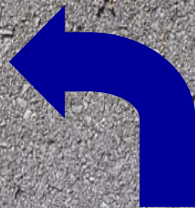
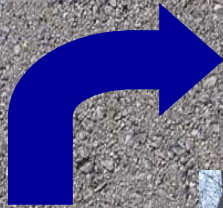


Welcome to Auburn, Alabama
"Loveliest Village  on the Plains"



Donahue Drive Corridor Traffic Operational Evaluation

PREPARED FOR:

THE CITY OF AUBURN

PREPARED BY:

SKIPPER
CONSULTING INC.

JANUARY 2007

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INTRODUCTION

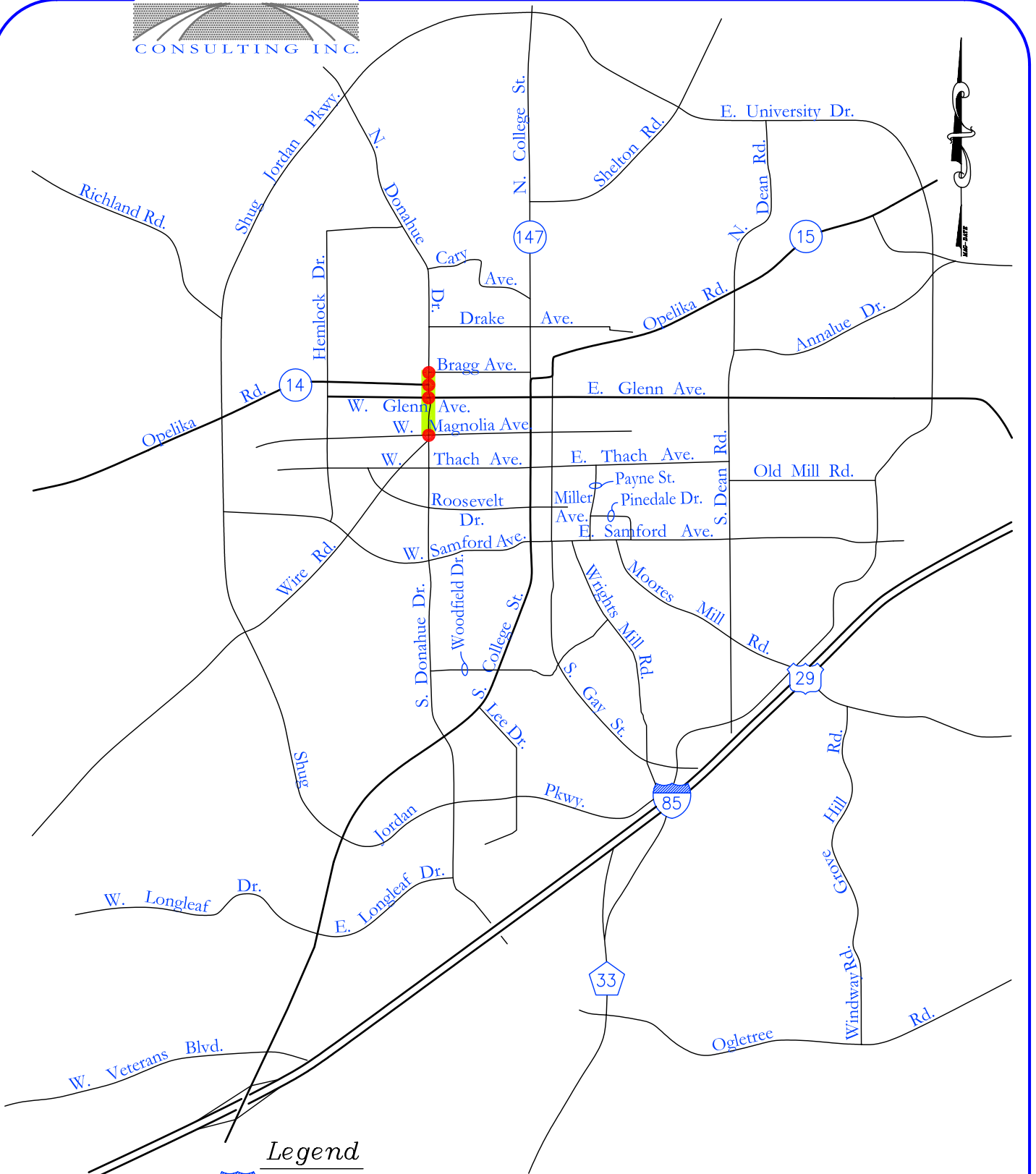
This section documents the results of traffic signal operations evaluations and capacity analyses conducted for the Donahue Drive Corridor from Bragg Avenue to Magnolia Avenue in Auburn, Alabama. The intersections studied in this corridor include:

- Donahue Drive at Bragg Avenue
- Donahue Drive at Alabama State Highway 14
- Donahue Drive at Glenn Avenue
- Donahue Drive at Magnolia Avenue







The locations of the study intersections along the Donahue Drive Corridor are illustrated in **Figure 2-1**. In order to accomplish the traffic signal operations evaluations at these locations within the study corridor, the following tasks were undertaken:

- existing peak hour turning movement counts were conducted for the study intersections;
- capacity analyses were conducted for the study intersections;
- current traffic operational deficiencies were identified;
- geometric and traffic control improvements were developed for the study intersections to address operational and safety deficiencies; and
- traffic signal systems needs were identified to develop a coordinated signal system.

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.



Legend

-  INTERSTATE
-  U.S. HIGHWAY
-  STATE ROUTE
-  COUNTY ROAD
-  STUDY INTERSECTION
-  STUDY LIMITS

DRAWING NOT TO SCALE

FIGURE 2-1 STUDY CORRIDORS AND INTERSECTIONS DONAHUE DRIVE CORRIDOR

SEPTEMBER 2006

AUBURN, ALABAMA

1103.007

BACKGROUND INFORMATION

Planned Roadway Improvements

A roadway improvement project is planned within the limits of the study area for the Donahue Drive Corridor. This improvement consists of realigning Alabama Highway 14 to the north to intersect Donahue Drive in alignment with Bragg Avenue. The current Five Year Plan indicates both utilities and construction scheduled for fiscal year 2006. As a result of the time table for this project, it is assumed that the realignment of Alabama Highway 14 would be in place in the near future. The realignment has not been included in the analysis of existing conditions but was included in the analysis of study intersections along Donahue Drive with recommended improvements in place. Further description is presented in later sections of this report.

Study Area Roadways

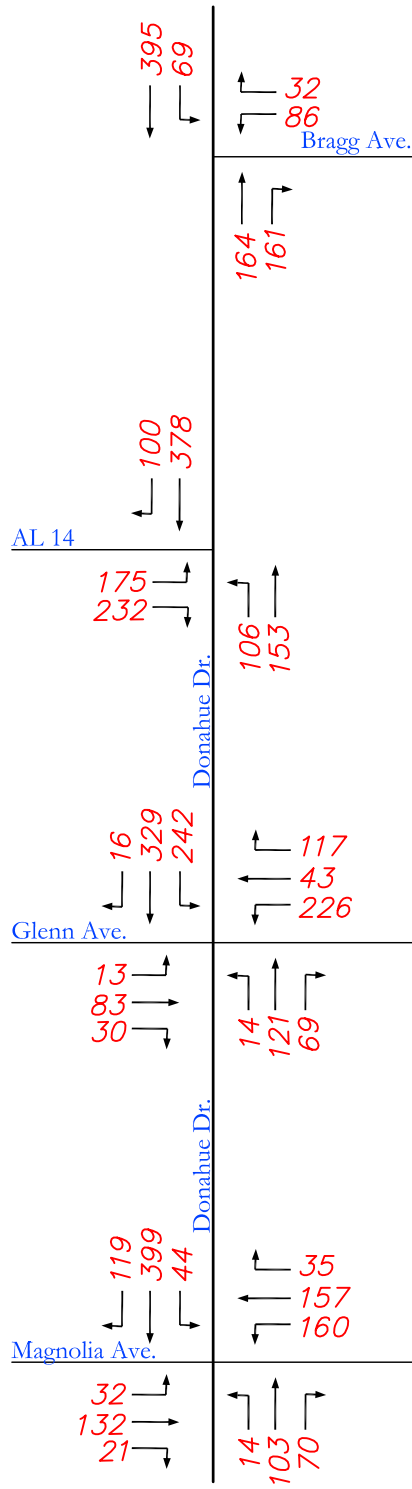
The Donahue Drive Corridor from Bragg Avenue to Magnolia Avenue runs in a north/south direction. This segment of Donahue Drive evaluated is approximately 0.3 miles in length. Characteristics for each study roadway evaluated in this corridor are provided in **Table 2-1**.

Table 2-1
Study Corridor Roadways Characteristics

Roadway	Parking	# of Lanes	Travel Direction	Travel Speeds (mph)	Classification
Donahue Drive	None	2/3	North/South	35	Arterial
Bragg Avenue	None	2	East/West	25	Collector
Alabama State Highway 14	None	3	East/West	35	Arterial
Glenn Avenue	None	2	East/West	25	Collector/Arterial
Magnolia Avenue	None	3	East/West	25	Collector

Peak Hour Traffic Counts

Morning (7:00-9:00 am) and afternoon (4:00-6:00 pm) peak hour turning movement counts were conducted at the Donahue Drive Corridor intersections during the month of October 2005. Morning and afternoon peak hour traffic count data utilized for the analyses of these intersections is summarized in **Figure 2-2** and **Figure 2-3**, respectively.. Complete traffic count data is provided in **Appendix A** for reference.

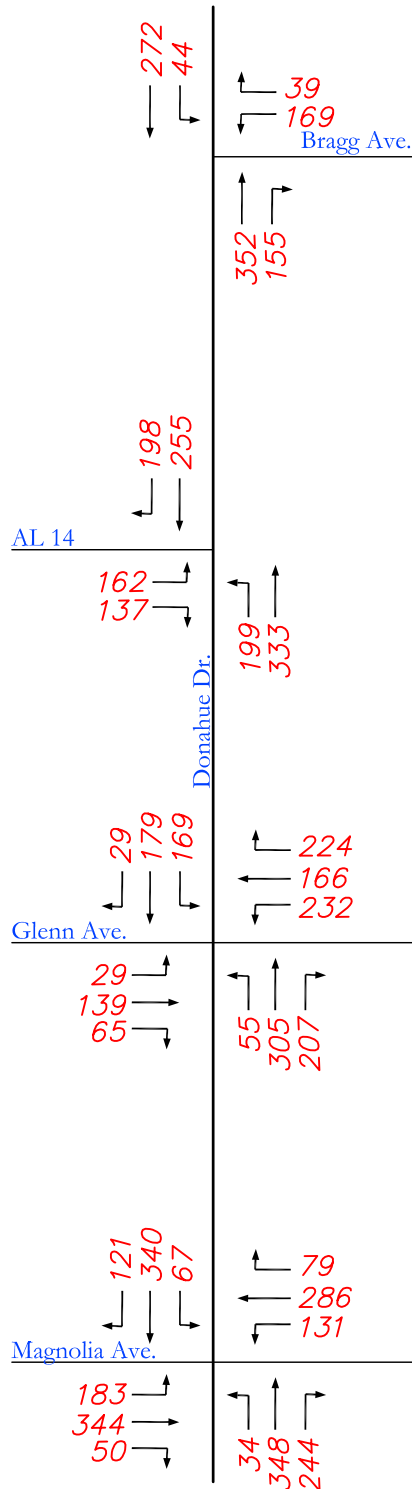


Counts taken in October 2005
Typical Peak (7:15-8:15 AM)

Legend
00 → TRAFFIC VOLUMES (VEHICLES)

DRAWING NOT TO SCALE

FIGURE 2-2
EXISTING AM PEAK HOUR
TURNING MOVEMENT COUNTS
DONAHUE DRIVE CORRIDOR
AUBURN, ALABAMA



Counts taken in October 2005
Typical Peak (4:45-5:45 PM)

Legend
00 → TRAFFIC VOLUMES (VEHICLES)

DRAWING NOT TO SCALE

FIGURE 2-3
EXISTING PM PEAK HOUR
TURNING MOVEMENT COUNTS
DONAHUE DRIVE CORRIDOR
AUBURN, ALABAMA

EXISTING INTERSECTION CAPACITY ANALYSIS

Capacity analyses for peak hour conditions at the study intersections along the Donahue Drive Corridor were conducted for morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, Third Edition*. 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 2-2**. Existing intersection capacity printouts, which present details of the capacity analyses, are provided in **Appendix B** for reference.

**Table 2-2
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 Bragg Avenue (side street stop)	WB Bragg Avenue	Left/Right	D	D
	SB Donahue Drive	Left	A	A
Donahue Drive at Alabama State Highway 14 (traffic signal)	EB Alabama 14	Left	B	B
		Right	B	B
	NB Donahue Drive	Left	A	A
		Through	A	A
	SB Donahue Drive	Through/Right	A	A
	Overall LOS			B
Donahue Drive at Glenn Avenue (traffic signal)	EB Glenn Avenue	Left	C	C
		Through/Right	C	C
	WB Glenn Avenue	Left	D	D
		Through/Right	C	D
	NB Donahue Drive	Left	B	B
		Through/Right	C	D
	SB Donahue Drive	Left	A	B
		Through/Right	C	C
Overall LOS			C	C

Table 2-2 (continued)

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

As shown in **Table 2-2**, each study intersection evaluated along the Donahue Drive Corridor operates with acceptable levels of service during the morning and afternoon peak hours.

EXISTING ARTERIAL SEGMENT CAPACITY ANALYSIS

Arterial segment capacity analyses for peak hour conditions along the Donahue Drive Corridor were conducted for the morning and afternoon peak hour periods using methods outlined in the *Highway Capacity Manual, Third Edition*. Levels of service for the arterial analyses conducted for Donahue Drive are summarized in **Table 2-3**. Capacity printouts are provided in **Appendix B**.

Table 2-3 indicates each segment and the total urban street for northbound Donahue Drive operates with acceptable levels of service (LOS D) during both the morning and afternoon peak hours. Southbound Donahue Drive from Alabama Highway 14 to Glenn Avenue operates with a level of service “E” during both peak periods evaluated. Overall, Donahue Drive from Alabama Highway 14 through Magnolia Avenue operates with a level of service “E” during the morning peak hour and a level of service “D” during the afternoon peak hour. The primary factor in the less than desirable levels of service along Donahue Drive is the spacing between Glenn Avenue and Alabama Highway 14.

**Table 2-3
Existing Arterial Segment Levels of Service**

Northbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial Level of Service by Section	
			AM Peak	PM Peak
Magnolia Avenue	Glenn Avenue	0.19	D	D
Glenn Avenue	AL Highway 14	0.08	D	D
Total Urban Street LOS			D	D
Southbound Donahue Drive Arterial Analysis				
From	To	Segment Length (miles)	Arterial Level of Service by Section	
			AM Peak	PM Peak
AL Highway 14	Glenn Avenue	0.08	E	E
Glenn Avenue	Magnolia Avenue	0.19	D	C
Total Urban Street LOS			E	D

RIGHT-TURN LANE WARRANT EVALUATIONS

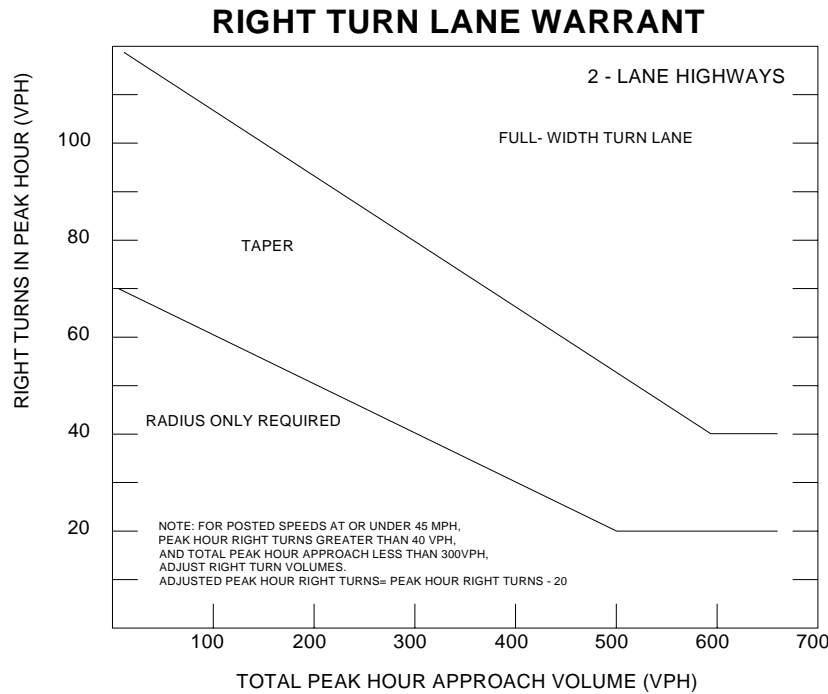
An assessment of the need for right turn lanes along Donahue Drive and the intersecting roadways was conducted. This assessment was conducted for each approach of Donahue Drive and the intersecting roadways for each of the study intersections. The criteria utilized are based upon information contained in the *Intersection Channelization Design Guide, Report 279*, published by the Transportation Research Board. Existing peak hour traffic volumes were compared with right-turn lane warrant criteria as presented in the *Intersection Channelization Design Guide, Report 279*.

The results of these comparisons indicate current volumes are sufficient to meet the criteria for right-turn lanes as described above for the following locations:

- Southbound Donahue Drive at Magnolia Avenue;
- Westbound Magnolia Avenue at Donahue Drive;
- Northbound Donahue Drive at Glenn Avenue;
- Westbound Glenn Avenue at Donahue Drive;

- Southbound Donahue Drive at Alabama Highway 14;
- Northbound Donahue Drive at Bragg Avenue.

Right turn lane guidelines, as presented in the *Intersection Channelization Design Guide, Report 279*, are provided for reference in the following charts.



In addition to the turn lanes listed above, traffic volumes at various other locations were significant to meet the criteria for a right turn taper only. At these locations, the capacity of the shared through/right turn lane was used to determine the need for a right turn lane. Recommendations for additional right turn lanes are presented in following sections of this document.

LEFT-TURN LANE WARRANT EVALUATIONS

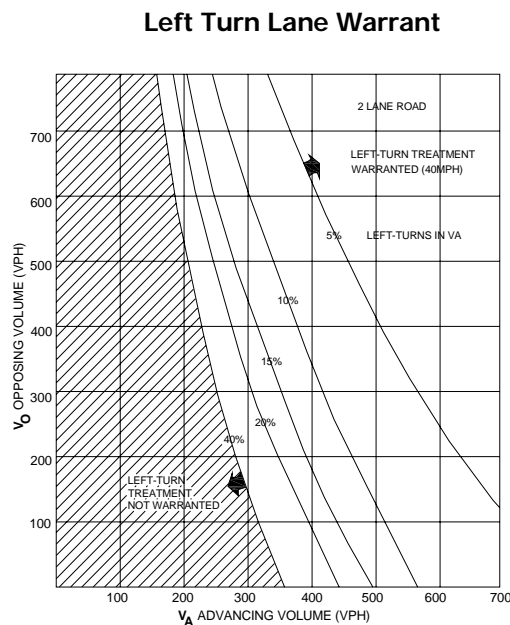
Left turn lanes are presently not provided at the Donahue Drive and Bragg Avenue intersections. As a result, this location was evaluated to determine if left-turn lanes would be warranted based upon current traffic volumes. The criteria utilized were based

upon information contained in the *Intersection Channelization Design Guide, Report 279*, published by the Transportation Research Board. Existing peak hour traffic volumes were compared with left-turn lane warrant criteria as presented in the *Intersection Channelization Design Guide, Report 279*.

The results of these comparisons indicate current peak hour traffic volumes are sufficient to meet the criteria for construction of a left turn lane on southbound Donahue Drive at Bragg Avenue.

Additional left turn lanes may be recommended based upon capacity analyses and other evaluations. Recommendations for left turn lanes at other locations are discussed in following sections of this document.

For reference, left turn lane guidelines, as presented in the *Intersection Channelization Design Guide, Report 279*, are provided for reference in the following charts.



*Figure taken from Figure 4-12 from the *Intersection Channelization Design Guide, Report 279*

INTERSECTION ACCIDENT ANALYSIS

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. A summary of the findings for the Donahue Drive Corridor is included in the paragraphs below.

The following intersections and roadway segments within the Donahue Drive Corridor were analyzed:

- Donahue Drive at Magnolia Avenue

The recommendations which were derived from the study process are as follows:

Donahue Drive at Magnolia Avenue

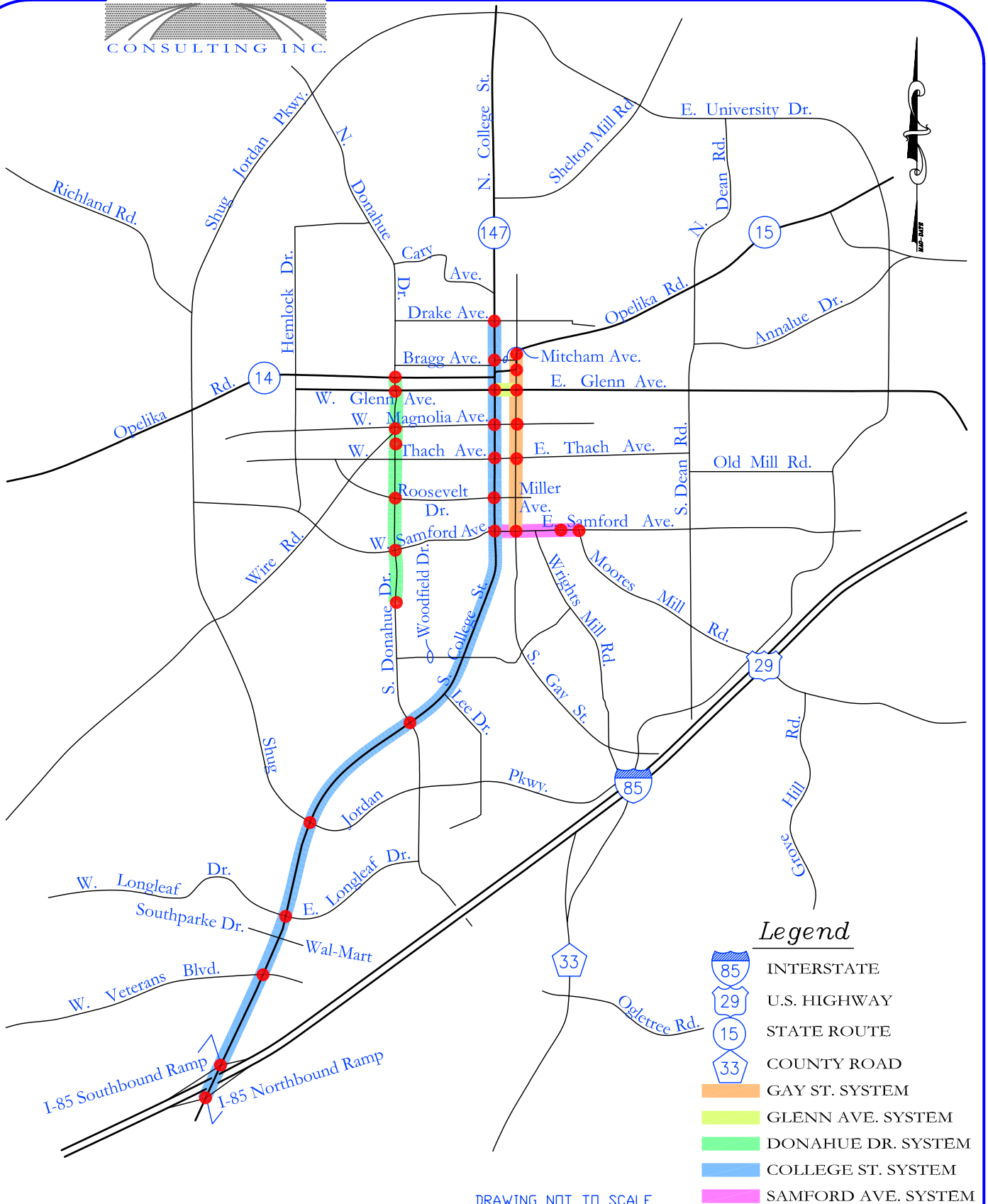
- Widen the westbound approach along Magnolia Avenue to extend the westbound left turn lane and tie in with the existing three lane cross section east of the study intersection.
- It is recommended that the traffic signal timings be examined and adjusted in an effort to improve intersection capacity and safety.

TRAFFIC SIGNAL SYSTEMS EVALUATION

Skipper Consulting, Inc. performed an evaluation of traffic signal spacing and traffic flow characteristics on Donahue Drive. In conjunction with previous work performed for Auburn University, it is recommended that a coordinated traffic signal system be implemented on Donahue Drive from Alabama Highway 14 to Lem Morrison Drive. This system would include seven signalized intersections, including the three signalized study intersections in the corridor plus four additional traffic signals on Donahue Drive located on the Auburn University campus (Dormitory Drive, Roosevelt Drive, Samford Avenue, and Lem Morrison Drive). It is anticipated that these intersections could easily be

supervised by the on-street master controller currently located at the water tank at the corner of Donahue Drive and Glenn Avenue using spread spectrum radios.

The traffic signal system recommendations for Donahue Drive as listed in the previous paragraph of this report should be designed in an integrated manner within an overall traffic signal system plan for the City of Auburn. Recommendations are made concerning traffic signal systems in other sections of this report; however due to the overlapping nature of the corridors the signal systems are interdependent. The relationship of the Donahue Drive signal system with other signal systems recommended in this report is shown in **Figure 2-4**. As shown in this figure, the Donahue Drive traffic signal system is not proposed to be specifically cross-linked with other signal systems in the vicinity.



DRAWING NOT TO SCALE

FIGURE 2-4
TRAFFIC SIGNAL SYSTEMS

AUBURN TRAFFIC STUDY
AUBURN, ALABAMA

RECOMMENDED IMPROVEMENTS

Based upon the analyses and evaluations conducted for the Donahue Drive Corridor, recommendations are being made to improve traffic flow along the corridor at study intersections and to address any capacity or safety deficiencies identified. The following outlines the recommended improvements for the Donahue Drive Corridor from Magnolia Avenue to Bragg Avenue.

Donahue Drive Signal System

In previous sections of this report, recommendations have been made regarding a signal system for Donahue Drive from Alabama Highway 14 south to Lem Morrison Drive. This would include the three study intersections (Alabama Highway 14, Glenn Avenue, and Magnolia Avenue) along Donahue Drive along with four other intersections on the Auburn University campus.

Donahue Drive at Magnolia Avenue

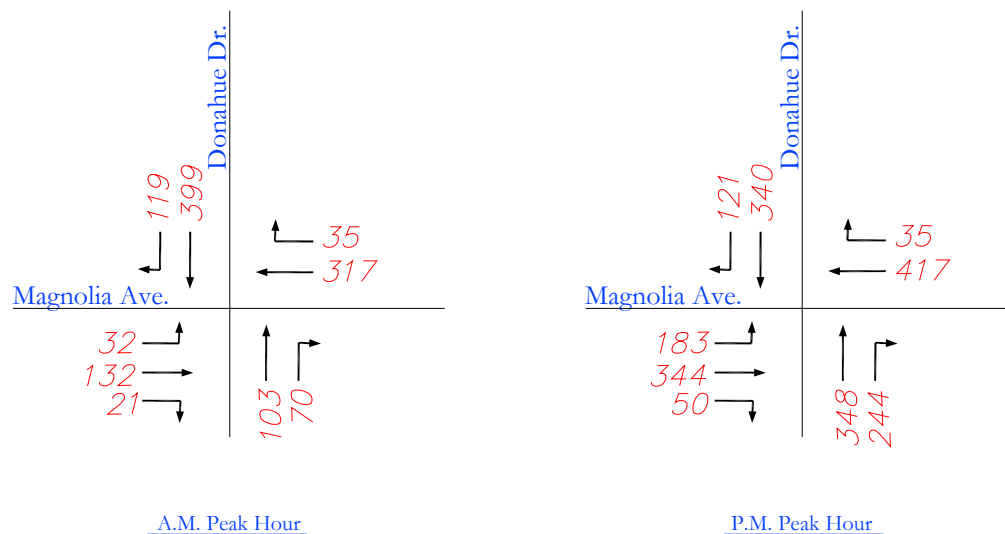
As a part of the recommended improvements for study intersections, two alternate improvement concepts have been included for the Donahue Drive at Magnolia Avenue intersection. Two alternate improvement concepts were developed for this intersection as a result of right-of-way limitations in the vicinity of the intersection, construction costs and the ability to implement potential improvements, potential capacity improvements, and Auburn University's desires to reduce congestion on Donahue Drive south of Magnolia Avenue. The following provides basic descriptions of the two alternate improvement concepts which have been included in the analyses for the Donahue Drive at Magnolia Avenue intersection:

Alternate One – Alternate One consists of widening the roadways at the study intersection to include typical turn lane additions such as adding right turn lanes. This Alternate would also include implementing signal phasing and timings modifications.

Alternate Two – Alternate Two consists of limited roadway widening at the study intersection. The primary changes would be in prohibiting left turn movements for Northbound and Southbound Donahue Drive as well as Westbound Magnolia Avenue. Signal phasing and timing changes would also be included to accommodate the prohibited left turn movements.

It is also recommended that the sidewalk in the northeast quadrant of the intersection be extended to Donahue Drive and to the north along the east side of Donahue Drive.

As a part of implementing Alternate Two, reassignment of peak hour traffic volumes would occur. It is assumed that the westbound left turn movement from Magnolia Avenue would become through movements on Magnolia Avenue. It is also assumed that the left turn movements on northbound and southbound Donahue Drive would occur at locations prior to the study intersection given opportunities exist for such movements to occur with other routes providing access to assumed destinations. The reassigned peak hour traffic volumes assumed for the Donahue Drive at Magnolia Avenue intersection with the implementation of Alternate Two is provided in the following graphic.



ALTERNATE TWO REASSIGNED PEAK HOUR VOLUMES

Donahue Drive at Glenn Avenue

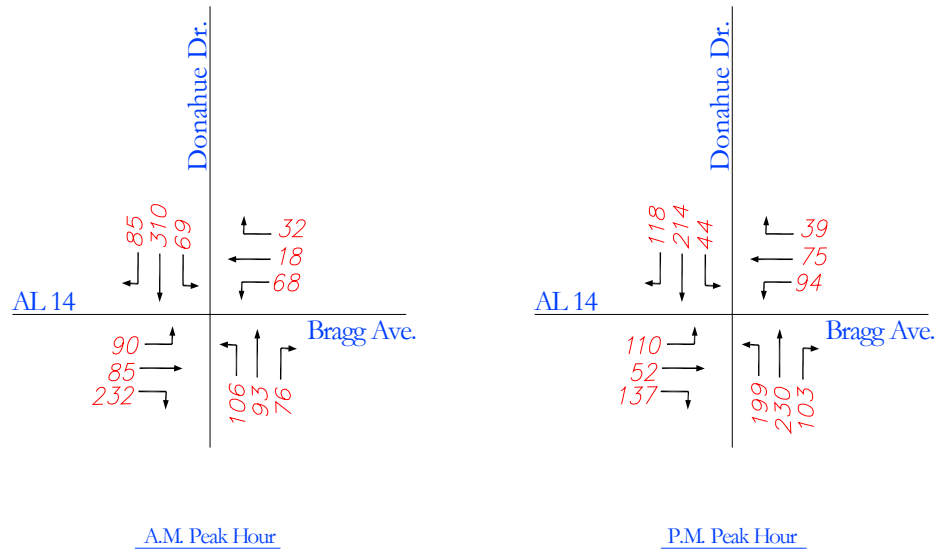
- Signal timing and phasing modifications to include implementation of westbound protected/permissive left turn phasing.
- Construct a right turn lane for the westbound approach of Glenn Avenue.
- Construct a right turn lane for the northbound approach of Donahue Drive.

Donahue Drive at Alabama Highway 14/Bragg Avenue

As previously mentioned, an improvements project is planned by the ALDOT to realign Alabama Highway 14 to the north in alignment with Bragg Avenue. In order to accommodate the planned realignment, additional lanes are planned along Donahue Drive as well as Bragg Avenue and Alabama Highway 14. With the realignment completed, each approach of Donahue Drive, Bragg Avenue and Alabama Highway 14 would provide a left turn lane and a shared through/right turn lane. With the planned improvements project completed, the left turn lane on southbound Donahue Drive at Bragg Avenue, previously included as a warranted lane, would be constructed. In addition to the roadway improvements, signalization is planned for the Donahue Drive intersection with the realigned Alabama Highway 14 and Bragg Avenue. The realignment of Alabama Highway 14 is an assumed component in the evaluation of recommended improvements for Donahue Drive and has been included in the analyses.

With the implementation of the planned realignment of Alabama Highway 14, current traffic at the Donahue Drive intersections with Alabama Highway 14 and Bragg Avenue would be redistributed. The following illustrates the assumed redistribution of peak hour traffic volumes for the Donahue Drive at Alabama Highway 14/Bragg Avenue intersection. These volumes were used in the analyses of this intersection.

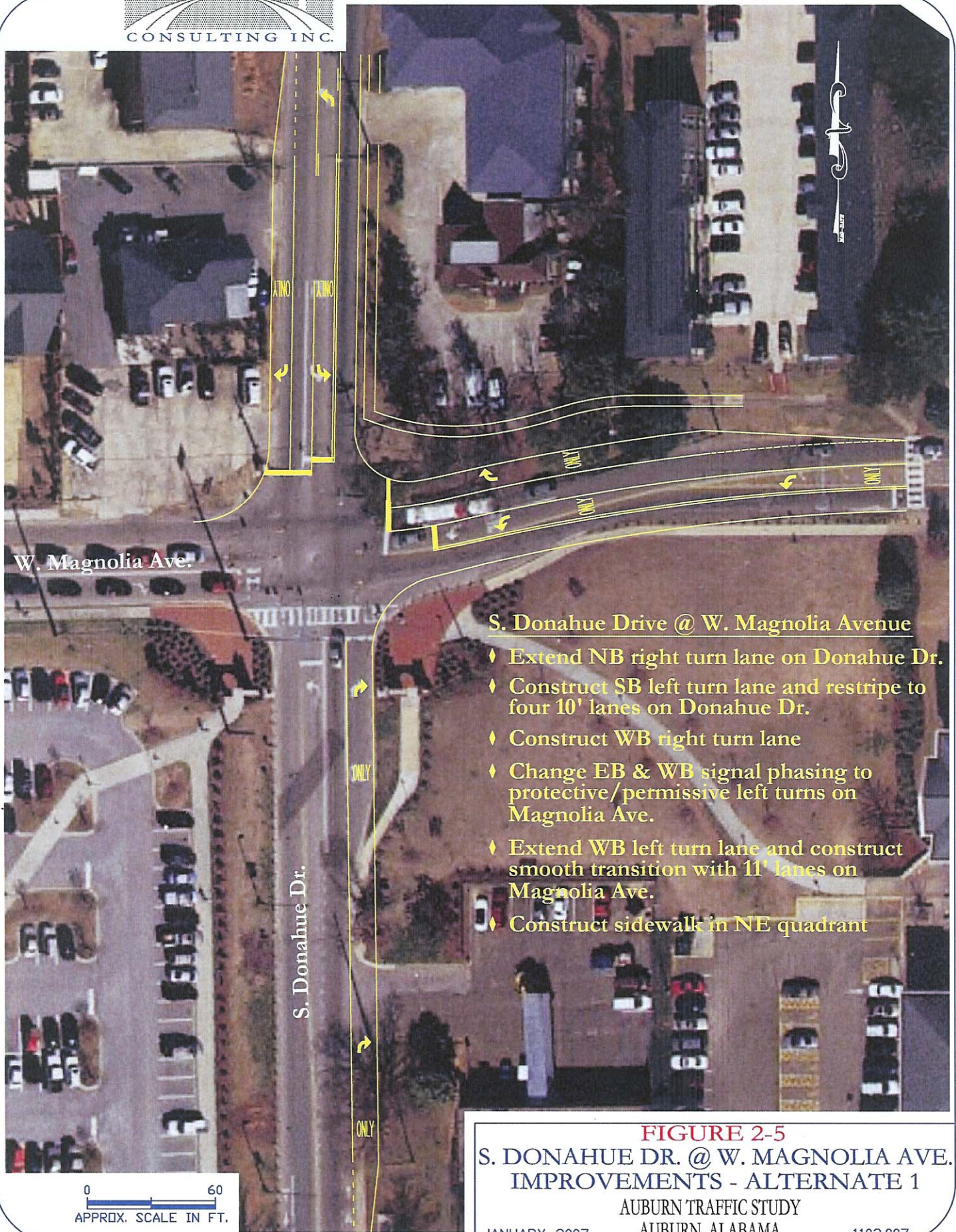
A comparison of reassigned peak hour traffic volumes with the right turn lane warrant criteria, previously presented, indicates peak hour volumes would be sufficient to meet the criteria for right turn lanes on both northbound and southbound Donahue Drive and eastbound Alabama Highway 14. These right turn lanes are recommended in addition to the planned improvements associated with the Alabama Highway 14 realignment project.



DONAHUE DRIVE AT REALIGNED AL 14/BRAGG AVENUE REASSIGNED PEAK HOUR TRAFFIC VOLUMES

Recommended improvements for each of the study intersections, including the planned improvements for the Alabama Highway 14 realignment, are illustrated in Figures 2-5 through 2-8 as summarized in the following:

- Figure 2-5 Donahue Drive at Magnolia Avenue Improvements – Alternate One
- Figure 2-6 Donahue Drive at Magnolia Avenue Improvements – Alternate Two
- Figure 2-7 Donahue Drive at Glenn Avenue Improvements
- Figure 2-8 Donahue Drive at AL Highway 14/Bragg Avenue -
Planned and Recommended Improvements



S. Donahue Drive @ W. Magnolia Avenue

- ◆ Extend NB right turn lane on Donahue Dr.
- ◆ Construct SB left turn lane and restripe to four 10' lanes on Donahue Dr.
- ◆ Construct WB right turn lane
- ◆ Change EB & WB signal phasing to protective/permissive left turns on Magnolia Ave.
- ◆ Extend WB left turn lane and construct smooth transition with 11' lanes on Magnolia Ave.
- ◆ Construct sidewalk in NE quadrant

FIGURE 2-5

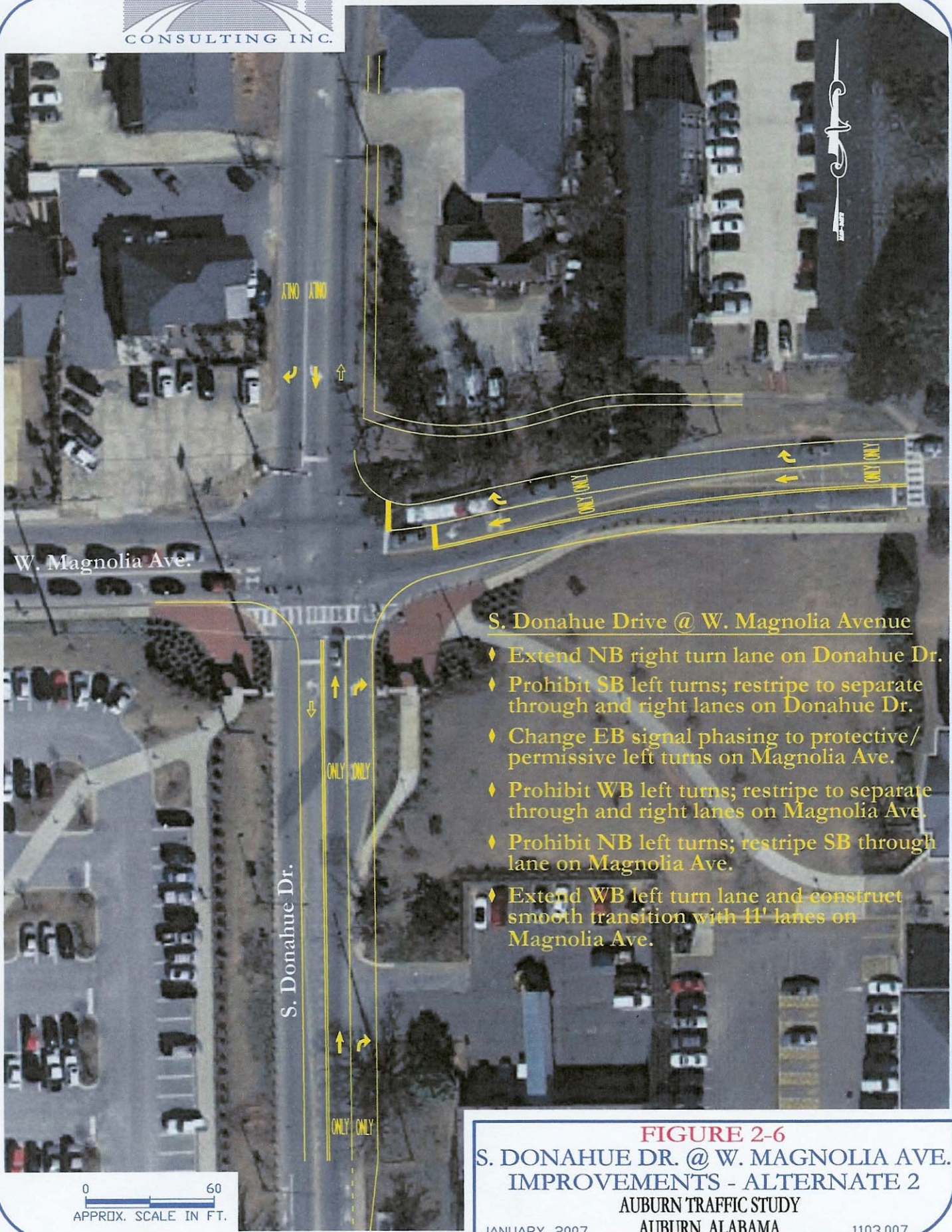
**S. DONAHUE DR. @ W. MAGNOLIA AVE.
IMPROVEMENTS - ALTERNATE 1**

AUBURN TRAFFIC STUDY

AUBURN, ALABAMA

JANUARY 2007

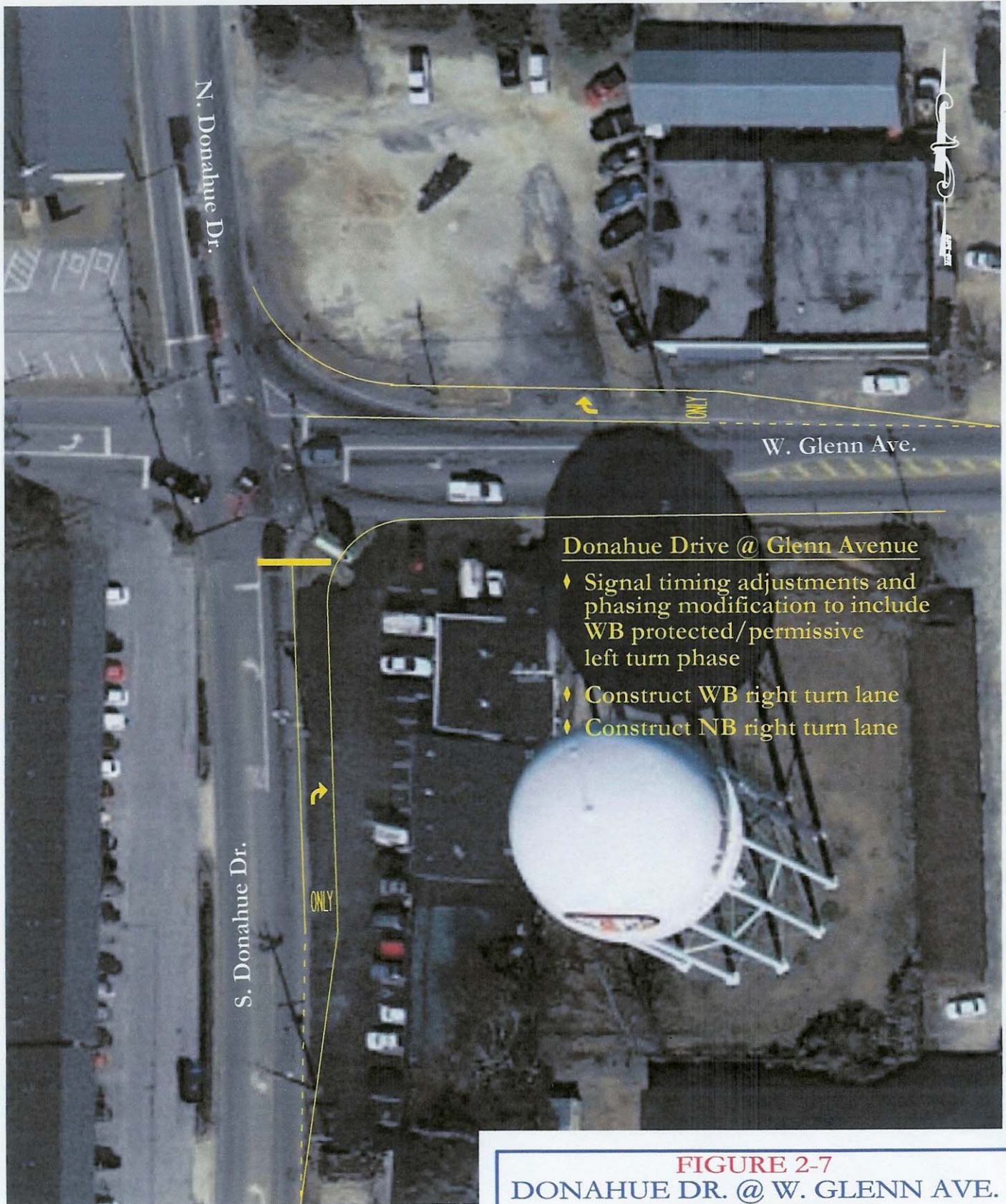
1103.007



- S. Donahue Drive @ W. Magnolia Avenue**
- ◆ Extend NB right turn lane on Donahue Dr.
 - ◆ Prohibit SB left turns; restripe to separate through and right lanes on Donahue Dr.
 - ◆ Change EB signal phasing to protective/ permissive left turns on Magnolia Ave.
 - ◆ Prohibit WB left turns; restripe to separate through and right lanes on Magnolia Ave.
 - ◆ Prohibit NB left turns; restripe SB through lane on Magnolia Ave.
 - ◆ Extend WB left turn lane and construct smooth transition with 11' lanes on Magnolia Ave.

0 60
APPROX. SCALE IN FT.

FIGURE 2-6
S. DONAHUE DR. @ W. MAGNOLIA AVE.
IMPROVEMENTS - ALTERNATE 2
AUBURN TRAFFIC STUDY
AUBURN, ALABAMA
1103.007



Donahue Drive @ Glenn Avenue

- ◆ Signal timing adjustments and phasing modification to include WB protected/permissive left turn phase
- ◆ Construct WB right turn lane
- ◆ Construct NB right turn lane

0 50
APPROX. SCALE IN FT.

FIGURE 2-7
DONAHUE DR. @ W. GLENN AVE.
IMPROVEMENTS
AUBURN TRAFFIC STUDY
AUBURN, ALABAMA

JANUARY 2007

1103.007



**Donahue Drive @ Bragg Avenue
Planned Improvements**

- ◆ Realignment of Al. Hwy. 14
- ◆ EB left turn and through/right turn lanes on Relocated Al. Hwy. 14
- ◆ NB left turn and through/right turn lanes on Donahue Dr.
- ◆ SB left turn and through/right turn lanes on Donahue Dr.
- ◆ Planned WB left turn lane on Bragg Ave.
- ◆ Planned traffic signalization with 8 Phase operation

**Donahue Drive @ Bragg Avenue
Recommended Improvements**

- ◆ Construct NB right turn lane
- ◆ Construct SB right turn lane
- ◆ Construct EB right turn lane

0 50
APPROX. SCALE IN FT.

FIGURE 2-8
N. DONAHUE DR. @ BRAGG AVE.
PLANNED IMPROVEMENTS
IMPROVEMENTS

INTERSECTION CAPACITY ANALYSIS WITH RECOMMENDED AND PLANNED IMPROVEMENTS

Capacity analyses were conducted for the study intersections along Donahue Drive with the recommended and planned improvements assumed to be in place. Capacity analyses were conducted using methods of the *Highway Capacity Manual*, as previously introduced. **Table 2-4** provides a summary of the levels of service for study intersections assuming the recommended improvements would be implemented. For comparative purposes, existing levels of service are shown in red in **Table 2-4**. Capacity printouts are provided in **Appendix C**.

As indicated in **Table 2-4**, acceptable levels of service would be provided for all movements/lane groups and approaches at each of the study intersections with the implementation of the recommended improvements as well as the planned realignment of Alabama Highway 14. Overall, each of the study intersections would operate at a level of service “C”. **Table 2-4** also indicates that Alternate One or Alternate Two for the Donahue Drive at Magnolia Avenue intersection would yield similar levels of service. Under each Alternate, overall levels of service “C” would be provided at the Donahue Drive and Magnolia Avenue intersection for both peak periods evaluated. For comparative purposes, existing levels of service, where applicable, are provided in **Table 2-4**.

Table 2-4
Intersection Levels of Service with
Recommended Improvements and Planned Improvements
 Existing Levels of Service Shown in **RED**

Intersection (traffic control)	Approach	Movement/Lane Group	Level of Service					
			A.M. Peak Hour		P.M. Peak Hour			
Donahue Drive at Realigned AL 14/ Bragg Ave. (traffic signal)	EB AL 14	Left	C		C			
		Through	C		C			
		Right	C		C			
	WB Bragg Avenue	Left	C		C			
		Through/Right	C		C			
	NB Donahue Drive	Left	B		B			
		Through	C		C			
		Right	B		B			
	SB Donahue Drive	Left	B		B			
		Through	C		C			
Right		B		B				
Overall LOS			C		C			
Donahue Drive at Glenn Avenue (traffic signal)	EB Glenn Avenue	Left	C	<i>C</i>	C	<i>C</i>		
		Through/Right	C	<i>C</i>	C	<i>C</i>		
	WB Glenn Avenue	Left	C	<i>D</i>	C	<i>D</i>		
		Through	C	<i>C</i>	C	<i>D</i>		
	NB Donahue Drive	Right	A		A			
		Left	B	<i>B</i>	B	<i>B</i>		
	SB Donahue Drive	Through	C	<i>C</i>	C	<i>D</i>		
		Right	B		B			
	SB Donahue Drive	Left	B	<i>A</i>	B	<i>B</i>		
		Through/Right	C	<i>C</i>	C	<i>C</i>		
Overall LOS			C	<i>C</i>	C	<i>C</i>		
			<i>Existing LOS</i>		Magnolia at Donahue		Magnolia at Donahue	
			<i>AM</i>	<i>PM</i>	Alt. 1	Alt. 2	Alt. 1	Alt. 2
Donahue Drive At Magnolia Avenue (traffic signal)	EB Magnolia Avenue	Left	<i>B</i>	<i>C</i>	B	B	B	C
		Through/Right	<i>B</i>	<i>B</i>	C	B	C	B
	WB Magnolia Avenue	Left	<i>B</i>	<i>B</i>	B	n/a	B	n/a
		Through	<i>B</i>	<i>B</i>	C	C	C	C
		Right	<i>B</i>	<i>B</i>	C	B	C	C
	NB Donahue Drive	Left	<i>B</i>	<i>B</i>	C	n/a	C	n/a
		Through	<i>B</i>	<i>B</i>	C	C	C	D
	SB Donahue Drive	Right	<i>B</i>	<i>B</i>	B	C	B	C
		Left	<i>B</i>	<i>B</i>	C	n/a	C	n/a
		Through	<i>D</i>	<i>B</i>	C	C	C	C
Overall LOS			C	B	C	C	C	C

ARTERIAL SEGMENT CAPACITY ANALYSES WITH RECOMMENDED AND PLANNED IMPROVEMENTS

Arterial segment capacity analyses for peak hour conditions along the Donahue Drive Corridor were conducted for the morning and afternoon peak hours using methods outlined in the *Highway Capacity Manual, Third Edition*. These analyses were conducted assuming the Alabama Highway 14 realignment would be in place. In addition, analyses were conducted with both Alternate One and Alternate Two for the Donahue Drive at Magnolia Avenue intersection. Levels of service for the arterial analyses conducted for Donahue Drive are summarized in **Table 2-5**. For comparative purposes, existing levels of service are provided in red in **Table 2-5**. Capacity printouts are provided in **Appendix C**.

Table 2-5
Arterial Segment Levels of Service with
Recommended Improvements and Planned Improvements
 Existing Levels of Service in **RED**

Northbound Donahue Drive Arterial Analysis								
From	To	Segment Length (miles)	Arterial Level of Service by Section					
			Existing Conditions		Magnolia at Donahue		Magnolia at Donahue	
			AM Peak	PM Peak	Alternate One		Alternate Two	
AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	
Magnolia Ave.	Glenn Ave.	0.19	D	D	D	D	D	D
Glenn Ave.	AL 14/Bragg	0.12	D	D	D	D	D	D
Total Urban Street LOS			D	D	D	D	D	D
Southbound Donahue Drive Arterial Analysis								
From	To	Segment Length (miles)	Arterial Level of Service by Section					
			Existing Conditions		Magnolia at Donahue		Magnolia at Donahue	
			AM Peak	PM Peak	Alternate One		Alternate Two	
AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	
AL 14/Bragg	Glenn Ave.	0.12	E	E	D	D	D	D
Glenn Ave.	Magnolia Ave.	0.19	D	C	D	D	D	D
Total Urban Street LOS			E	D	D	D	D	D

Table 2-5 indicates that the total urban street level of service along Donahue Drive from Alabama Highway 14/Bragg Avenue to Magnolia Avenue would operate at levels of service “D” for each direction of travel during both the morning and afternoon peak hours. Levels of service for either Alternate One or Alternate Two at the Donahue Drive at Magnolia Avenue intersection would yield the similar levels of service for the Donahue Drive arterial analysis. This analysis was conducted assuming the roadway and traffic control improvements (both recommended and planned) outlined in this report would be in place.