Traffic Impact Analysis for

OAKS PRESERVE

April 13th, 2020

Produced for:

The Dautel Group
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Miami Shores, FL 33138

Approved by Traffic Engineer of Record:

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Signature of Engineer of Record:

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DN: cn=Jackeline Vallejo Toledo, P.E., o=Traffic Engineer of Record, State of Florida, Professional Engineer, License No. 64104, ou=NUE Urban Concepts, LLC, email=jackievtoledo@gmail.com, c=US
Date: 2020.04.13 16:26:48 -04'00'

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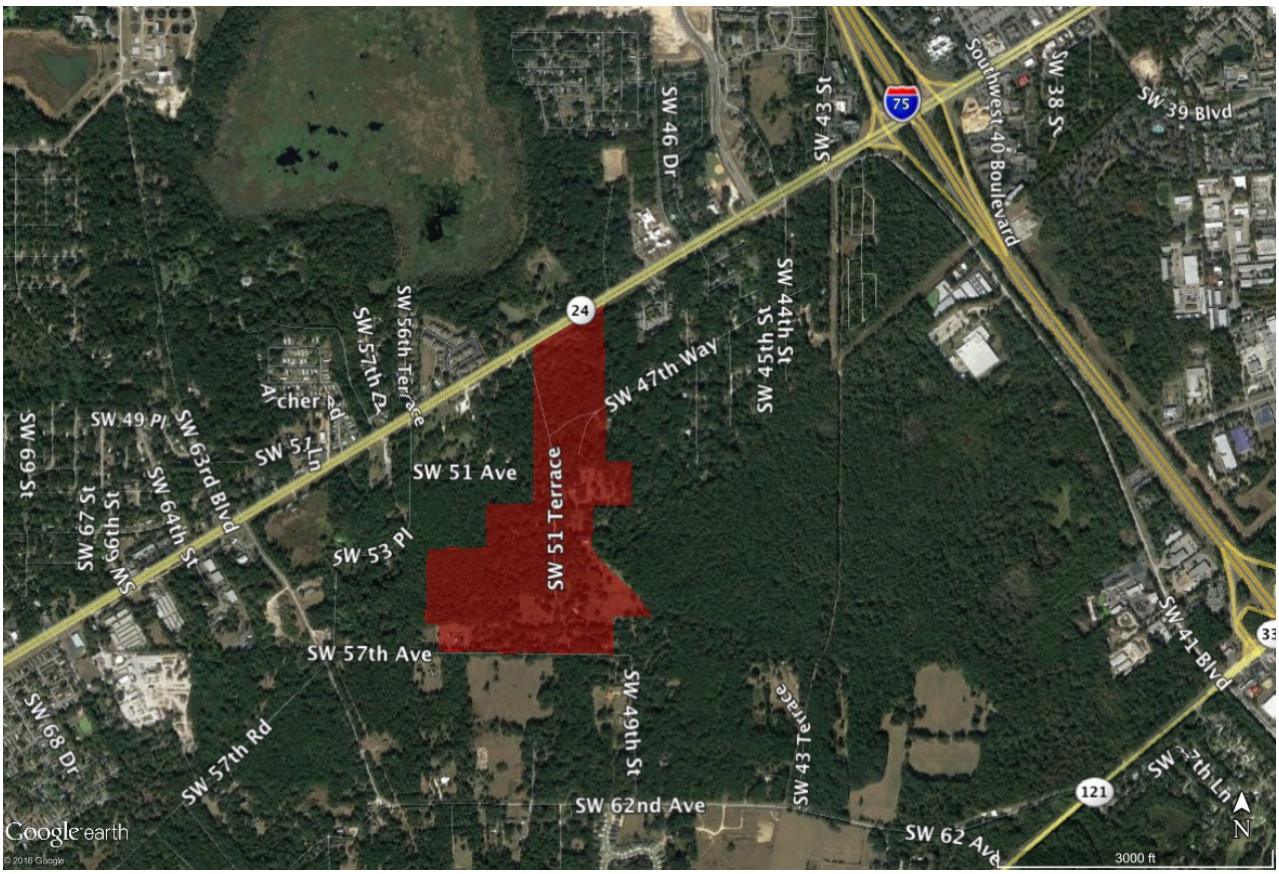
INTRODUCTION

This traffic methodology is being submitted on behalf of my Client, The Dautel Group, in support of a right-of-way use and driveway connection permit to Archer Road (SR 24) for a 296-unit subdivision. The project is located on the south side of Archer Road between Interstate 75 and SW 63rd Street. The majority of the property is currently undeveloped, except for six (6) existing single family homes. The principal property address is 5105 SW Archer Road, Gainesville FL, 32608. The parcel numbers for the proposed development are: 06951-000-000, 06949-000-000 (5310 SW 52nd Terrace), 06949-001-000 (5319 SW 51st Ave), 06944-001-000, 06944-000-000, 06943-002-000, 06949-002-000 (5325 & 5327 SW 52nd Terrace), 06952-001-000 (5327 SW 52nd Terrace), 06952-002-002 (5109 SW 52nd Terrace). Below is a map of the project location on the south side of Archer Road.

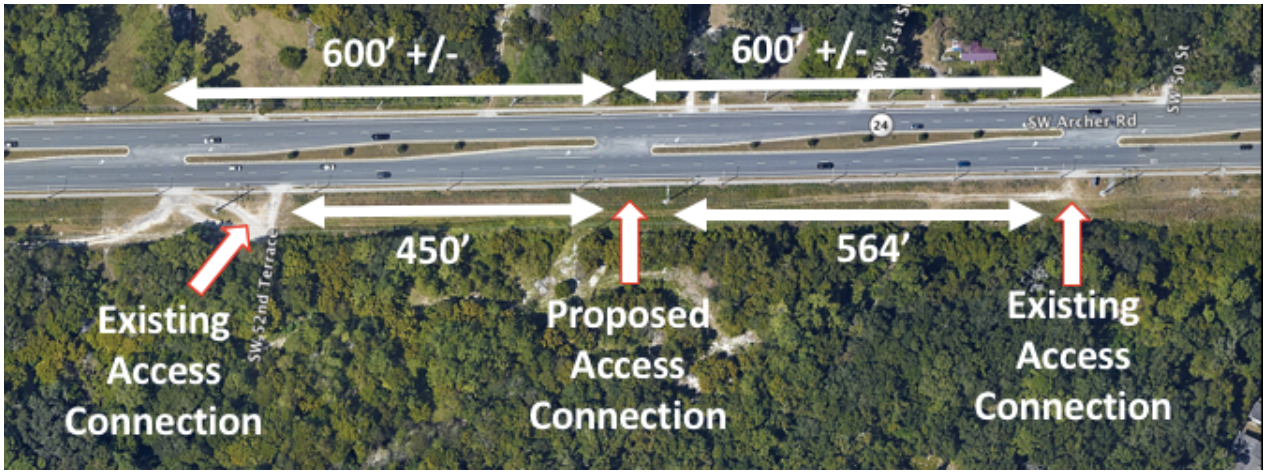
Project Location Map



ACCESS MANAGEMENT

The Access Control Classification System and Access Management Standards of Section 14-97.003 (1) of the Florida Administrative Code (FAC) were utilized to determine that Archer Road would be considered an Access Class 3 arterial. Access Class 3 arterials require minimum spacing of 2,640 feet between full median opening, 1,320 feet between directional median openings, and 440 feet between access connections for arterials with speed limits of 45 MPH or less. The posted speed limit for Archer Road is currently 45 MPH. The graphic below illustrates the spacing of existing median openings and the spacing between the proposed access connection and the two most adjacent exiting access connections.

Median Openings & Project Access



The existing full median openings on Archer Road are spaced roughly every 600 feet. The requirement for full median openings is 2,640 feet. The closest existing access connection, which is an unimproved dirt road known as SW 52nd Terrace, is located 450' west of the proposed Oak Preserve access connection. The minimum required spacing is 440' between access connections. FAC Section 14-97.003 (3)(b) provides that existing lawful connections, median openings, and signals are not required to meet access management standards. Existing access management features will generally be allowed to remain in place, but shall be brought into conformance with access management standards when significant change occurs or as changes to the roadway design allow.

The existing median openings are permitted to remain per FAC Section 14-97.003 (3)(b), even though they do not currently meet spacing criteria. However, to reduce potential conflicts and minimize impacts to existing traffic flows from traffic exiting the proposed development, the existing median opening is being converted from a full median opening to a directional median opening to restrict left-out movements from the development (Appendix A). The proposed access connection to Archer Road will allow for right-in, right-out and left-in movements. For vehicles exiting the project desiring to head west, they will be required to make a right-out and use the existing median opening to the east of the project to make a U-Turn onto Archer Road.

There is an existing improved driveway connection onto Archer Road to the east of the proposed main entrance of the subdivision. This existing driveway connection will be removed (Appendix A). The proposed access connection from the subdivision meets the minimum spacing criteria of 440 feet between access connections. Both of the adjacent existing access connections are unimproved and will likely be modified in the future, should development occur that would utilize either access connection.

There will be a secondary access connection onto SW 47th Way which currently serves as the primary access for several existing single family homes onto Archer Road. The connection to Archer Road from SW 47th Way is via SW 44th Street. The SW 44th Street connection to Archer Road is currently a right-in / right-out access connection, just east of the new SW 45th Street signal into Celebration Pointe. A westbound left turn lane has been provided on Archer Road at SW 45th Street to allow for U-Turn access to SW 44th Street and SW 47th Way.

An east-west roadway with a 60’ right-of-way is currently provided within the southern portion of the development to allow for future east-west connectivity. This east-west connector is generally consistent with the Alachua County Mobility Plan that shows a parallel road to Archer Road between SW 43rd Street and SW 63rd Street. A stub-out is also provided to the south. Additional stub-outs to allow for future connectivity have also been provided as required by the City of Gainesville (Appendix B).

TRIP GENERATION

The trip generation analysis is based on the Institute of Traffic Engineers (ITE) Trip Generation Manual 10th Edition. The analysis resulted in a gross weekday trip generation of 2,822 daily trips, 215 AM Peak Hour trips and 288 PM Peak Hour trips (Appendix C). The ITE Trip Generation equation, based on the 10th edition, was used in the analysis. The trip generation, detailed trip generation with equation, and ITE trip generation are provided in Appendix C. The project is a single use residential development. Thus, no internal capture, pass-by or mode share was calculated. There are six residential units within all the parcels included in the development. There are trips associated with the existing uses. However, FDOT generally requires the access connection analyses be based on the total trips proposed to use the access connection. Thus, no trip reduction was calculated for the existing residential units. Below is the detailed projected trip generation.

NET TRIP GENERATION - BUILDOUT										
	Size	Type	ITE Code	Daily	AM Enter	AM Exit	AM Total	PM Enter	PM Exit	PM Total
Single Family	296	Units	210	2,822	54	161	215	181	107	288
Net Total Trip Generation				***2,822***	***54***	***161***	***215***	***181***	***107***	***288***
Notes: Trip Generation based on 10th Edition of the ITE Trip Generation Manual. Trip generation rates are based on the ITE equation for single family residential.										

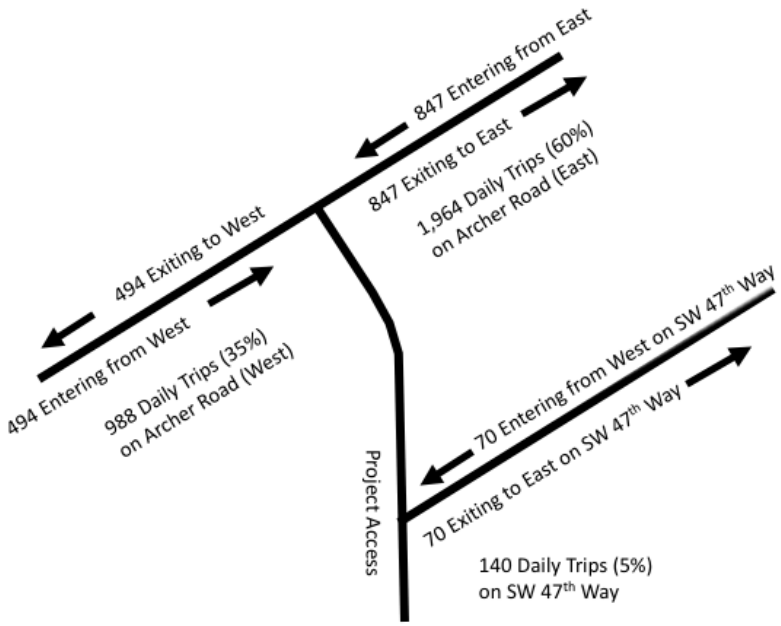
TRAFFIC DISTRIBUTION

The distribution of project traffic is based upon three-day traffic counts collected as part of the development approvals by the City of Gainesville (Appendix D). The distribution of traffic is consistent with what has been used for Celebration Pointe. For purposes of overall project traffic distribution, the following percentages were used:

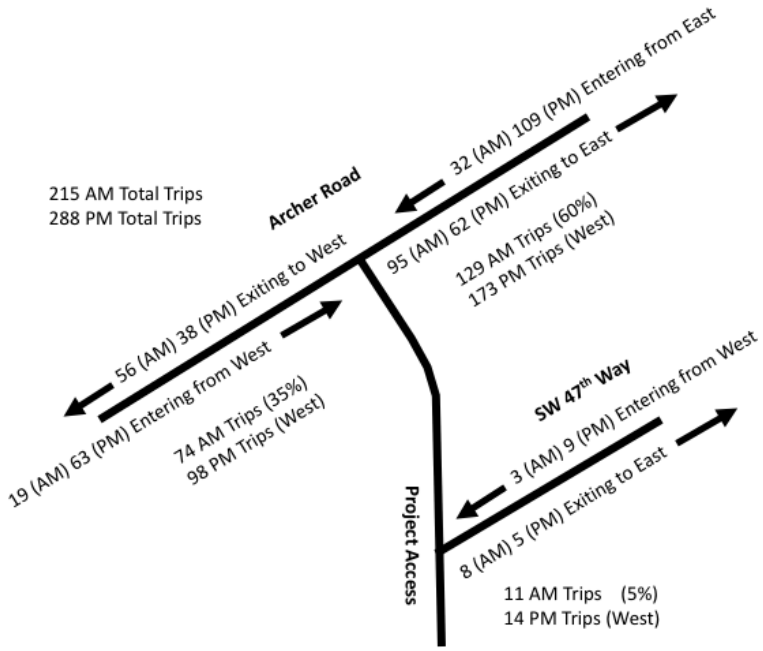
- 65% entering from and exiting to the East Towards Gainesville
- 35% entering from and exiting to the West Towards Haile Plantation

The graphic below illustrates the distribution of daily traffic based upon the percentage distributions identified above:

Daily Traffic Distribution



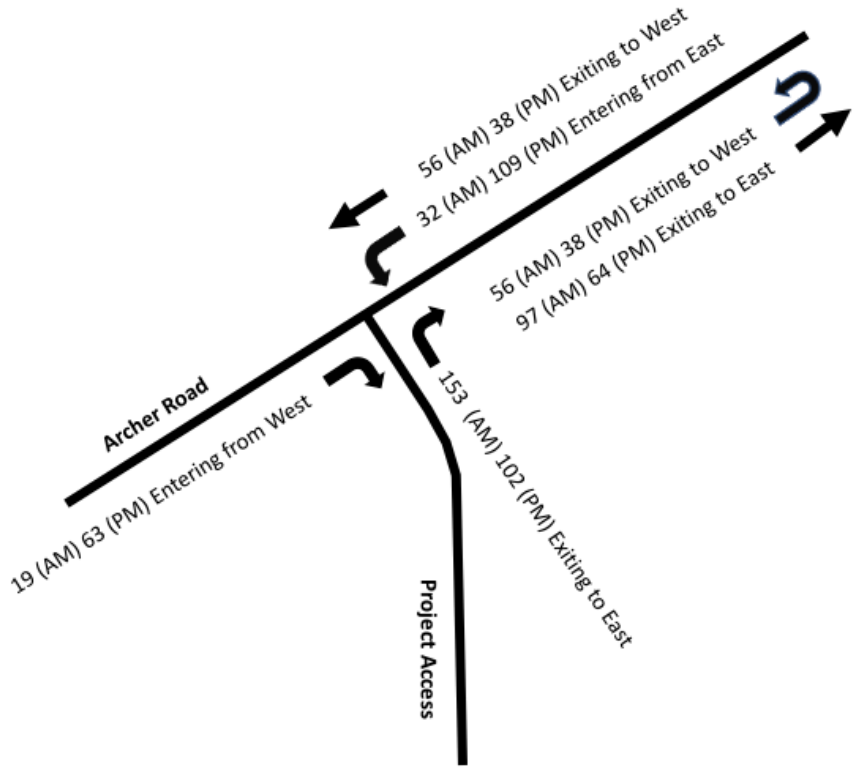
AM & PM Traffic Distribution



ACCESS CONNECTION DISTRIBUTION

The graphic below illustrates the distribution of AM and PM peak hour project traffic at the project access connection with Archer Road:

AM & PM Access Connection Distribution



RIGHT TURN LANE WARRANT

The FDOT driveway handbook provides guidance for right turn lane warrants. Archer Road is a Class 3 four-lane divided highway with a 45 MPH speed limit. For roads with a posted speed limit of 45 MPH or less, a right turn lane is warranted when there are between 80 and 125 right turning vehicles during a Peak Hour Traffic period (Appendix E). The lower threshold is used for high volume two lane roads. The higher threshold of 125 right turn movements is for multi-lane highways and lower volume roads. The PM peak hour features the highest right turn volume with 65 projected right turn movements from Archer Road. The development does not warrant a right turn lane for either the AM or PM Peak Hour.

LEFT TURN LANE DESIGN

FDOT Index 301 requires the construction of a minimum of a 185' westbound left turn lane, which includes a 50' taper, based upon the 45 MPH speed of Archer Road (Appendix F). Based upon projected left turns of roughly two (1.8 / min) every minute during the PM peak hour, it is recommended that an additional 100' of storage be added to accommodate four queued vehicles. Given that the PM eastbound flow is the lower volume, there are adequate gaps in traffic to allow for left turn movements. Thus, the total minimum length of the westbound turn lane would be 285'. The total length of the westbound left turn lane being provided is 375' in length, which is more than adequate length to accommodate projected traffic from the development.

DRIVEWAY ANALYSIS

A detailed intersection analysis was performed for buildout conditions for the proposed project access with Archer Road (SR 24) for the AM and PM peaks hours using Syncro 10. AM and PM Peak hour volumes were based on turning movement counts collected in 2017 at the intersection of Archer Road (SR 24) and SW 63rd Street to the west of the project (Appendix G). The turning movement counts were verified and compared with the three-day traffic counts collected on Archer Road east of SW 63rd Street (Appendix D). The AM and PM thru volumes were increased by 8% to reflect a 2025 build-out year. An existing conditions analysis was not run as there is no traffic from the existing median opening, except for an occasional U-turn based on field observation.

An initial analysis for the project access was performed as part of the Comprehensive Plan amendment based on existing plus project traffic. The analysis included a full median opening and left-out movements. The analysis showed that the left-out movement was a LOS of "F" in both the AM and PM (Appendix H). A build-out analysis was not run for the project access as a full median opening that allowed left-out movements given the left-out movement failed based on 2017 traffic. The 2025 build-out analysis removed the left-out movement and limited the project to right-in, right-out, left-in movements only.

The AM and PM build-out analysis for the project access results in v/c ratios for the project access that indicate the intersection is not over capacity. The following table summarizes the detailed intersection analysis for the project access (Appendix I):

Intersection Movement	AM LOS	AM V/C	PM LOS	PM V/C
NB exit at the project access	E	.603	C	.263
WB left on Archer Road at project access	C	.107	B	.22

CONCLUSION

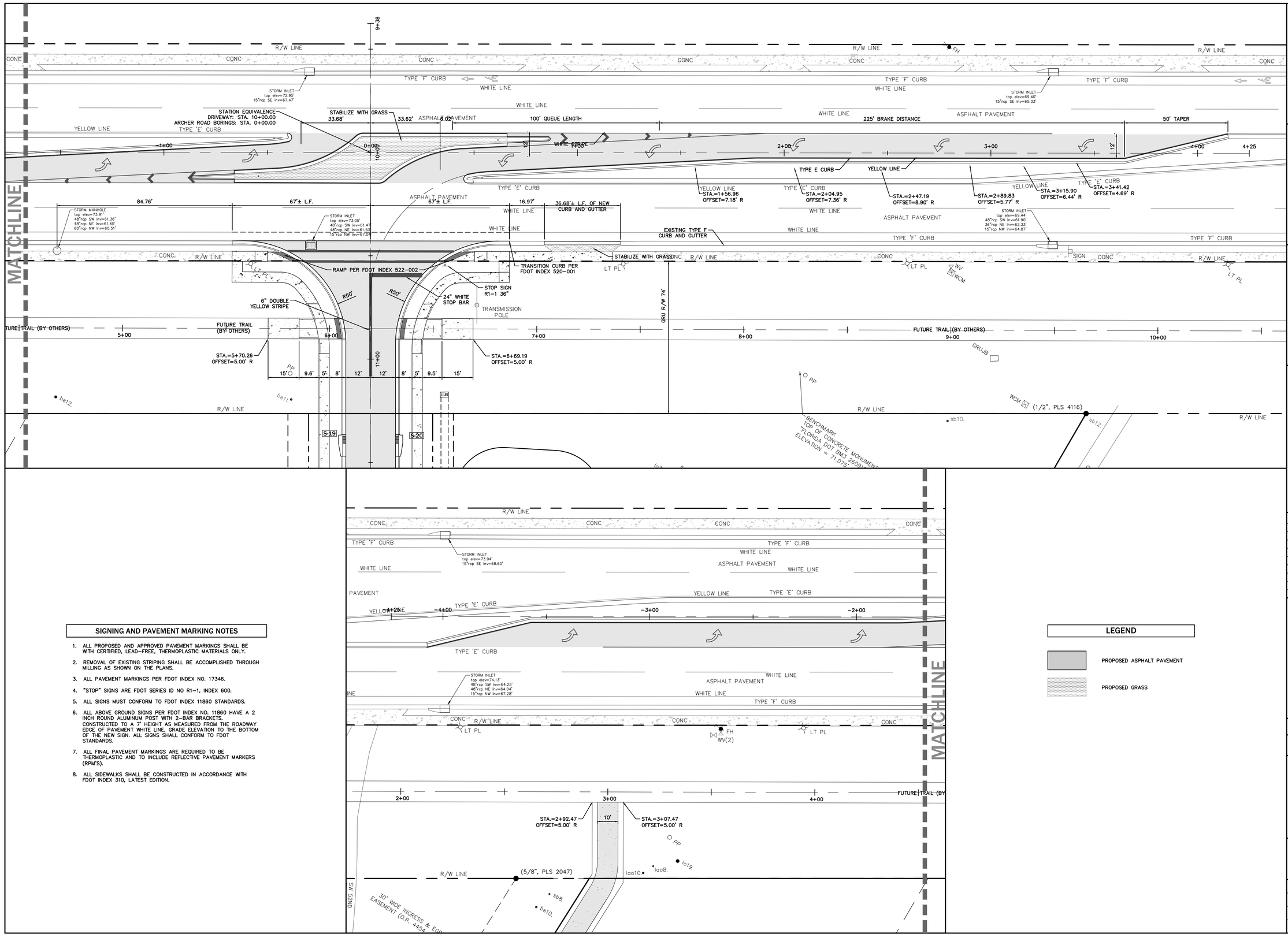
This traffic analysis is submitted in support of a request for a right-of-way use and access connection permit from FDOT for the Oak Preserve subdivision. The proposed 296 residential unit subdivision will generate 2,822 Daily Trips, 215 AM Peak Hour Trips and 288 PM Peak Hour Trips. The proposed development will warrant an extended westbound left turn lane on Archer Road (SR 24) at the proposed project access connection. A raised directional median is proposed to be provided at the current full median opening to ensure that left-out movements from the development will be restricted.

The length of the westbound left turn lane, based upon FDOT Index, 301 is required to be a minimum of 285 feet. The westbound turn lane proposed is 375 feet in length. An equivalent length eastbound left turn lane is also being added at the existing median opening. The maximum physical length for the eastbound left turn, within-out impacting the adjacent median opening, is being provided. No development traffic is projected to utilize the eastbound left turn movement.

The development will replace the current driveway connection to Archer Road. The proposed driveway connection aligns with the existing median opening. The proposed driveway also meets the minimum access connection spacing of 440 feet. The project is proposing a secondary access connection to SW 47th Way. The project, per requirements of the City of Gainesville, also has stub-outs for future cross-access to adjacent parcels.

Appendix A:

Median modification & Turn Lane Design



SIGNING AND PAVEMENT MARKING NOTES

1. ALL PROPOSED AND APPROVED PAVEMENT MARKINGS SHALL BE WITH CERTIFIED, LEAD-FREE, THERMOPLASTIC MATERIALS ONLY.
2. REMOVAL OF EXISTING STRIPING SHALL BE ACCOMPLISHED THROUGH MILLING AS SHOWN ON THE PLANS.
3. ALL PAVEMENT MARKINGS PER FDOT INDEX NO. 17346.
4. "STOP" SIGNS ARE FDOT SERIES ID NO R1-1, INDEX 600.
5. ALL SIGNS MUST CONFORM TO FDOT INDEX 11860 STANDARDS.
6. ALL ABOVE GROUND SIGNS PER FDOT INDEX NO. 11860 HAVE A 2 INCH ROUND ALUMINUM POST WITH 2-BAR BRACKETS. CONSTRUCTED TO A 7' HEIGHT AS MEASURED FROM THE ROADWAY EDGE OF PAVEMENT WHITE LINE, GRADE ELEVATION TO THE BOTTOM OF THE NEW SIGN. ALL SIGNS SHALL CONFORM TO FDOT STANDARDS.
7. ALL FINAL PAVEMENT MARKINGS ARE REQUIRED TO BE THERMOPLASTIC AND TO INCLUDE REFLECTIVE PAVEMENT MARKERS (RPM'S).
8. ALL SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FDOT INDEX 310, LATEST EDITION.

LEGEND

PROPOSED ASPHALT PAVEMENT

PROPOSED GRASS

NORTH

SCALE: 1" = 20'

0 10 20 40

GRAPHIC SCALE

No.	Date	Comment

engineers • surveyors • planners

EB 2389
720 S.W. 2nd Ave, Suite 300
GAINESVILLE, FLORIDA 32601-6602
TEL. (352) 373-3541 FAX. (352) 373-6271
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Professional Engineer of Record:

Sergio J. Reyes, P.E. 47311
Engineer Certificate No.

Project No: 16-217

Project phase: FDOT SUBMITTAL

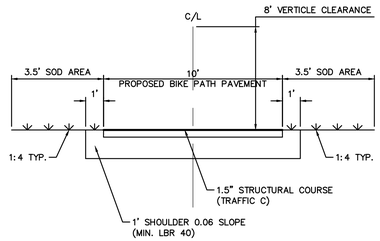
Project title: OAKS PRESERVE - PHASE I
CITY OF GAINESVILLE, FLORIDA

Sheet title: FDOT - DIMENSION AND SIGNAGE & STRIPING PLAN

Designed: SJR	Sheet No.: F101
Drawn: SLP	
Checked: CSV	
Date: 03/25/20	

Appendix B:

Site Plan



TYPICAL SECTION A-A DETAIL

N.T.S.

BIKE PATH PAVEMENT

1.5" SP TYPE STRUCTURAL COURSE (TRAFFIC C)
OPTIONAL BASE GROUP 4
12" TYPE B STABILIZATION (LBR 40)

NOTE:

TRIM TREES AND VEGETATION AS NEEDED TO PROVIDE 8' VERTICLE CLEARANCE.

BIKE PATH SHALL MAINTAIN 2' MIN. CLEARANCE TO ALL EXISTING ABOVE GROUND UTILITIES OR OTHER OBSTRUCTIONS.

ADJACENT PROPERTY OWNERS

06950-001-000	LIM, PRECY A 7301 LEMON GRASS DR PARKLAND, FL 33076
06950-000-000	HUSEMAN, DONNA S 9219 SW 12TH AVE GAINESVILLE, FL 32607-3216
06951-001-000	WHITE JOAN J & TERREL D JR 4922 SW 52ND TER GAINESVILLE, FL 32608-4817
06950-004-000	WHITE T D JR & JOAN 4922 SW 52ND TER GAINESVILLE, FL 32608-4817
06950-002-001	WHITE TERREL D JR & JOAN JORDAN 4922 SW 52ND TER GAINESVILLE, FL 32608-4817
06950-002-000	WHITE TERREL DOYAL JR 4922 SW 52ND TER GAINESVILLE, FL 32608
06947-001-000	DOGWOOD ACQUISITION LLC 5214 SW 91ST TER STE A ATTN: OSCAR RODRIGUEZ GAINESVILLE, FL 32608
06942-001-000	DOGWOOD AQUISITION LLC 5214 SW 91ST TER STE A GAINESVILLE, FL 32608
06946-000-000	DOGWOOD AQUISITION LLC 5214 SW 91ST TER STE A GAINESVILLE, FL 32608
06945-001-000	DOGWOOD AQUISITION LLC 5214 SW 91ST TER STE A GAINESVILLE, FL 32608
06940-004-000	PATTERSON, BART 17114 BOY SCOUT RD ODESSA, FL 33556-2103
06940-000-000	BARTON, KELLY & HARRIETT 1015 ALHAMBRAWAY S ST PETERSBURG, FL 33705
06940-002-000	BRYANT JR & BRYANT & BRYANT & JACKSON 5707 SW 53RD PL GAINESVILLE, FL 32608-4834
06941-008-000	BOULWARE, MIKE 5720 SW 57TH AVE GAINESVILLE, FL 32608
06943-001-000	DEWEY & VARELA H/W 508 SE TUSCAWILLA RD MICANOPY, FL 32667
06943-000-000	WILSON JAYME 5502 SW 57TH AVE GAINESVILLE, FL 32608
06986-000-000	VINSON & VINSON & VINSON-WILDER & VINSON & VINSON 5350 SW 62ND AVE GAINESVILLE, FL 32608
06953-001-000	JACKSON E R 5222 SW 57TH AVE GAINESVILLE, FL 32608-4867
06953-001-001	JACKSON, EDDIE RUSSELL 5118 SW 57TH AVE GAINESVILLE, FL 32608
06953-001-002	JACKSON, THEO HAROLD 1806 BAYWOOD AVE ORLANDO, FL 32818-5807
06953-002-000	PATTERSON COMM CEMETERY INC 6009 SW 63RD BLVD GAINESVILLE, FL 32608-4856
07240-049-000	PRAIRIE VIEW TRUST 3501 S MAIN ST STE 1 GAINESVILLE, FL 32601
06952-000-000	ROSENBERG JERRY A 7257 NW 4TH BLVD UNIT # 327 GAINESVILLE, FL 32607
06952-002-001	SUKHRAM YOURAM S 5211 SW 52ND TER GAINESVILLE, FL 32608
06964-000-000	EMERY HELEN 5745 SW 75TH ST PMB 279 GAINESVILLE, FL 32608-5504
06963-001-000	BYRON & BYRON CO TRUSTEES 7000 NW 84TH AVE PARKLAND, FL 33067
06963-000-000	LUKE, J S & DIANE 21107 NW 74TH PL ALACHUA, FL 32615-7001
06962-000-000	BAKER WESLEY V & NANCY H 5005 SW 47TH WAY GAINESVILLE, FL 32608
06962-000-000	TRUJILLO & TRUJILLO ET AL 208 WESTOVER CIR PALATKA, FL 32177-5344

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NORTH
SCALE: 1" = 200'
0 100 200 400
GRAPHIC SCALE

No.	Date	Comment

Professional Engineer of Record:

Engineer Certificate No.

Project No: 16217

Project phase: DESIGN PLAT SUBMITTAL

Project title:

OAKS PRESERVE- A CLUSTER SUBDIVISION CITY OF GAINESVILLE, FLORIDA

Sheet title:

MASTER DEVELOPMENT PLAN

Designed: SJR	Sheet No.: C1.00
Drawn: JB	
Checked: SJR	
Date: 12/11/18	

\engrprojects\Oaks Preserve - Daudet\Plans\Design Plan\Current DWG\A16217J1.dwg, C1.00 MASTER DEV, 12/11/2018 2:25:44 PM

Appendix C:

Trip Generation

Single-Family Detached Housing
(210)

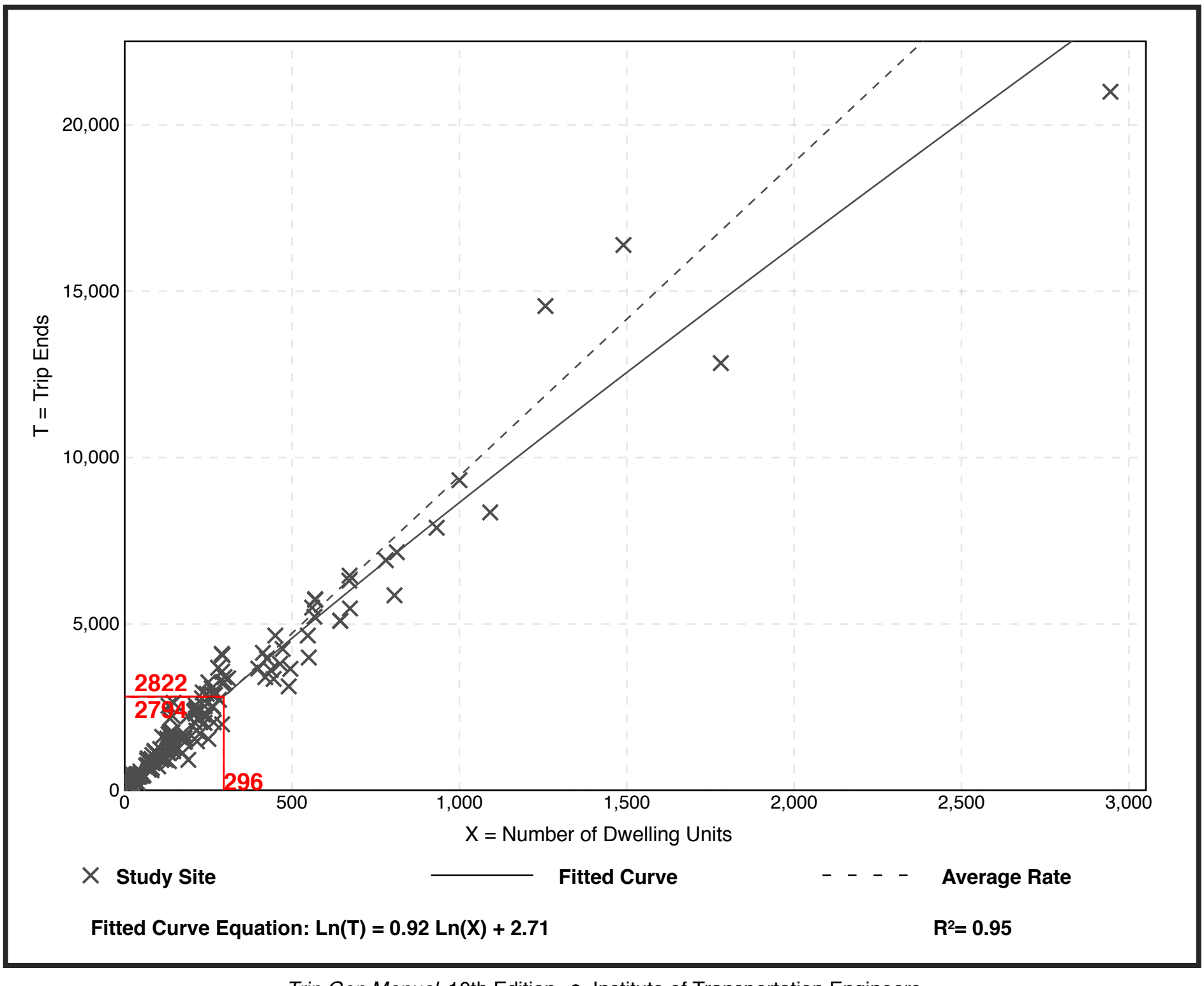
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.71

R^2= 0.95

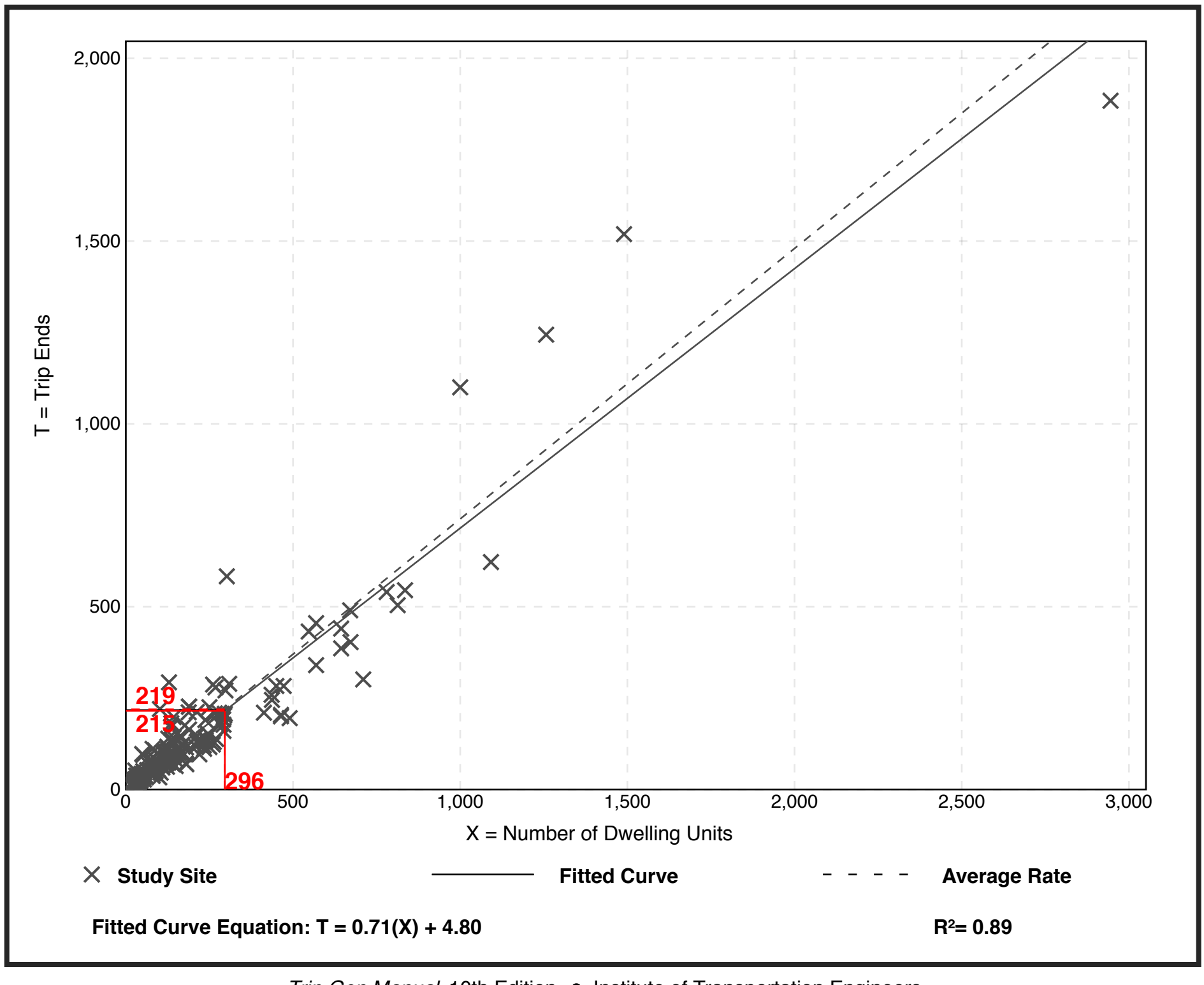
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



Fitted Curve Equation: T = 0.71(X) + 4.80

R^2= 0.89

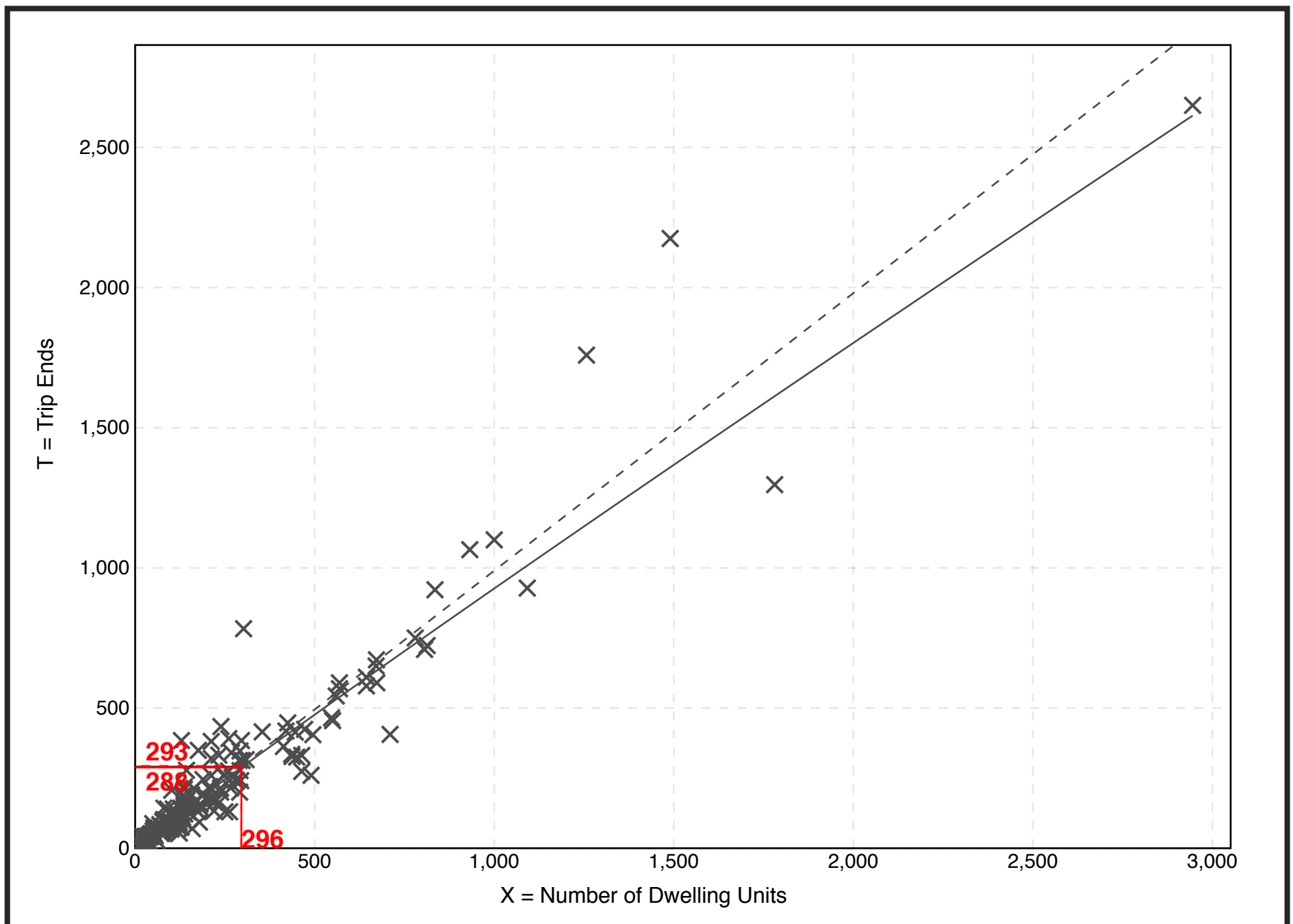
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.96 Ln(X) + 0.20 **R^2= 0.92**

Appendix D:

Daily Traffic Counts

Machine #: Sw Archer e
Site ID: Sw Archer e
Description: Sw Archer east of SW 63rd Blvd

File: 63.prn
Street Name: Sw Archer
County: Alachua

TIME	1 EAST	2 WEST	Total
01:00	43	121	164
02:00	33	59	92
03:00	38	48	86
04:00	74	54	128
05:00	188	70	258
06:00	512	149	661
07:00	1377	442	1819
08:00	1685	805	2490
09:00	1318	794	2112
10:00	1013	705	1718
11:00	890	731	1621
12:00	982	845	1827
13:00	843	964	1807
14:00	808	1003	1811
15:00	909	1107	2016
16:00	932	1350	2282
17:00	969	1677	2646
18:00	887	1734	2621
19:00	820	1202	2022
20:00	544	975	1519
21:00	432	792	1224
22:00	307	526	833
23:00	188	299	487
24:00	112	218	330
DAY TOTAL	15904	16670	32574
PERCENTS	48.9%	51.1%	100%
AM Times	07:00	07:30	
AM Peaks	1747	870	
PM Times	16:30	17:00	
PM Peaks	981	1786	

Machine #: Sw Archer e
Site ID: Sw Archer e
Description: Sw Archer east of SW 63rd Blvd

File: 63.prn
Street Name: Sw Archer
County: Alachua

TIME	1 EAST	2 WEST	Total
01:00	61	124	185
02:00	30	89	119
03:00	35	43	78
04:00	62	41	103
05:00	186	42	228
06:00	521	137	658
07:00	1387	446	1833
08:00	1707	748	2455
09:00	1363	735	2098
10:00	1005	708	1713
11:00	908	729	1637
12:00	921	863	1784
13:00	1048	1057	2105
14:00	917	1028	1945
15:00	902	1167	2069
16:00	1014	1424	2438
17:00	1087	1588	2675
18:00	1007	1768	2775
19:00	845	1227	2072
20:00	609	1055	1664
21:00	466	803	1269
22:00	311	617	928
23:00	226	327	553
24:00	98	240	338
DAY TOTAL	16716	17006	33722
PERCENTS	49.6%	50.4%	100%
AM Times	07:00	11:15	
AM Peaks	1792	863	
PM Times	15:45	17:00	
PM Peaks	1102	1771	

Machine #: Sw Archer e
Site ID: Sw Archer e
Description: Sw Archer east of SW 63rd Blvd

File: 63.prn
Street Name: Sw Archer
County: Alachua

TIME	1 EAST	2 WEST	Total
01:00	67	109	176
02:00	48	73	121
03:00	42	59	101
04:00	74	57	131
05:00	189	66	255
06:00	521	157	678
07:00	1484	426	1910
08:00	1697	738	2435
09:00	1397	820	2217
10:00	1080	690	1770
11:00	950	708	1658
12:00	991	930	1921
13:00	988	1004	1992
14:00	878	1015	1893
15:00	906	1116	2022
16:00	1005	1415	2420
17:00	1061	1670	2731
18:00	964	1754	2718
19:00	871	1255	2126
20:00	675	1021	1696
21:00	490	873	1363
22:00	371	655	1026
23:00	252	386	638
24:00	139	249	388
DAY TOTAL	17140	17246	34386
PERCENTS	49.9%	50.1%	100%
AM Times	06:45	11:15	
AM Peaks	1781	930	
PM Times	15:45	17:00	
PM Peaks	1068	1768	

Appendix E:

Right Turn Lane Warrant

7.2

WHEN SHOULD WE BUILD RIGHT TURN LANES?

Exhibit 44
Recommended Guidelines for Exclusive Right Turn Lanes to Unsignalized* Driveway

Roadway Posted Speed Limit	Number of Right Turns Per Hour
45 mph or less	**80-125** (see note 1)
Over 45 mph	**35-55** (see note 2)

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

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).

***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.

Appendix F:

FDOT Index 301

TURN LANES • CURBED AND UNCURBED MEDIANS

Design Speed (mph)	Entry Speed (mph)	Clearance Distance L_1	URBAN CONDITIONS			RURAL CONDITIONS		
			Brake To Stop Distance L_2	Total Decel. Distance L	Clearance Distance L_3	Brake To Stop Distance L_2	Total Decel. Distance L	Clearance Distance L_3
35	25	70'	75'	145'	110'	———	———	———
40	30	80'	75'	155'	120'	———	———	———
45	35	85'	100'	185'	135'	———	———	———
50	40/44	105'	135'	240'	160'	185'	290'	160'
55	48	125'	———	———	———	225'	350'	195'
60	52	145'	———	———	———	260'	405'	230'
65	55	170'	———	———	———	290'	460'	270'

DESIGN NOTES

1. Basis for turn lane configurations:
   - Informed Driver.
   - Stop condition (With Or Without Stop Control).
   - Wet Pavement.
   - Reaction preceding entry point.
   - Minimum braking distance for urban conditions.
   - 75' min. for L_2.
   - Comfortable deceleration rates for rural conditions (AASHTO 2001 threshold rate of 11.2 ft./s²).

GENERAL NOTES

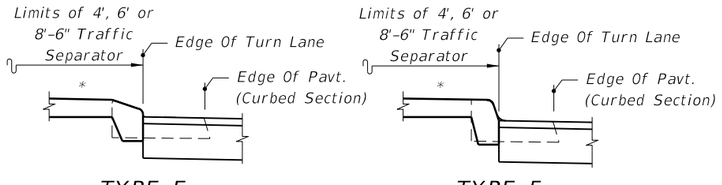
1. The plan views shown are for turn lane taper shapes and dimensional purposes only, they do not prescribe the use of curb, curb and gutter, shoulders nor separators specifically to either rural or urban conditions.

2. Total deceleration distances must not be reduced except where lesser values are imposed by unrelocatable control points.

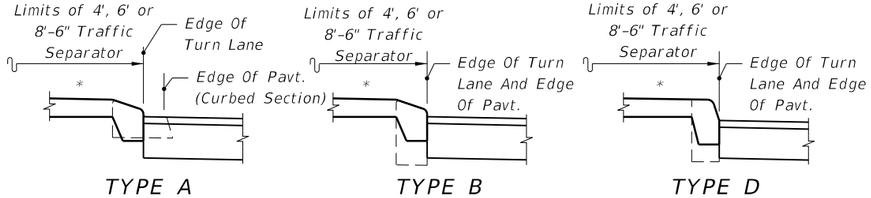
3. Right turn lane tapers and distances identical to left turn lanes under stop control conditions. Right turn lane tapers and/or distances are site specific under free flow or yield conditions.

4. These left turn configurations apply to continuous left turn lanes only where specifically called for in the plans.

5. For pavement markings see Index No. 17346.



TYPE E CURB AND GUTTER TYPE F

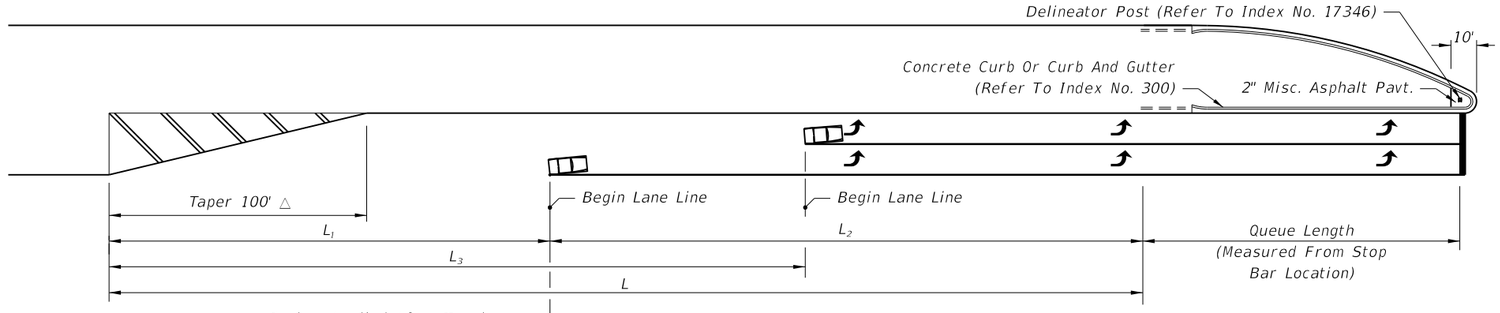


TYPE A TYPE B CURB TYPE D

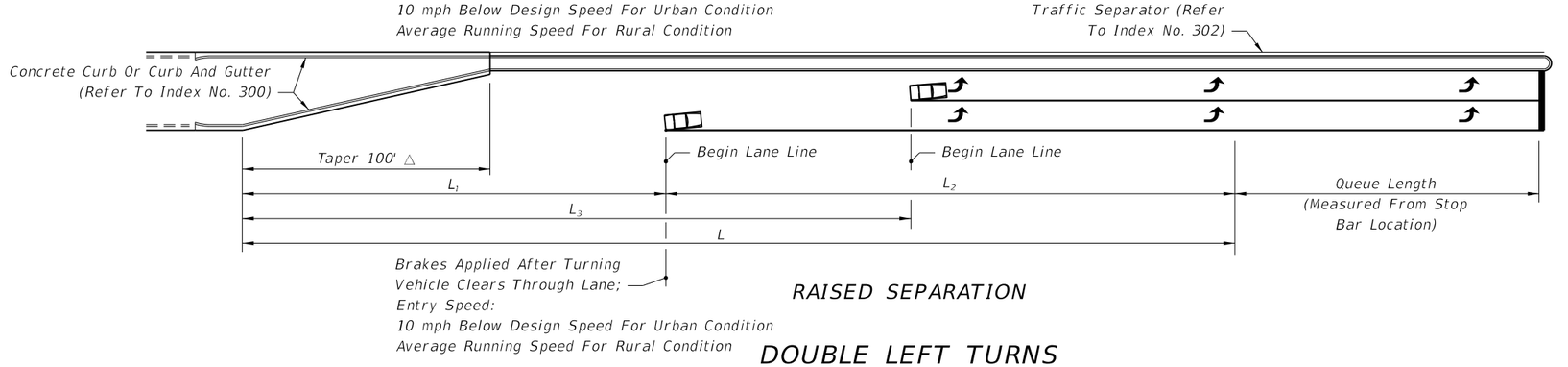
For Curb And Curb & Gutter Types, See Index No. 300

* Option I Separators Shown (Refer To Index No. 302)

MEDIAN CURB AND TRAFFIC SEPARATOR JUNCTURE DETAILS

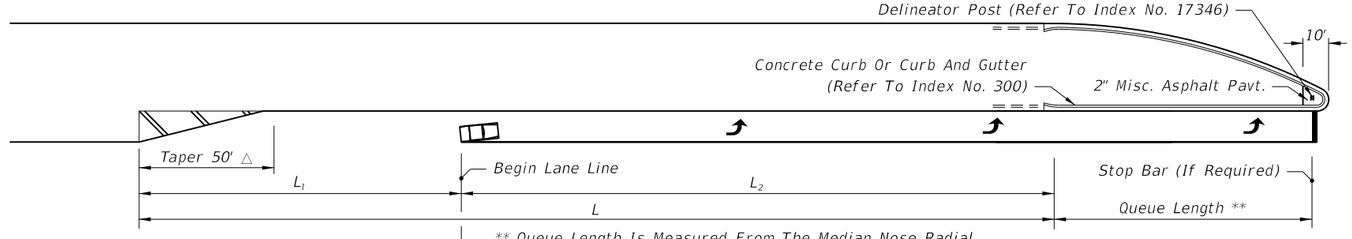


FLUSH AND/OR CURBED SEPARATION



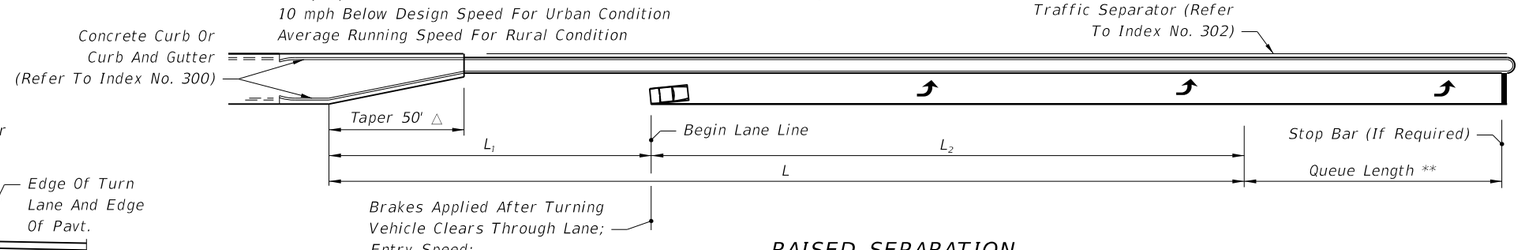
RAISED SEPARATION

DOUBLE LEFT TURNS



** Queue Length Is Measured From The Median Nose Radial Point Or, When A Stop Bar Is Required, From The Stop Bar.

FLUSH AND/OR CURBED SEPARATION



RAISED SEPARATION

SINGLE LEFT TURNS

△ The length of taper may be increased to L_1 for single left turns and L_3 for double left turns when:
   a. Left turn queue vehicles are adequately provided for within the design queue length.
   b. Through vehicle queues will not block access to left turn lane.
   c. Approved by District Design Engineer.

LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS 2013	TURN LANES	INDEX NO.	SHEET NO.
07/01/05					301	1

C:\d\projects\standards\roadway\00300-s\00301-01.dgn rd960rh 9:38:19 AM 6/28/2012

Appendix G:

Turning Movement Counts at Archer Road and SW 63rd Street

Appendix H:

Intersection: Archer Road (SR 24) & SW 63rd Blvd

Analyst: Jonathan B. Paul - NUE Urban Concepts

www.nueurbanconcepts.com

Date: 04/13/17

Weather: Clear

Traffic Control: Signal

	Archer Road (SR 24) EASTBOUND					Archer Road (SR 24) WESTBOUND					SW 63rd Blvd NORTHBOUND					Child's Place Driveway SOUTHBOUND				
	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total
7:15	5	401	22	0	428	4	134	3	0	141	5	0	2	6	13	13	1	1	1	16
7:30	0	480	12	0	492	5	163	6	0	174	4	0	1	1	6	7	0	0	0	7
7:45	4	343	25	1	373	7	203	3	0	213	10	1	5	3	19	0	0	0	0	0
8:00	1	341	11	1	354	5	204	1	0	210	8	0	5	4	17	3	0	0	0	3
Total	10	1565	70	2	1647	21	704	13	0	738	27	1	13	14	55	23	1	1	1	26
%Approach	1%	95%	4%	0%	100%	3%	95%	2%	0%	100%	49%	2%	24%	25%	100%	88%	4%	4%	4%	100%
Trucks	0	4	0	0	4	0	12	0	0	12	1	0	1	0	2	0	0	0	0	0
%Trucks	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	4%	0%	8%	0%	4%	0%	0%	0%	0%	0%
8:15	1	345	6	0	352	1	224	2	0	227	8	0	6	3	17	5	0	0	0	5
8:30	0	373	6	0	379	3	215	1	0	219	10	0	3	3	16	6	0	0	0	6
8:45	3	304	9	0	316	6	194	3	0	203	10	0	1	5	16	3	0	0	1	4
9:00	4	291	9	0	304	4	164	3	0	171	10	0	5	3	18	3	0	0	1	4
Total	8	1313	30	0	1351	14	797	9	0	820	38	0	15	14	67	17	0	0	2	19
%Approach	1%	97%	2%	0%	100%	2%	97%	1%	0%	100%	57%	0%	22%	21%	100%	89%	0%	0%	11%	100%
Trucks	0	8	0	0	8	1	13	0	0	14	0	0	0	0	0	0	0	0	0	0
%Trucks	0%	1%	0%	0%	1%	7%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

AM Peak Hour From: 7:15 AM to 8:15 AM

	Archer Road (SR 24) EASTBOUND					Archer Road (SR 24) WESTBOUND					SW 63rd Blvd NORTHBOUND					Child's Place Driveway SOUTHBOUND				
	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total
7:30	0	480	12	0	492	5	163	6	0	174	4	0	1	1	6	7	0	0	0	7
7:45	4	343	25	1	373	7	203	3	0	213	10	1	5	3	19	0	0	0	0	0
8:00	1	341	11	1	354	5	204	1	0	210	8	0	5	4	17	3	0	0	0	3
8:15	1	345	6	0	352	1	224	2	0	227	8	0	6	3	17	5	0	0	0	5
Total	6	1509	54	2	1571	18	794	12	0	824	30	1	17	11	59	15	0	0	0	15

Dominant Movement: Eastbound Thru

AM Peak 15 Min Volume From: 7:30 AM

	Archer Road (SR 24) EASTBOUND					Archer Road (SR 24) WESTBOUND					SW 63rd Blvd NORTHBOUND					Child's Place Driveway SOUTHBOUND				
	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total
7:30	0	480	12	0	492	5	163	6	0	174	4	0	1	1	6	7	0	0	0	7
Peak Flow	0	1920	48	0	1968	20	652	24	0	696	16	0	4	4	24	28	0	0	0	28
PHF	0.00	0.79	1.13	0.00	0.80	0.90	1.22	0.50	0.00	1.18	1.88	0.00	4.25	2.75	2.46	0.54	0.00	0.00	0.00	0.54

Intersection: Archer Road (SR 24) & SW 63rd Blvd

Analyst: Jonathan B. Paul - NUE Urban Concepts

www.nueurbanconcepts.com

Date: 04/13/17

Weather: Clear

Traffic Control: Signal

	Archer Road (SR 24) EASTBOUND					Archer Road (SR 24) WESTBOUND					SW 63rd Blvd NORTHBOUND					Child's Place Driveway SOUTHBOUND				
	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total
4:15	1	246	4	0	251	4	428	1	0	433	8	0	5	4	17	4	0	0	0	4
4:30	1	276	3	1	281	8	421	2	1	432	14	0	4	5	23	5	0	0	0	5
4:45	2	198	3	1	204	8	455	2	0	465	20	0	4	6	30	1	0	2	0	3
5:00	1	267	9	2	279	5	416	2	1	424	27	2	4	2	35	2	0	0	0	2
Total	5	987	19	4	1015	25	1720	7	2	1754	69	2	17	17	105	12	0	2	0	14
%Approach	0%	97%	2%	0%	100%	1%	98%	0%	0%	100%	66%	2%	16%	16%	100%	86%	0%	14%	0%	100%
Trucks	0	10	0	0	10	1	11	0	0	12	1	0	0	0	1	0	0	0	0	0
%Trucks	0%	1%	0%	0%	1%	4%	1%	0%	0%	1%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%
5:15	0	229	9	2	240	4	366	5	0	375	26	0	4	2	32	8	0	0	1	9
5:30	2	219	10	0	231	3	289	3	0	295	26	0	3	1	30	6	0	0	0	6
5:45	3	228	11	1	243	2	328	4	0	334	25	0	3	3	31	9	2	2	0	13
6:00	2	197	5	1	205	2	248	1	0	251	26	0	6	4	36	7	0	1	0	8
Total	7	873	35	4	919	11	1231	13	0	1255	103	0	16	10	129	30	2	3	1	36
%Approach	1%	95%	4%	0%	100%	1%	98%	1%	0%	137%	80%	0%	12%	8%	14%	83%	6%	8%	3%	4%
Trucks	0	9	0	0	9	0	11	0	0	11	1	0	0	0	1	0	0	0	0	0
%Trucks	0%	1%	0%	0%	1%	0%	1%	0%	0%	1%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%

PM Peak Hour From: 4:00 to 5:00

	Archer Road (SR 24) EASTBOUND					Archer Road (SR 24) WESTBOUND					SW 63rd Blvd NORTHBOUND					Child's Place Driveway SOUTHBOUND				
	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total
5:00	1	246	4	0	251	4	428	1	0	433	8	0	5	4	17	4	0	0	0	4
5:15	1	276	3	1	281	8	421	2	1	432	14	0	4	5	23	5	0	0	0	5
5:30	2	198	3	1	204	8	455	2	0	465	20	0	4	6	30	1	0	2	0	3
5:45	1	267	9	2	279	5	416	2	1	424	27	2	4	2	35	2	0	0	0	2
Total	5	987	19	4	1015	25	1720	7	2	1754	69	2	17	17	105	12	0	2	0	14

Dominant Movement: Westbound Thru

PM Peak 15 Min Volume From: 4:45 to 5:00

	Archer Road (SR 24) EASTBOUND					Archer Road (SR 24) WESTBOUND					SW 63rd Blvd NORTHBOUND					Child's Place Driveway SOUTHBOUND				
	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total	Left	Thru	Right	RTOR	Total
5:00	1	267	9	2	279	5	416	2	1	424	27	2	4	2	35	2	0	0	0	2
Peak Flow	4	1068	36	8	1116	20	1664	8	4	1696	108	8	16	8	140	8	0	0	0	8
PHF	1.25	0.92	0.53	0.50	0.91	1.25	1.03	0.88	0.50	1.03	0.64	0.25	1.06	2.13	0.75	1.50	0.00	0.00	0.00	1.75

Appendix H:

2018 Syncro Analysis showing full median opening

Intersection	
Int Delay, s/veh	14.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1552	19	32	824	55	95
Future Vol, veh/h	1552	19	32	824	55	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	335	-	285	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	0	0
Mvmt Flow	1687	21	35	896	60	103

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1708	0	2216	854
Stage 1	-	-	-	-	1698	-
Stage 2	-	-	-	-	518	-
Critical Hdwy	-	-	4.14	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.22	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	368	-	~ 38	306
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	568	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	368	-	~ 34	306
Mov Cap-2 Maneuver	-	-	-	-	~ 34	-
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	568	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	240.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	34	306	-	-	368	-
HCM Lane V/C Ratio	1.758	0.337	-	-	0.095	-
HCM Control Delay (s)	$ 617.5	22.6	-	-	15.8	-
HCM Lane LOS	F	C	-	-	C	-
HCM 95th %tile Q(veh)	6.6	1.4	-	-	0.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	8.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1033	62	106	1754	37	62
Future Vol, veh/h	1033	62	106	1754	37	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	335	-	285	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	0	0
Mvmt Flow	1123	67	115	1907	40	67

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1190	0	2341	595
Stage 1	-	-	-	-	1157	-
Stage 2	-	-	-	-	1184	-
Critical Hdwy	-	-	4.14	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.22	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	582	-	~ 31	452
Stage 1	-	-	-	-	266	-
Stage 2	-	-	-	-	257	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	582	-	~ 25	452
Mov Cap-2 Maneuver	-	-	-	-	~ 25	-
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	257	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	247
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	25	452	-	-	582	-
HCM Lane V/C Ratio	1.609	0.149	-	-	0.198	-
HCM Control Delay (s)	$ 636.7	14.4	-	-	12.7	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	4.9	0.5	-	-	0.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix I:

2025 Build-out Syncro Analysis

Intersection	
Int Delay, s/veh	14.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1552	19	32	824	55	95
Future Vol, veh/h	1552	19	32	824	55	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	335	-	285	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	0	0
Mvmt Flow	1687	21	35	896	60	103

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1708	0	2216	854
Stage 1	-	-	-	-	1698	-
Stage 2	-	-	-	-	518	-
Critical Hdwy	-	-	4.14	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.22	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	368	-	~ 38	306
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	568	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	368	-	~ 34	306
Mov Cap-2 Maneuver	-	-	-	-	~ 34	-
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	568	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	240.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	34	306	-	-	368	-
HCM Lane V/C Ratio	1.758	0.337	-	-	0.095	-
HCM Control Delay (s)	$ 617.5	22.6	-	-	15.8	-
HCM Lane LOS	F	C	-	-	C	-
HCM 95th %tile Q(veh)	6.6	1.4	-	-	0.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	8.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1033	62	106	1754	37	62
Future Vol, veh/h	1033	62	106	1754	37	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	335	-	285	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	0	0
Mvmt Flow	1123	67	115	1907	40	67

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1190	0	2341	595
Stage 1	-	-	-	-	1157	-
Stage 2	-	-	-	-	1184	-
Critical Hdwy	-	-	4.14	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.22	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	582	-	~ 31	452
Stage 1	-	-	-	-	266	-
Stage 2	-	-	-	-	257	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	582	-	~ 25	452
Mov Cap-2 Maneuver	-	-	-	-	~ 25	-
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	257	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	247
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	25	452	-	-	582	-
HCM Lane V/C Ratio	1.609	0.149	-	-	0.198	-
HCM Control Delay (s)	$ 636.7	14.4	-	-	12.7	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	4.9	0.5	-	-	0.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

End of Traffic Impact Analysis