-
Pot Cap-1 Maneuver	57	625	475	863	-	-	-
Stage 1	242	-	-	-	-	-	-
Stage 2	292	-	-	-	-	-	-
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	55	625	560	560	-	-	-
Mov Cap-2 Maneuver	144	-	-	-	-	-	-
Stage 1	235	-	-	-	-	-	-
Stage 2	292	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.7	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	560	-	234	-	-
HCM Lane V/C Ratio	0.029	-	0.017	-	-
HCM Control Delay (s)	11.6	-	20.7	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	57	0	1029	9	0	669	0
Future Vol, veh/h	0	0	0	0	0	57	0	1029	9	0	669	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	200	-	355	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	12	0	0	20	0
Mvmt Flow	0	0	0	0	0	62	0	1118	10	0	727	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	559	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	409	0	-	-	0	-	0
Stage 1	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	-	-	0	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	-	0	409	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	409	-
HCM Lane V/C Ratio	-	-	0.151	-
HCM Control Delay (s)	-	-	15.4	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	0	0	15	0	178	0	844	4	5	77	586	1
Future Vol, veh/h	1	0	0	15	0	178	0	844	4	5	77	586	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	-	-	-	-	150	-	325	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	25	25	25	90	90	90	89	89	89	92	86	86	86
Heavy Vehicles, %	0	0	0	0	0	4	0	14	0	2	14	15	0
Mvmt Flow	4	0	0	17	0	198	0	948	4	5	90	681	1

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	1346	1824	341	1479	1820	474	682	0	0	948	952	0	0
Stage 1	872	872	-	948	948	-	-	-	-	-	-	-	-
Stage 2	474	952	-	531	872	-	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.98	4.1	-	-	6.44	4.38	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.34	2.2	-	-	2.52	2.34	-	-
Pot Cap-1 Maneuver	112	78	661	89	78	531	920	-	-	359	648	-	-
Stage 1	316	371	-	284	342	-	-	-	-	-	-	-	-
Stage 2	545	341	-	505	371	-	-	-	-	-	-	-	-
Platoon blocked, %								-	-			-	-
Mov Cap-1 Maneuver	62	65	661	78	65	531	920	-	-	590	590	-	-
Mov Cap-2 Maneuver	154	155	-	189	178	-	-	-	-	-	-	-	-
Stage 1	316	311	-	284	342	-	-	-	-	-	-	-	-
Stage 2	342	341	-	424	311	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29	19.1	0	1.5
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	920	-	-	154	466	590	-	-
HCM Lane V/C Ratio	-	-	-	0.026	0.46	0.161	-	-
HCM Control Delay (s)	0	-	-	29	19.1	12.3	-	-
HCM Lane LOS	A	-	-	D	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	2.4	0.6	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	65	173	1	2	20
Future Vol, veh/h	16	65	173	1	2	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	71	188	1	2	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	189	0	-	0	294	189
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	105	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1385	-	-	-	697	853
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	919	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1385	-	-	-	688	853
Mov Cap-2 Maneuver	-	-	-	-	688	-
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	919	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1385	-	-	-	835
HCM Lane V/C Ratio	0.013	-	-	-	0.029
HCM Control Delay (s)	7.6	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	8	0	6	0	943	1051	1
Future Vol, veh/h	8	0	6	0	943	1051	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	-	-	0	-	-	-
Veh in Median Storage, #	1	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	9	0	7	0	1025	1142	1

Major/Minor	Minor2		Major1			Major2	
Conflicting Flow All	1670	572	1143	1143	0	-	0
Stage 1	1143	-	-	-	-	-	-
Stage 2	527	-	-	-	-	-	-
Critical Hdwy	6.84	6.94	6.44	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.52	2.22	-	-	-
Pot Cap-1 Maneuver	87	463	269	607	-	-	-
Stage 1	266	-	-	-	-	-	-
Stage 2	557	-	-	-	-	-	-
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	85	463	269	269	-	-	-
Mov Cap-2 Maneuver	194	-	-	-	-	-	-
Stage 1	259	-	-	-	-	-	-
Stage 2	557	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	269	-	194	-	-
HCM Lane V/C Ratio	0.024	-	0.045	-	-
HCM Control Delay (s)	18.7	-	24.4	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	36	0	913	30	0	1057	0
Future Vol, veh/h	0	0	0	0	0	36	0	913	30	0	1057	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	200	-	355	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	39	0	992	33	0	1149	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	-	-	496	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	444	0	-	-	0	-	0
Stage 1	0	0	-	0	-	-	0	-	0
Stage 2	0	0	-	0	-	-	0	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	-	0	444	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	444	-
HCM Lane V/C Ratio	-	-	0.088	-
HCM Control Delay (s)	-	-	13.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.3	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	0	0	9	0	125	0	801	13	17	185	842	0
Future Vol, veh/h	0	0	0	9	0	125	0	801	13	17	185	842	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	-	-	-	-	150	-	325	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	10	0	136	0	871	14	18	201	915	0

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	1789	2238	458	1767	2224	436	915	0	0	871	885	0	0
Stage 1	1353	1353	-	871	871	-	-	-	-	-	-	-	-
Stage 2	436	885	-	896	1353	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	6.44	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.52	2.22	-	-
Pot Cap-1 Maneuver	51	42	550	53	43	568	741	-	-	402	760	-	-
Stage 1	158	216	-	312	367	-	-	-	-	-	-	-	-
Stage 2	569	361	-	301	216	-	-	-	-	-	-	-	-
Platoon blocked, %								-	-			-	-
Mov Cap-1 Maneuver	29	28	550	40	29	568	741	-	-	679	679	-	-
Mov Cap-2 Maneuver	96	78	-	130	106	-	-	-	-	-	-	-	-
Stage 1	158	146	-	312	367	-	-	-	-	-	-	-	-
Stage 2	433	361	-	203	146	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	16.3	0	2.5
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	741	-	-	-	463	679	-	-
HCM Lane V/C Ratio	-	-	-	-	0.315	0.323	-	-
HCM Control Delay (s)	0	-	-	0	16.3	12.8	-	-
HCM Lane LOS	A	-	-	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	1.3	1.4	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	146	122	2	1	12
Future Vol, veh/h	52	146	122	2	1	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	159	133	2	1	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	135	0	-	0	407	134
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	273	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1449	-	-	-	600	915
Stage 1	-	-	-	-	892	-
Stage 2	-	-	-	-	773	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1449	-	-	-	574	915
Mov Cap-2 Maneuver	-	-	-	-	574	-
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	773	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1449	-	-	-	875
HCM Lane V/C Ratio	0.039	-	-	-	0.016
HCM Control Delay (s)	7.6	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0