Section 3D:

Donahue Drive Corridor



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INTRODUCTION

This section documents the results of traffic operations evaluations for the Donahue Drive Corridor from Farmville Road to Magnolia Avenue and from College Street to East University Drive (EUD) in Auburn, Alabama. It should be noted that the portion of Donahue Drive between Magnolia Avenue and College Street was excluded from this study because it is maintained by Auburn University. The seven (7) intersections analyzed in this corridor include:

- Donahue Drive at Farmville Road;
- Donahue Drive at Shug Jordan Parkway;
- Donahue Drive at Bragg Avenue/Martin Luther King Drive;
- Donahue Drive at Glenn Avenue;
- Donahue Drive at Magnolia Avenue;
- Donahue Drive at College Street; and
- Donahue Drive at EUD.

The locations of the study intersections along the Donahue Drive Corridor are illustrated in **Figure 1**.

To accomplish the traffic operations evaluations for the Donahue Drive Corridor, the following tasks were undertaken:

- existing peak hour turning movement counts were conducted for the study intersections;
- drive times were collected for the morning and afternoon commuter peak periods;
- capacity analyses were conducted for the study intersections;
- arterial capacity analyses were conducted for Donahue Drive;
- current traffic operational deficiencies were identified;
- projections for ten (10) year growth in traffic through the corridor were developed; and
- geometric and traffic control improvements were developed for the study intersections to address traffic operational and safety deficiencies for existing and projected ten (10) year conditions.

Sources of information used in this section include: The City of Auburn, Alabama; the Institute of Transportation Engineers; American Association of State Highway and Transportation Officials; the *Manual on Uniform Traffic Control Devices*; the Transportation Research Board; and the files and field reconnaissance efforts of Skipper Consulting, Inc.

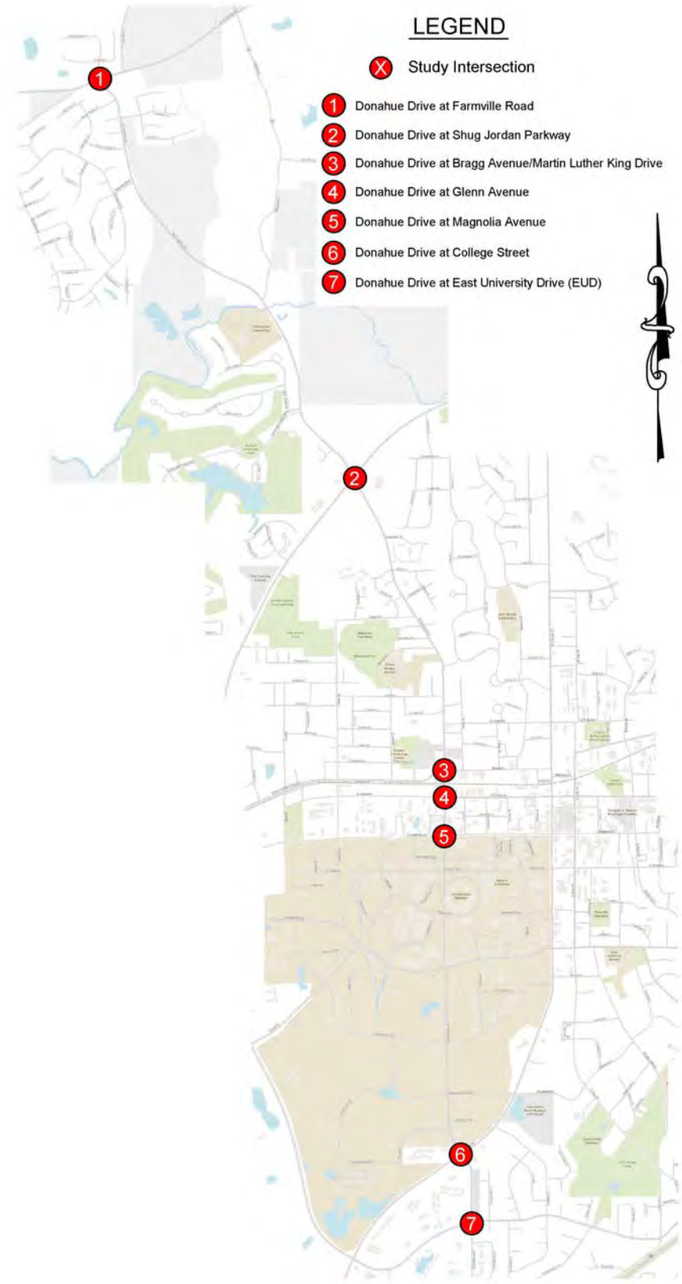


Figure 1 – Donahue Drive Corridor and Study Intersections

BACKGROUND INFORMATION

Study Area Roadways

Donahue Drive is a major collector roadway from Farmville Road to Shug Jordan Parkway and a minor arterial roadway from Shug Jordan Parkway to Magnolia Avenue. Between College Street and EUD, Donahue Drive is also a major collector roadway. From Farmville Road southeast to Shug Jordan Parkway, Donahue Drive provides access to primarily residential development as well as a school and some small commercial uses. Southeast of Shug Jordan Parkway to Magnolia Avenue, Donahue Drive provides access to a mixture of residential, commercial, and institutional land uses. Between College Street and EUD, Donahue Drive provides access to residential and commercial land uses. The Donahue Drive study corridor is approximately 4.1 miles in length between Farmville Road and Magnolia Avenue and approximately 0.33 miles in length between College Street and EUD. Characteristics of the roadway within the Donahue Drive Corridor are summarized in **Table 1**.

Pedestrian and Bicycle Accommodations

On Donahue Drive just south of Farmville Road and just south of Shug Jordan Parkway, there is a bicycle warning sign with an advisory plaque stating "3 feet please it's the law" posted southbound. Between Shug Jordan Parkway and Bedell Avenue, there are bicycle lanes on Donahue Drive, and south of Bedell Avenue to just south of Cary Drive, there are "Bicycles May Use Full Lane" (R4-11) signs and Shared Lane Markings on the roadway. There are several crosswalks, both signalized and unsignalized, on the Corridor. There is a railroad crossing with lights, bells, and gates between Bragg Avenue/Martin Luther King Drive and Glenn Avenue.

Peak Hour Traffic Counts

Morning (7:00-9:00 am) and afternoon (4:00-6:00 pm) peak hour turning movement counts were conducted along the Donahue Drive Corridor at the study intersections in 2013, 2014, and 2018. Traffic count data utilized for the analyses of these intersections is summarized in **Figure 2**.

TABLE 1 – CORRIDOR ROADWAY CHARACTERISTICS

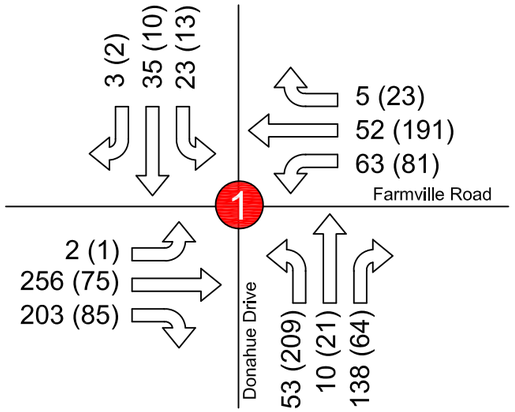
Roadway	Parking	# of Lanes	Travel Direction	Travel Speeds (mph)	Classification
Donahue Drive (Farmville Road to Shug Jordan Parkway)	None	2-3	North/South	45*	Major Collector
Donahue Drive (Shug Jordan Parkway to Bedell Avenue)	None	3	North/South	40	Minor Arterial
Donahue Drive (Bedell Avenue to Bragg Avenue/Martin Luther King Drive)	None	2	North/South	35*	Minor Arterial
Donahue Drive (Bragg Avenue/Martin Luther King Drive to Magnolia Avenue)	None	3	North/South	25	Minor Arterial
Donahue Drive (College Street to East University Drive (EUD))	None	3	North/South**	35	Major Collector

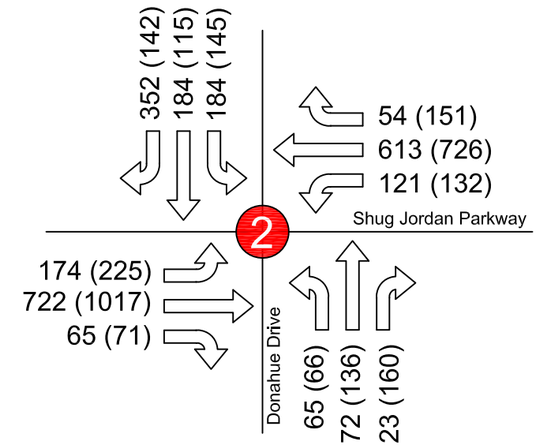
*25 mph school zone speed limit north and south of Yarbrough Elementary School and J.F. Drake Middle School
**Donahue Drive will be considered an east/west roadway at College St. to be consistent with the College St. Corridor Study

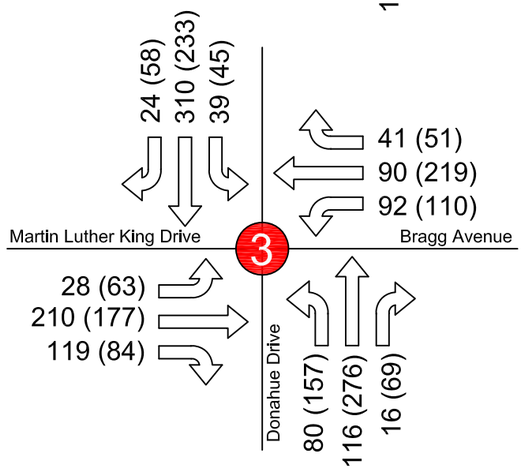
Peak Period Observations

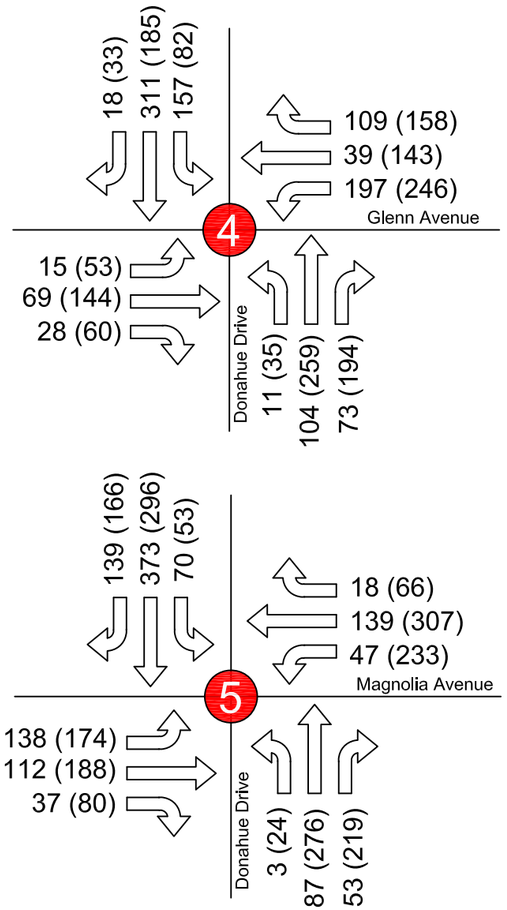
Observations of traffic operations were conducted within the Donahue Drive Corridor during the morning and afternoon peak periods. The following items were noted in these observations:

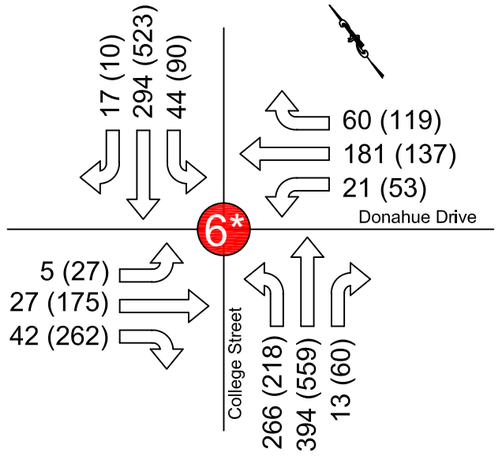
- During the morning peak hour, congestion was observed southbound on Donahue Drive at Shug Jordan Parkway;
- During the afternoon peak hour, northbound vehicles on Donahue Drive at Glenn Avenue occasionally experienced some congestion when vehicles stopped at the Glenn Avenue intersection as well as at the existing railroad tracks north of Glenn Avenue; and
- Some delay for the eastbound right-turn movement from South Donahue Drive onto South College Street was observed during the afternoon peak hour.

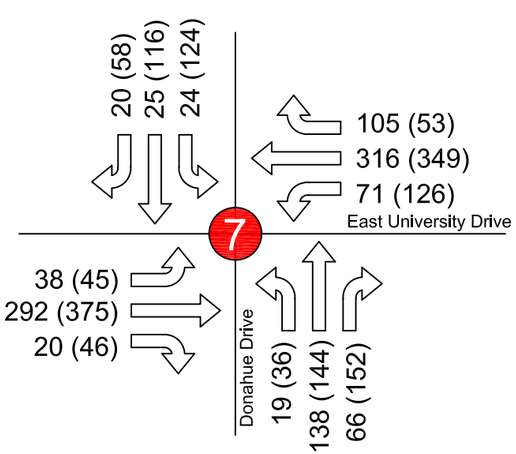


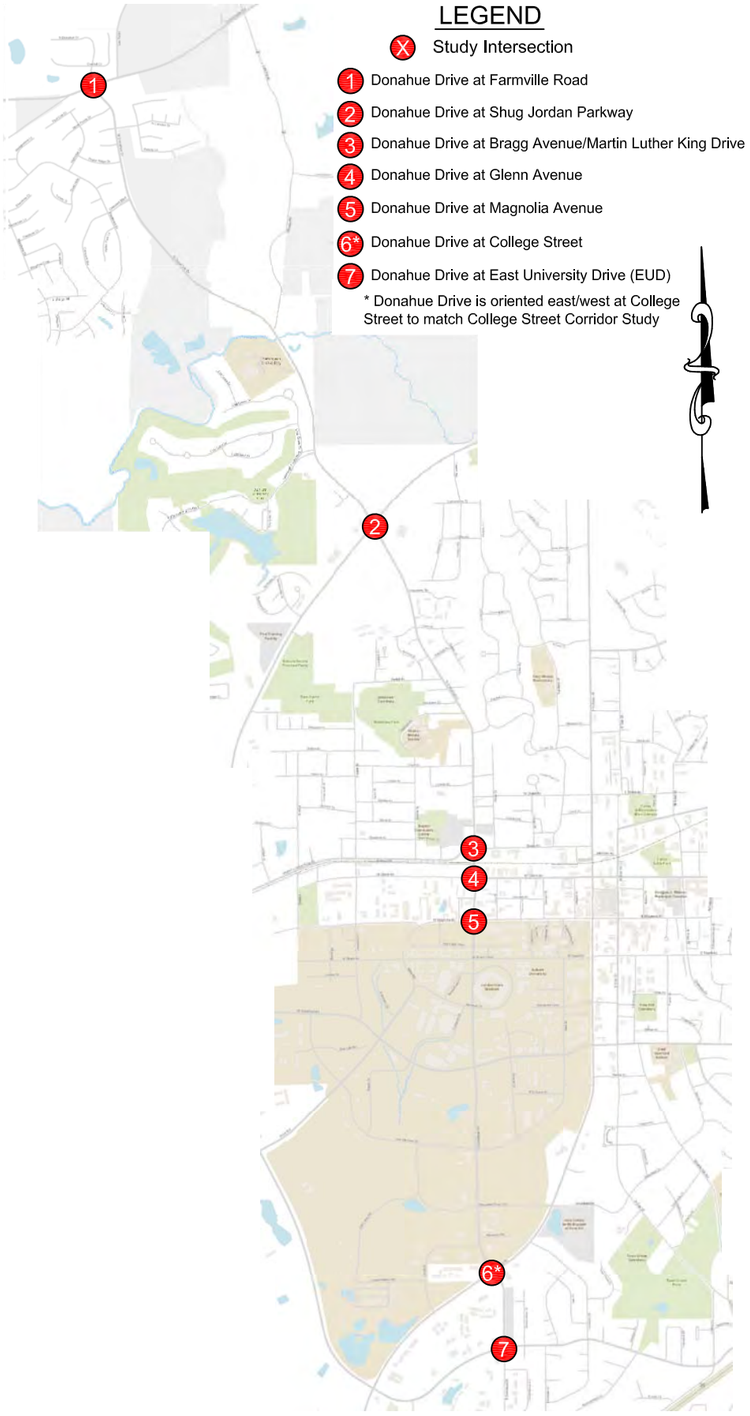












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Figure 2 - Existing Traffic Volumes
Donahue Drive Corridor
Auburn, Alabama

LEGEND

AM(PM) Peak Hour Volumes

X Study Intersection

Scale: Not to Scale
Date: Feb. 2019

EXISTING CONDITIONS ANALYSES

Existing Intersection Capacity Analysis

Capacity analyses for peak hour conditions at the study intersections along the Donahue Drive Corridor were conducted for the morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, 2010*. According to methods of the *Highway Capacity Manual*, capacity is expressed as levels of service ranging from "A" (best) through "F" (worst). In general, a level of service "C" is considered desirable while a level of service "D" is considered acceptable during peak hour operations. Results of these capacity analyses for existing conditions are summarized in **Table 2**.

As shown in **Table 2**, the following intersections operate with all movements at acceptable levels of service:

- Donahue Drive at Farmville Road;
- Donahue Drive at Bragg Avenue/Martin Luther King Drive;
- Donahue Drive at Glenn Avenue;
- Donahue Drive at Magnolia Avenue;
- Donahue Drive at College Street; and
- Donahue Drive at EUD.

The following intersection and movements have deficient levels of service during the peak hours of traffic flow:

- Donahue Drive at Shug Jordan Parkway:
  - Donahue Drive northbound through/rights (PM – LOS E);
  - Donahue Drive northbound overall approach (PM – LOS E);
  - Donahue Drive southbound rights (AM – LOS E); and
  - Donahue Drive southbound overall approach (AM – LOS E).

TABLE 2 - EXISTING INTERSECTION LEVELS OF SERVICE

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at Farmville Road (side-street stop)	EB Farmville Road	Left/Through	A	A
		Right	--	--
	WB Farmville Road	Left/Through/Right	A	A
	NB Donahue Drive	Left	C	C
		Through/Right	B	B
		Overall	B	C
	SB Donahue Drive	Left/Through/Right	C	C
		Overall	C	C
Donahue Drive at Shug Jordan Parkway (signalized)	EB Shug Jordan Parkway	Left	D	C
		Through/Right	D	C
		Overall	D	C
	WB Shug Jordan Parkway	Left	C	C
		Through/Right	D	C
		Overall	D	C
	NB Donahue Drive	Left	D	D
		Through/Right	D	E
		Overall	D	E
	SB Donahue Drive	Left	D	D
		Through	D	D
		Right	E	D
		Overall	E	D
	Overall Intersection LOS		**D**	**D**
Donahue Drive at Bragg Avenue/ Martin Luther King Drive (signalized)	EB Martin Luther King Drive	Left	C	C
		Through/Right	D	D
		Overall	D	D
	WB Bragg Avenue	Left	C	C
		Through/Right	C	D
		Overall	C	D
	NB Donahue Drive	Left	B	B
		Through/Right	B	C
		Overall	B	B
	SB Donahue Drive	Left	B	B
		Through/Right	C	C
		Overall	C	C
	Overall Intersection LOS		**C**	**C**

TABLE 2 - EXISTING INTERSECTION LEVELS OF SERVICE (CONTINUED)

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at Glenn Avenue (signalized)	EB Glenn Avenue	Left	C	C
		Through/Right	C	D
		Overall	C	D
	WB Glenn Avenue	Left	C	C
		Through/Right	C	C
		Overall	C	C
	NB Donahue Drive	Left	B	B
		Through/Right	C	D
		Overall	C	C
	SB Donahue Drive	Left	B	C
		Through/Right	C	C
		Overall	C	C
	Overall Intersection LOS		**C**	**C**
Donahue Drive at Magnolia Avenue (signalized)	EB Magnolia Avenue	Left	B	B
		Through	B	C
		Right	B	C
		Overall	B	B
	WB Magnolia Avenue	Left	B	B
		Through	B	C
		Right	B	B
		Overall	B	B
	NB Donahue Drive	Left	B	B
		Through	C	C
		Right	B	C
		Overall	C	C
	SB Donahue Drive	Left	B	B
		Through	C	C
		Right	B	B
		Overall	B	C
	Overall Intersection LOS		**B**	**C**
Donahue Drive at S. College Street (signalized)	EB Donahue Drive	Left	B	B
		Through/Right	B	B
		Overall	B	B
	WB Donahue Drive	Left	B	B
		Through	B	B
		Right	--	--
		Overall	B	B
	NB College Street	Left	A	A
		Through/Right	A	B
		Overall	A	B
	SB College Street	Left	A	A
		Through/Right	B	B
		Overall	B	B
	Overall Intersection LOS		**B**	**B**

TABLE 2 - EXISTING INTERSECTION LEVELS OF SERVICE (CONTINUED)

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at East University Drive (signalized)	EB East University Drive	Left	B	B
		Through/Right	C	D
		Overall	C	D
	WB East University Drive	Left	B	B
		Through/Right	C	C
		Overall	C	C
	NB South Donahue Drive	Left	B	B
		Through/Right	C	D
		Overall	C	C
	SB South Donahue Drive	Left	B	B
		Through/Right	B	C
		Overall	B	C
	Overall Intersection LOS		**C**	**C**

Existing Arterial Capacity Analysis

Arterial segment capacity analyses for peak hour conditions along the Donahue Drive Corridor from Magnolia Avenue to Bragg Avenue/Martin Luther King Drive and from College Street to EUD were conducted for the morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, 2010*. Levels of service for the arterial analyses conducted for the applicable segments of Donahue Drive are summarized in **Table 3**.

Table 3 shows that the arterial analyses for the segments between Magnolia Avenue to Bragg Avenue/Martin Luther King Drive operate at levels of service "E" or "F" in both directions except for northbound Donahue Drive from Magnolia Avenue to Glenn Avenue during the morning peak hour which operates at a level of service "D". These poorer levels of service are a result of signal spacing between the intersections as well as extended cycle lengths to accommodate the pedestrian demand at these locations which results in lower travel speeds along Donahue Drive. The segment between College Street and EUD operates at acceptable levels of service under existing conditions during the peak hours.

TABLE 3 - EXISTING ARTERIAL LEVELS OF SERVICE

Northbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial LOS by Segment	
			AM Peak	PM Peak
Magnolia Avenue	Glenn Avenue	0.18	D	E
Glenn Avenue	Bragg Avenue/ Martin Luther King Drive	0.12	E	E
EUD	College Street	0.34	C	C

Southbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial LOS by Segment	
			AM Peak	PM Peak
Bragg Avenue/ Martin Luther King Drive	Glenn Avenue	0.12	F	F
Glenn Avenue	Magnolia Avenue	0.18	E	E
College Street	EUD	0.34	C	C

Existing Daily Roadway Segment Capacity Analysis

Roadway segment capacity analyses for daily traffic conditions along the Donahue Drive Corridor were performed using the daily capacity and level of service chart obtained from the Alabama Department of Transportation. This chart is included in **Table 4**. Levels of service for the daily roadway segment capacity analyses conducted for Donahue Drive are summarized in **Table 5**.

TABLE 4 – DAILY CAPACITY AND LEVEL OF SERVICE CHART

Functional Classification	Number of Lanes	Maximum Daily Flow Rate Related to Level of Service					
		A	B	C	D	E	F
Freeway	4	23,800	34,000	42,160	51,000	68,000	>68,000
	6	35,700	51,000	63,240	76,500	102,000	>102,000
	8	47,600	68,000	84,320	102,000	136,000	>136,000
	10	59,500	85,000	105,400	127,500	170,000	>170,000
Expressway	4	17,500	25,000	31,000	37,500	50,000	>50,000
	6	26,250	37,500	46,500	56,250	75,000	>75,000
	8	35,000	50,000	62,000	75,000	100,000	>100,000
Arterial (Divided)	2	7,700	11,000	13,640	16,500	22,000	>22,000
	4	11,865	16,950	21,018	25,425	33,900	>33,900
	6	17,500	25,000	31,000	37,500	50,000	>50,000
	8	25,760	36,800	45,632	55,200	73,600	>73,600
Arterial (Undivided)	2	6,230	8,900	11,036	13,350	17,800	>17,800
	4	10,850	15,500	19,220	23,250	31,000	>31,000
	6	16,030	22,900	28,396	34,350	45,800	>45,800
	8	22,085	31,550	39,122	47,325	63,100	>63,100
Collector (Divided)	2	7,280	10,400	12,896	15,600	20,800	>20,800
	4	9,975	14,250	17,670	21,375	28,500	>28,500
	6	14,700	21,000	26,040	31,500	42,000	>42,000
Collector (Undivided)	2	5,810	8,300	10,292	12,450	16,600	>16,600
	4	9,170	13,100	16,244	19,650	26,200	>26,200
	6	13,545	19,350	23,994	29,025	38,700	>38,700

TABLE 5 – EXISTING DAILY ROADWAY SEGMENT LEVELS OF SERVICE

North Donahue Drive					
From	To	Segment Length (miles)	Cross Section	Daily Volume	Roadway LOS by Segment
Magnolia Avenue	Bragg Avenue/MLK	.31	3 Lane	11,864	C
Bragg Avenue/MLK	Shug Jordan Parkway	1.48	3 Lane	7,276	A
Shug Jordan Parkway	Yarbrough Farms Boulevard	.40	3 Lane	8,910	B
Yarbrough Farms Boulevard	Crescent Boulevard	1.40	2 Lane	7.067	B
Crescent Boulevard	Farmville Road	.51	3 Lane	5,022	A

Existing Peak Hour Roadway Segment Capacity Analysis

Roadway segment capacity analyses for peak hour conditions along the North Donahue Drive Corridor are applicable for the section of Donahue Drive north of Shug Jordan Parkway. Two segments were included in analysis where peak hour segment traffic volumes are available: north of Shug Jordan Parkway and south of Farmville Road. Existing peak hour roadway segment capacity analyses were conducted for the morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, 2010*. Levels of service for the arterial analyses conducted for North Donahue Drive are summarized in **Table 6**.

TABLE 6 – EXISTING PEAK HOUR ROADWAY SEGMENT LEVELS OF SERVICE

North Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Roadway LOS by Segment	
			AM Peak	PM Peak
Shug Jordan Parkway	Yarbrough Farms Boulevard	0.40	C	B
Crescent Boulevard	Farmville Road	0.51	B	B

Existing Signal Warrant Evaluation

The traffic signal warrant evaluation process used for this study is based upon the criteria for the installation of traffic signals presented in the *Manual on Uniform Traffic Control Devices* (*MUTCD*) *2009 Edition*, as published by the Federal Highway Administration. To warrant traffic signalization, an intersection must satisfy one or more of the eight warrants presented in the *MUTCD*. For this study process, the traffic signal warrant evaluation was limited to applicable warrants for the study intersection of Donahue Drive at Farmville Road. Descriptions of the applicable warrants can be found in the *MUTCD*. The results of the analysis indicate that traffic signalization is **not** presently warranted at the study intersection.

Existing Right-Turn Lane Warrant Evaluations

Existing peak hour traffic volumes were compared with the turn lane warrant criteria outlined in the National Cooperative Highway Research Program (NCHRP) Report 457 *Evaluating Intersection Improvements: An Engineering Study Guide*, published by the Transportation Research Board. For evaluation purposes, the posted speed limit was utilized for roadways. Evaluations were conducted for the following approaches:

- Donahue Drive at Farmville Road
  - Donahue Drive northbound – Not Warranted
  - Donahue Drive southbound – Not Warranted
  - Farmville Road westbound – Not Warranted
- Donahue Drive at Shug Jordan Parkway
  - Donahue Drive northbound – Not Warranted
  - Shug Jordan Drive eastbound – WARRANTED
  - Shug Jordan Drive westbound – WARRANTED
- Donahue Drive at Bragg Avenue/Martin Luther King Drive
  - Donahue Drive northbound– Not Warranted
  - Donahue Drive southbound– Not Warranted
  - Martin Luther King Drive eastbound– Not Warranted
  - Bragg Avenue westbound– Not Warranted
- Donahue Drive at Glenn Avenue
  - Donahue Drive northbound – Not Warranted
  - Donahue Drive southbound – Not Warranted
  - Glenn Avenue eastbound – Not Warranted
  - Glenn Avenue westbound – Not Warranted
- Donahue Drive at College Street
  - Donahue Drive eastbound – Not Warranted
  - College Street northbound – Not Warranted
  - College Street southbound – Not Warranted
- Donahue Drive at EUD
  - Donahue Drive northbound – Not Warranted
  - Donahue Drive southbound – Not Warranted
  - EUD eastbound – Not Warranted
  - EUD westbound – Not Warranted

Existing Left-Turn Lane Warrant Evaluations

Existing peak hour traffic volumes were compared with the left-turn lane warrant criteria outlined in the National Cooperative Highway Research Program (NCHRP) Report 457 *Evaluating Intersection Improvements: An Engineering Study Guide*, published by the Transportation Research Board. For evaluation purposes, the posted speed limit was utilized for roadways. Evaluations were conducted for each approach along Donahue Drive which does not have a left-turn lane. The results of the left-turn lane warrant evaluations indicate the following for existing conditions:

- Farmville Road westbound at Donahue Drive – Not Warranted (Near Threshold for PM Peak)

Intersection Crash Evaluation

Skipper Consulting, Inc. performed a citywide crash study for intersections and roadway segments maintained by the City of Auburn. The results of this crash study have been documented in a separate bound report. The citywide crash study included the study intersections along Donahue Drive. Screening procedures and crash analyses were conducted to determine any locations that are worthy of safety-based roadway improvements. As part of the screening procedures, the study intersections were categorized as follows:

- Low Priority Intersections - this indicates the crash experience should be considered when completing other roadway improvements at this location. However, the crash experience does not warrant an immediate safety improvement project.
    - None

- Moderate Priority Intersections - this indicates the crash experience should be monitored in the near future and could be worthy of a safety-based roadway improvement if crash experience trends upward. This does not warrant a safety-based improvement at this time, but a safety-based improvement should be incorporated in any roadway improvement at this location.
    - Donahue Drive at Glenn Avenue
    - Donahue Drive at Magnolia Avenue

- High Priority Intersections – this indicates that improvements are recommended for each location identified based upon the detailed crash evaluation.
    - Donahue Drive at Shug Jordan Parkway
    - Donahue Drive at College Street

The Citywide Crash Study made recommendations for safety-based improvements to study intersections. The following is a listing of the high priority study intersections and the recommended improvements:

<u>High Priority Crash Locations</u>

<u>Donahue Drive at Shug Jordan Parkway</u>

- Construct a right turn lane along eastbound Shug Jordan Parkway
- Construct a right turn lane along westbound Shug Jordan Parkway
- Construct a right turn lane along northbound North Donahue Drive
- Adjust the traffic signal timings to update clearance times to current ITE guidelines and adjust green time to comply with capacity needs as identified in the corridor operations study.

<u>Donahue Drive at College Street</u>

- Construct a right turn lane along the eastbound Donahue Drive approach
- Construct positive offset left turn lanes both north and southbound along South College Street
- Evaluate the intersection for the need of protected only phasing
- Adjust the traffic signal timings to update clearance times to current ITE guidelines and adjust green time to comply with capacity needs as identified in the corridor operations study.

Travel Time

GPS-based Travel time runs were performed on Donahue Drive from Farmville Road to EUD on Wednesday, April 11, 2018. Travel time runs were performed during the morning, midday, and afternoon peak periods of traffic flow. Six runs were performed in each direction during each peak period. It should be noted that there was some ongoing construction on the corridor during the travel time runs. The results of the travel time runs are shown in **Table 7**.

TABLE 7 – TRAVEL TIME RUNS

AM Peak				Midday Peak				PM Peak			
Start Time	Dir.	Elapsed Time	Avg. Speed (mph)	Start Time	Dir.	Elapsed Time	Avg. Speed (mph)	Start Time	Dir.	Elapsed Time	Avg. Speed (mph)
7:00	NB	14:31	31.4	11:00	SB	17:58	30.8	4:00	SB	18:30	30.3
7:14	NB	18:50	28.6	11:22	SB	14:32	30.7	4:19	SB	18:37	31.6
7:34	NB	16:08	30.2	11:33	SB	15:53	30.6	4:38	SB	20:28	31.9
7:51	NB	19:50	29.1	11:50	SB	15:30	32.4	4:59	SB	17:01	31.1
8:11	NB	15:27	31.0	12:07	SB	16:12	31.5	5:18	SB	18:29	30.6
8:27	NB	15:05	30.5	12:24	SB	14:57	32.4	5:37	SB	17:37	31.7
7:00	SB	16:05	29.5	11:00	NB	16:19	30.9	4:00	NB	14:40	32.2
7:16	SB	14:29	31.5	11:17	NB	13:12	33.7	4:16	NB	13:03	32.7
7:31	SB	21:25	25.6	11:30	NB	14:08	31.2	4:29	NB	18:46	31.1
7:53	SB	16:18	27.9	11:45	NB	16:44	31.4	4:49	NB	18:34	29.1
8:10	SB	15:24	30.8	12:02	NB	17:40	30.9	5:08	NB	20:16	31.7
8:26	SB	14:19	31.6	12:21	NB	15:18	30.7	5:28	NB	17:59	31.5

EXISTING CONDITIONS ANALYSES WITH IMPROVEMENTS

Recommended Improvements for Existing Conditions

Roadway and traffic control improvements have been developed to help address capacity deficiencies identified in the capacity analyses conducted, traffic operational issues observed during peak periods, or turn lane warrant evaluations along the Donahue Drive corridor. These improvements include the recommended safety-based improvements as noted previously in this document. The following outlines the recommended improvements for existing conditions along Donahue Drive.

Donahue Drive Signal System

It is recommended that the traffic signals on Donahue Drive from Magnolia Avenue to Bragg Avenue/Martin Luther King Drive be included in a coordinated signal system.

Donahue Drive at Farmville Road

It is recommended that the following improvements be made to the intersection of Donahue Drive at Farmville Road to increase capacity and improve traffic operations:

- Construct a westbound left turn lane on Farmville Road at Donahue Drive; and
- Construct an eastbound left-turn lane on Farmville Road at Donahue Drive (although this lane is not warranted, the transition required for the westbound left-turn lane provides most of the space required for the left-turn lane and would be included in the transition taper required for the westbound left-turn lane);

Note: although a westbound left turn lane is not currently warranted on Farmville Road at Donahue Drive, it is near the warranting threshold for the afternoon peak hour and is thus recommended for existing conditions.

Farmville Road at Mrs. James Road

This intersection is not a part of the Donahue Drive Corridor. However, with widening needed for the left-turn lanes on Farmville Road at Donahue Drive, inclusion of a westbound left-turn lane onto Mrs. James Road could be accomplished with minimal additional widening. Therefore, this improvement is recommended and included in the conceptual drawings for the Donahue Drive at Farmville Road intersection.

The Farmville Road at N. Donahue Drive and Mrs. James Road intersection improvements are illustrated in **Figure 3**.

Donahue Drive at Shug Jordan Parkway

It is recommended that the following improvements be made to the intersection of Donahue Drive at Shug Jordan Parkway to increase capacity and improve traffic operations:

- Install an eastbound right turn lane on Shug Jordan Parkway at Donahue Drive;
- Install a westbound right turn lane on Shug Jordan Parkway at Donahue Drive;
- Install a northbound right turn lane on Donahue Drive at Shug Jordan Parkway;
- Restripe the southbound right-turn lane to provide a channelizing island with “Yield” control; and
- The traffic signal timings should be modified to accommodate the lane use changes.

A conceptual plan for the improvements at the Donahue Drive and Shug Jordan Parkway intersection is shown in **Figure 4**.



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Legend

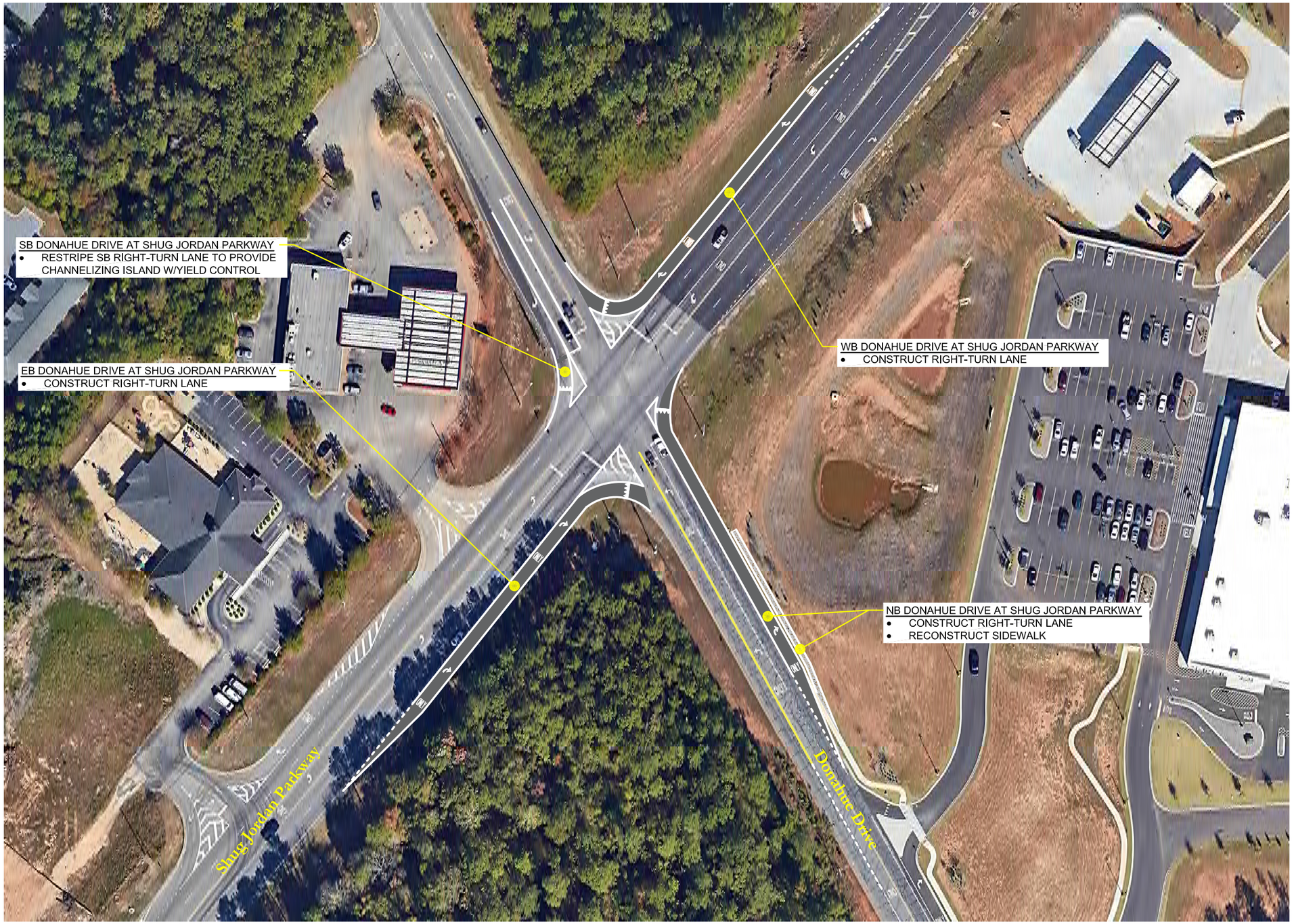
Required Pavement

North

Graphic Scale: 1"=100'

Figure 3
Donahue Drive at Farmville Road
Existing Improvements
Auburn, Alabama

Feb. 2019



SKIPPER CONSULTING INC

Legend

Required Pavement

Required Sidewalk

North

Graphic Scale: 1"-100'

Figure 4
Donahue Drive at Shug Jordan Parkway Existing Improvements

Feb. 2019 Auburn, Alabama

S. Donahue Drive at S. College Street

Improvements were developed for the S. College Street at S. Donahue Drive intersection as summarized in the following and illustrated in **Figure 5**.

- Widen S. College Street to provide for offset left-turn lanes on northbound and southbound approaches;
- Implement northbound and southbound Flashing Yellow Arrow (FYA) left-turn phasing;
- Widen the eastbound approach of S. Donahue Drive to provide a full width right-turn lane;
- Review and adjust, as needed, signal clearance timings; and
- Inclusion of the traffic signal in Sub-System 3 along S. College Street.

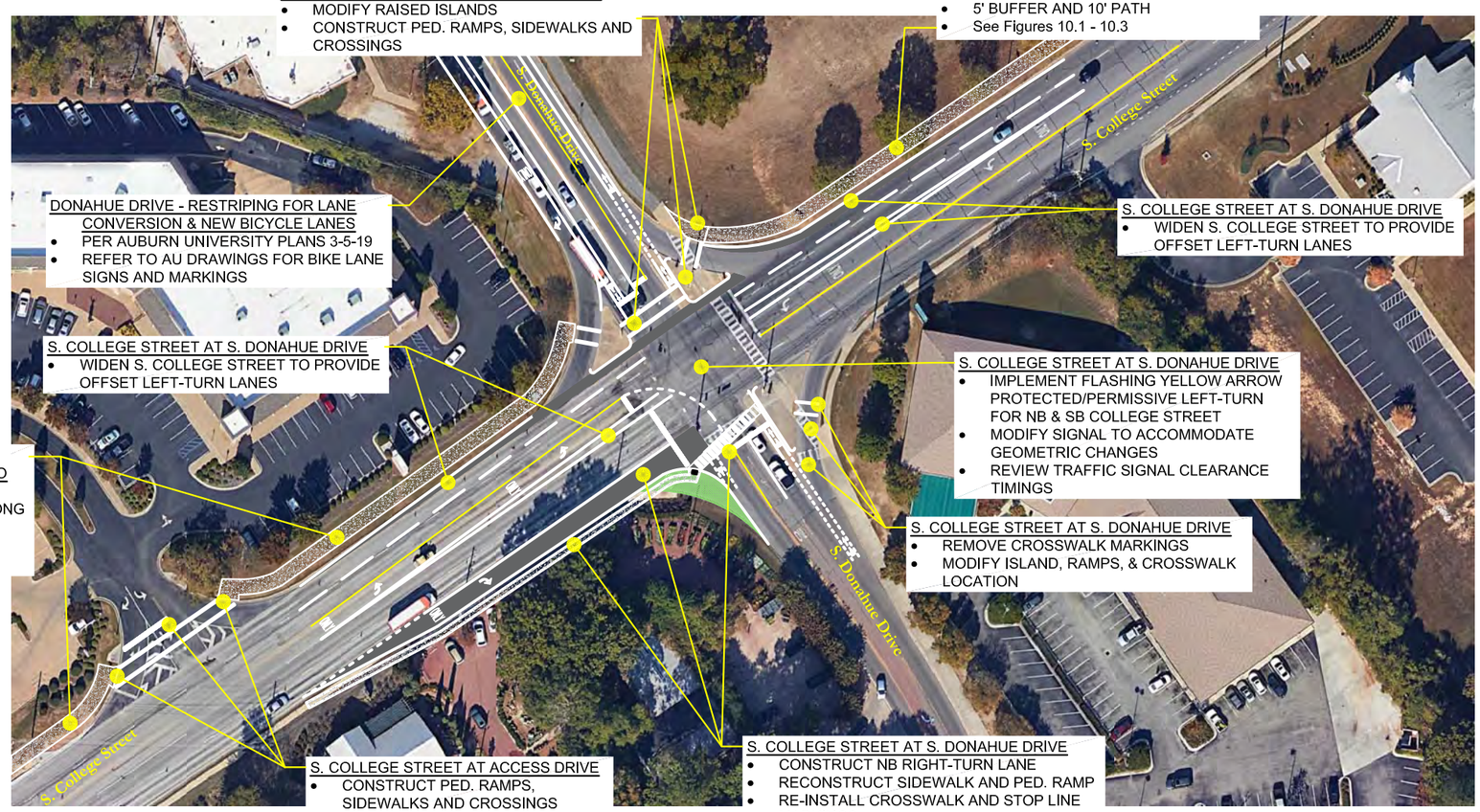
It should be noted that properties along the western leg of S. Donahue Drive belong to Auburn University. Coordination for improvements along this segment of roadway should be coordinated with Auburn University.

Existing Intersection Capacity Analysis with Improvements

Capacity analyses for peak hour conditions at the study intersections along the Donahue Drive Corridor were conducted assuming improvements for existing conditions would be in place. Capacity analyses were conducted using methods outlined in the *Highway Capacity Manual, 2010*. Results of these capacity analyses are summarized in **Table 8**.

TABLE 8 - EXISTING INTERSECTION LEVELS OF SERVICE WITH IMPROVEMENTS

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at Farmville Road (side-street stop)	EB Farmville Road	Left	A	A
		Through	--	--
		Right	--	--
	WB Farmville Road	Left	A	A
		Through/Right	--	--
	NB Donahue Drive	Left	C	C
		Through/Right	B	B
		Overall	B	C
	SB Donahue Drive	Left/Through/Right	C	B
		Overall	C	B
Donahue Drive at Shug Jordan Parkway (signalized)	EB Shug Jordan Parkway	Left	C	B
		Through	C	C
		Right	-	-
		Overall	C	C
	WB Shug Jordan Parkway	Left	C	B
		Through	C	C
		Right	-	-
		Overall	C	C
	NB Donahue Drive	Left	D	D
		Through	D	D
		Right	-	-
		Overall	D	D
	SB Donahue Drive	Left	D	D
		Through	D	D
		Right	-	-
		Overall	D	D
	Overall Intersection LOS		**C**	**C**
Donahue Drive at Bragg Avenue/ Martin Luther King Drive (signalized)	EB Martin Luther King Drive	Left	C	D
		Through/Right	D	D
		Overall	D	D
	WB Bragg Avenue	Left	D	D
		Through/Right	C	D
		Overall	C	D
	NB Donahue Drive	Left	B	B
		Through/Right	A	A
		Overall	A	A
	SB Donahue Drive	Left	B	B
		Through/Right	B	C
		Overall	C	C
	Overall Intersection LOS		**C**	**C**



S. COLLEGE STREET AT S. DONAHUE DRIVE
- MODIFY RAISED ISLANDS
- CONSTRUCT PED. RAMPS, SIDEWALKS AND CROSSINGS

S. COLLEGE STREET - SHUG JORDAN PARKWAY/E. UNIVERSITY DRIVE TO WOODFIELD DRIVE
- CONSTRUCT MULTI-USE PATH ALONG WEST SIDE OF S. COLLEGE ST.
- 5' BUFFER AND 10' PATH
- See Figures 10.1 - 10.3

DONAHUE DRIVE - RESTRIPING FOR LANE CONVERSION & NEW BICYCLE LANES
- PER AUBURN UNIVERSITY PLANS 3-5-19
- REFER TO AU DRAWINGS FOR BIKE LANE SIGNS AND MARKINGS

S. COLLEGE STREET AT S. DONAHUE DRIVE
- WIDEN S. COLLEGE STREET TO PROVIDE OFFSET LEFT-TURN LANES

S. COLLEGE STREET AT S. DONAHUE DRIVE
- WIDEN S. COLLEGE STREET TO PROVIDE OFFSET LEFT-TURN LANES

S. COLLEGE STREET AT S. DONAHUE DRIVE
- IMPLEMENT FLASHING YELLOW ARROW PROTECTED/PERMISSIVE LEFT-TURN FOR NB & SB COLLEGE STREET
- MODIFY SIGNAL TO ACCOMMODATE GEOMETRIC CHANGES
- REVIEW TRAFFIC SIGNAL CLEARANCE TIMINGS

S. COLLEGE STREET AT S. DONAHUE DRIVE
- REMOVE CROSSWALK MARKINGS
- MODIFY ISLAND, RAMPS, & CROSSWALK LOCATION

S. COLLEGE STREET - SHUG JORDAN PARKWAY/E. UNIVERSITY DRIVE TO WOODFIELD DRIVE
- CONSTRUCT MULTI-USE PATH ALONG WEST SIDE OF S. COLLEGE ST.
- 5' BUFFER AND 10' PATH
- See Figures 10.1 - 10.3

S. COLLEGE STREET AT ACCESS DRIVE
- CONSTRUCT PED. RAMPS, SIDEWALKS AND CROSSINGS
- MODIFY STRIPING

S. COLLEGE STREET AT S. DONAHUE DRIVE
- CONSTRUCT NB RIGHT-TURN LANE
- RECONSTRUCT SIDEWALK AND PED. RAMP
- RE-INSTALL CROSSWALK AND STOP LINE MARKINGS

Note: Pedestrian ramps shall include tactile warning strips and truncated domes per ADA.

Signal System Note:
Signals at S. Donahue Drive and Woodfield Drive to be coordinated.

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Legend
- Required Pavement
- Required Grass
- Required Multi-Use Path/Sidewalk
- Required Ped. Ramp

North

Graphic Scale: 1"=100'

Figure 5
S. College St. at S. Donahue Dr. Existing Improvements

Donahue Drive
Auburn, Alabama

February 2019

TABLE 8 - EXISTING INTERSECTION LEVELS OF SERVICE WITH IMPROVEMENTS (CONTINUED)

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at Glenn Avenue (signalized)	EB Glenn Avenue	Left	D	D
		Through/Right	D	D
		Overall	D	D
	WB Glenn Avenue	Left	D	D
		Through/Right	C	D
		Overall	D	D
	NB Donahue Drive	Left	B	B
		Through/Right	D	D
		Overall	C	D
	SB Donahue Drive	Left	B	B
		Through/Right	A	A
		Overall	A	A
	Overall Intersection LOS		**C**	**D**
Donahue Drive at Magnolia Avenue (signalized)	EB Magnolia Avenue	Left	D	D
		Through	D	D
		Right	D	D
		Overall	D	D
	WB Magnolia Avenue	Left	D	C
		Through	D	D
		Right	D	D
		Overall	D	D
	NB Donahue Drive	Left	B	B
		Through	B	C
		Right	B	C
		Overall	B	C
	SB Donahue Drive	Left	A	B
		Through	C	C
		Right	C	C
		Overall	C	C
	Overall Intersection LOS		**C**	**C**

TABLE 8 - EXISTING INTERSECTION LEVELS OF SERVICE WITH IMPROVEMENTS (CONTINUED)

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at S. College Street (signalized)	EB Donahue Drive	Left	D	C
		Through	C	C
		Right	C	D
		Overall	C	D
	WB Donahue Drive	Left	C	D
		Through	D	C
		Right	-	-
		Overall	D	C
	NB College Street	Left	A	A
		Through/Right	A	B
		Overall	A	B
	SB College Street	Left	A	A
		Through/Right	A	B
		Overall	A	B
	Overall Intersection LOS		**B**	**B**
Donahue Drive at East University Drive (signalized)	EB East University Drive	Left	B	B
		Through/Right	C	D
		Overall	C	D
	WB East University Drive	Left	B	B
		Through/Right	C	C
		Overall	C	C
	NB South Donahue Drive	Left	B	B
		Through/Right	C	D
		Overall	C	C
	SB South Donahue Drive	Left	B	B
		Through/Right	B	C
		Overall	B	C
	Overall Intersection LOS		**C**	**C**

Existing Arterial Capacity Analysis with Improvements

Arterial segment capacity analyses for peak hour conditions along the Donahue Drive Corridor from Magnolia Avenue through Bragg Avenue and EUD to College Street were conducted for the morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, 2010*. These analyses reflect implementation of a coordinated signal system on Donahue Drive from Magnolia Avenue to Bragg Avenue/Martin Luther King Drive as well as the other improvements listed above. Levels of service for the arterial analyses conducted for Donahue Drive for the applicable segments are summarized in **Table 9**.

Table 9 indicates segments of Donahue Drive from Magnolia Avenue to Bragg Avenue/Martin Luther King Drive would be improved with the implementation of a coordinated signal system on Donahue Drive. Northbound travel on Donahue Drive would improve to a level of service "D" or better during each peak period while southbound travel would also improve. The southbound segment from Bragg Avenue/Martin Luther King Drive to Glenn Avenue would improve from level of service "F" to a level of service "E" during each peak period with the segment from Glenn Avenue to Magnolia Avenue improving from a level of service "E" to a level of service "C" during each peak period. The segment between College Street and EUD operates at acceptable levels of service during the peak hours.

TABLE 9 - EXISTING ARTERIAL LEVELS OF SERVICE WITH IMPROVEMENTS

Northbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial LOS by Segment	
			AM Peak	PM Peak
Magnolia Avenue	Glenn Avenue	0.18	C	D
Glenn Avenue	Bragg Avenue/ Martin Luther King Drive	0.12	D	D
EUD	College Street	0.34	D	C

Southbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial LOS by Segment	
			AM Peak	PM Peak
Bragg Avenue/ Martin Luther King Drive	Glenn Avenue	0.12	E	E
Glenn Avenue	Magnolia Avenue	0.18	C	C
College Street	EUD	0.34	C	C

PROJECTED TRAFFIC GROWTH

Growth rates were calculated for the study roadways based on historical traffic volumes and growth trends. The historical growth rates calculated for intersections on North Donahue Drive were as follows:

- Donahue Drive at Shug Jordan Parkway: +3.4% per year
- Donahue Drive at Farmville Road: +3.4% per year
- Donahue Drive from Bragg Avenue/Martin Luther King Drive to Magnolia Avenue: +3.2% per year
- Donahue Drive at South College Street: +1.4% per year
- Donahue Drive at EUD: +0.9% per year

For the roadway segment of North Donahue Drive from Shug Jordan Parkway to Farmville Road, and for the intersection of North Donahue Drive at Farmville Road, additional traffic beyond the baseline +3.4% per year traffic growth is anticipated from impending developments along and north of the corridor. Traffic generated from four (4) developments were included in the traffic projections, based on the traffic impact studies for these developments provided by the City of Auburn. The four additional developments and the daily trip generation of these developments were as follows:

- The Preserve – 7.900 daily trips
- Tiger Creek – 2,204 daily trips
- Burt Property – 4,630 daily trips
- Yarbrough Farms – 4,282 daily trips

The locations of these developments are shown in **Figure 6**.

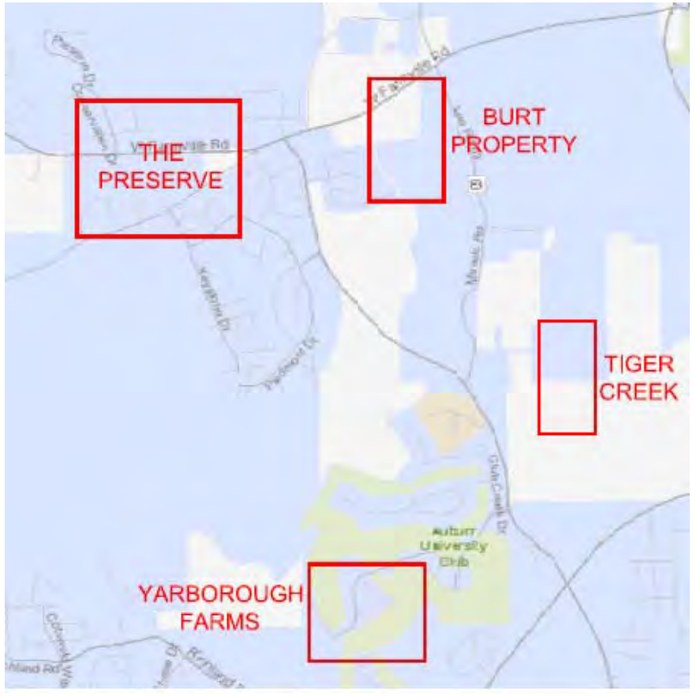


Figure 6 – Development Locations

Due to the location of each development, and the access system for each development, not all the traffic generated by each development would be experienced along the entire length of North Donahue Drive. Using information from the traffic impact studies for the four developments, an estimate of the impact of each development on segment traffic volumes and intersection turning movement traffic counts at the intersection of North Donahue Drive at Farmville Road was prepared. The daily traffic analysis on North Donahue Drive is shown in **Table 10**. The calculation of future peak hour turning movement traffic counts at the intersection of North Donahue Drive at Farmville Road is shown in **Table 11**.

TABLE 10 – CALCULATION OF DAILY TRAFFIC VOLUMES – NORTH DONAHUE DRIVE

Description	Shug Jordan Parkway to Yarbrough Farms Boulevard	Miracle Road to Crescent Boulevard	Crescent Boulevard to Farmville Road
Existing Daily Traffic	8,910	7,067	5,022
10-Year Growth	3,209	9,470	6,729
Yarbrough Farms	1,712	0	0
Tiger Creek	2,156	0	0
Burt Property	2,778	2,778	2,778
The Preserve	6,320	6,320	6,320
Total	***24,905***	***18,568***	***13,512***

TABLE 11 – CALCULATION OF TURNING MOVEMENT TRAFFIC VOLUMES NORTH DONAHUE DRIVE AT FARMVILLE ROAD

Description	Time	Eastbound			Westbound			Northbound			Southbound		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing	AM	2	256	203	63	52	5	53	10	138	23	35	3
	PM	1	75	85	81	191	23	209	21	64	13	10	2
Growth	AM	1	87	69	21	18	2	18	3	47	8	12	1
	PM	0	26	29	28	65	8	71	7	22	4	3	1
The Preserve	AM	0	353	238	0	99	0	66	0	0	0	0	0
	PM	0	180	169	0	322	0	271	0	0	0	0	0
Tiger Creek	AM	0	0	3	1	0	0	6	2	8	0	1	0
	PM	0	0	9	7	0	0	6	1	3	0	2	0
Burt Property	AM	0	4	9	0	14	0	27	0	0	0	0	0
	PM	0	14	29	0	8	0	16	0	0	0	0	0
Total	***AM***	***3***	***700***	***522***	***85***	***183***	***7***	***170***	***15***	***193***	***31***	***48***	***4***
	PM	***1***	***295***	***321***	***116***	***586***	***31***	***573***	***29***	***89***	***17***	***15***	***3***

Figure 7 illustrates the resultant projected traffic volumes for the study intersections.

FUTURE ANALYSES WITH PROJECTED TRAFFIC GROWTH

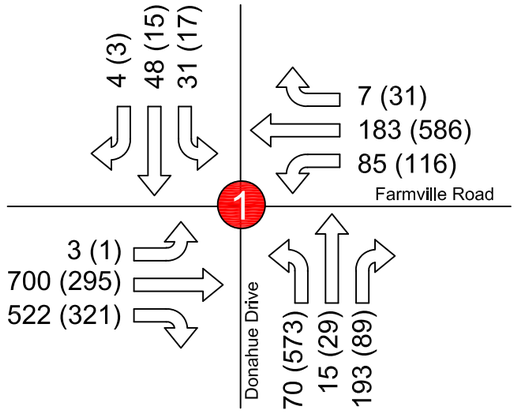
Analyses conducted for this scenario assumes projected traffic volumes for ten (10) years would be in place and the improvements recommended for existing conditions (previously introduced) would also be in place.

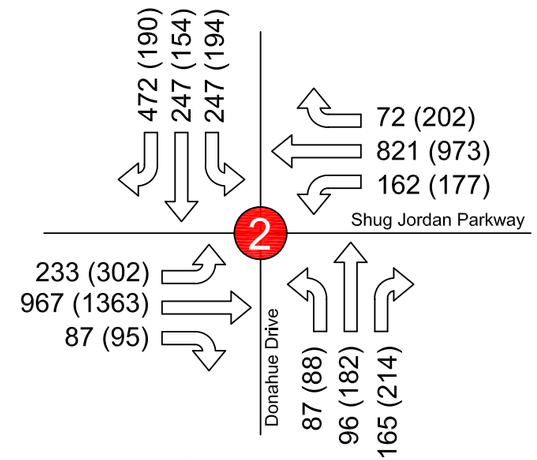
Future Intersection Capacity Analysis

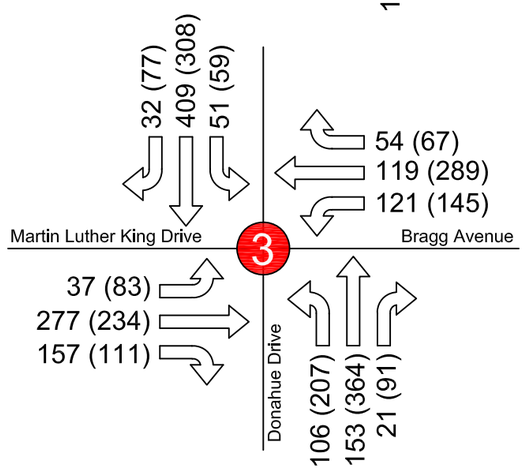
Capacity analyses for projected ten (10) year peak hour conditions were conducted for the study intersections along the N. Donahue Drive Corridor using methods outlined in the *Highway Capacity Manual, 2010*. Results of these capacity analyses are summarized in **Table 12**.

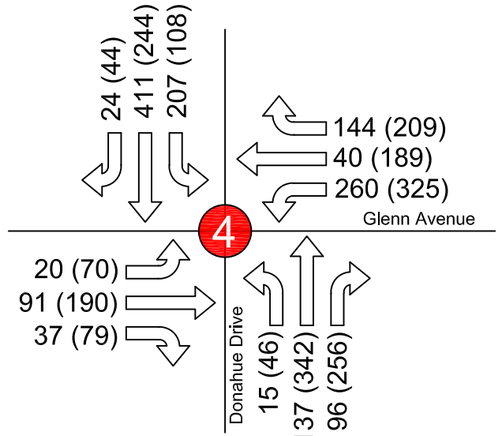
TABLE 12 – FUTURE INTERSECTION LEVELS OF SERVICE

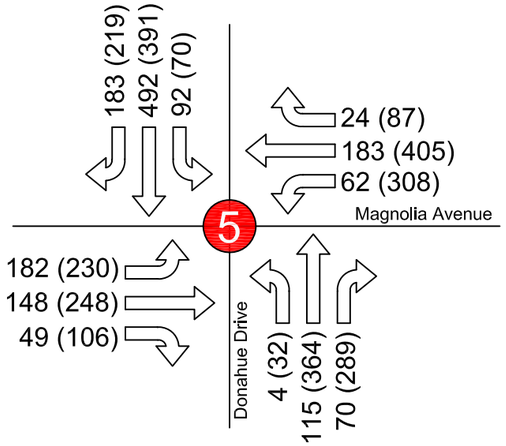
Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at Farmville Road (un-signalized)	EB Farmville Road.	Left	A	A
		Through	--	--
		Right	--	--
	WB Farmville Road.	Left	B	A
		Through/Right	--	--
	NB Donahue Drive.	Left	F	F
		Through/Right	D	C
		Overall	F	F
	SB Donahue Drive	Left/Thru/Right	F	F
		Overall	F	F
Donahue Drive at Shug Jordan Parkway/East University Drive (signalized)	EB Shug Jordan Parkway.	Left	C	D
		Through	C	D
		Right	--	-
		Overall	C	D
	WB Shug Jordan Parkway.	Left	C	D
		Through	C	D
		Right	--	-
		Overall	C	D
	NB Donahue Drive.	Left	D	D
		Through	D	D
		Right	--	-
		Overall	D	D
	SB Donahue Drive	Left	D	D
		Through	D	D
		Right	-	-
		Overall	D	D
	Overall LOS		**C**	**D**

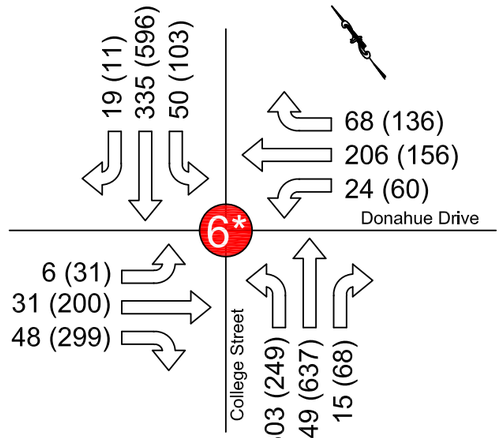


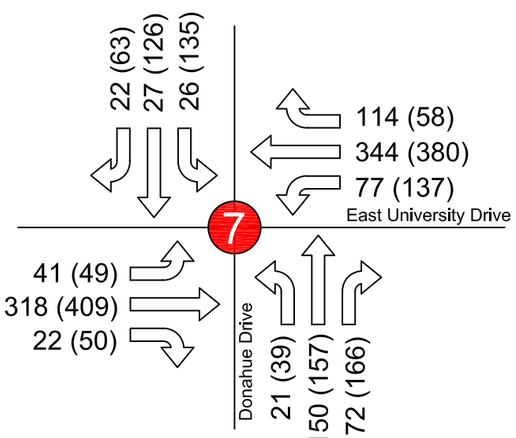


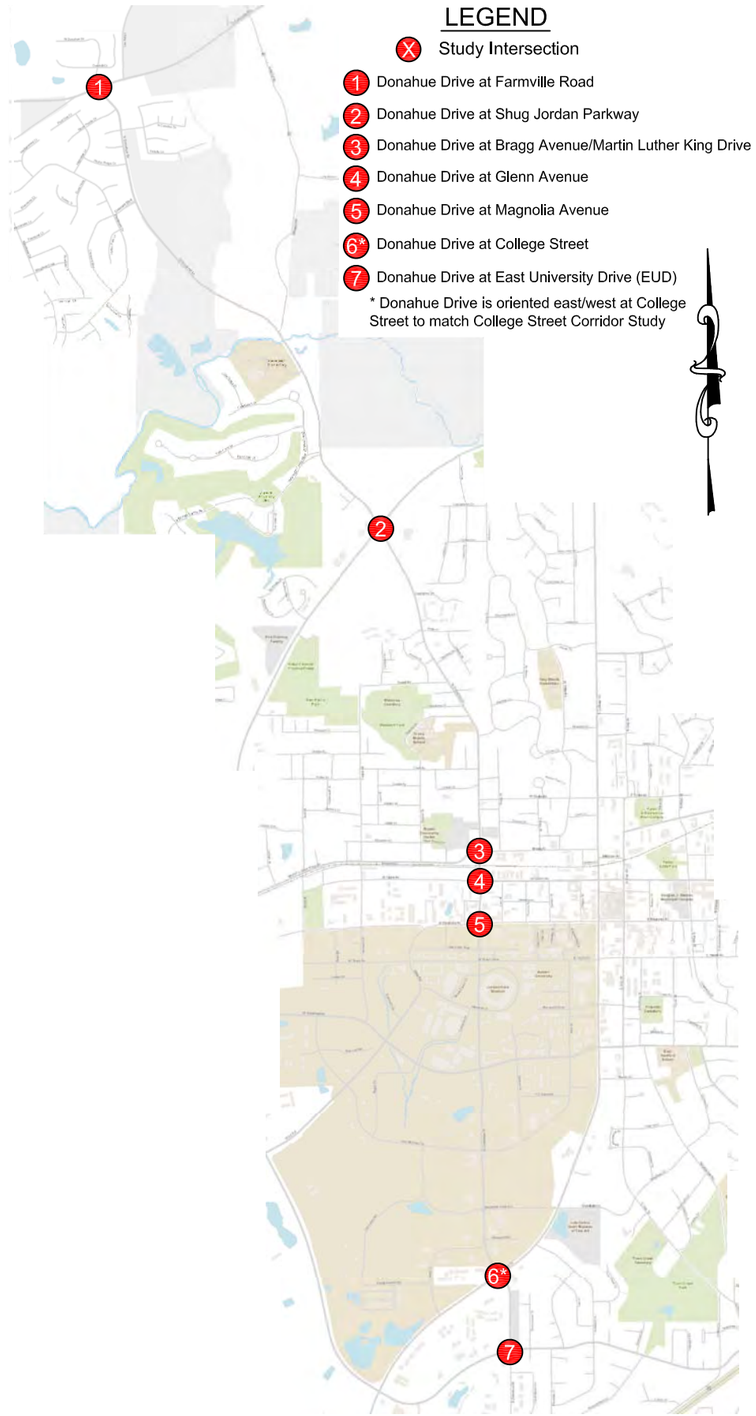












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Figure 7 - Future Traffic Volumes
Donahue Drive Corridor
Auburn, Alabama

LEGEND

AM(PM) Peak Hour Volumes

Study Intersection

Scale: Not to Scale
Date: Feb. 2019

TABLE 12 – FUTURE INTERSECTION LEVELS OF SERVICE – (CONTINUED)

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at Bragg Avenue/ Martin Luther King Drive (signalized)	EB Martin Luther King Drive	Left	C	C
		Through/Right	E	E
		Overall	E	E
	WB Bragg Avenue	Left	D	D
		Through/Right	C	D
		Overall	C	D
	NB Donahue Drive.	Left	C	B
		Through/Right	A	A
		Overall	B	B
	SB Donahue Drive.	Left	C	C
		Through/Right	D	D
		Overall	D	C
	Overall LOS		**D**	**C**
Donahue Drive at Glenn Avenue (signalized)	EB Glenn Avenue.	Left	D	C
		Through/Right	E	E
		Overall	E	D
	WB Glenn Avenue.	Left	D	F
		Through/Right	C	D
		Overall	D	F
	NB Donahue Drive.	Left	C	B
		Through/Right	D	E
		Overall	D	E
	SB Donahue Drive	Left	B	C
		Through/Right	A	A
		Overall	A	B
	Overall LOS		**C**	**E**
Donahue Drive at Magnolia Avenue (signalized)	EB Magnolia Avenue	Left	D	D
		Through	D	D
		Right	D	D
		Overall	D	D
	WB Magnolia Avenue	Left	D	C
		Through	E	D
		Right	D	C
		Overall	D	D
	NB Donahue Drive	Left	B	C
		Through	B	C
		Right	B	C
		Overall	B	C
	SB Donahue Drive	Left	B	C
		Through	D	D
		Right	C	D
		Overall	C	D
	Overall LOS		**C**	**D**

TABLE 12 – FUTURE INTERSECTION LEVELS OF SERVICE – (CONTINUED)

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at S. College Street (signalized)	EB Donahue Drive	Left	D	C
		Through	C	C
		Right	C	D
		Overall	C	D
	WB Donahue Drive	Left	C	D
		Through	D	C
		Right	-	-
		Overall	D	C
	NB College Street	Left	A	B
		Through/Right	A	B
		Overall	A	B
	SB College Street	Left	A	B
		Through/Right	B	B
		Overall	B	B
	Overall Intersection LOS		**B**	**C**
Donahue Drive at East University Drive (signalized)	EB East University Drive	Left	B	B
		Through/Right	B	F
		Overall	B	F
	WB East University Drive	Left	B	B
		Through/Right	C	D
		Overall	C	D
	NB South Donahue Drive	Left	B	B
		Through/Right	E	D
		Overall	D	D
	SB South Donahue Drive	Left	C	B
		Through/Right	C	C
		Overall	C	C
	Overall Intersection LOS		**C**	**D**

As shown in **Table 12**, each of the signalized study intersections would operate with overall levels of service "D" or better during each peak period except for the Donahue Drive at Glenn Avenue during the afternoon peak hour. Some movements would operate with levels of service "E' or "F" with 2028 projected traffic volumes in place. The unsignalized Farmville Road at Donahue Drive is expected to experience poor levels of service due to the side street stop sign controlled approaches. The following lists the movements and approaches expected to operate with deficient levels of service for this analyses scenario:

- Donahue Drive at Farmville Road
  - Donahue Drive northbound left and approach (AM & PM – LOS F)
  - Donahue Drive southbound left/through/right and approach (AM & PM – LOS F)
- Donahue Drive at Bragg Avenue/Martin Luther King Drive
  - Martin Luther King Drive eastbound through/right and approach (AM & PM – LOS E)
- Donahue Drive at Glenn Avenue
  - Glenn Avenue eastbound through/right (AM & PM – LOS E)
  - Glenn Avenue eastbound approach (AM – LOS E)
  - Glenn Avenue westbound left and approach (PM – LOS F)
  - Donahue Drive northbound through/right and approach (PM – LOS E)
  - Overall intersection (PM – LOS E)
- Donahue Drive at Magnolia Avenue
  - Glenn Avenue westbound through (AM – LOS E)
- Donahue Drive at East University Drive
  - EUD eastbound through/right (PM – LOS F)
  - EUD eastbound approach (PM – LOS F)
  - Donahue Drive northbound through/right (AM – LOS E)

Future Arterial Capacity Analysis

Arterial segment capacity analyses for peak hour conditions with projected traffic growth along the Donahue Drive Corridor from Magnolia Avenue through Bragg Avenue and EUD to College Street were conducted for the morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, 2010*. Levels of service for the arterial analyses conducted for Donahue Drive from Magnolia Avenue through Bragg Avenue as well as East University Drive to College Street are summarized in **Table 13**.

Table 13 indicates segment levels of service along Donahue Drive northbound from Magnolia Avenue to Bragg Avenue/Martin Luther King Drive would deteriorate with projected traffic growth. Northbound travel on Donahue Drive from Magnolia Avenue to Glenn Avenue is expected to operate with a level of service ”F” during the afternoon peak hour with the segment from Glenn Avenue to Bragg Avenue/Martin Luther King Drive operating at a level of service “E” during both peak hours. The southbound segment from Bragg Avenue/Martin Luther King Drive to Glenn Avenue would operate at a level of service “E” during each peak period. **Table 13** also indicates the arterial segment between East University Drive and College Street would operate with acceptable levels of service.

TABLE 13 – FUTURE ARTERIAL LEVELS OF SERVICE

Northbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial LOS by Segment	
			AM Peak	PM Peak
Magnolia Avenue	Glenn Avenue	0.18	D	F
Glenn Avenue	Bragg Avenue/ Martin Luther King Drive	0.12	E	E
EUD	College Street	0.34	D	C

Southbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial LOS by Segment	
			AM Peak	PM Peak
Bragg Avenue/ Martin Luther King Drive	Glenn Avenue	0.12	E	E
Glenn Avenue	Magnolia Avenue	0.18	C	D
College Street	EUD	0.34	C	C

Future Daily Roadway Segment Capacity Analysis

Roadway segment capacity analyses for future (2028) daily traffic conditions along the North Donahue Drive Corridor were performed using the daily capacity and level of service chart obtained from the Alabama Department of Transportation. Levels of service for the daily roadway segment capacity analyses conducted for Donahue Drive are summarized in **Table 14**.

TABLE 14 – FUTURE DAILY ROADWAY SEGMENT LEVELS OF SERVICE

North Donahue Drive					
From	To	Segment Length (miles)	Cross Section	Daily Volume	Roadway LOS by Segment
Magnolia Avenue	Bragg Avenue/MLK	.31	3 Lane	15,660	D
Bragg Avenue/MLK	Shug Jordan Parkway	1.48	3 Lane	9,604	B
Shug Jordan Parkway	Yarbrough Farms Boulevard	.40	3 Lane	24,905	F
Yarbrough Farms Boulevard	Crescent Boulevard	1.40	2 Lane	18,568	F
Crescent Boulevard	Farmville Road	.51	3 Lane	13,512	C

Future Signal Warrant Evaluation

The traffic signal warrant evaluation process used for the intersection of Donahue Drive at Farmville Road is based upon the criteria as previously described from the *Manual on Uniform Traffic Control Devices* (*MUTCD*) *2009 Edition*. Note: The traffic signal warrant evaluation process as previously described was utilized to evaluate whether traffic signalization would be warranted under future conditions. Although additional traffic beyond the baseline +3.4% per year traffic growth is anticipated from impending developments along and north of the corridor, to be conservative, the intersection was analyzed with only the baseline +3.4% per year growth without the impending developments. The results of the analysis (including right turn reduction) indicate that traffic signalization would not be warranted at the study intersection for future conditions with the baseline growth only. However, it would most likely warrant under future conditions as the impending developments are constructed along the corridor. We recommend that traffic at this intersection be monitored and traffic signalization with the proposed roadway improvements be installed when traffic volumes reach the warranting threshold.

Future Peak Hour Roadway Segment Capacity Analysis

Roadway segment capacity analyses for future peak hour conditions along the North Donahue Drive Corridor are applicable for the section of Donahue Drive north of Shug Jordan Parkway. Two segments were included in analysis where peak hour segment traffic volumes are available: north of Shug Jordan Parkway and south of Farmville Road. Future peak hour roadway segment capacity analyses were conducted for the morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, 2010*. Levels of service for the arterial analyses conducted for North Donahue Drive are summarized in **Table 15**.

TABLE 15 – FUTURE PEAK HOUR ROADWAY SEGMENT LEVELS OF SERVICE

North Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Roadway LOS by Segment	
			AM Peak	PM Peak
Shug Jordan Parkway	Yarbrough Farms Boulevard	0.40	F	D
Crescent Boulevard	Farmville Road	0.51	C	C

Future Right-Turn Lane Warrant Evaluations

Projected peak hour traffic volumes were compared with the turn lane warrant criteria outlined in the National Cooperative Highway Research Program (NCHRP) Report 457 *Evaluating Intersection Improvements: An Engineering Study Guide*, published by the Transportation Research Board. For evaluation purposes, the posted speed limit was utilized for roadways. Evaluations conducted are summarized as follows:

- Donahue Drive at Farmville Road
  - WB Farmville Road – WARRANTED
  - NB Donahue Drive – Not Warranted
  - SB Donahue Drive – Not Warranted
- Donahue Drive at Bragg Avenue/Martin Luther King Drive
  - EB Martin Luther King Drive – Not Warranted
  - WB Bragg Avenue – Not Warranted
  - NB Donahue Drive – Not Warranted
  - SB Donahue Drive – Not Warranted
- Donahue Drive at Glenn Avenue
  - EB Glenn Avenue – Not Warranted
  - WB Glenn Avenue – WARRANTED
  - NB Donahue Drive – Not Warranted
  - SB Donahue Drive – Not Warranted
- Donahue Drive at S. College Street
  - NB College Street –WARRANTED
  - SB College Street – Not Warranted
- Donahue Drive at EUD
  - EB EUD – Not Warranted
  - WB EUD – Not Warranted
  - NB Donahue Drive – Not Warranted
  - SB Donahue Drive – Not Warranted

Future Left-Turn Lane Warrant Evaluations

Projected peak hour traffic volumes were compared with the left-turn lane warrant criteria outlined in the National Cooperative Highway Research Program (NCHRP) Report 457 *Evaluating Intersection Improvements: An Engineering Study Guide*, published by the Transportation Research Board. For evaluation purposes, the posted speed limit was utilized for roadways. Evaluations were conducted for the southbound approach of Farmville Road at Donahue Drive which does not have a separate left-turn lane. The results of the left-turn lane warrant evaluations indicate the following for traffic conditions with projected growth:

- Donahue Drive southbound at Farmville Road – Not Warranted

RECOMMENDED IMPROVEMENTS WITH PROJECTED TRAFFIC GROWTH

Based upon the analyses and evaluations conducted for the Donahue Drive Corridor for projected ten (10) year conditions, recommendations are made to help improve traffic operations for projected 2028 conditions. These improvements are in addition to the improvements recommended for existing conditions described in a previous section of the document. The proposed improvements are described below:

Donahue Drive at Farmville Road

It is recommended that the following improvements be made to the intersection of Donahue Drive at Farmville Road to increase capacity and improve traffic operations:

- Restripe the southbound approach of Donahue Drive to provide a separate left and a combination through/right;
- Widen the westbound approach of Farmville Road to provide a westbound right turn lane;
- Widen the southern leg of Donahue Drive to provide dual northbound left-turn lanes approaching Farmville Road;
- Widen Farmville Road west of Donahue Drive to provide two westbound lanes to receive the dual northbound left-turn lanes from Donahue Drive; and
- Install a traffic signal at Donahue Drive and Farmville Road per discussion above.

The Donahue Drive at Farmville Road improvements are illustrated in **Figure 8A** and **Figure 8B**.

Donahue Drive between Farmville Road and Crescent Boulevard

- Widen Donahue Drive between Farmville Road and Crescent Boulevard to provide buffered bike lanes on both sides, a multi-purpose path on the west side, and a sidewalk along the east side of the roadway.

The Donahue Drive between Farmville Road and Crescent Boulevard improvements are illustrated in **Figure 8C** through **Figure 8E**.

Donahue Drive between Shug Jordan Parkway and Crescent Boulevard

- Widen Donahue Drive between Shug Jordan Parkway to Crescent Boulevard to provide a four-lane median divided roadway with buffered bike lanes on both sides, a multi-purpose path on the west side, and a sidewalk on the east side of the roadway.

The proposed improvements are illustrated in **Figure 8F** through **Figure 8Q**.

Donahue Drive at Shug Jordan Parkway

- Widen Donahue Drive to provide 5-lane cross-section (including a southbound lane drop to Shug Jordan Parkway and northbound lane add from Shug Jordan Parkway);
- Bike lanes, multi-use path, and planting strip (buffer);
- Raised concrete islands with crosswalks and pedestrian features; and
- Signal modifications to accommodate lane additions and pedestrian features.

Figure 8R illustrates these proposed improvements for this intersection.

Donahue Drive Sidewalk Improvements

Sidewalk improvements are recommended along Donahue Drive to provide continuous sidewalks through various segments of the roadway. These segments include:

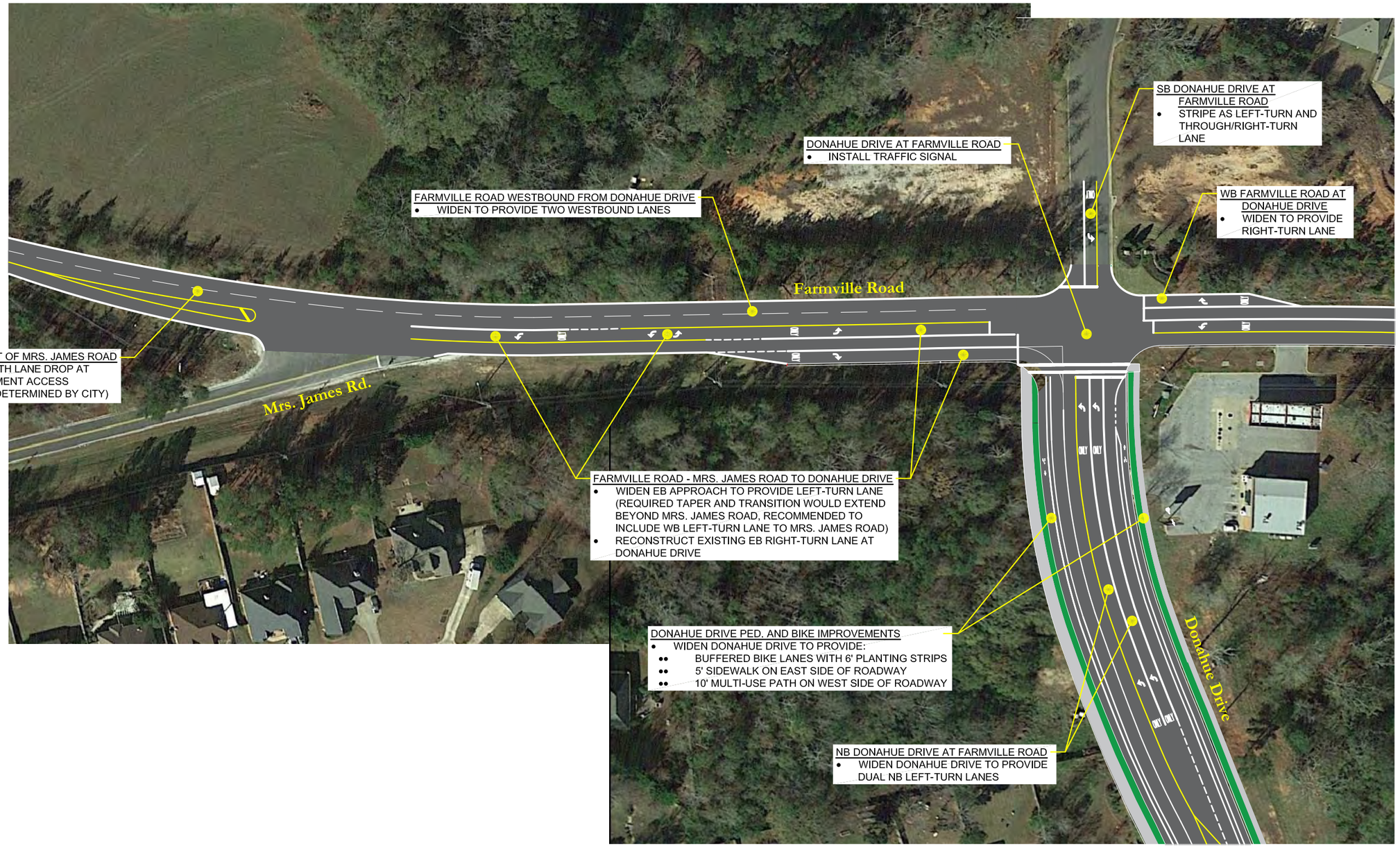
- Sidewalks along the west side of the roadway from Spencer Avenue to Clark Avenue; and
- Sidewalks along the west side of the roadway from Carlisle Drive to the Recycling Center access.

These proposed sidewalk improvements are illustrated in **Figure 9A** through **Figure 9B.**

Donahue Drive at Bragg Avenue/Martin Luther King Drive

- Install an eastbound right turn lane on Martin Luther King Drive at Donahue Drive;
- Install a westbound right turn lane on Bragg Avenue at Donahue Drive; and
- Modify the existing traffic signal as necessary to accommodate the geometric improvements.

The proposed improvements are illustrated in **Figure 10**.



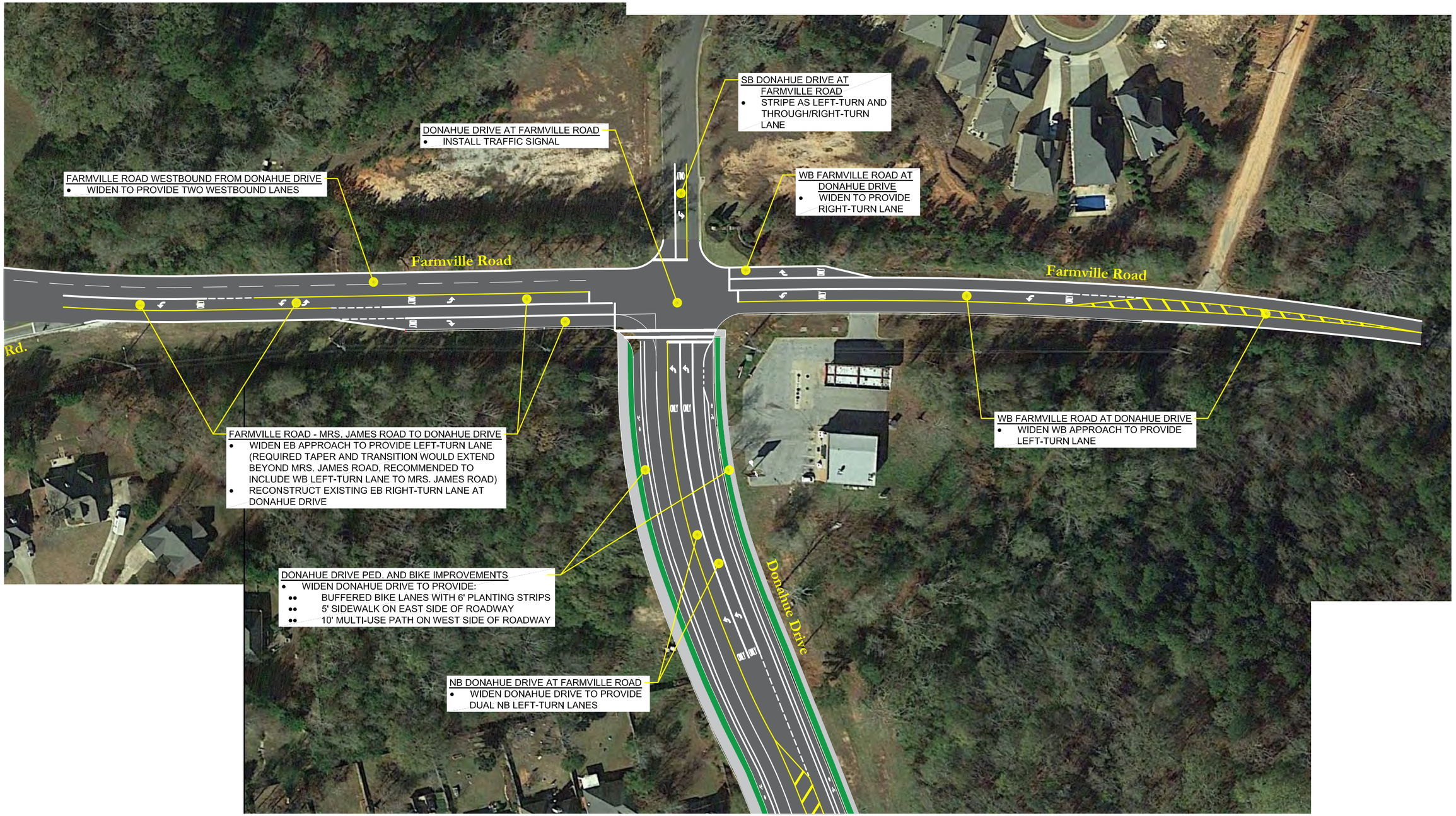
SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"=100'

Figure 8A
Donahue Drive at Farmville Road Future Improvements
Auburn, Alabama



SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"=100'

Figure 8B
Donahue Drive at Farmville Road Future Improvements
Auburn, Alabama



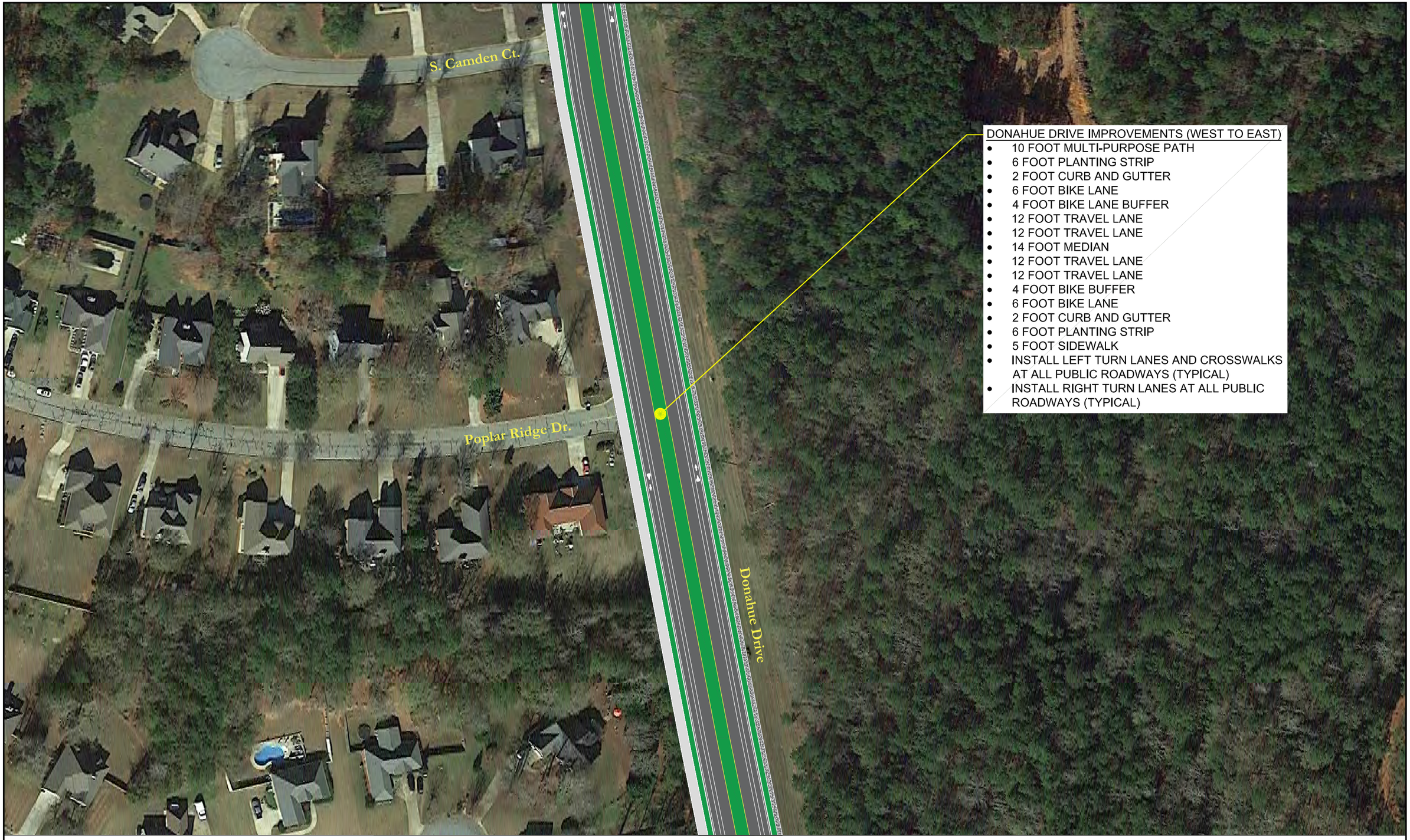
SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8C
Donahue Drive Future Improvements
Auburn, Alabama



SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8D
Donahue Drive Future Improvements
Auburn, Alabama



SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8E
Donahue Drive Future Improvements
Auburn, Alabama



SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8F
Donahue Drive Future Improvements
Auburn, Alabama



DONAHUE DRIVE IMPROVEMENTS (WEST TO EAST)

- 10 FOOT MULTI-PURPOSE PATH
- 6 FOOT PLANTING STRIP
- 2 FOOT CURB AND GUTTER
- 6 FOOT BIKE LANE
- 4 FOOT BIKE LANE BUFFER
- 12 FOOT TRAVEL LANE
- 12 FOOT TRAVEL LANE
- 14 FOOT MEDIAN
- 12 FOOT TRAVEL LANE
- 12 FOOT TRAVEL LANE
- 4 FOOT BIKE BUFFER
- 6 FOOT BIKE LANE
- 2 FOOT CURB AND GUTTER
- 6 FOOT PLANTING STRIP
- 5 FOOT SIDEWALK
- INSTALL LEFT TURN LANES AND CROSSWALKS AT ALL PUBLIC ROADWAYS (TYPICAL)
- INSTALL RIGHT TURN LANES AT ALL PUBLIC ROADWAYS (TYPICAL)

SKIPPER CONSULTING INC

Legend
Required Pavement
Planted Area
Sidewalk/Multi-use Path

North

Graphic Scale: 1"=100'

Figure 8G
Donahue Drive Future Improvements
Auburn, Alabama



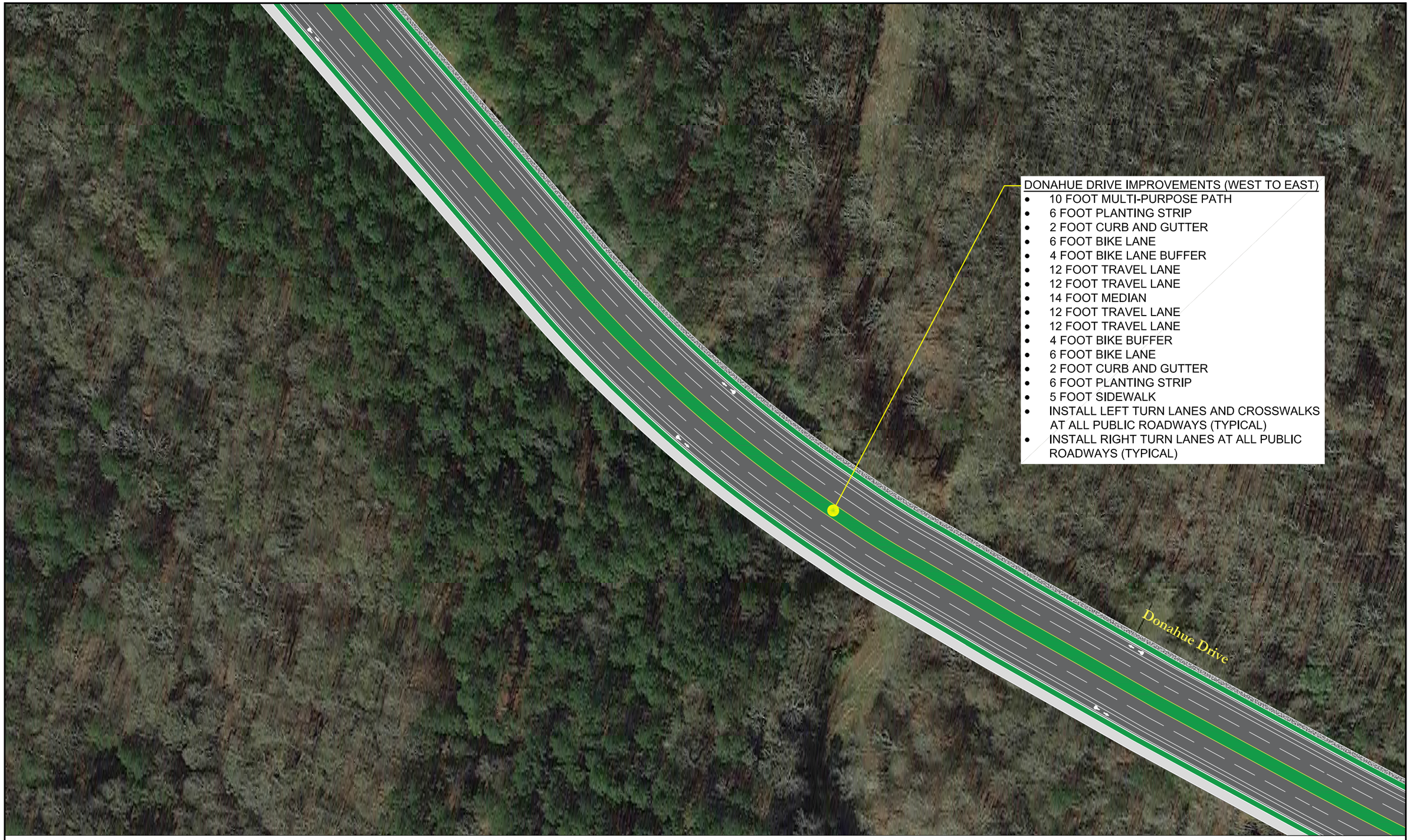
SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8H
Donahue Drive Future Improvements
Auburn, Alabama



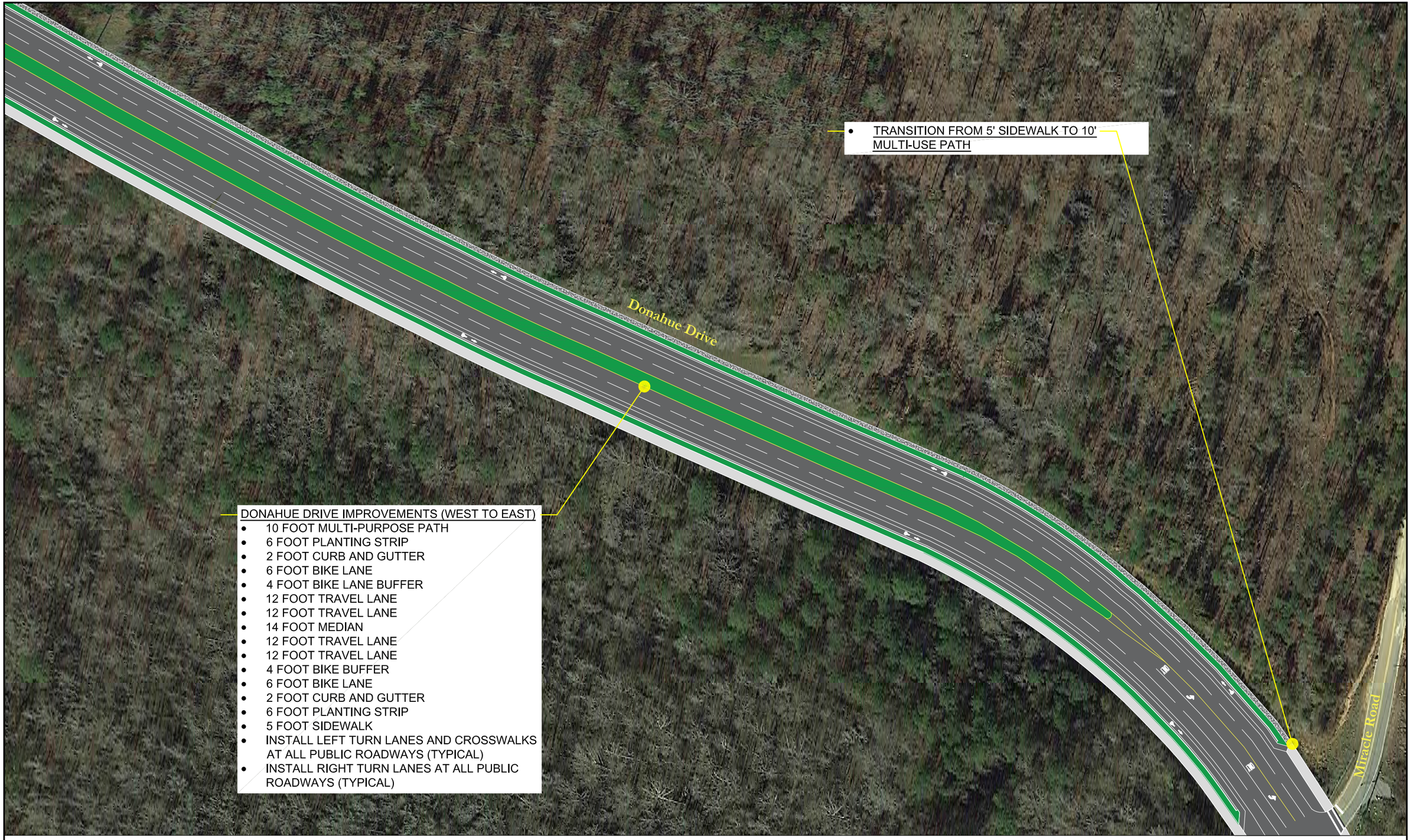
SKIPPER CONSULTING INC

Legend
Required Pavement
Planted Area
Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8I
Donahue Drive
Future Improvements
Auburn, Alabama



- TRANSITION FROM 5' SIDEWALK TO 10' MULTI-USE PATH

DONAHUE DRIVE IMPROVEMENTS (WEST TO EAST)

- 10 FOOT MULTI-PURPOSE PATH
- 6 FOOT PLANTING STRIP
- 2 FOOT CURB AND GUTTER
- 6 FOOT BIKE LANE
- 4 FOOT BIKE LANE BUFFER
- 12 FOOT TRAVEL LANE
- 12 FOOT TRAVEL LANE
- 14 FOOT MEDIAN
- 12 FOOT TRAVEL LANE
- 12 FOOT TRAVEL LANE
- 4 FOOT BIKE BUFFER
- 6 FOOT BIKE LANE
- 2 FOOT CURB AND GUTTER
- 6 FOOT PLANTING STRIP
- 5 FOOT SIDEWALK
- INSTALL LEFT TURN LANES AND CROSSWALKS AT ALL PUBLIC ROADWAYS (TYPICAL)
- INSTALL RIGHT TURN LANES AT ALL PUBLIC ROADWAYS (TYPICAL)

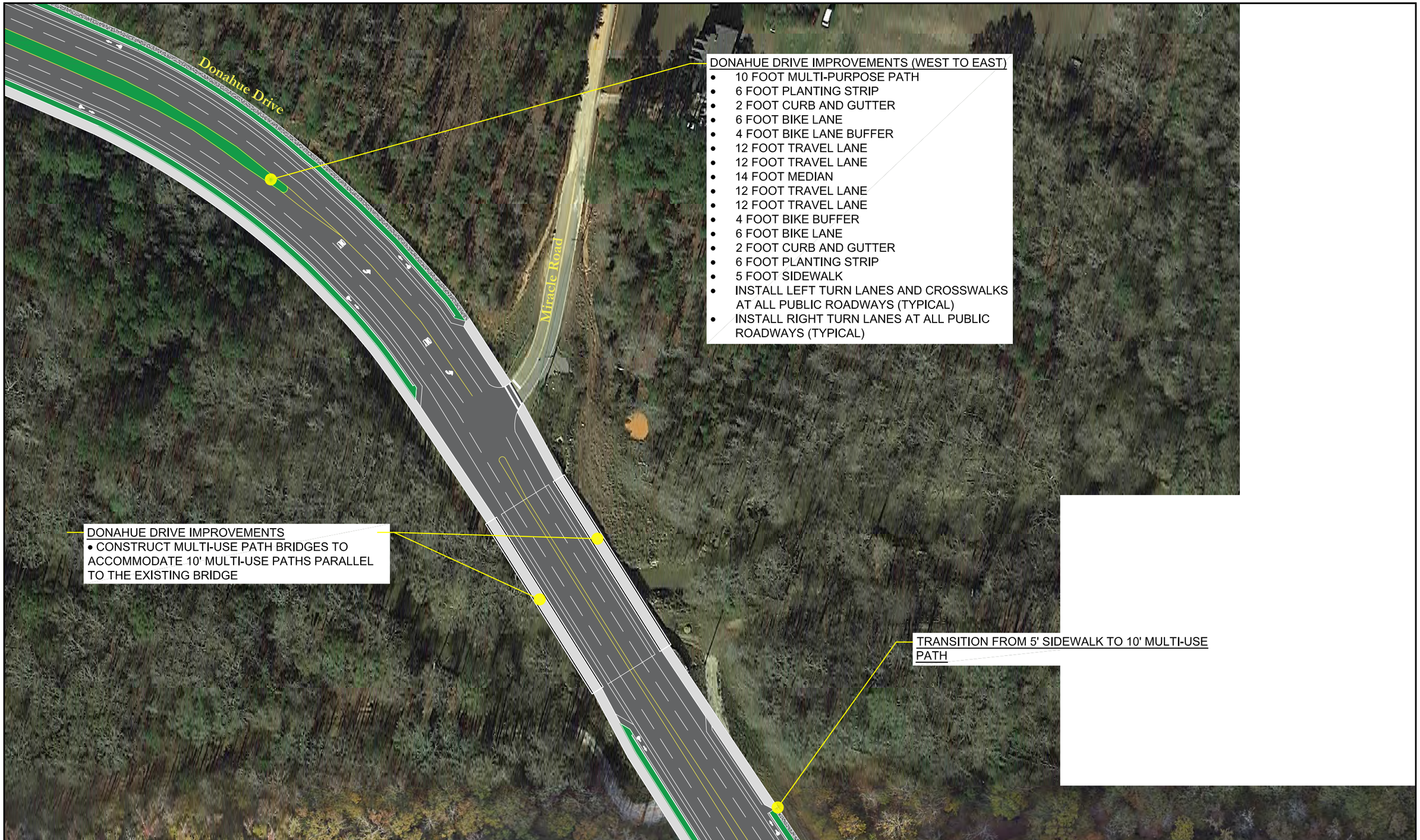
SKIPPER CONSULTING INC

Legend
Required Pavement
Planted Area
Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8J
Donahue Drive Future Improvements
Auburn, Alabama



SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8K
Donahue Drive Future Improvements
Auburn, Alabama



DONAHUE DRIVE IMPROVEMENTS (WEST TO EAST)

- 10 FOOT MULTI-PURPOSE PATH
- 6 FOOT PLANTING STRIP
- 2 FOOT CURB AND GUTTER
- 6 FOOT BIKE LANE
- 4 FOOT BIKE LANE BUFFER
- 12 FOOT TRAVEL LANE
- 12 FOOT TRAVEL LANE
- 14 FOOT MEDIAN
- 12 FOOT TRAVEL LANE
- 12 FOOT TRAVEL LANE
- 4 FOOT BIKE BUFFER
- 6 FOOT BIKE LANE
- 2 FOOT CURB AND GUTTER
- 6 FOOT PLANTING STRIP
- 5 FOOT SIDEWALK
- INSTALL LEFT TURN LANES AND CROSSWALKS AT ALL PUBLIC ROADWAYS (TYPICAL)
- INSTALL RIGHT TURN LANES AT ALL PUBLIC ROADWAYS (TYPICAL)

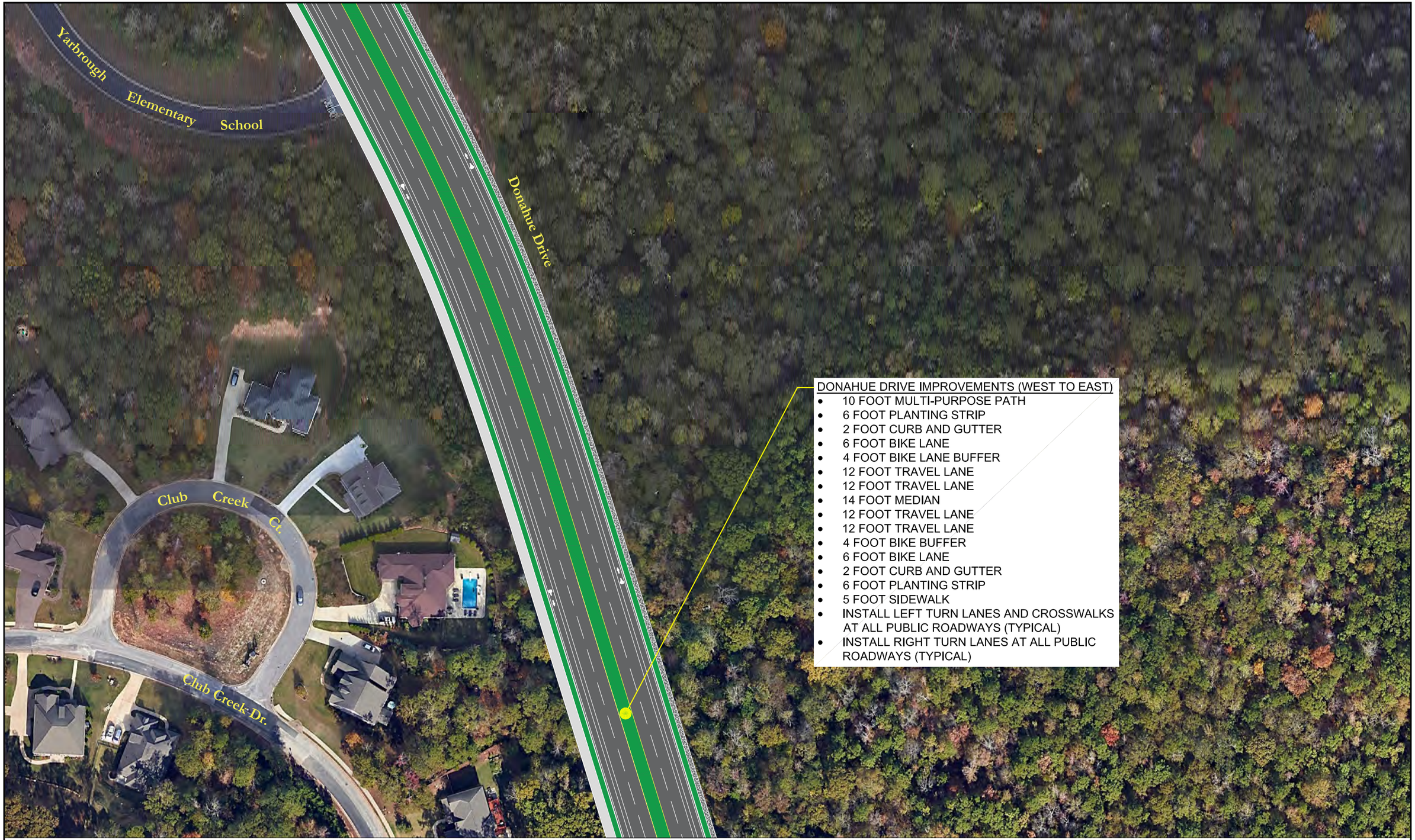
SKIPPER CONSULTING INC

Legend
Required Pavement
Planted Area
Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8L
Donahue Drive Future Improvements
Auburn, Alabama



SKIPPER CONSULTING INC

Legend
Required Pavement
Planted Area
Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8M
Donahue Drive Future Improvements
Auburn, Alabama



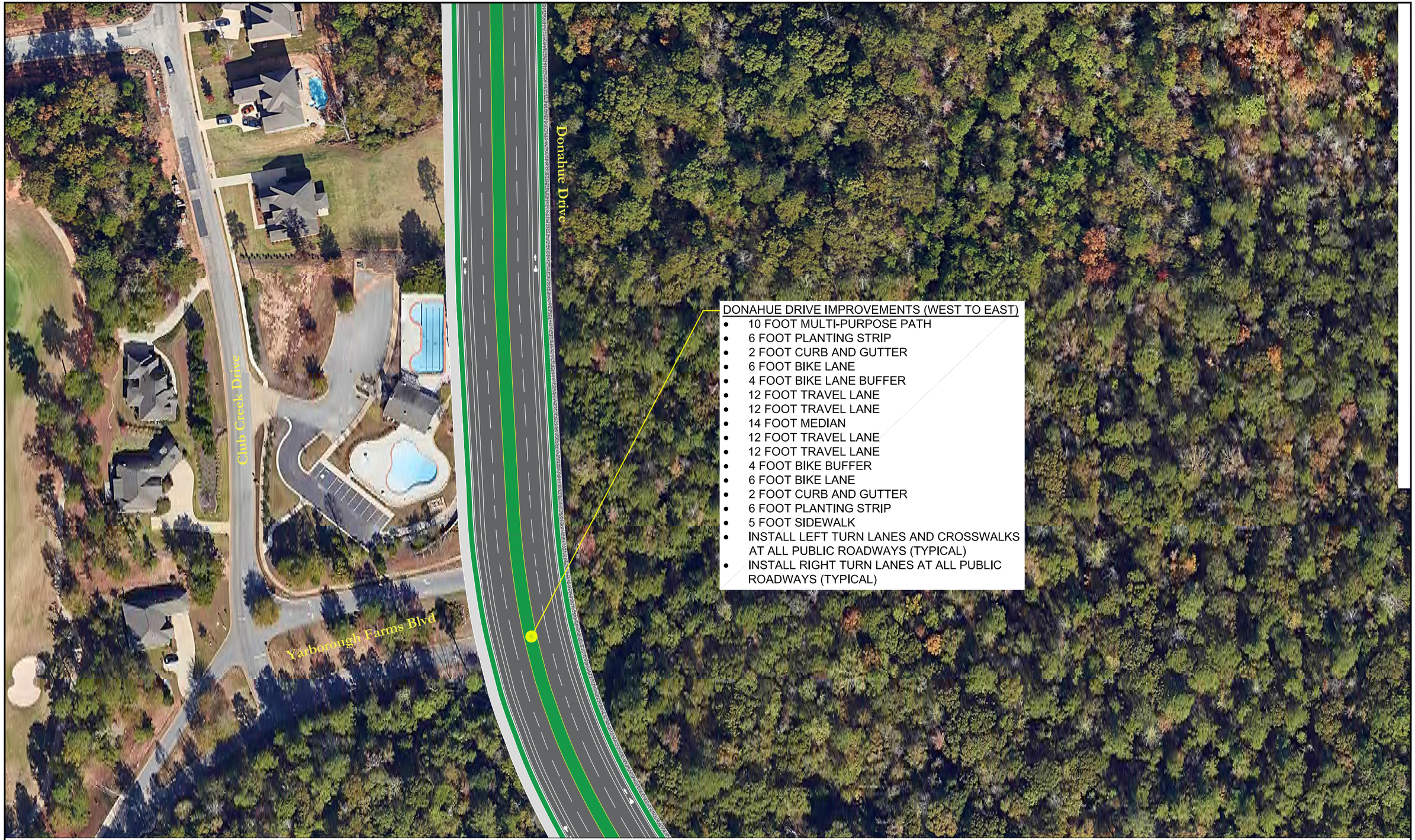
SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8N
Donahue Drive Future Improvements
Auburn, Alabama



SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"-100'

Figure 8O
Donahue Drive Future Improvements
Auburn, Alabama



SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"=100'

Figure 8P
Donahue Drive Future Improvements
Auburn, Alabama



DONAHUE DRIVE IMPROVEMENTS (WEST TO EAST)

- 10 FOOT MULTI-PURPOSE PATH
- 6 FOOT PLANTING STRIP
- 2 FOOT CURB AND GUTTER
- 6 FOOT BIKE LANE
- 4 FOOT BIKE LANE BUFFER
- 12 FOOT TRAVEL LANE
- 12 FOOT TRAVEL LANE
- 14 FOOT MEDIAN
- 12 FOOT TRAVEL LANE
- 12 FOOT TRAVEL LANE
- 4 FOOT BIKE BUFFER
- 6 FOOT BIKE LANE
- 2 FOOT CURB AND GUTTER
- 6 FOOT PLANTING STRIP
- 5 FOOT SIDEWALK
- INSTALL LEFT TURN LANES AND CROSSWALKS AT ALL PUBLIC ROADWAYS (TYPICAL)
- INSTALL RIGHT TURN LANES AT ALL PUBLIC ROADWAYS (TYPICAL)

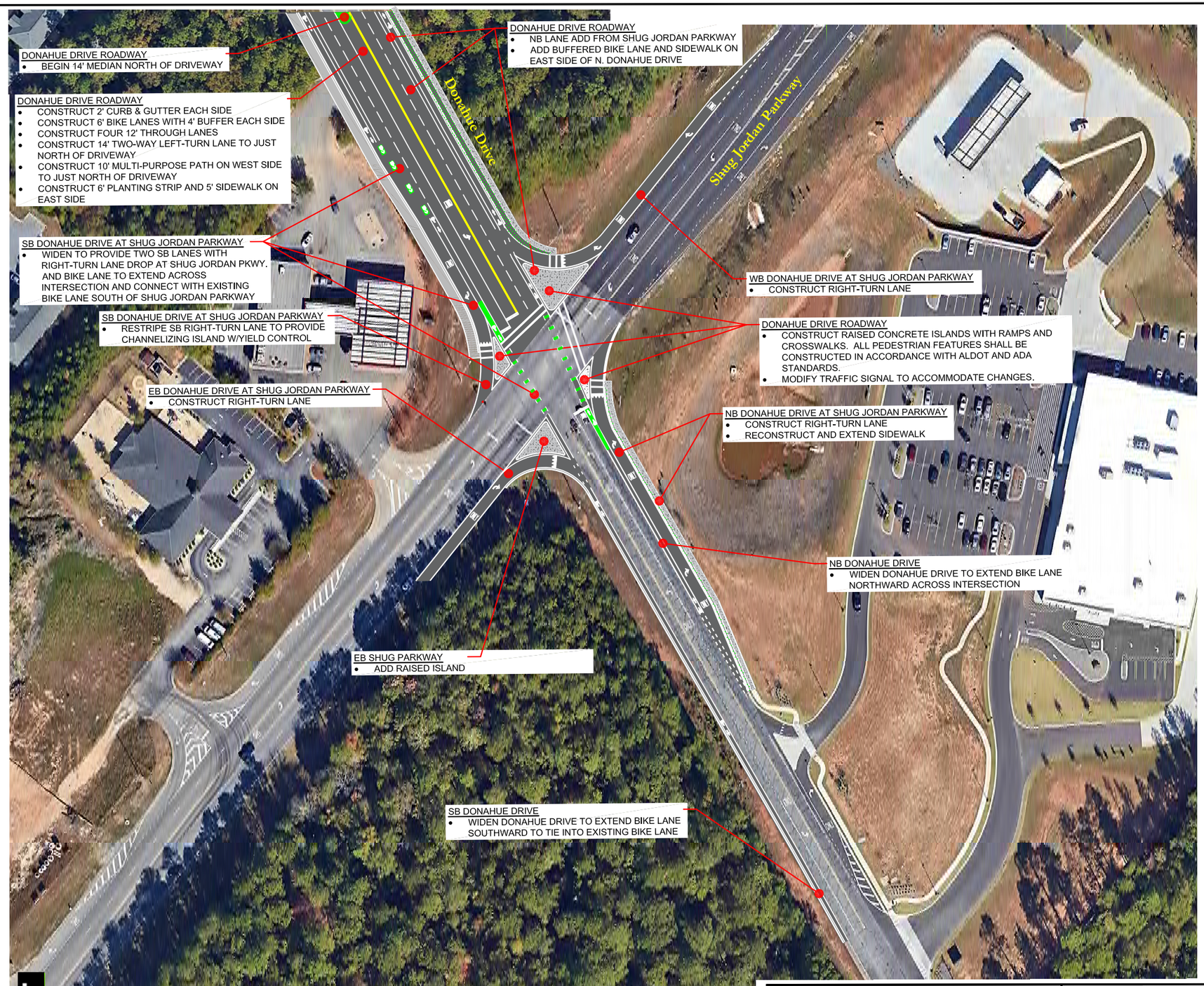
SKIPPER CONSULTING INC

Legend
- Required Pavement
- Planted Area
- Sidewalk/Multi-use Path

North

Graphic Scale: 1"=100'

Figure 8Q
Donahue Drive Future Improvements
Auburn, Alabama



SKIPPER CONSULTING INC

Legend

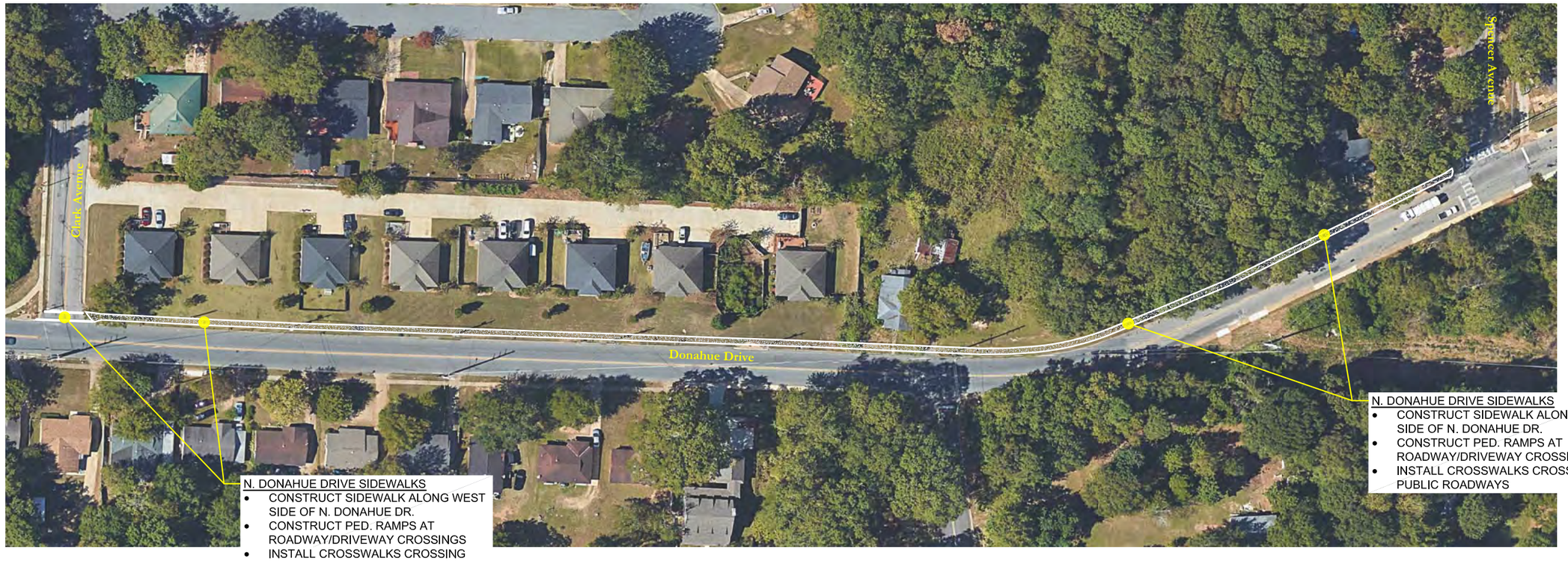
Required Pavement

North

Graphic Scale: 1"-120'

Figure 8R
Donahue Drive at Shug Jordan Parkway Future Improvements

April 2019 Auburn, Alabama



Note: Pedestrian ramps shall include tactile warning strips and truncated domes per ADA.

SKIPPER CONSULTING INC

Legend

Required Sidewalk

North

Graphic Scale: 1"-100'

Figure 9A

N. Donahue Dr. Sidewalk Spencer Ave. to Clark Ave.

Donahue Drive
Auburn, Alabama

Feb. 2019



Note: Pedestrian ramps shall include tactile warning strips and truncated domes per ADA.

SKIPPER CONSULTING INC

Legend

Required Sidewalk

North

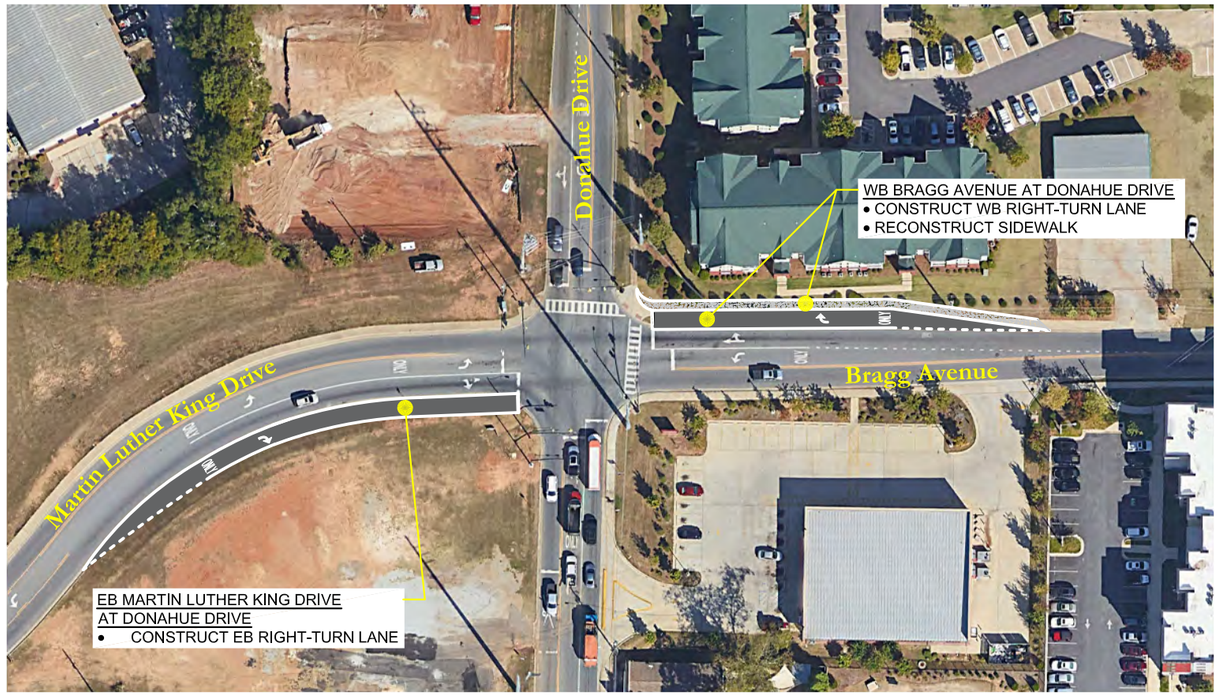
Graphic Scale: 1"-100'

Feb. 2019

Figure 9B

N. Donahue Dr. Sidewalk Carlisle Dr. to Recycling Ctr.

Donahue Drive
Auburn, Alabama



SKIPPER CONSULTING INC

Legend

Required Pavement

Required Sidewalk

North

Graphic Scale: 1"-100'

Figure 10
Donahue Drive at Martin Luther King Drive/Bragg Avenue Future Improvements
Auburn, Alabama

Donahue Drive at Glenn Avenue

- Construct a northbound right turn lane on Donahue Drive at Glenn Avenue;
- Construct an eastbound right turn lane on Glenn Avenue at Donahue Drive;
- Construct a westbound right turn lane on Glenn Avenue at Donahue Drive;
- Relocate / extend crosswalks and modify curb ramps, as needed; and
- Modify the traffic signal to accommodate the geometric improvements.

The proposed improvements are illustrated in **Figure 11**.

S. Donahue Drive at S. College Street

Improvements were developed for the S. College Street at S. Donahue Drive intersection as summarized in the following and illustrated in **Figure 12**.

- Construct a right-turn lane on northbound S. College Street;
- Modify crosswalks as needed and traffic signal; and
- Construct sidepath along west side of roadway toward the south.

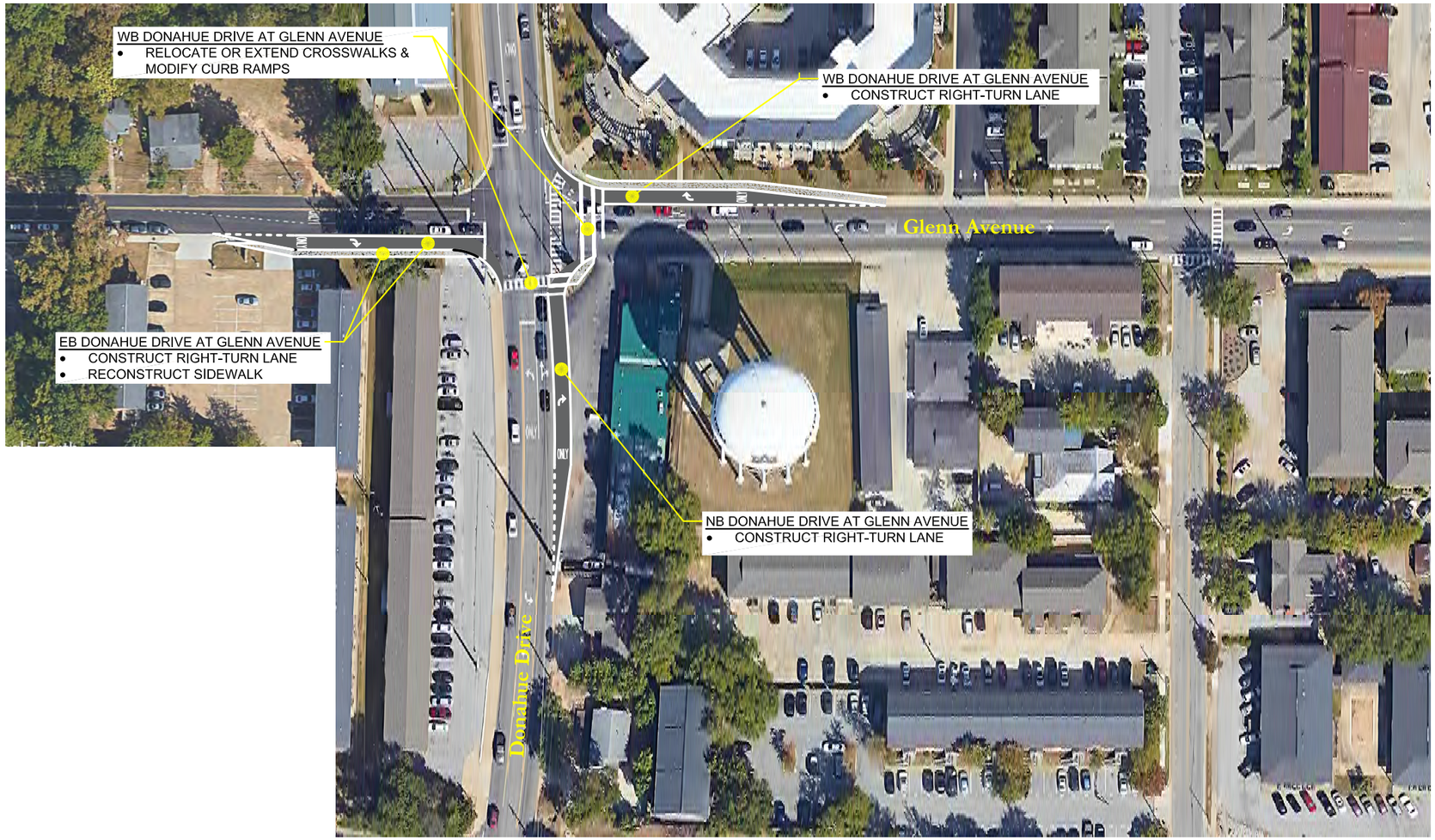
S. Donahue Drive Sidepath Improvements

A sidepath along the west side of Donahue Drive from S. College Street to East University Drive has been proposed. The proposed side path is illustrated in **Figure 13**.

S. Donahue Drive at East University Drive

- Continue the sidepath along the west side of Donahue Drive to East University Drive;
- Construct a right-turn lane on eastbound East University Drive;
- Construct right-turn lane on westbound East University Drive;
- Construct a right-turn lane on northbound Donahue Drive;
- Install crosswalks and accompanying curb ramps to accommodate pedestrians; and
- Modify traffic signal for lane geometry changes and pedestrian features.

Figure 14 illustrates the proposed improvements at this intersection.



SKIPPER CONSULTING INC

Legend

Required Pavement

Required Sidewalk

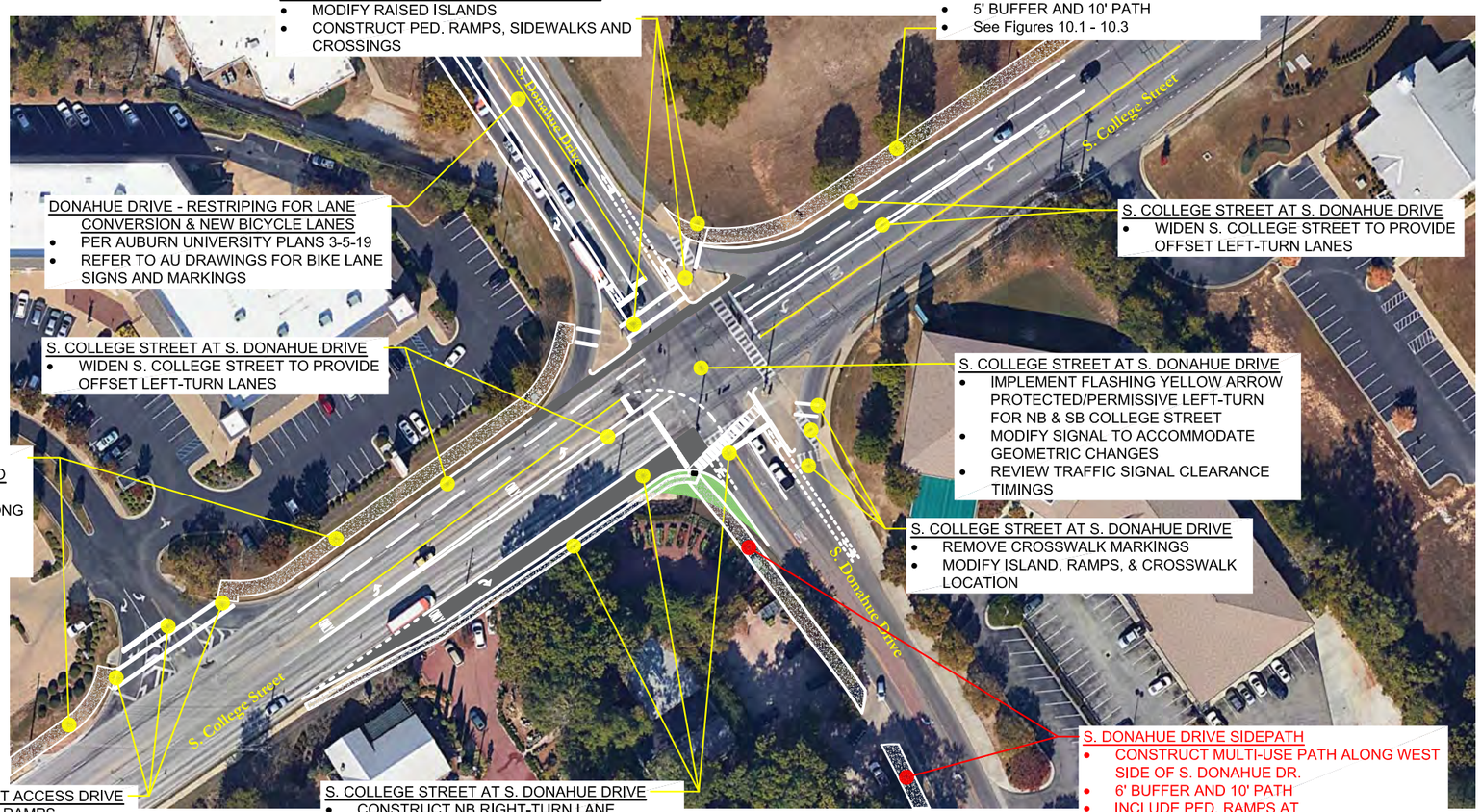
North

Graphic Scale: 1"-100'

Figure 11
Donahue Drive at Glenn Avenue Future Improvements

February 2019 Auburn, Alabama

NOTATION LEGEND:
IMPROVEMENTS RECOMMENDED FOR EXISTING CONDITIONS ARE SHOWN FOR REFERENCE.
IMPROVEMENTS RECOMMENDED FOR FUTURE CONDITIONS ARE SHOWN IN RED.



S. COLLEGE STREET AT S. DONAHUE DRIVE
- MODIFY RAISED ISLANDS
- CONSTRUCT PED. RAMPS, SIDEWALKS AND CROSSINGS

S. COLLEGE STREET - SHUG JORDAN PARKWAY/E. UNIVERSITY DRIVE TO WOODFIELD DRIVE
- CONSTRUCT MULTI-USE PATH ALONG WEST SIDE OF S. COLLEGE ST.
- 5' BUFFER AND 10' PATH
- See Figures 10.1 - 10.3

DONAHUE DRIVE - RESTRIPING FOR LANE CONVERSION & NEW BICYCLE LANES
- PER AUBURN UNIVERSITY PLANS 3-5-19
- REFER TO AU DRAWINGS FOR BIKE LANE SIGNS AND MARKINGS

S. COLLEGE STREET AT S. DONAHUE DRIVE
- WIDEN S. COLLEGE STREET TO PROVIDE OFFSET LEFT-TURN LANES

S. COLLEGE STREET AT S. DONAHUE DRIVE
- WIDEN S. COLLEGE STREET TO PROVIDE OFFSET LEFT-TURN LANES

S. COLLEGE STREET AT S. DONAHUE DRIVE
- IMPLEMENT FLASHING YELLOW ARROW PROTECTED/PERMISSIVE LEFT-TURN FOR NB & SB COLLEGE STREET
- MODIFY SIGNAL TO ACCOMMODATE GEOMETRIC CHANGES
- REVIEW TRAFFIC SIGNAL CLEARANCE TIMINGS

S. COLLEGE STREET AT S. DONAHUE DRIVE
- REMOVE CROSSWALK MARKINGS
- MODIFY ISLAND, RAMPS, & CROSSWALK LOCATION

S. COLLEGE STREET - SHUG JORDAN PARKWAY/E. UNIVERSITY DRIVE TO WOODFIELD DRIVE
- CONSTRUCT MULTI-USE PATH ALONG WEST SIDE OF S. COLLEGE ST.
- 5' BUFFER AND 10' PATH
- See Figures 10.1 - 10.3

S. COLLEGE STREET AT ACCESS DRIVE
- CONSTRUCT PED. RAMPS, SIDEWALKS AND CROSSINGS
- MODIFY STRIPING

S. COLLEGE STREET AT S. DONAHUE DRIVE
- CONSTRUCT NB RIGHT-TURN LANE
- RECONSTRUCT SIDEWALK AND PED. RAMP
- RE-INSTALL CROSSWALK AND STOP LINE MARKINGS

S. DONAHUE DRIVE SIDEPATH
- CONSTRUCT MULTI-USE PATH ALONG WEST SIDE OF S. DONAHUE DR.
- 6' BUFFER AND 10' PATH
- INCLUDE PED. RAMPS AT ROADWAY/DRIVEWAY CROSSINGS
- SEE FIGURES 13-14 FOR SIDEPATH LAYOUT BETWEEN S. COLLEGE ST. AND EUD

Note: Pedestrian ramps shall include tactile warning strips and truncated domes per ADA.

Signal System Note:
Signals at S. Donahue Drive and Woodfield Drive to be coordinated.

SKIPPER CONSULTING INC

Legend
- Required Pavement
- Required Grass
- Required Multi-Use Path/Sidewalk
- Required Ped. Ramp

North

Graphic Scale: 1"=100'

Figure 12
S. College St. at S. Donahue Dr. Future Improvements

Donahue Drive
Auburn, Alabama

February 2019



Note: Pedestrian ramps shall include tactile warning strips and truncated domes per ADA.

SKIPPER CONSULTING INC

Legend

Required Sidewalk

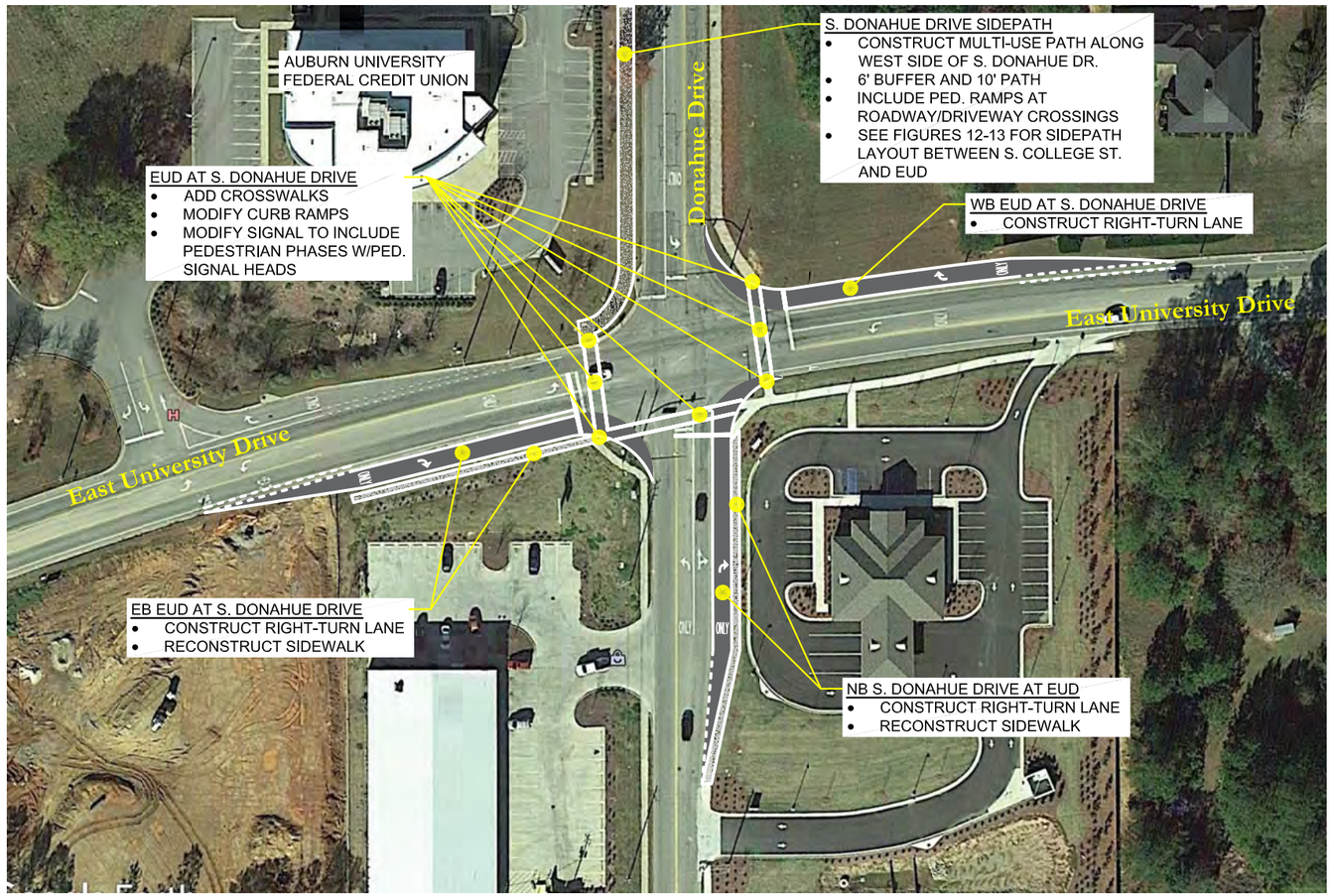
North

Graphic Scale: 1"-100'

Figure 13
S. Donahue Dr. Sidepath
S. College St. to EUD

Feb. 2019

Donahue Drive
Auburn, Alabama



SKIPPER CONSULTING INC

Legend

Required Pavement

Required Multi-Use Path/Sidewalk

North

Graphic Scale: 1"-100'

Figure 14
S. Donahue Dr. at EUD Future Improvements

February 2019 Auburn, Alabama

FUTURE ANALYSES WITH RECOMMENDED IMPROVEMENTS

Future Intersection Capacity Analysis with Improvements

Capacity analyses were conducted for the study intersections assuming recommended improvements (outlined above and illustrated in **Figures 8-13**) and projected ten (10) year traffic volumes would be in place. Capacity analyses were conducted using methods of the *Highway Capacity Manual*, as previously introduced. **Table 16** provides a summary of the levels of service for study intersections with recommended improvements and projected ten (10) year traffic volumes in place. As shown in **Table 16**, acceptable levels of service would be provided for each of the study intersections along Donahue Drive. Levels of service "D" or better would be provided for each overall intersection, each movement, and approach at each approach at the study intersections.

TABLE 16 – FUTURE INTERSECTION LEVELS OF SERVICE WITH IMPROVEMENTS

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at Farmville Road (signalized)	EB Farmville Road.	Left	A	B
		Through	B	B
		Right	B	B
		Overall	B	B
	WB Farmville Road.	Left	B	B
		Through	A	B
		Right	A	A
		Overall	A	B
	NB Donahue Drive.	Left	C	B
		Through/Right	C	B
		Overall	C	B
	SB Donahue Drive	Left	C	C
		Through/Right	C	C
		Overall	C	C
	Overall LOS		**B**	**B**

TABLE 16 – FUTURE INTERSECTION LEVELS OF SERVICE WITH IMPROVEMENTS (CONTINUED)

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at Shug Jordan Parkway (signalized)	EB Shug Jordan Parkway.	Left	C	D
		Through	C	D
		Right	-	-
		Overall	C	D
	WB Shug Jordan Parkway.	Left	C	D
		Through	C	D
		Right	-	-
		Overall	C	D
	NB Donahue Drive.	Left	D	D
		Through	D	D
		Right	-	-
		Overall	D	D
	SB Donahue Drive.	Left	D	D
		Through	D	D
		Right	-	-
		Overall	D	D
	Overall LOS		**C**	**D**
Donahue Drive at Bragg Avenue/ Martin Luther King Drive (signalized)	EB Shug Bragg Avenue	Left	D	D
		Through	D	D
		Right	D	D
		Overall	D	D
	WB Martin Luther King Drive	Left	D	D
		Through	D	D
		Right	C	D
		Overall	D	D
	NB Donahue Drive.	Left	B	B
		Through/Right	A	A
		Overall	A	A
	SB Donahue Drive.	Left	B	B
		Through/Right	C	C
		Overall	C	C
	Overall LOS		**C**	**C**

TABLE 16 - FUTURE INTERSECTION LEVELS OF SERVICE WITH IMPROVEMENTS (CONTINUED)

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at Glenn Avenue (signalized)	EB Glenn Avenue.	Left	D	D
		Through	D	D
		Right	D	D
		Overall	D	D
	WB Glenn Avenue.	Left	D	D
		Through	C	D
		Right	D	D
		Overall	D	D
	NB Donahue Drive.	Left	C	B
		Through	D	D
		Right	D	D
		Overall	D	D
	SB Donahue Drive	Left	B	C
		Through/Right	A	A
		Overall	A	B
	Overall LOS		**C**	**D**
Donahue Drive at Magnolia Avenue (signalized)	EB Magnolia Avenue.	Left	D	D
		Through	D	D
		Right	D	D
		Overall	D	D
	WB Magnolia Avenue	Left	D	C
		Through	D	D
		Right	D	C
		Overall	D	D
	NB Donahue Drive	Left	B	C
		Through	B	C
		Right	B	C
		Overall	B	C
	SB Donahue Drive	Left	B	C
		Through	D	D
		Right	C	D
		Overall	C	D
	Overall LOS		**C**	**D**

TABLE 16 - FUTURE INTERSECTION LEVELS OF SERVICE WITH IMPROVEMENTS (CONTINUED)

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
Donahue Drive at S. College Street (signalized)	EB Donahue Drive	Left	D	C
		Through	C	C
		Right	C	D
		Overall	C	D
	WB Donahue Drive	Left	C	D
		Through	D	C
		Right	-	-
		Overall	D	C
	NB College Street	Left	A	B
		Through	A	B
		Right	-	-
		Overall	A	B
	SB College Street	Left	A	B
		Through/Right	B	B
		Overall	B	B
	Overall Intersection LOS		**B**	**C**
Donahue Drive at East University Drive (signalized)	EB East University Drive	Left	B	B
		Through	B	D
		Right	B	B
		Overall	B	D
	WB East University Drive	Left	B	B
		Through	B	C
		Right	B	B
		Overall	B	C
	NB South Donahue Drive	Left	B	B
		Through	C	C
		Right	C	C
		Overall	C	C
	SB South Donahue Drive	Left	B	B
		Through/Right	C	C
		Overall	C	C
	Overall Intersection LOS		**B**	**C**

Future Arterial Capacity Analysis w/Projected Growth and Improvements

Arterial segment capacity analyses for peak hour conditions along the Donahue Drive Corridor from Magnolia Avenue through Bragg Avenue were conducted for the morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, 2010*. Arterial analyses for this scenario include projected traffic growth plus existing improvements and any additional improvements as outlined above. Levels of service for the arterial analyses conducted for Donahue Drive from Magnolia Avenue through Bragg Avenue are summarized in **Table 17**.

Table 17 indicates segment levels of service along Donahue Drive from Magnolia Avenue to Bragg Avenue/Martin Luther King Drive would deteriorate with projected traffic growth. Northbound travel for the segments of Donahue Drive from Magnolia Avenue through Bragg Avenue/Martin Luther King Drive is expected to operate at a level of service "D" during both peak hours. The southbound segment from Bragg Avenue/Martin Luther King Drive to Glenn Avenue would operate at a level of service "E" during peak periods while the segment from Glenn Avenue to Magnolia Avenue would operate with acceptable levels of service ("D" or better). The primary reasons for poor levels of service for the southbound arterial segment from Bragg Avenue/Martin Luther King Drive to Glenn Avenue is signal spacing of approximately 635 feet along Donahue Drive. With the turn lane improvements recommended at the study intersections, additional green time could be allocated to the coordinated phases along Donahue Drive resulting in improved levels of service for the arterial segments.

TABLE 17 – FUTURE ARTERIAL LEVELS OF SERVICE WITH IMPROVEMENTS

Northbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial LOS by Segment	
			AM Peak	PM Peak
Magnolia Avenue	Glenn Avenue	0.18	D	D
Glenn Avenue	Bragg Avenue/ Martin Luther King Drive	0.12	D	D

Southbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial LOS by Segment	
			AM Peak	PM Peak
Bragg Avenue/ Martin Luther King Drive	Glenn Avenue	0.12	E	E
Glenn Avenue	Magnolia Avenue	0.18	C	D

Future Roadway Segment Capacity Analysis with Improvements

The future roadway segment capacity analyses for the year 2028 indicate failing levels of service on North Donahue Drive from Shug Jordan Parkway to Crescent Boulevard. To correct the failing levels of service, it is recommended that North Donahue Drive be widened to a five-lane cross section from Shug Jordan Parkway to Crescent Boulevard. The widening should also include buffered bike lanes on both sides of the roadway, as indicated in the separate pedestrian and bicycle analysis.

Due to the nature of the recommended improvement, it is recommended that North Donahue Drive be reclassified from a collector roadway to an arterial roadway. This more accurately reflects the function of the roadway.

Future Daily Roadway Segment Capacity Analysis with Improvements

Roadway segment capacity analyses for future (2028) daily traffic conditions along the North Donahue Drive Corridor were performed using the daily capacity and level of service chart obtained from the Alabama Department of Transportation. Levels of service for the daily roadway segment capacity analyses conducted for Samford Avenue are summarized in **Table 18**.

TABLE 18 – FUTURE DAILY ROADWAY SEGMENT LEVELS OF SERVICE WITH IMPROVEMENTS

North Donahue Drive					
From	To	Segment Length (miles)	Cross Section	Daily Volume	Roadway LOS by Segment
Magnolia Avenue	Bragg Avenue/MLK	.31	3 Lane	15,660	D
Bragg Avenue/MLK	Shug Jordan Parkway	1.48	3 Lane	9,604	B
Shug Jordan Parkway	Yarbrough Farms Boulevard	.40	5 Lane	24,905	D
Yarbrough Farms Boulevard	Crescent Boulevard	1.40	5 Lane	18,568	C
Crescent Boulevard	Farmville Road	.51	3 Lane	13,512	C

Future Peak Hour Roadway Segment Capacity Analysis with Improvements

Roadway segment capacity analyses for future peak hour conditions along the North Donahue Drive Corridor are applicable for the section of Donahue Drive north of Shug Jordan Parkway. Two segments were included in analysis where peak hour segment traffic volumes are available: north of Shug Jordan Parkway and south of Farmville Road. Future peak hour roadway segment capacity analyses were conducted for the morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, 2010*. Levels of service for the arterial analyses conducted for North Donahue Drive are summarized in **Table 19**.

TABLE 19 – FUTURE PEAK HOUR ROADWAY SEGMENT LEVELS OF SERVICE WITH IMPROVEMENTS

North Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Roadway LOS by Segment	
			AM Peak	PM Peak
Shug Jordan Parkway	Yarbrough Farms Boulevard	0.40	C	B
Crescent Boulevard	Farmville Road	0.51	C	C