Welcome to Auburn, Alabama

"Loveliest Village on the Plains"

Citywide Crash Study

PREPARED FOR:

THE CITY OF AUBURN

PREPARED BY:

SKIPPER CONSULTING INC.

APRIL 2006

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Introduction

This report is a summary of the analyses and findings of a citywide crash study conducted for the intersections and roadway segments maintained by the City of Auburn. The citywide crash study was completed as a part of the citywide traffic conditions study by Skipper Consulting, Inc., for the City of Auburn. As a part of the study, crash data relating to intersections and roadway segments maintained by the City of Auburn was examined, using methods outlined in this report, to determine locations within the City of Auburn with a possible correctable crash histories. The purposes and objectives of this study are as follows:

- to examine crash histories along roadway segments and intersections maintained by the City of Auburn;
- to identify possible intersections and roadway segments of concern based upon a systematic traffic crash analyses applied citywide;
- to identify possible crash patterns at locations identified as high crash locations; and,
- to make recommendations to possibly mitigate any crash patterns and improve traffic safety at locations of concern.

Sources of information used in this report include: the City of Auburn, Alabama; the Alabama Department of Transportation; the Institute of Transportation Engineers; the American Association of State Highway and Transportation Officials; the Transportation Research Board; the University of Alabama Care Research and Development Laboratory; the Wisconsin Department of Transportation; and the files and field reconnaissance efforts of Skipper Consulting, Inc.

Basic Crash Evaluation Principles

The basic goal and principle associated with the Auburn Citywide Crash Study is to examine the existing traffic conditions and determine ways to improve the safety along roadways and at intersections within the City of Auburn. The basic crash evaluation principles are as follows:

- determine the total crashes at a location over a given time period;
- examine the crashes experienced at the given location to determine how many (if any) were similar in character;
- examine existing roadway conditions along with crash patterns at the given location to determine if roadway conditions and/or environmental conditions may have contributed to the cause of the crashes experienced; and,
- determine possible roadway improvements to mitigate any crashes caused by roadway conditions.

Both intersection locations and roadway segments within the City of Auburn maintenance jurisdiction were examined using these basic crash evaluation principles.

Citywide Crash Statistics

As a part of the citywide crash study, general traffic crash characteristics were examined. Utilizing crash data published by the University of Alabama Care Research and Development Laboratory, general statistics were compiled for the latest year (2004) for all intersections within the City of Auburn. The following information is a summary of general facts examined.

2004 Citywide Crash Statistics

2004 Total crashes for the City of Auburn	1,911
2004 Total crash related injuries for the City of Auburn	361
2004 Total crash related fatalities for the City of Auburn	4
2004 Total crashes involving pedestrians for the City of Auburn	11

General Crash Characteristics

- Over 33% of all crashes occur from September through November
- The largest portion of crashes occur on Tuesdays (16%) and Fridays (19%)
- The largest portion of daily crashes occur from 2:00 PM to 6:00 PM (38%)
- 45% of all crashes occur with drivers age 19-24
- 5% of all crashes involved alcohol and/or drugs
- 20% of all crashes occur in dark, unlit roadway conditions
- 12% of all crashes occur during rainy weather conditions
- 18% of all crashes occur on wet pavement
- The most common types of crashes are
  - Following too closely
  - Failed to yield right of way
  - Driver loss of vehicle control

City of Auburn Historical Crash Statistics

Year	Total Crashes	Trend
1999	1719	
2000	1745	+1.5%
2001	1717	-1.6%
2002	1833	+6.7%
2003	1910	+4.2%
2004	1911	0.0%

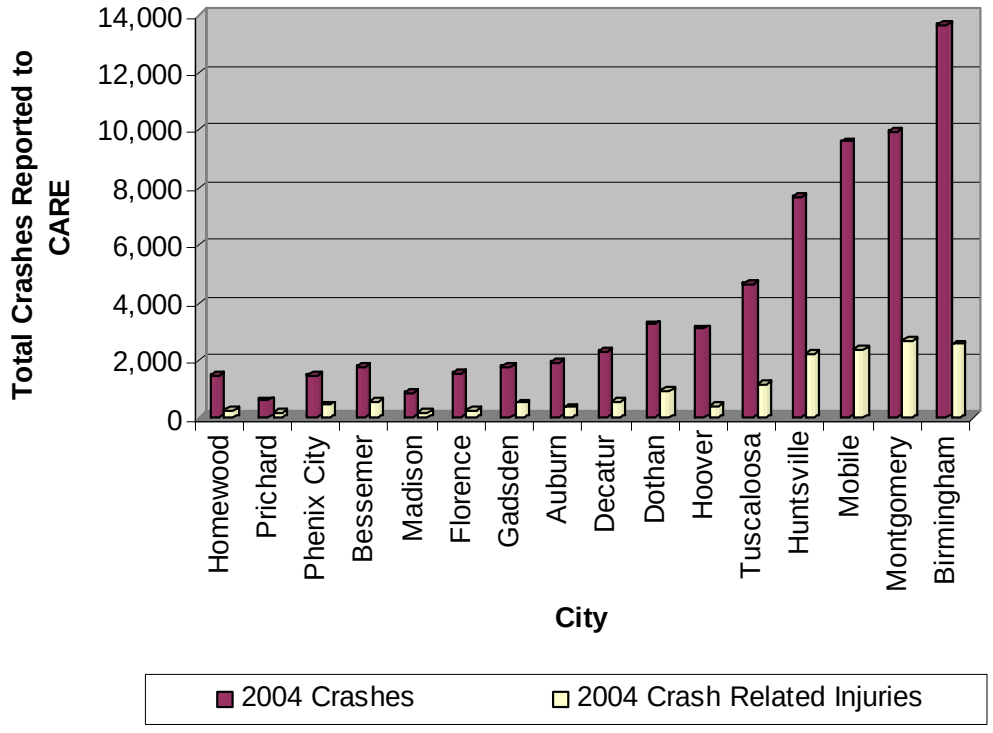
In addition to general crash statistics, crash data for the City of Auburn was compared with other cities in the state of Alabama. U.S. Census Bureau data was researched and used as a reference point to compare crash data with comparable cities within the state of Alabama. Table 1 illustrates crash statistic comparisons for Alabama cities.

Table 1
Alabama City Crash Statistics

City	*Latest U.S. Census Population Estimate (2003)*	*2004 Crashes*	*Crashes Per 1,000 People*	*2004 Crash Related Injuries*	*2004 Crash Related Fatalities*
Homewood	24,399	1,454	59.6	279	0
Prichard	27,983	606	21.7	185	5
Phenix City	28,444	1,493	52.5	459	3
Bessemer	29,108	1,794	61.6	544	4
Madison	34,080	865	25.4	187	2
Florence	35,852	1,527	42.6	272	3
Gadsden	37,619	1,759	46.8	515	2
Auburn	46,923	1,911	40.7	361	4
Decatur	54,239	2,311	42.6	570	6
Dothan	60,036	3,265	54.4	931	8
Hoover	65,070	3,102	47.7	413	6
Tuscaloosa	79,294	4,642	58.5	1,156	11
Huntsville	164,237	7,669	46.7	2,216	23
Mobile	193,464	9,600	49.6	2,370	29
Montgomery	200,123	9,935	49.6	2,693	29
Birmingham	236,620	13,679	57.8	2,569	47

Figure 1

Alabama City Crash Statistics Comparison



As illustrated in Table 1, the City of Auburn ranks in approximately the 50 percentile range of cities sampled based on population estimates. The average statistics sampled are as follows:

- Average population 82,000
- Average crashes 4,100
- Average crash related injuries 980
- Average crash related fatalities 11

Further analysis indicates that crash experience and severity experienced in Auburn is comparable to other similarly populated cities in Alabama.

Intersection Screening Process

In order to determine which intersection locations within the City of Auburn maintenance jurisdiction required attention, an intersection screening process was applied systematically to each intersection. The initial step of the intersection screening process required a review of CARE data for the City of Auburn. Initially a review of the Care data for the two year period from 2003-2004 was evaluated. As a part of the initial intersection screening process all intersections within the city of Auburn with five crashes or more for the two year period were selected. The five crash limit was set as a preliminary threshold for study intersections because it should be the minimum amount of crashes present at an intersection to determine a crash pattern. The results of the initial screening process generated approximately 133 intersections. Figure 2 illustrates the resulting initial study intersections.

Once the study intersections with 5 or more crashes were determined, an additional intersection screening parameter was considered. Using GIS and historical traffic count data provided by the City of Auburn, the approximate ADT (annual daily traffic) values were determined for each study intersection. The sum of ADT values for each study intersection was generated and then converted into million vehicles entering the intersection. Then, using data retrieved from CARE, a ratio of crashes per million vehicles entering was determined for each study intersection. Figure 3 illustrates the million vehicles entering intersection data while Figure 4 illustrates crashes per million vehicles entering for study intersections.

Once the study intersections were evaluated to determine the corresponding crashes per million vehicles entering, an additional screening step to determine the final study intersection locations was taken. In an effort to rate the crash experience at each study intersection, information presented in the *U.S. Highway 51 Needs Assessment*, published by the Wisconsin Department of Transportation was consulted. As published in the *U.S. Highway 51 Needs Assessment*, the Wisconsin Department of Transportation states that an intersection crash rate below 1.5 crashes per million vehicles entering to be normal. The report also states that intersection crash rates of 1.5 to 2.0 MVE (million vehicles entering) “warrant watching” and intersection crash rates above 2.0 MVE (million vehicles entering) “warrant further investigation”. Considering the guidelines as published by the Wisconsin Department of Transportation, the study intersections were evaluated and all intersections with a crash rating 1.5 or higher were selected as final study intersection locations.

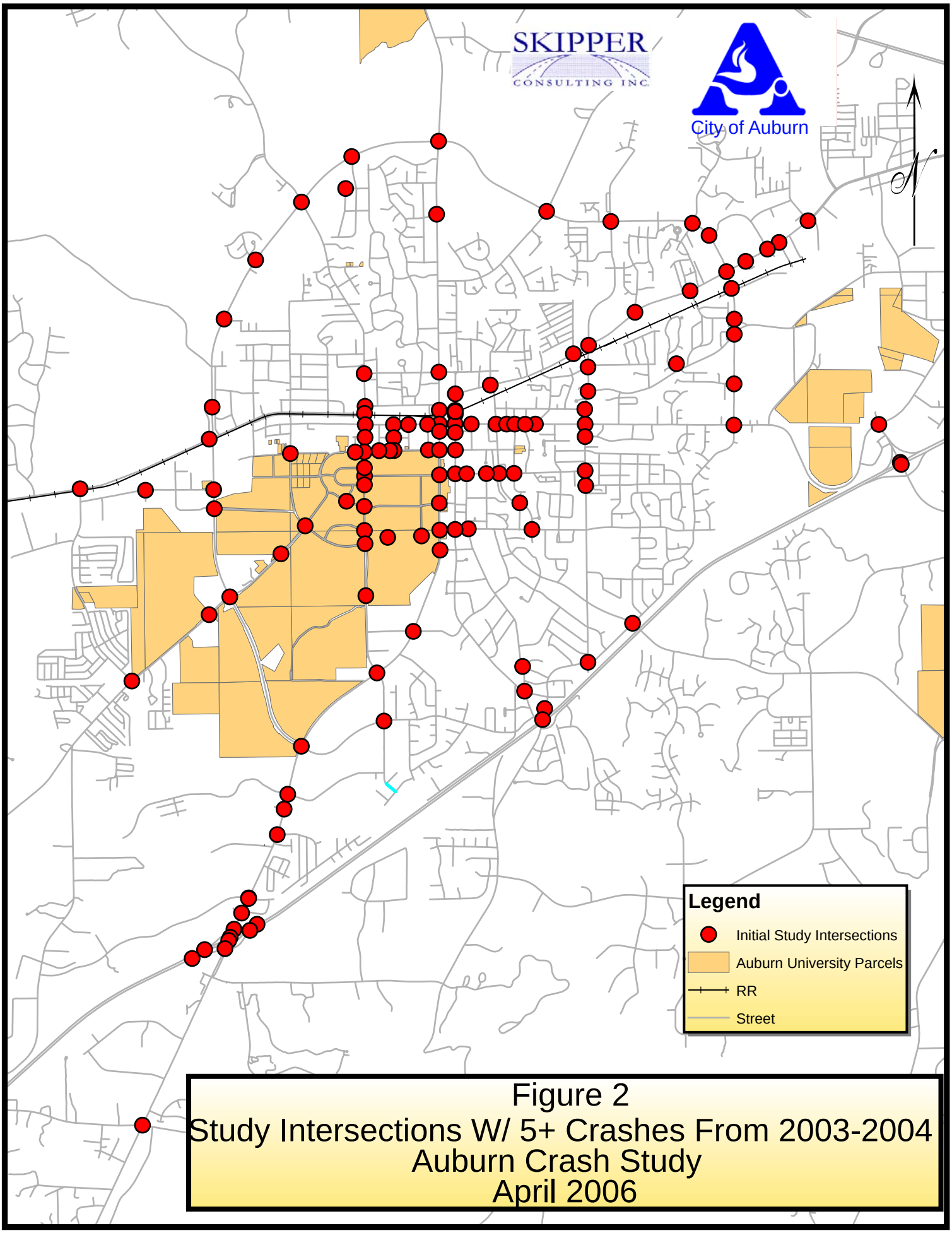


Figure 2
Study Intersections W/ 5+ Crashes From 2003-2004
Auburn Crash Study
April 2006

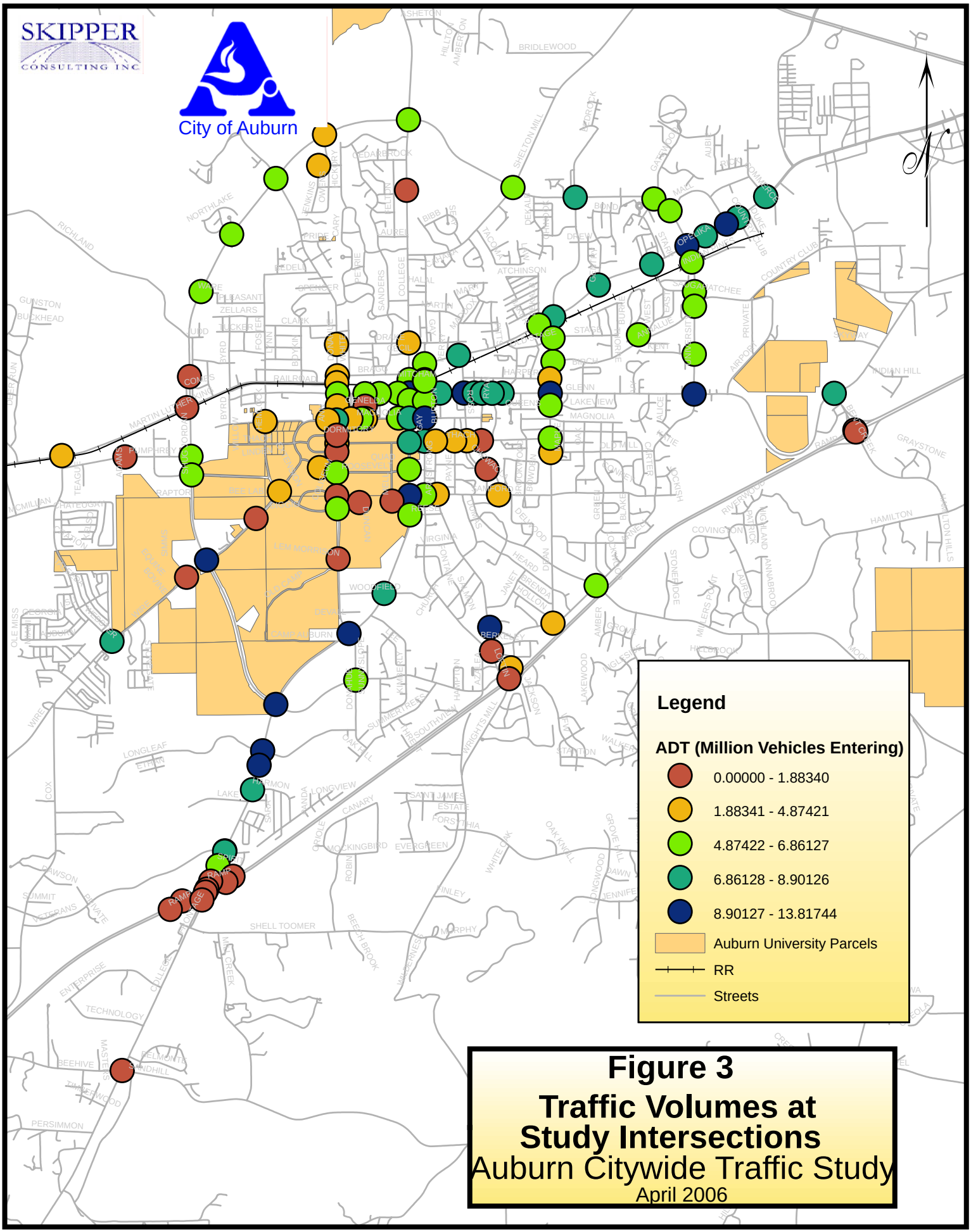


Figure 3
Traffic Volumes at Study Intersections
Auburn Citywide Traffic Study
April 2006

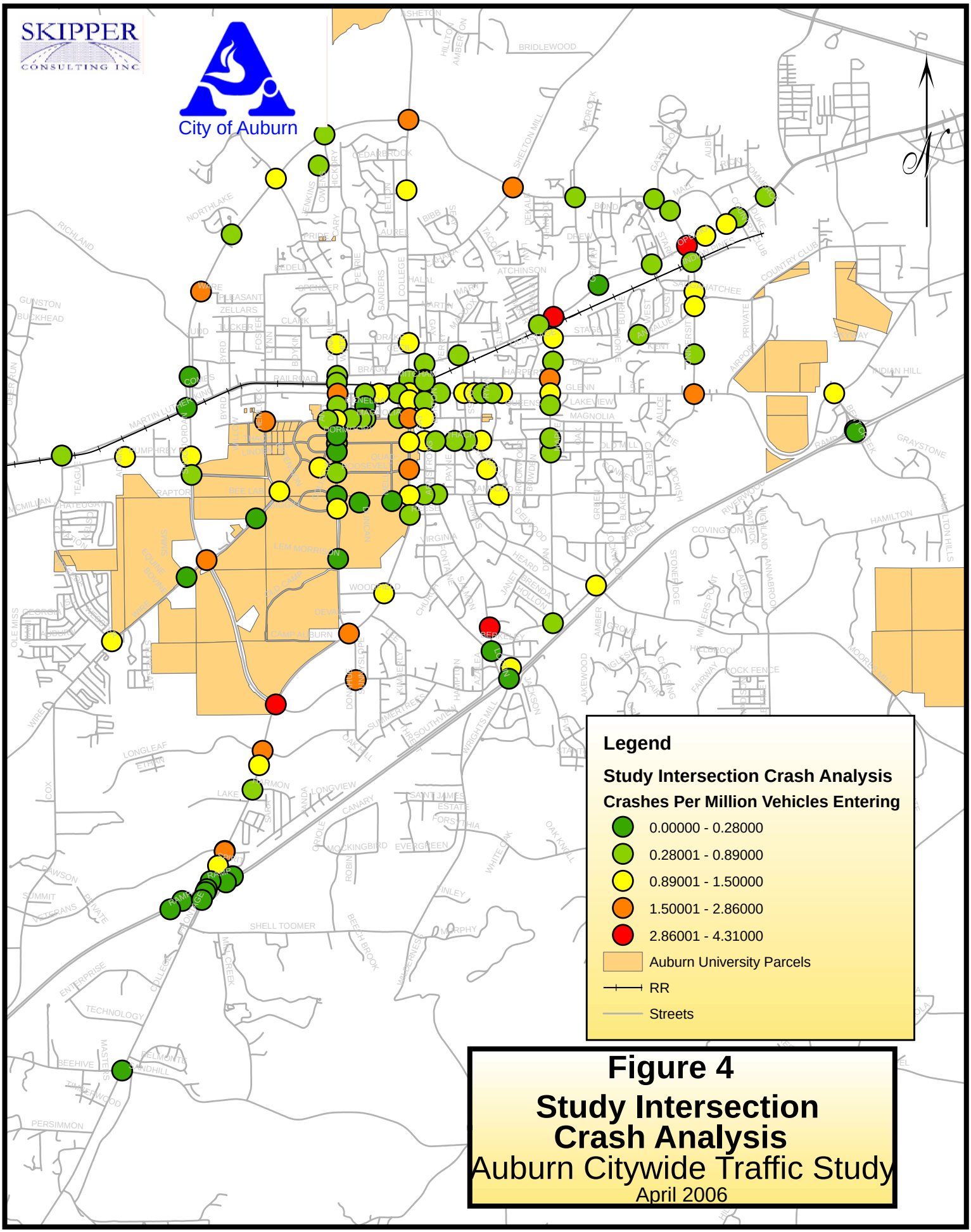


Figure 4
Study Intersection Crash Analysis
Auburn Citywide Traffic Study
April 2006

It should be noted that some intersections were also included in the crash study as a part of the citywide roadway corridor evaluation. These are intersections that did not meet the intersection screening requirements, but were included for evaluation. Table 2 lists the final study intersection locations.

Table 2
Final Study Intersection Locations

Intersection	*2004 Crashes*	*2003-2004 Crashes*	*2003-2004 CPMVE*	*Corridor/Crash Intersection*
Dean Road @ Harper Avenue	15	25	2.7	Crash
Donahue Drive @ Bragg Avenue	<5**	6	0.77	Both*
Donahue Drive @ Glenn Avenue	19	29	2.43	Both
Donahue Drive @ Martin Luther King Drive	<5**	5	0.52	Both*
East University Drive @ Donahue Drive	6	20	1.87	Crash
East University Drive @ Glenn Avenue	24	42	1.9	Crash
Gay Street @ Drake Avenue				Corridor
Gay Street @ Glenn Avenue	26	51	2.2	Both
Gay Street @ Mitcham Avenue	<5**	6	0.38	Both*
Gay Street @ Thach Avenue	7	18	1.01	Both*
Magnolia Avenue @ Hemlock Drive	6	13	2.56	Crash
Magnolia Avenue@ Donahue Drive	10	21	1.46	Both*
Magnolia Avenue @ Gay Street	11	24	1.19	Both*
N. College Street @ Shug Jordan Parkway/ East University Drive	12	25	1.91	Both
Opelika Road @ Dean Road	29	56	3.52	Crash
Opelika Road @ East University Drive	41	84	4.31	Both
Opelika Road @ Ross Street	5	9	0.6	Both*
S. College Street @ Donahue Drive	25	55	2.86	Both
N. College Street @ Drake Avenue	5	9	1.19	Both*
N. College Street @ Glenn Avenue	11	30	1.31	Both*
N. College Street @ Shelton Mill Road				Corridor
S. College Street @ Longleaf Drive	28	45	2.06	Both
S. College Street @ Magnolia Avenue	26	48	2.78	Both
S. College Street @ Mitcham Avenue	<5**	7	0.55	Both*
S. College Street@ Roosevelt Drive	13	25	2.02	Both
S. College Street @ Samford Avenue	12	21	0.97	Both*
S. College Street@ Shug Jordan Parkway/ East University Drive	60	105	3.8	Both
S. College Street@ Southparke Drive	18	27	1.28	Both*
S. College Street @ Thach Avenue	11	19	1.09	Both*
S. College Street @ Veterans Drive	16	31	2.08	Both
Samford Avenue @ Dean Road				Corridor
Samford Avenue @ East University Drive				Corridor
Samford Avenue @ Gay Street	<5**	10	0.73	Both*
Shelton Mill Road @ East University Drive	13	26	2.1	Both
Wright's Mill Road @ Loftin Drive				Corridor
Shug Jordan Parkway@ Martin Luther King Drive	5	14	1.37	Crash
Shug Jordan Parkway@ Ware Drive	6	20	1.87	Crash

**Intersections that were below the 1.5 CPMVE that were analyzed for roadway corridor study purposes.*
***Intersections that had less than 5 crashes during 2004 which did not meet the screening criteria for 2004.*

Detailed Crash Analysis

The principles behind the detailed crash analysis were to examine the crashes experienced at each study intersection, determine the type of crashes, and determine what, if anything could be done to prevent future crashes of the same nature. With this in mind each study intersection was evaluated based on the latest crash data available as provided by the City of Auburn. Each study intersection was evaluated to determine a pattern of similar crashes present. Once the crashes had been diagramed and examined, a physical review of the intersection was conducted. The physical review of each intersection was conducted to determine any possible existing conditions that may contribute to the crash experience. Once the physical evaluations were completed, recommendations were formulated to possibly increase the safety at the study intersections. Crash analysis efforts at each study intersection location listed in the following sections.

Intersection Crash Analysis

As a part of the evaluation process some of the intersections did not present a clear pattern considering the latest data. The following intersections had a crash rating of 1.5 or below and no patterns to observe:

- Magnolia Avenue at Gay Street (1.19 crashes per million vehicles entering)
- Samford Avenue at Dean Road (corridor intersection, no CPMVE)
- Samford Avenue at Gay Street (0.73 crashes per million vehicles entering)
- Gay Street at Mitcham Avenue (0.38 crashes per million vehicles entering)
- North College Street at Mitcham Avenue (0.55 crashes per million vehicles entering)
- South College Street at Thach Avenue (1.09 crashes per million vehicles entering)
- North College Street at Glenn Avenue (1.31 crashes per million vehicles entering)
- North College Street at Drake Avenue (1.19 crashes per million vehicles entering)
- Donahue Drive at Martin Luther King Drive (0.52 crashes per million vehicles entering)
- Donahue Drive at Bragg Avenue (0.77 crashes per million vehicles)

The following intersections had a crash rating of 1.5-and above

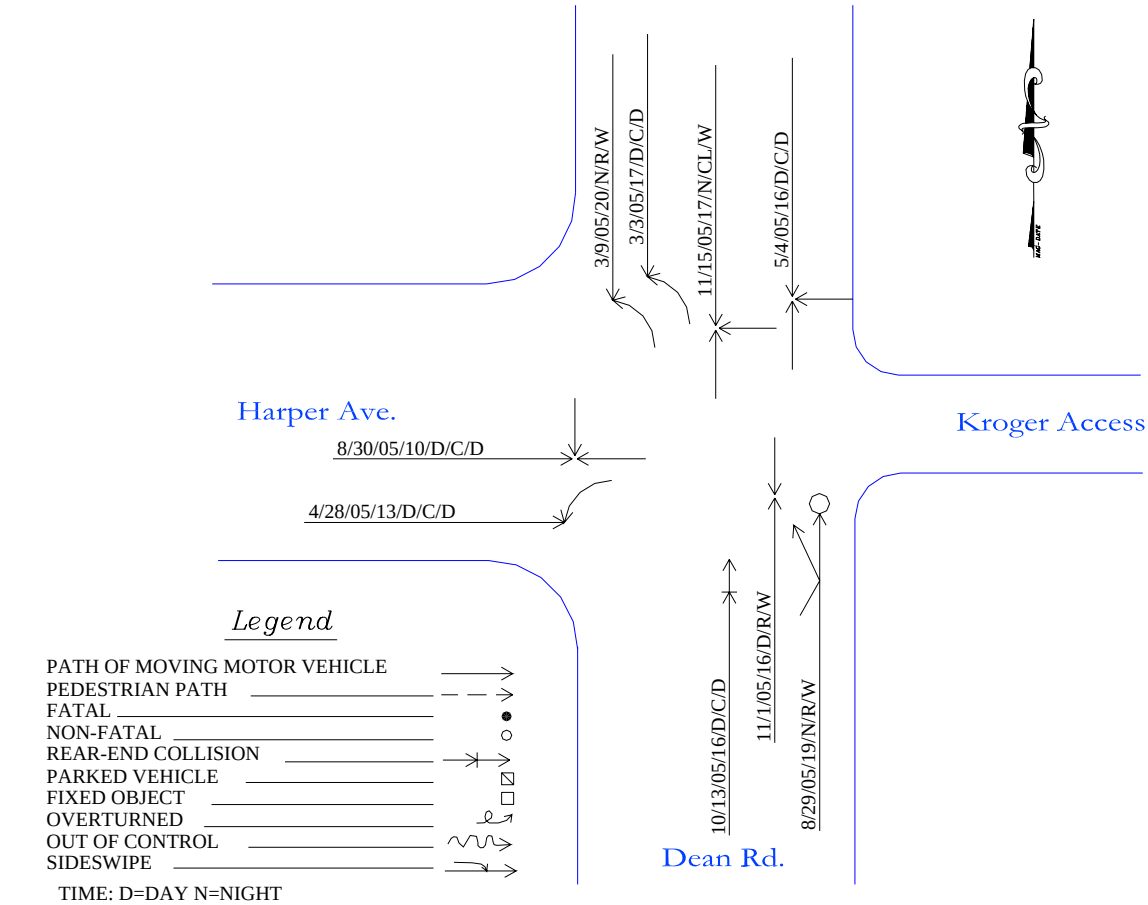
- North College Street at Shug Jordan Parkway/ East University Drive (1.91 crashes per million vehicles entering)
- East University Drive at Shelton Mill Road (2.1 crashes per million vehicles entering)
- Shug Jordan Parkway at Ware Drive (1.87 crashes per million vehicles entering)
- South College Street at Roosevelt Drive (2.02 crashes per million vehicles entering)
- South College Street at Veterans Drive (2.08 crashes per million vehicles entering)
- Magnolia Avenue at Hemlock Drive (2.56 crashes per million vehicles entering)
- Donahue Drive at Glenn Avenue (2.43 crashes per million vehicles entering)
- Gay Street at Glenn Avenue (2.2 crashes per million vehicles entering)
- East University Drive at Donahue Drive (1.87 crashes per million vehicles entering)

The following intersections were included in the crash study as a part of the roadway corridor evaluation and no clear pattern of crashes were evident in the crash data provided by the City of Auburn:

- South College Street at Shelton Mill Road
- Gay Street at Drake Avenue
- Samford Avenue at East University Drive
- Wright's Mill Road at Loftin Drive

Dean Road at Harper Avenue

According to the initial crash screening of this intersection, it had approximately 2.7 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 5 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	1	3	1	0
DRY PVMT.	5	0	0	0
TOTALS	6	3	1	0

Figure 5
Intersection Crash Diagram – Dean Road at Harper Avenue

As shown in Figure 5, a large portion of the crashes at this intersection involve angle or turning movement crashes from conflicting side street traffic. The following conditions were noted as a result of a physical evaluation of the study intersection:

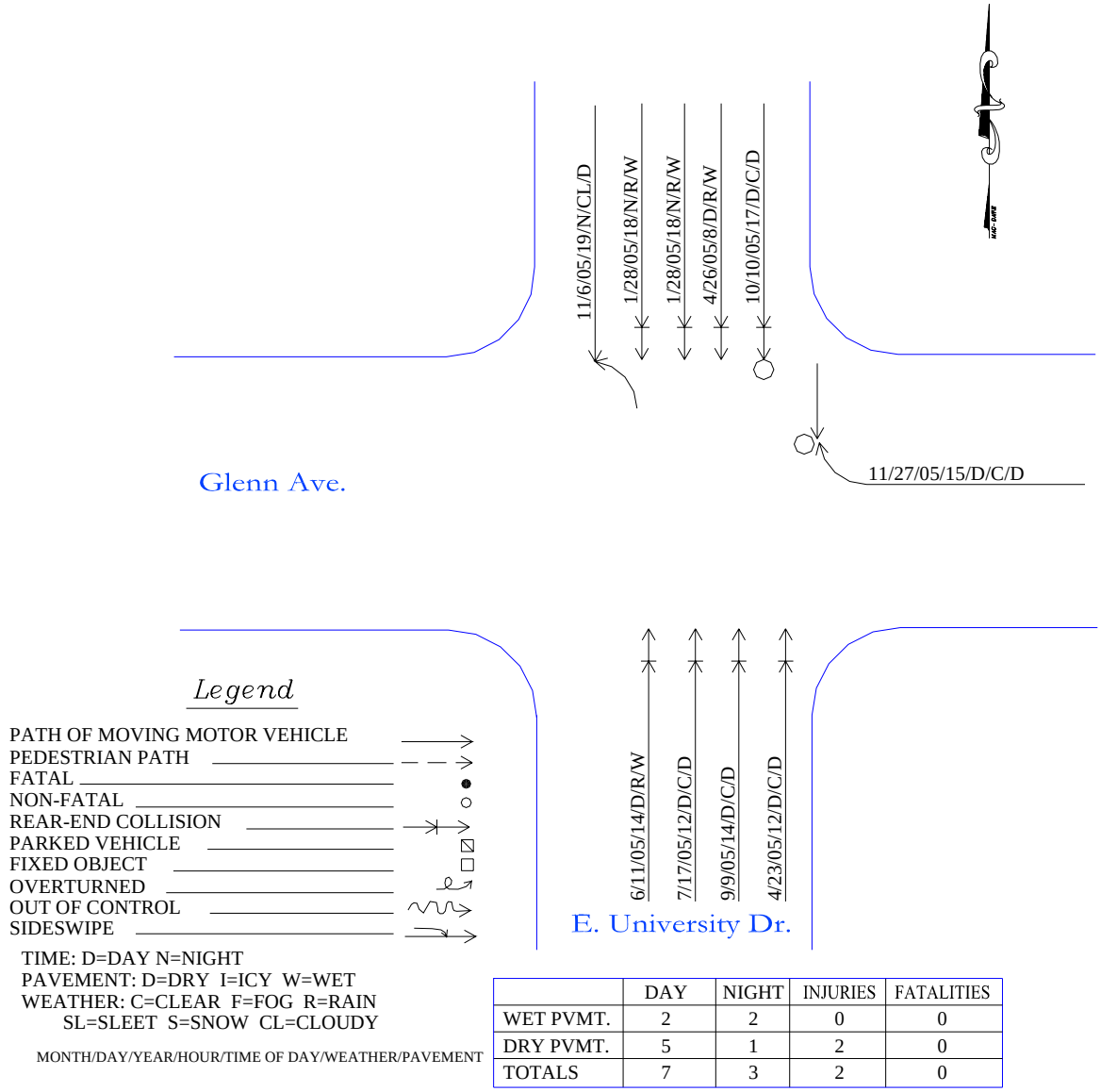
- Currently the intersection is un-signalized with side street stop sign traffic control.
- The study intersection is located along Dean Road near its intersection with Glenn Avenue. It is possible that congestion from the intersection of Dean Road and Glenn Avenue could be contributing a factor to the crash experience at the study intersection.
- Currently, there are no turn lanes along Dean Road onto the side streets at the study intersection.
- The intersection sight distance appears to be adequate.

Considering the factors listed above, the following are possible improvements that could be completed to mitigate potential future crashes at the study intersection:

- Construct a right turn lane along Dean Road southbound onto Harper Avenue.
- Construct left turn lanes along Dean Road northbound and southbound onto the side streets.
- Re-stripe and/or modify the existing Kroger shopping center access to provide a three (3) lane cross section (one lane inbound, a through/left outbound, and a right turn lane outbound).

East University Drive at Glenn Avenue

According to the initial crash screening of this intersection, it had approximately 1.9 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 6 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	2	2	0	0
DRY PVMT.	5	1	2	0
TOTALS	7	3	2	0

Figure 6

Intersection Crash Diagram – East University Drive at Glenn Avenue

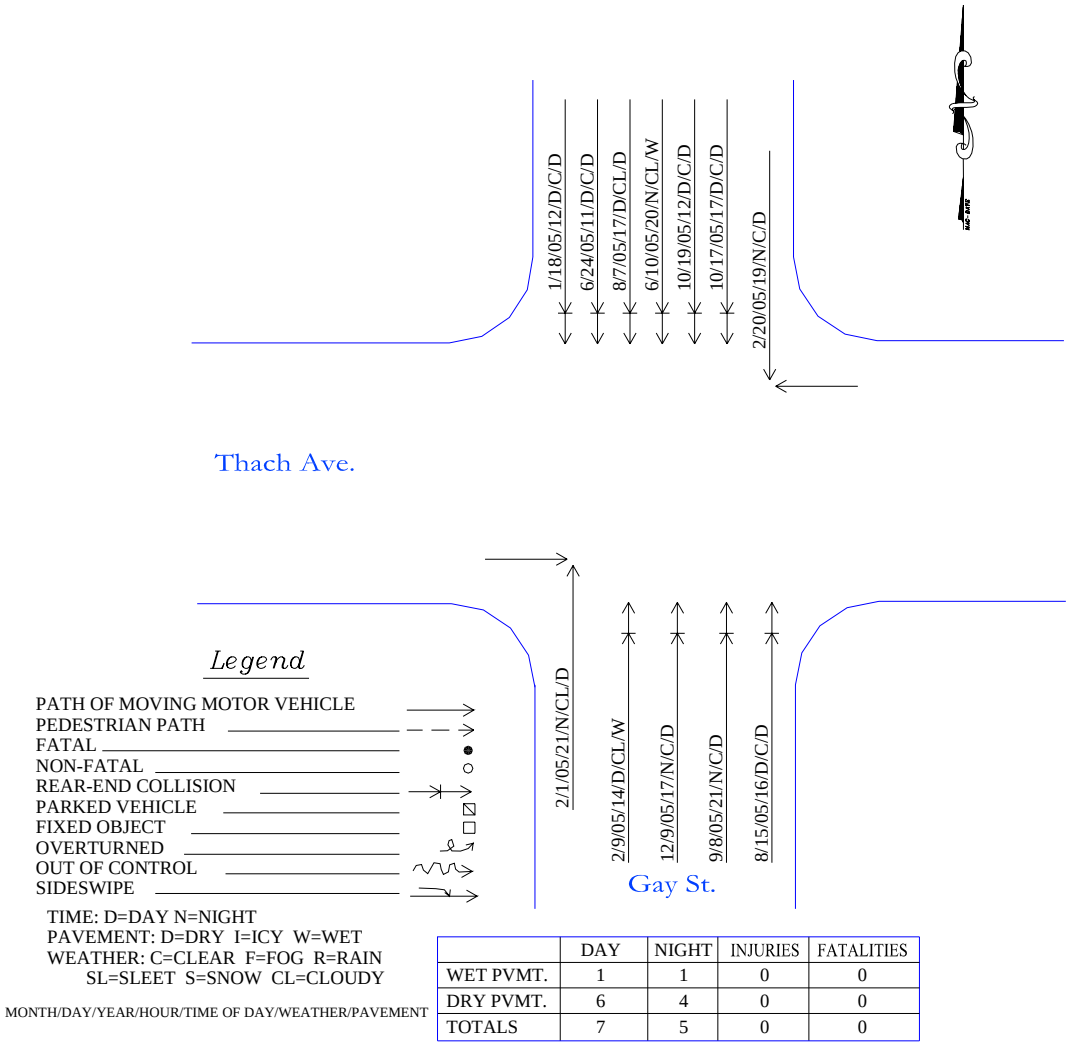
As shown in Figure 6, a large portion of the crashes at this intersection involve rear-end crashes in traffic along East University Drive. The following conditions were noted as a result of a physical evaluation of the study intersection:

- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The intersection sight distance appears to be adequate.

Considering the factors listed above, the conditions at the study intersection appear to be acceptable. A possible explanation of the rear end crashes at this intersection could be a function of the location of the intersection being located on the crest of a vertical curve along with the existing traffic signal timings. It is recommended that the traffic signal timings at this intersection be evaluated and adjusted in an effort to improve intersection safety and operation.

Gay Street at Thach Avenue

According to the initial crash screening of this intersection, it had approximately 1.01 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 7 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	1	1	0	0
DRY PVMT.	6	4	0	0
TOTALS	7	5	0	0

Figure 7

Intersection Crash Diagram – Gay Street at Thach Avenue

As shown in Figure 7, a large portion of the crashes at this intersection involve rear-end crashes in traffic along Gay Street. The following conditions were noted as a result of a physical evaluation of the study intersection:

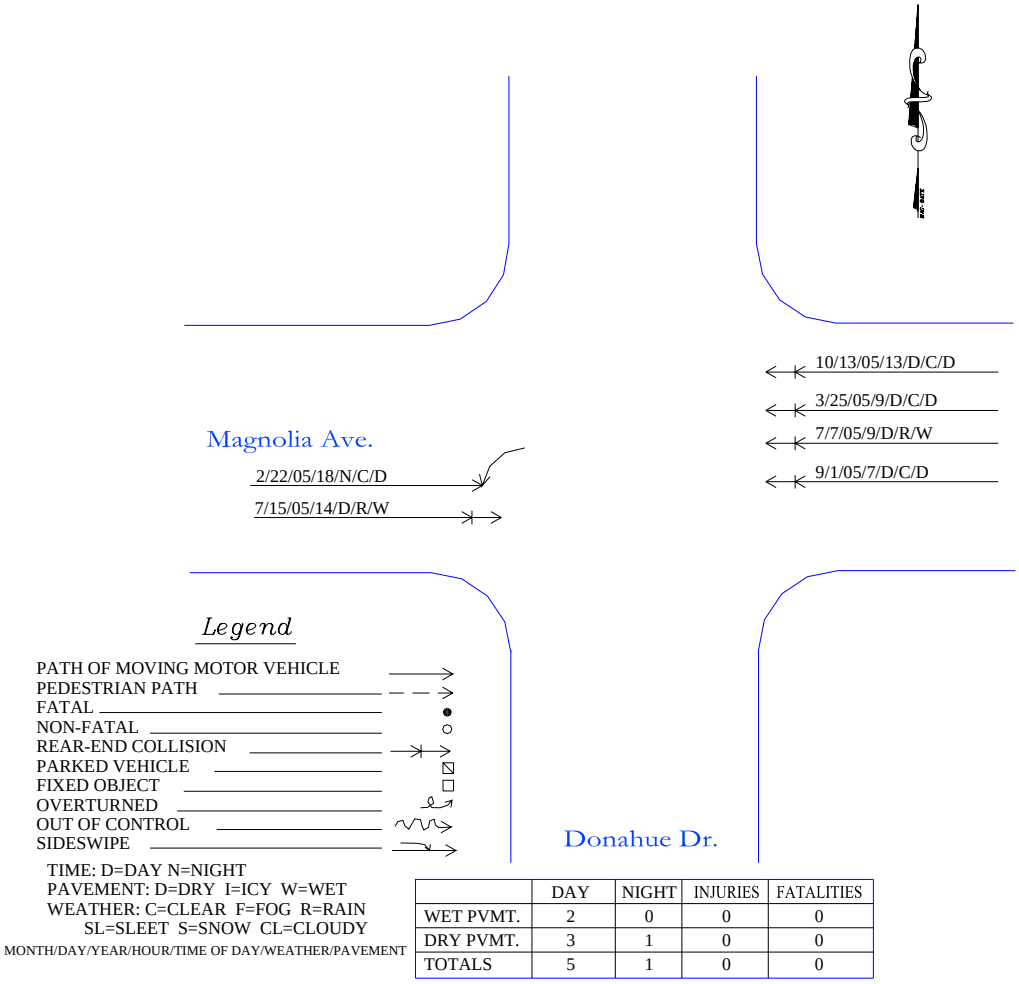
- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.

- The intersection sight distance appears to be adequate.

Considering the factors listed above, the conditions at the study intersection appear to be acceptable. A possible explanation of the rear end crashes at this intersection could be a function of the congestion experienced along Gay Street coupled with speed of approaching vehicles. It is recommended that the traffic signal timings at this intersection be evaluated and adjusted.

Magnolia Avenue at Donahue Drive

According to the initial crash screening of this intersection, it has approximately 1.46 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 8 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	2	0	0	0
DRY PVMT.	3	1	0	0
TOTALS	5	1	0	0

Figure 8

Intersection Crash Diagram – Magnolia Avenue at Donahue Drive

As shown in Figure 8, a large portion of the crashes at this intersection involve rear-end crashes in traffic along the westbound approach of Magnolia Avenue. The following conditions were noted as a result of a physical evaluation of the study intersection:

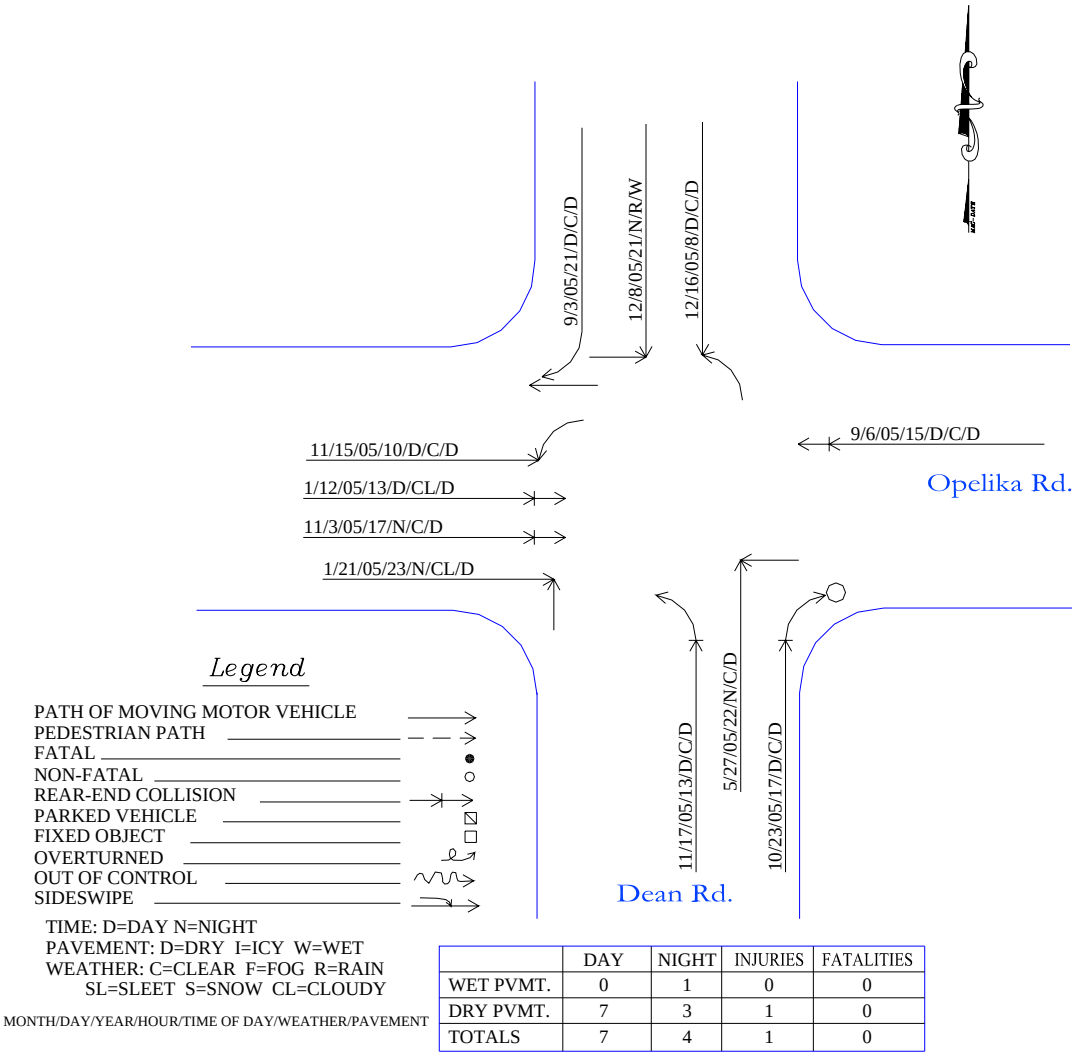
- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The westbound approach has an abrupt vertical and horizontal curve approaching the intersection.
- The westbound left turn lane appears to be short for the queues experienced along Magnolia Avenue.
- The intersection sight distance appears to be adequate.

Considering the factors listed above, the following are possible improvements that could be completed to mitigate potential future crashes at the study intersection:

- 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.

Opelika Road at Dean Road

According to the initial crash screening of this intersection, it has approximately 3.52 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 9 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	0	1	0	0
DRY PVMT.	7	3	1	0
TOTALS	7	4	1	0

Figure 9

Intersection Crash Diagram – Opelika Road at Dean Road

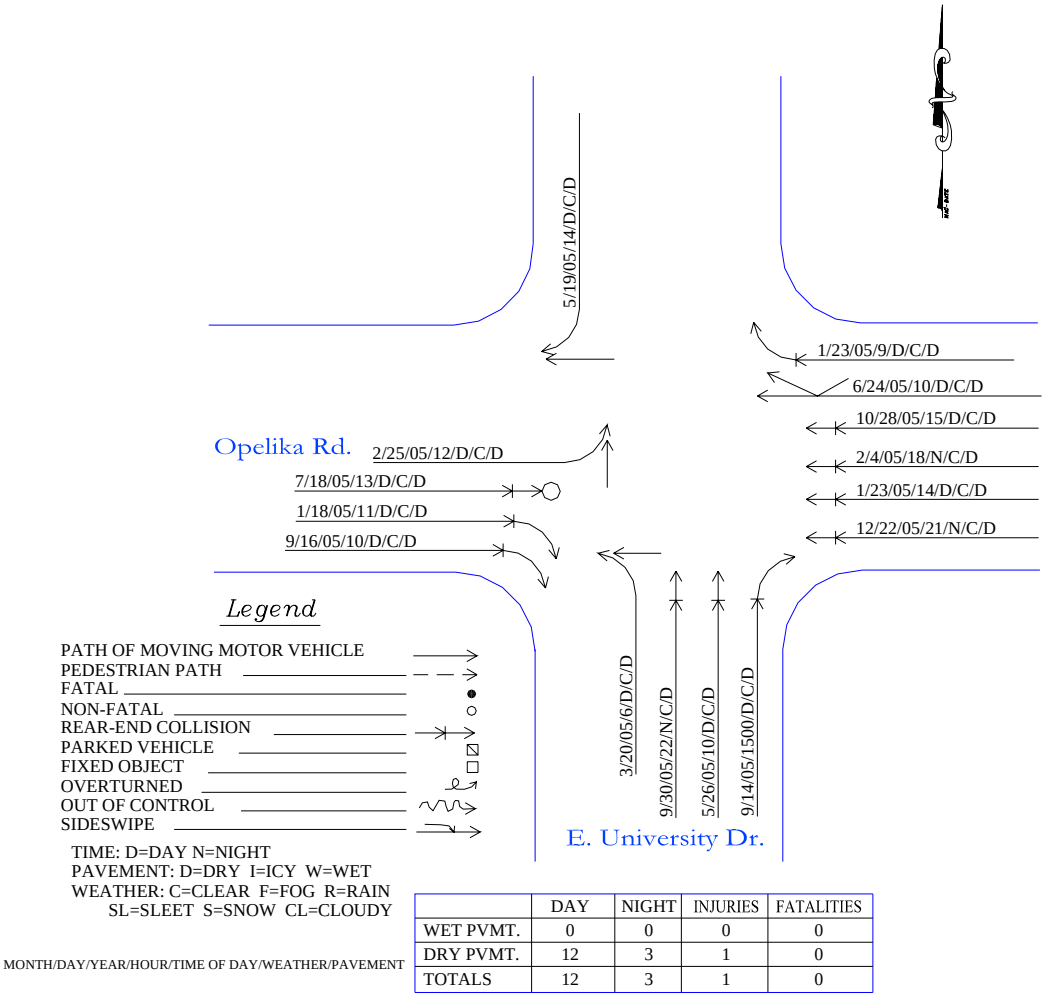
As shown in Figure 9, no pattern of crashs is evident at the study intersection location. The following conditions were noted as a result of a physical evaluation of the study intersection:

- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The intersection sight distance appears to be adequate.

Considering the factors listed above, the conditions at the study intersection appear to be acceptable without any possible deficiencies noted. It is anticipated that the crash experienced at this intersection are a function of the traffic volumes present and speeds associated with the traffic along Opelika Road. Based upon the analysis of the latest crash data for this intersection available, no roadway improvements would be recommended at this time. It is, however, recommended that the intersection clearance timings be examined and compared with values recommended by the Institute of Transportation Engineers due to the numbers of left turn crashes experienced at the study intersection. The crash rating at this intersection was observed to be one of the higher crash locations within the intersections considered as a part of this study. With this in mind, it is recommended that the performance and crash experience be monitored closely at this intersection with the possibility of a sustainable crash pattern surfacing in the future.

Opelika Road at East University Drive

According to the initial crash screening of this intersection, it has approximately 4.31 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 10 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	0	0	0	0
DRY PVMT.	12	3	1	0
TOTALS	12	3	1	0

Figure 10
Intersection Crash Diagram – Opelika Road at East University Drive

As shown in Figure 10, the most common crash at the study intersection is rear end crashes along the westbound approach. The following conditions were noted as a result of a physical evaluation of the study intersection:

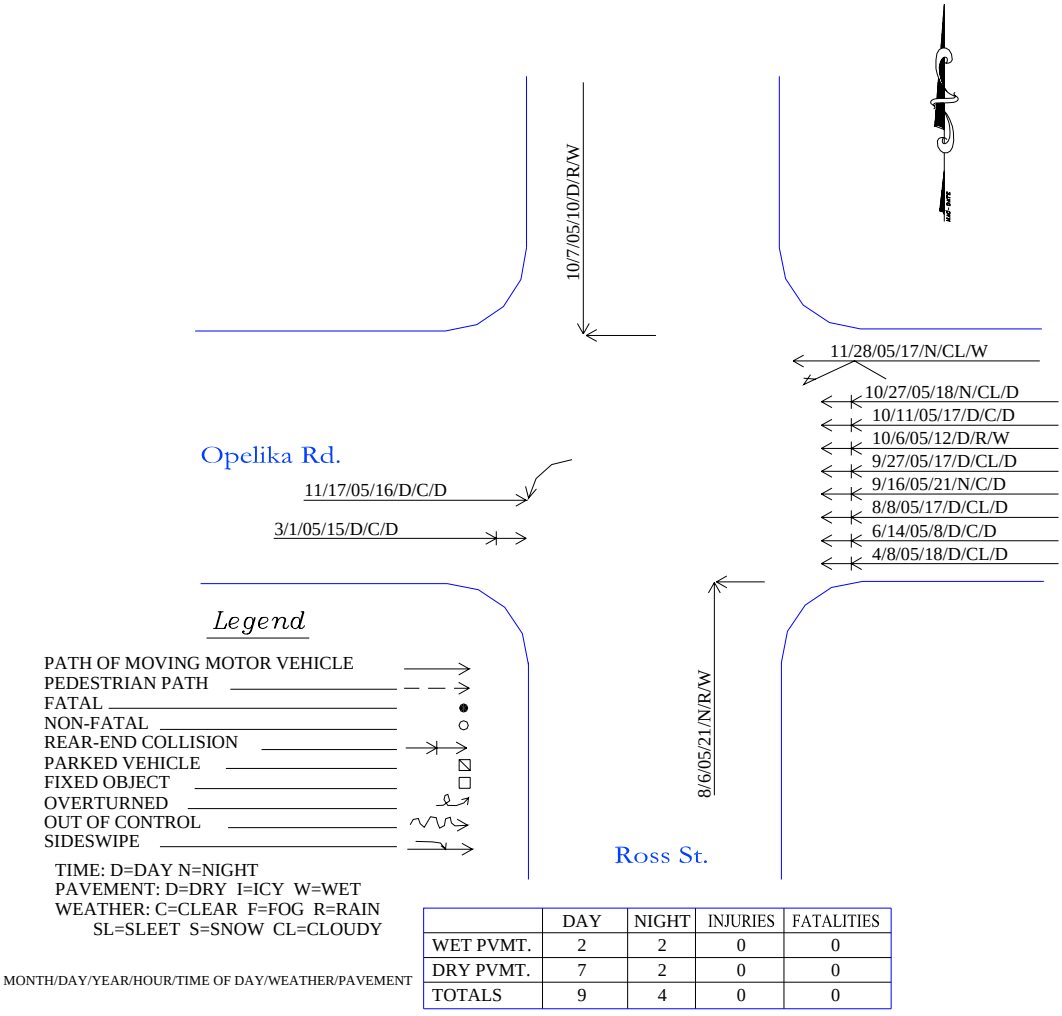
- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The intersection sight distance appears to be adequate.
- The westbound approach is a sag to crest vertical curve.

Considering the factors listed above, the conditions at the study intersection appear to be acceptable without any possible deficiencies noted. It is anticipated that the crashs

experienced at this intersection are a function of the traffic congestion and total traffic volumes present along Opelika Road. Based upon the analysis of the latest crash data for this intersection available, no roadway improvements would be recommended at this time based on crash experience. It is, however, recommended that the intersection timings be examined and adjusted to accommodate current traffic conditions. The crash rating at this intersection was observed to be one of the higher crash locations within the intersections considered as a part of this study. With this in mind, it is recommended that the performance and crash experience be monitored closely at this intersection with the possibility of a sustainable crash pattern surfacing in the future. Due to traffic congestion at the intersection, it is anticipated that roadway and traffic circulation improvement recommendations will be made as a part of other sections of the citywide traffic study which should improve safety at the study intersection.

Opelika Road at Ross Street

According to the initial crash screening of this intersection, it has approximately 0.6 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 11 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	2	2	0	0
DRY PVMT.	7	2	0	0
TOTALS	9	4	0	0

Figure 11
Intersection Crash Diagram – Opelika Road at Ross Street

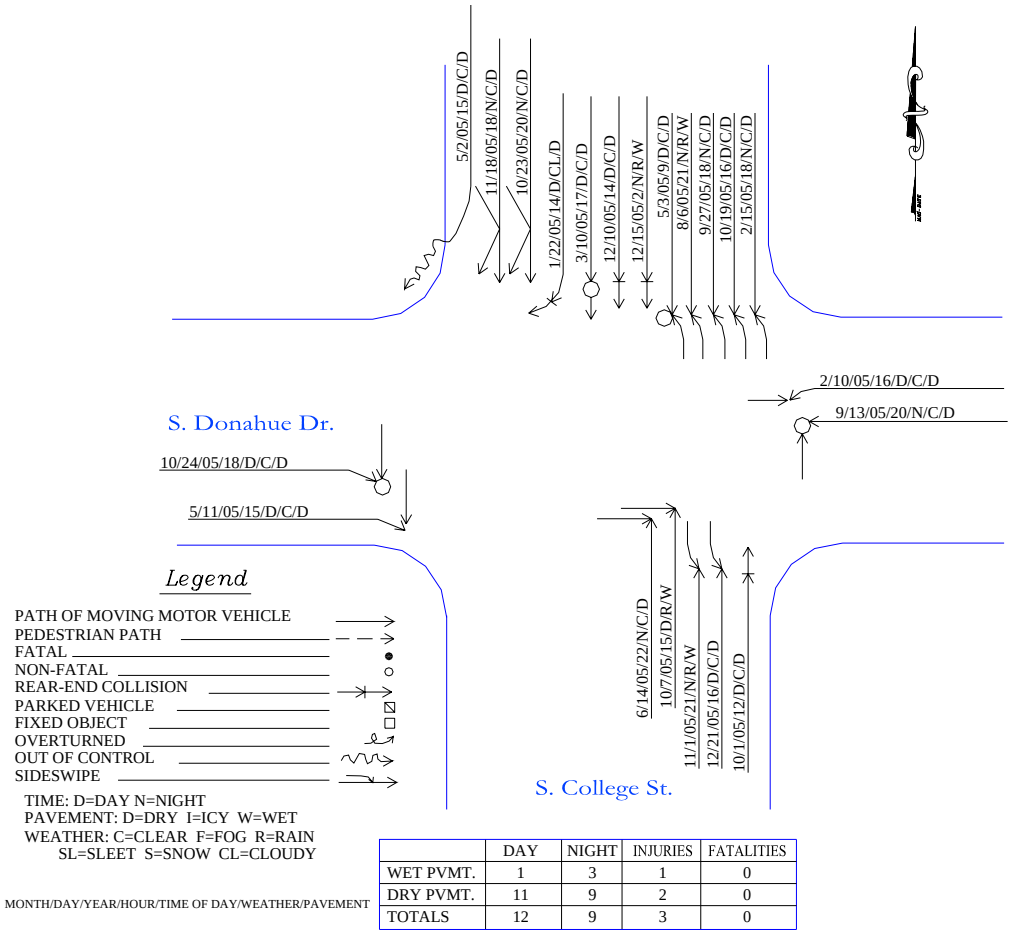
As shown in Figure 11, a large portion of the crashes at this intersection involve rear-end crashes in traffic along the westbound approach of Opelika Road. The following conditions were noted as a result of a physical evaluation of the study intersection:

- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The existing pavement surfaces appear to be old, but it good condition.
- The intersection sight distance appears to be adequate.

Considering the factors listed above, the conditions at the study intersection appear to be acceptable without any possible deficiencies noted. It is anticipated that the crashs experienced at this intersection are a function of the speeds associated with the traffic along Opelika Road. Based upon the analysis of the latest crash data for this intersection available, it is recommended to upgrade the existing traffic signal from semi-actuated operation to fully actuated operation. The semi-actuated function of the existing traffic signal is allowing cars to be trapped in the dilemma zone along the Opelika Road approaches.

South College Street at Donahue Drive

According to the initial crash screening of this intersection, it has approximately 2.86 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 12 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	1	3	1	0
DRY PVMT.	11	9	2	0
TOTALS	12	9	3	0

Figure 12
Intersection Crash Diagram – South College Street at Donahue Drive

As shown in Figure 12, a large portion of the crashes at this intersection involve left turn crashes in traffic along the northbound approach of South College Street. The following conditions were noted as a result of a physical evaluation of the study intersection:

- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The existing pavement surfaces appear to be new.
- The intersection sight distance for the northbound left turn movement appears to be inadequate.

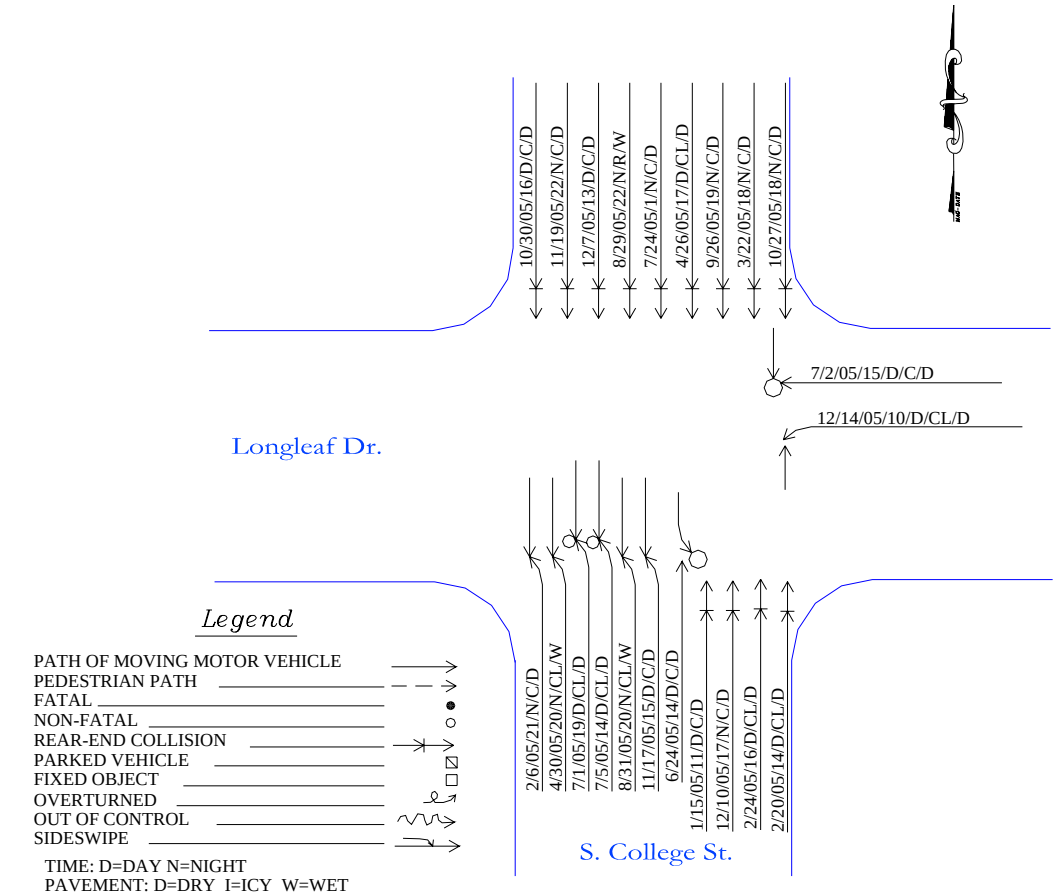
Considering the factors listed above, the conditions at the study intersection could have a sight distance deficiency for the northbound left turn movement. It should be noted the study intersection is located along the crest of a vertical curve. A physical evaluation of

the intersection indicates the northbound left turning cars could loose visibility of some cars traveling southbound on South College Street. It is anticipated that the crashs experienced at this intersection are a function of the possible sight distance deficiency along with the speeds associated with traffic along South College Street. Considering the factors listed above, the following are possible improvements that could be completed to mitigate potential future crashes at the study intersection:

- Revise the northbound left turn radius to provide a broader turning radius to improve the operation of the northbound left turn volume.
- Revise intersection signal phasing to include protected only left turn phasing for main street left turns.
- Consider a coordinated traffic signal system that would adjust to main street traffic flows on a time period basis to help reduce congestion along South College Street.

South College Street at Longleaf Drive

According to the initial crash screening of this intersection, it has approximately 2.06 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 13 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	0	3	0	0
DRY PVMT.	12	7	4	0
TOTALS	12	10	4	0

Figure 13
Intersection Crash Diagram – South College Street at Longleaf Drive

As shown in Figure 13, a large portion of the crashes at this intersection involve left turn crashes in traffic along the northbound approach of South College Street. In addition to left turn crashes, a large portion of the crashes at this intersection also involve rear-end crashes along both the north and southbound approaches of South College Street. The following conditions were noted as a result of a physical evaluation of the study intersection:

- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The existing pavement surfaces appear to be old, but in good condition.

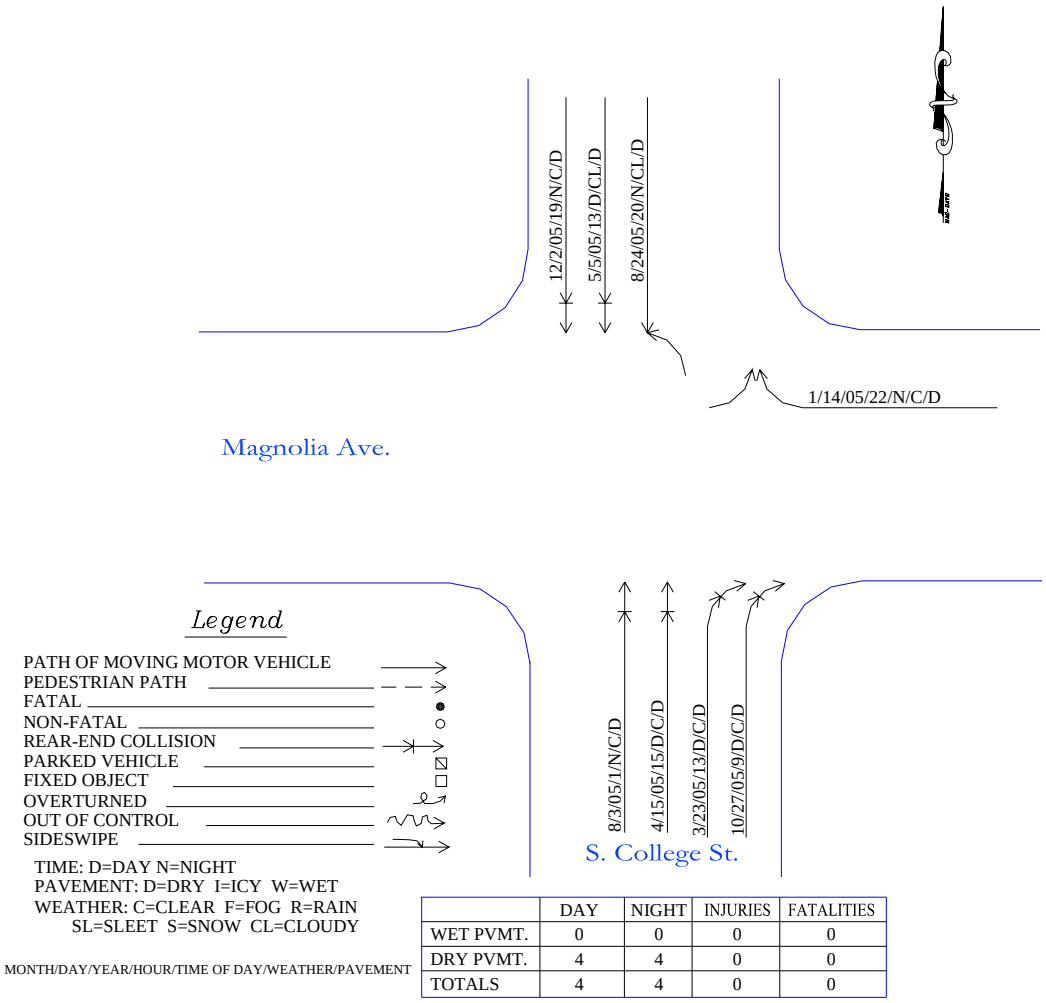
- The receiving lane and turn radius for the northbound left turn seems to be narrow.
- Intersection sight distance appears to be adequate.

It is anticipated that the crash experienced at this intersection are a function of the volume of left turn vehicles, the width of the receiving lane and left turn radius, and also the congestion along South College Street. Considering the factors listed above, the following are possible improvements that could be completed to mitigate potential future crashes at the study intersection:

- Revise the northbound left turn radius to provide a broader turning radius to improve the operation of the northbound left turn volume.
- Widen the northbound left turn receiving lane to improve the operation of the northbound left turn movement.
- Revise intersection signal timing to provide more time for left turns from the main street.
- Consider a coordinated traffic signal system that would adjust to main street traffic flows on a time period basis to help reduce congestion along South College Street.

South College Street at Magnolia Avenue

According to the initial crash screening of this intersection, it has approximately 2.78 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 14 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	0	0	0	0
DRY PVMT.	4	4	0	0
TOTALS	4	4	0	0

Figure 14
Intersection Crash Diagram – South College Street at Magnolia Avenue

As shown in Figure 14, no pattern of crashs is evident at the study intersection location. The following conditions were noted as a result of a physical evaluation of the study intersection:

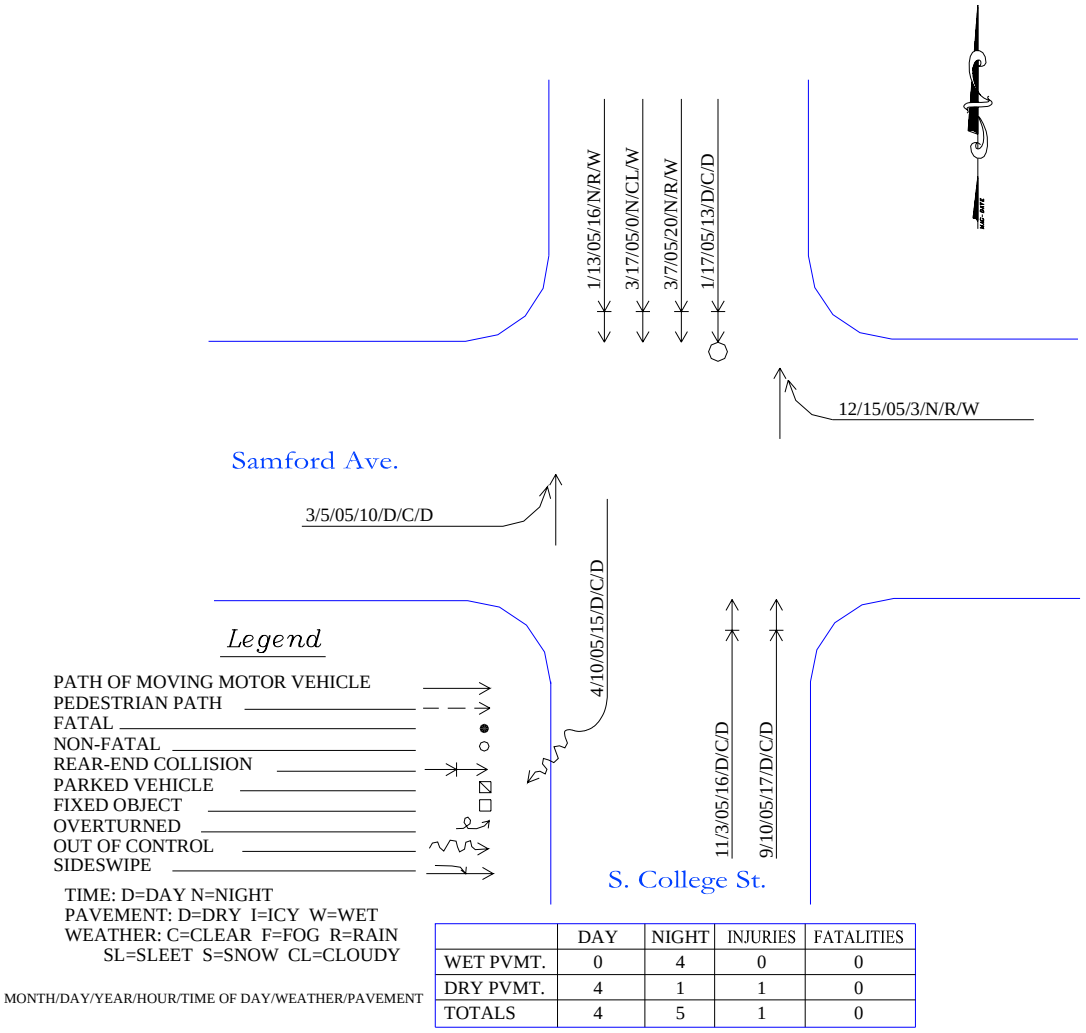
- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The intersection sight distance appears to be adequate.
- The intersection is a location with high pedestrian and vehicular volumes.

Considering the factors listed above, the conditions at the study intersection appear to be acceptable without any possible deficiencies noted. It is anticipated that the crashs

experienced at this intersection are a function of the traffic volumes (both vehicular and pedestrian) present, and congestion associated with the traffic along South College Street. Based upon the analysis of the latest crash data for this intersection available, no roadway improvements would be recommended at this time based on crash experience. The crash rating at this intersection was observed to be one of the higher crash locations within the intersections considered as a part of this study. With this in mind, it is recommended that the performance and crash experience be monitored closely at this intersection with the possibility of a sustainable crash pattern surfacing in the future. Due to traffic congestion at the intersection, it is anticipated that roadway and traffic circulation improvement recommendations will be made as a part of other sections of the citywide traffic study which should improve safety at the study intersection.

South College Street at Samford Avenue

According to the initial crash screening of this intersection, it has approximately 0.97 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 15 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	0	4	0	0
DRY PVMT.	4	1	1	0
TOTALS	4	5	1	0

Figure 15
Intersection Crash Diagram – South College Street at Samford Avenue

As shown in Figure 15, a large portion of the crashes at this intersection involve rear-end crashes along South College Street. The following conditions were noted as a result of a physical evaluation of the study intersection:

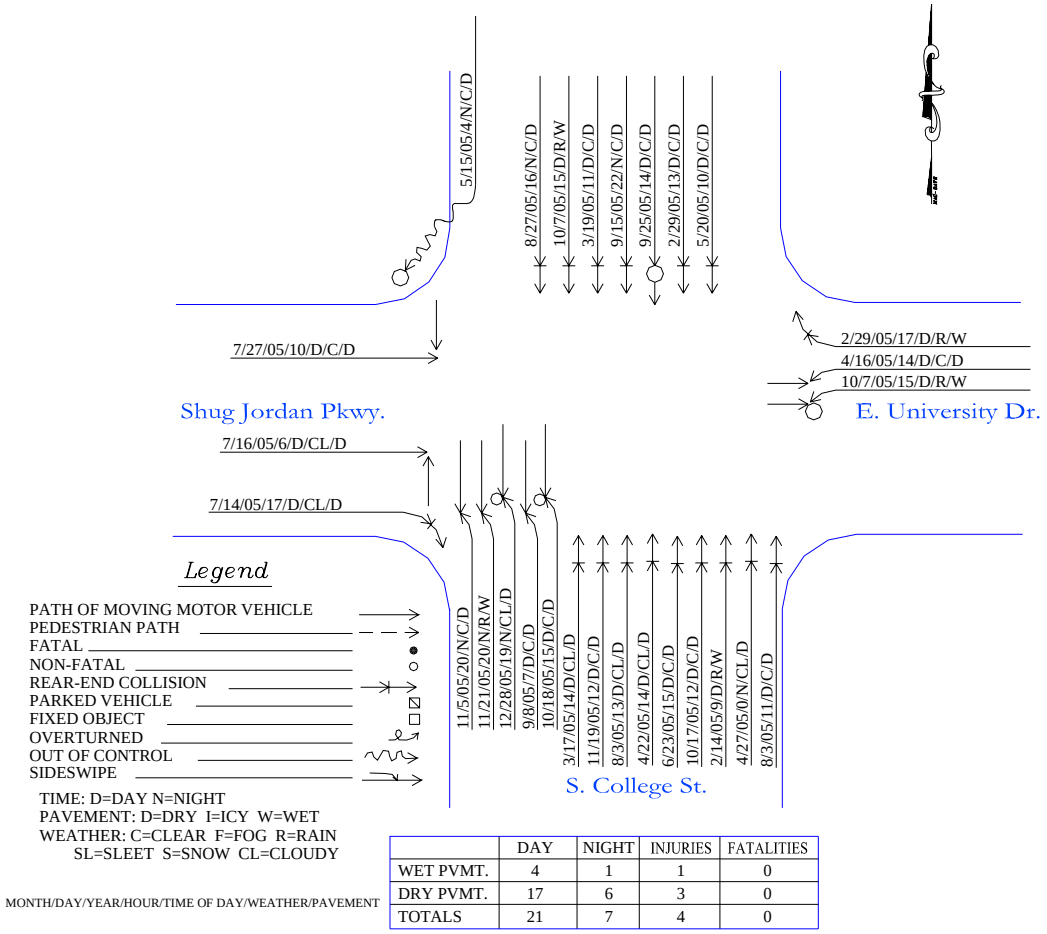
- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The existing pavement surfaces appear to be new.
- The southbound approach along South College Street transitions from two through lanes to a single through lane at the intersection.

- Intersection sight distance appears to be adequate.

It is anticipated that the crashes experienced at this intersection are a function transition from two through lanes to the single through lane along the southbound approach of the intersection. Considering the factors listed above, it is recommended that the southbound approach of the intersection along South College Street be widened to accommodate two through lanes.

South College Street at Shug Jordan Parkway/ East University Drive

According to the initial crash screening of this intersection, it has approximately 3.8 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 16 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	4	1	1	0
DRY PVMT.	17	6	3	0
TOTALS	21	7	4	0

Figure 16
Intersection Crash Diagram – South College Street at Shug Jordan Parkway/ East University Drive

As shown in Figure 16, a large portion of the crashes at this intersection involve left turn crashes in traffic along the northbound approach of South College Street. In addition to left turn crashes, a large portion of the crashes at this intersection also involve rear-end crashes along both the north and southbound approaches of South College Street. The following conditions were noted as a result of a physical evaluation of the study intersection:

- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.

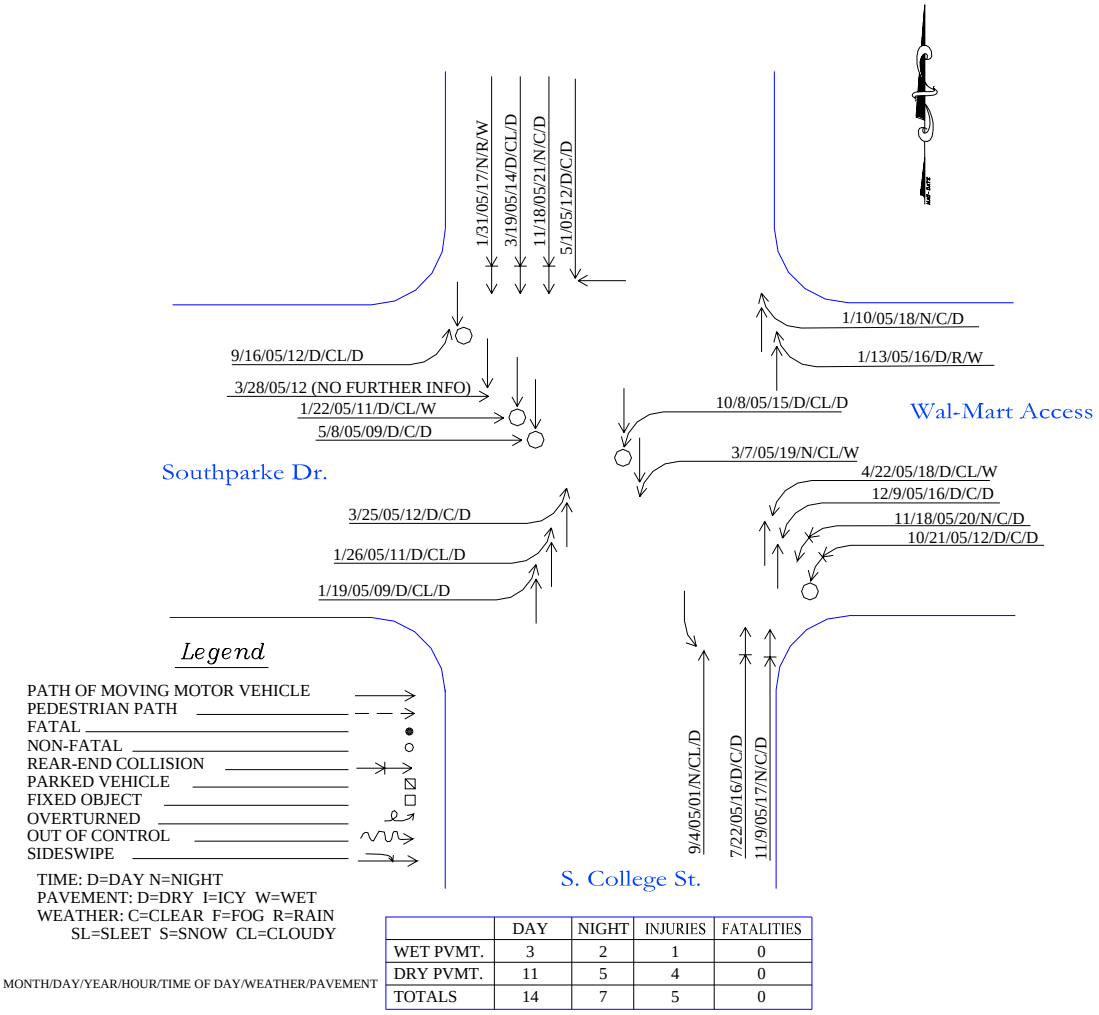
- The existing pavement surfaces appear to be old, but in good condition.
- Intersection sight distance appears to be adequate.

It is anticipated the crashes experienced at this intersection are a function of the volume of left turn vehicles and the congestion along South College Street. Considering the factors listed above, the following are possible improvements that could be completed to mitigate potential future crashes at the study intersection:

- Construct dual left turn lanes northbound to increase northbound left turn capacity.
- Widen the northbound left turn receiving lanes to accommodate the additional left turn lane.
- Revise intersection signal phasing to provide protected only left turn phasing for left turns from the main street.
- Consider a coordinated traffic signal system that would adjust to main street traffic flows on a time period basis to help reduce congestion along South College Street.

South College Street at Southparke Drive/ Wal-Mart Access

According to the initial crash screening of this intersection, it has approximately 1.28 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 17 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	3	2	1	0
DRY PVMT.	11	5	4	0
TOTALS	14	7	5	0

Figure 17
Intersection Crash Diagram – South College Street at Southparke Drive

As shown in Figure 17, a large portion of the crashes at this intersection involve left turn traffic from the side streets conflicting with traffic along South College Street. The following conditions were noted as a result of a physical evaluation of the study intersection:

- Currently the intersection is un-signalized with side street stop traffic control.
- The existing traffic striping appears to be in good condition.
- The existing pavement surfaces appear to be old, but in good condition.
- Intersection sight distance appears to be adequate. There does seem to be vegetation on the right of way blocking some sight distance from the Wal-Mart access looking south on South College Street.

Considering the factors listed above, the only site condition possibly contributing to the crash experience at this intersection would be the vegetation present on the right of way as noted. It is anticipated that the crashs experienced at this intersection are a function of the volume of traffic exiting the side streets, the congestion along South College Street, and the side street stop traffic control. In order to correct the crash history at this intersection, it is recommended that some of the conflict points be removed from the intersection. Some of the existing conflict points can be removed by the following roadway improvements:

- Construct a concrete median along South College Streets that would allow only left turn from the main street and would prevent left turns from the side streets in the vicinity of the study intersection.
- Convert the side street driveways into right in right out driveways with concrete islands and paint striping.

Figure 18 illustrates the recommended roadway improvements at the intersection of South College Street and Southparke Drive/ Wal-Mart Access.

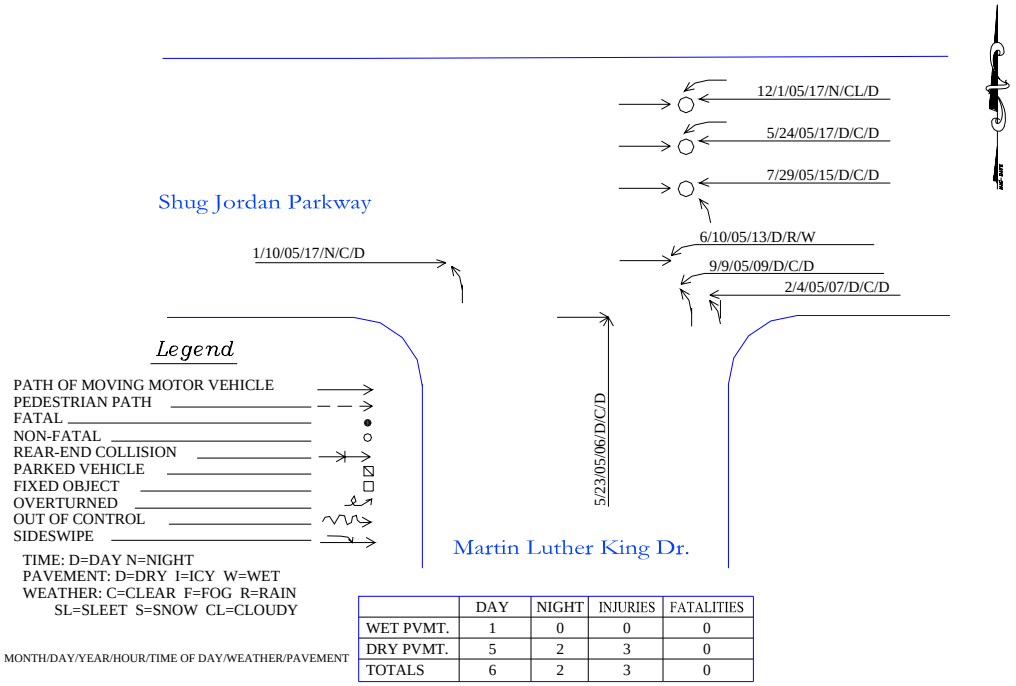
Figure 18
Roadway Improvement Alternative Improvement 1

It should be noted that as a part of the crash analysis at this intersection, the possibility of traffic signalization was evaluated. Based on the proximity of the study intersection to the intersection of South College Street and Longleaf Drive and the level of development

from adjacent land uses, traffic signalization is not recommended at this time. It is anticipated that with a traffic signal in place at the intersection's current location, traffic congestion would increase.

Shug Jordan Parkway at Martin Luther King Drive

According to the initial crash screening of this intersection, it has approximately 1.37 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 19 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	1	0	0	0
DRY PVMT.	5	2	3	0
TOTALS	6	2	3	0

Figure 19
Intersection Crash Diagram – Shug Jordan Parkway at Martin Luther King Drive

As shown in Figure 19, a large portion of the crashes at this intersection involve left turn traffic both from Shug Jordan Parkway and also from Martin Luther King Drive. The following conditions were noted as a result of a physical evaluation of the study intersection:

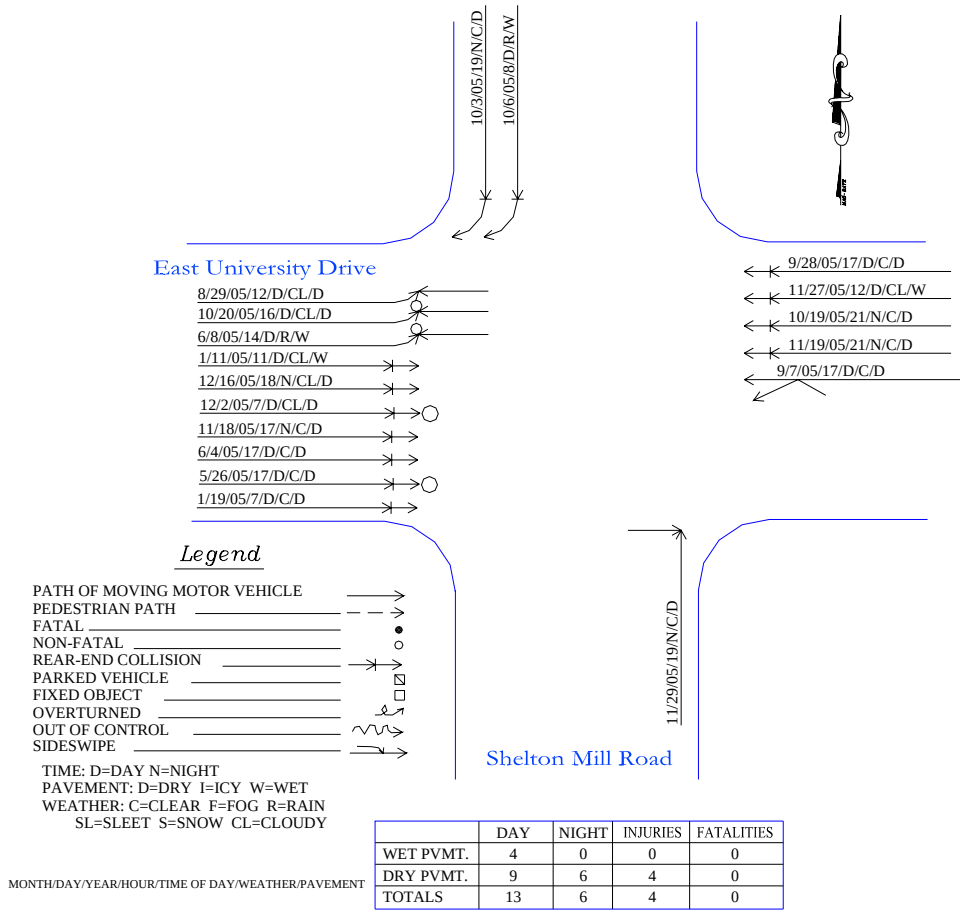
- Currently the intersection is un-signalized with side street stop traffic control.
- The existing traffic striping appears to be in good condition.
- The existing pavement surfaces appear to be in good condition.
- Intersection sight distance appears to be adequate.

It is anticipated that the crashes experienced at this intersection are a function of the volume of left turn vehicles and the volumes and travel speeds along Shug Jordan Parkway. Considering the factors listed above, the following are possible improvements that could be completed to mitigate potential future crashes at the study intersection:

- Construct intersection advance warning flashers along with the appropriate signage.
- Conduct a traffic signal warrant evaluation for the study intersection to determine if traffic signalization is warranted and feasible.
- Increase speed enforcement along Shug Jordan Parkway in the vicinity of the study intersection in an attempt to reduce the traveled speed.

East University Drive at Shelton Mill Road

According to the initial crash screening of this intersection, it has approximately 2.1 crashes per million vehicles entering the intersection for 2003-2004. The City of Auburn provided crash data at this intersection for the purposes of crash pattern analysis. Figure 20 illustrates the crash diagram for the latest period as provided by the City of Auburn.



	DAY	NIGHT	INJURIES	FATALITIES
WET PVMT.	4	0	0	0
DRY PVMT.	9	6	4	0
TOTALS	13	6	4	0

Figure 20
Intersection Crash Diagram – East University Drive at Shelton Mill Road

As shown in Figure 20, a large portion of the crashes at this intersection involve rear end crashes in traffic along the eastbound approach of East University Drive. The following conditions were noted as a result of a physical evaluation of the study intersection:

- Currently the intersection is signalized.
- The existing traffic striping appears to be in good condition.
- The existing pavement surfaces appear to be old, but in good condition.
- Intersection sight distance appears to be adequate.

Considering the factors listed above, the conditions at the study intersection appear to be acceptable without any possible deficiencies noted. It is anticipated that the crashes experienced at this intersection are a function of the speeds of the vehicles approaching the intersection along East University Drive. Considering the factors listed above, the following are possible improvements that could be completed to mitigate potential future crashes at the study intersection:

- Revise intersection signal timings to ensure proper clearance times and green times are in place.
- Increase speed enforcement along East University Drive in the vicinity of the study intersection.

Overall Study Intersection Crash Observations

As a part of the citywide crash study, the overall crash patterns at all study locations were evaluated. Several common crash patterns at study intersection locations were observed. The following is a summary of overall citywide crash patterns observed.

The South College Street corridor exhibited a pattern of rear-end type collisions. The areas in which rear-end collisions were observed along the section from Donahue Drive to Veterans Drive. Several common conditions were observed at the intersections within this area:

- The existing pavement along South College Street from Veterans Drive to Donahue drive appears to be older pavement. The pavement south of Veterans Drive and north of Donahue Drive had been recently overlaid.
- The section of South College Street in question is not currently part of a coordinated traffic signal system.

Considering the issues listed above compared with the area of College Street north of this specific area, the numbers of crashes tend to be less. The numbers of rear end crashes were considerably less than those experienced along the area of South College Street in question. With this in mind it is possible that a portion of the crashes experienced along South College Street from Donahue Drive to Veterans Drive is a function of the older paving and lack of coordinated traffic signal systems.

At various study intersection locations throughout the City of Auburn, rear end crash patterns were observed. Considering the nature of most of the roadways in the City of Auburn, it is likely that a reasonable explanation for the crashes is approach speeds and traffic signal timings. While some rear end crashes are expected at signalized intersections as a result of driver interaction with the signal, it is possible to limit the number of crashes with fully actuated and properly designed traffic signals. It is recommended that the locations where rear-end type crashes are experienced as a pattern to examine the signal timings and adjust them to current traffic conditions if required.

Roadway Segment Crash Analysis

As a part of the citywide crash study, crashes along roadway segments were also evaluated. In order to determine which roadway segment locations within the City of Auburn maintenance jurisdiction required attention, a screening process similar to the process used for the City of Auburn intersections was applied. A roadway segment screening process was applied systematically to each roadway segment maintained by the City of Auburn. To determine the study roadway segments CARE data for the latest year of roadway crash data (2004) was completed. As a part of the screening process, all roadway segments within the city of Auburn with five crashes or more for the one year period were selected. The five crash limit was set as a threshold for study roadway segments because it should be the minimum amount of crashes present along a roadway segment to determine a crash pattern. The results of the screening process generated approximately 22 roadway segments. Figure 21 illustrates the resulting study roadway segment locations. Table 3 lists the study roadway segment information.

Table 3
Roadway Crash Segment Study Locations

Roadway Segment (Segment ADT)	From	To	2004 Crashes	2004 Injuries	2004 Fatalities
South College Street (18,209 veh/day)	Phillips Street	I-85 Ramps	6	1	0
South College Street (22,225 veh/day)	Lake Street	Harmon Drive	5	1	0
South College Street (21,402 veh/day)	Camp Auburn Road	Shug Jordan Parkway/ East University Drive	18	0	0
South College Street (27,534 veh/day)	Shug Jordan Parkway/ East University Drive	Long Leaf Drive	22	6	0
South College Street (18,339 veh/day)	Garden Drive	Woodfield Drive	8	2	0
South College Street (18,671 veh/day)	Roosevelt Drive	Samford Avenue	9	3	0
South College Street (16,460 veh/day)	Magnolia Avenue	Thach Avenue	6	0	0
South College Street (15,544 veh/day)	Tichenor Avenue	Magnolia Avenue	13	0	0
Shug Jordan Parkway (15,971 veh/day)	Raptor Road	Wire Road	7	4	0
Shug Jordan Parkway (19,089 veh/day)	Wire Road	South College Street	11	3	0
East University Drive (10,352 veh/day)	South College Street	Donahue Drive	5	0	0
East University Drive (11,526 veh/day)	Mall Road	Opelika Road	7	0	0
East University Drive (19,133 veh/day)	Dekalb Street	Dean Road	5	0	0
Opelika Road (16,459 veh/day)	Ross Street	Dowdell Avenue	12	1	0
Opelika Road (25,596 veh/day)	Dean Road	Gentry Drive	9	3	0

Table 3 Continued
Roadway Crash Segment Study Locations

Roadway Segment (Segment ADT)	From	To	2004 Crashes	2004 Injuries	2004 Fatalities
Opelika Road (13,562 veh/day)	Starr Court	East University Drive	9	2	0
Opelika Road (29,368 veh/day)	Ronald Lane	Mall Road	10	1	0
Glenn Avenue (15,336 veh/day)	Toomer Street	Wright Street	7	1	0
Glenn Avenue (19,466 veh/day)	Gay Street	Burton Street	10	1	0
Glenn Avenue (18,799 veh/day)	Dean Road	Short Street	5	1	0
Magnolia Avenue (9,199 veh/day)	South College Street	Gay Street	10	0	0
Gay Street (16,323 veh/day)	Magnolia Avenue	Thach Avenue	6	0	0
Dean Road (12,992 veh/day)	Glenn Avenue	Lakeview Drive	7	0	0
Donahue Drive (3,337 veh/day)	Crescent Boulevard	Miracle Road	6	2	1

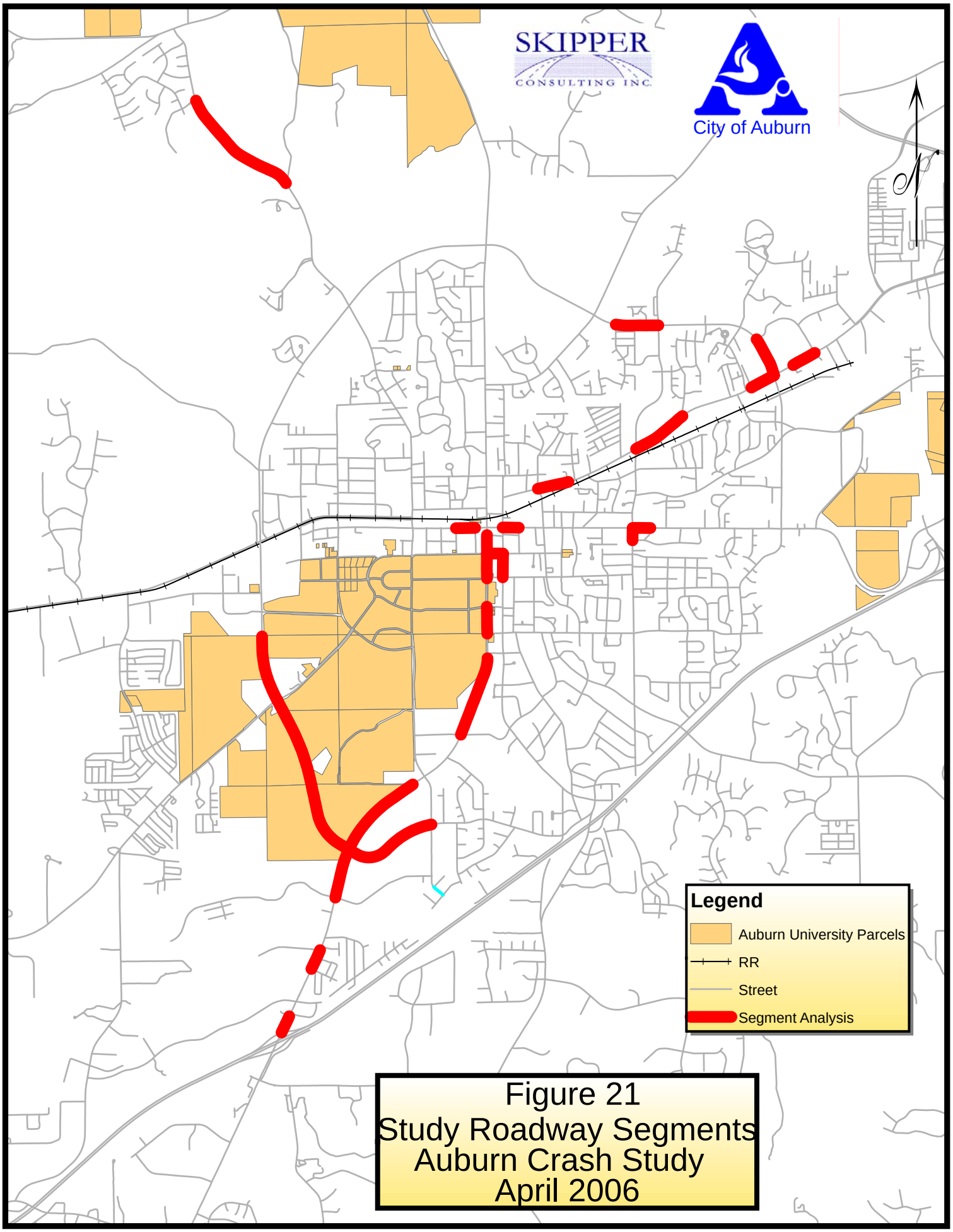


Figure 21
Study Roadway Segments
Auburn Crash Study
April 2006

Study Roadway Segment Evaluation

South College Street from Phillips Court to the Interstate 85 Ramps

According to the initial crash screening of this roadway segment, it has approximately 0.90 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, the primary crash pattern evident along the study roadway is the conflict from vehicles merging northbound onto South College Street from the Interstate 85 Ramp. It should be noted that during the 2004 period, roadway construction was completed along the South College Street and Interstate 85 overpass. Based on the pattern of crashes observed, it is possible that a portion of the crashes were due to the roadway construction. With this in mind, it is recommended that no corrective measures be undertaken along this roadway segment at this time. It is recommended that the performance and crash experience along this roadway segment be monitored and corrective actions be taken in the future if the crash experience is consistent after roadway construction efforts are completed.

South College Street from Camp Auburn Road to Shug Jordan Parkway

According to the initial crash screening of this roadway segment, it has approximately 2.30 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, the primary crash pattern evident along the study roadway is the conflict from vehicles turning onto private driveways from South College Street.

The following conditions were noted as a result of a physical evaluation of the study roadway segment:

- Currently there aren't any signalized accesses between South College Street's intersection with Shug Jordan Parkway and Camp Auburn Road.
- The intersection of South College Street and Camp Auburn Road is currently un-signalized with side street stop traffic control.
- Left turn lanes are currently in place along South College Street in the vicinity of the study roadway segment.
- The existing traffic striping appears to be in good condition.
- The existing pavement surfaces appear to be in good condition.
- Roadway stopping sight distance appears to be adequate.

Considering the factors listed above, the conditions along the study roadway segment appear to be acceptable without any possible deficiencies noted. It is anticipated that the crashes experienced along this roadway segment are a function of the volume of vehicles entering and exiting the private driveways along South College Street. Based on the crash experience along the study roadway segment, it is recommended that the right turn lane warrants be evaluated and right turn lanes be constructed where warranted along South College Street at side street access intersections. It is recommended that the warrants as outlined in the *Intersection Channelization Design Guide, Report 279*,

published by the Transportation Research Board, and also City of Auburn standards be considered for the right turn lane warrant criteria.

South College Street from Lake Street to Harmon Drive

According to the initial crash screening of this roadway segment, it has approximately 0.62 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for South College Street from Lake Street to Harmon Street.

South College Street from Shug Jordan Parkway/ East University Drive to Longleaf Drive

According to the initial crash screening of this roadway segment, it has approximately 2.19 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions.

A physical review of the traffic conditions along the roadway segment was conducted at this location. It should be noted there is a considerable amount of commercial development along the study roadway segment in question. A possible explanation for the crash experience would be the conflict of traffic entering and exiting the side street access driveways with the traffic traveling along South College Street. Considering the nature of the commercial land uses in the vicinity of the study roadway segment, some conflict between main street and side street traffic is to be expected. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no geometric roadway corrective measures would be required at this time to mitigate any crashes for South College Street from Shug Jordan Parkway/ East University Drive to Longleaf Drive. However, it is recommended that the traffic signal timings along South College Street in the vicinity of the study roadway segment be examined. It is anticipated that a coordinated traffic signal system along South College Street in the vicinity of the study roadway segment would help to move traffic and ease congestion along the main street. This, in turn, should increase the occurrence of safe opportunities for side street traffic to enter the traffic flow along South College Street. It should also be noted that the operations along the study roadway segment were evaluated as a part of the roadway corridor study and recommended roadway improvements based on traffic operations are detailed in that portion of the Auburn Citywide Traffic Study.

South College Street from Roosevelt Drive to Samford Avenue

According to the initial crash screening of this roadway segment, it has approximately 1.32 crashes per million vehicles entering the roadway segment for 2004. The City of

Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for South College Street from Roosevelt Drive to Samford Avenue.

South College Street from Magnolia Avenue to Thach Avenue

According to the initial crash screening of this roadway segment, it has approximately 1.00 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for South College Street from Magnolia Avenue to Thach Avenue.

South College Street from Garden Drive to Woodfield Drive

According to the initial crash screening of this roadway segment, it has approximately 1.20 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for South College Street from Garden Drive to Woodfield Drive.

South College Street from Tichenor Avenue to Magnolia Avenue

According to the initial crash screening of this roadway segment, it has approximately 2.29 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, the most common traffic crash appears to occur as a result of cars entering/exiting parking stalls along South College Street. Crash patterns such as this are expected along roadway segments that provide on-street parking. Considering the nature of on street parking, the only corrective measure that would limit the number of potential conflicts from parking traffic and main street traffic would be to limit or remove the on street parking opportunities. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for South College Street from Tichenor Avenue to Magnolia Avenue.

Shug Jordan Parkway from Raptor Road to Wire Road

According to the initial crash screening of this roadway segment, it has approximately 1.20 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for Shug Jordan Parkway from Raptor Road to Wire Road.

Shug Jordan Parkway from Wire Road to South College Street

According to the initial crash screening of this roadway segment, it has approximately 1.58 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, the most common traffic crash appears to occur as rear end type crashes and as a result of congested traffic conditions related to the intersection of Shug Jordan Parkway and South College Street. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no geometric roadway corrective measures would be required at this time to mitigate any crashes for Shug Jordan Parkway from Wire Road to South College Street. However, it is recommended that the traffic signal timings along South College Street in the vicinity of the study roadway segment be examined. It is anticipated that a coordinated traffic signal system along South College Street in the vicinity of the study roadway segment would help to move traffic and ease congestion along the main street. This, in turn, should increase the occurrence of safe opportunities for side street traffic to enter the traffic flow along South College Street.

Opelika Road from Ross Street to Dowdell Avenue

According to the initial crash screening of this roadway segment, it has approximately 2.00 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, the most common traffic crash appears to occur rear end type crashes and as a result of congested traffic conditions related to the intersection of Opelika Road at Ross Street. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no geometric roadway corrective measures would be required at this time to mitigate any crashes for Opelika Road from Ross Street to Dowdell Avenue. However, it is recommended that the traffic signal timings at the intersection of Opelika Road and Ross Street be examined. It is anticipated that a possible adjustment in the intersection traffic signal timings near the study roadway segment would help to move traffic and ease congestion along the main street.

Opelika Road from Starr Court to East University Drive

According to the initial crash screening of this roadway segment, it has approximately 1.82 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, the most common traffic crash appears to occur rear end type crashes and as a result of congested traffic conditions related to the intersection of Opelika Road at East University Drive. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no geometric roadway corrective measures would be required at this time to mitigate any crashes for Opelika Road from Starr Court to East University Drive. However, it is recommended that the traffic signal timings at the intersection of Opelika Road and East University Drive be examined. It is anticipated that a possible adjustment in the intersection traffic signal timings near the study roadway segment would help to move traffic and ease congestion along the main street.

Opelika Road from Ronald Lane to East University Drive

According to the initial crash screening of this roadway segment, it has approximately 0.93 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for Opelika Road from Ronald Lane to East University Drive.

Opelika Road from Dean Road to Gentry Drive

According to the initial crash screening of this roadway segment, it has approximately 0.96 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for Opelika Road from Dean Road to Gentry Drive.

Magnolia Avenue from South College Street to Gay Street

According to the initial crash screening of this roadway segment, it has approximately 2.98 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, the most common traffic crash appears to occur as a result of cars entering/exiting parking stalls along Magnolia Avenue. Crash patterns such as this are expected along roadway segments that provide on-street parking. Considering the nature of on street parking, the only corrective

measure that would limit the number of potential conflicts from parking traffic and main street traffic would be to limit or remove the on street parking opportunities. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for Magnolia Avenue from South College Street to Gay Street.

Gay Street from Magnolia Avenue to Thach Avenue

According to the initial crash screening of this roadway segment, it has approximately 1.01 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for Gay Street from Magnolia Avenue to Thach Avenue.

East University Drive from South College Street to Donahue Drive

According to the initial crash screening of this roadway segment, it has approximately 1.32 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for East University drive from South College Street to Donahue Drive.

East University Drive from Mall Road to Opelika Road

According to the initial crash screening of this roadway segment, it has approximately 1.66 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, the most common traffic crash appears to occur rear end type crashes and as a result of congested traffic conditions related to the intersection of Opelika Road at East University Drive. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no geometric roadway corrective measures would be required at this time to mitigate any crashes for East University Drive from Opelika Road to Mall Road. However, it is recommended that the traffic signal timings at the intersection of Opelika Road and East University Drive be examined. It is anticipated that a possible adjustment in the intersection traffic signal timings near the study roadway segment would help to move traffic and ease congestion along the main street.

East University Drive from Dekalb Street to Dean Road

According to the initial crash screening of this roadway segment, it has approximately 0.72 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for East University drive from Dekalb Street to Dean Road.

Glenn Avenue from Toomer Street to Wright Street

According to the initial crash screening of this roadway segment, it has approximately 1.25 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for Glenn Avenue from Toomer Street to Wright Street.

Glenn Avenue from Gay Street to Burton Street

According to the initial crash screening of this roadway segment, it has approximately 1.41 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, the most common traffic crash appears to occur as rear end type crashes and as a result of congested traffic conditions related to the intersection of Glenn Avenue and Gay Street. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no geometric roadway corrective measures would be required at this time to mitigate any crashes for Glen Avenue from Gay Street to Burton Street. However, it is recommended that the traffic signal timings at the intersection of Glenn Avenue and Gay Street be examined. It is anticipated that a possible adjustment in the intersection traffic signal timings near the study roadway segment would help to move traffic and ease congestion along the main street.

Glenn Avenue from Dean Road to Short Street

According to the initial crash screening of this roadway segment, it has approximately 0.73 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for Glenn Avenue from Dean Road to Short Street.

Dean Road from Glenn Avenue to Lakeview Drive

According to the initial crash screening of this roadway segment, it has approximately 1.48 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions. Based on a physical review of the roadway segment, as well as the crash information, it is recommended that no corrective measures would be required at this time to mitigate any crashes for Dean Road from Glenn Avenue to Lakeview Drive.

Donahue Drive from Crescent Boulevard to Miracle Road

According to the initial crash screening of this roadway segment, it has approximately 4.93 crashes per million vehicles entering the roadway segment for 2004. The City of Auburn provided crash data along this roadway segment for the purposes of crash pattern analysis. After a review of the latest crash data provided, no sustainable pattern in crashes was observed to indicate contributing conditions to a crash from the roadway segment conditions.

A physical review of the traffic conditions along the roadway segment was conducted at this location. It should be noted the portion of Donahue Drive in question is located in a primarily rural setting within the City of Auburn. The roadway character is that of a sinuous rural roadway. It is anticipated that a considerable amount of the crash experience along the study roadway segment could be due to the character of the roadway and possibly due to insufficient roadway lighting during low light conditions. Based on a physical review of the roadway segment, as well as the crash information, the following corrective measures would be recommended at this time to mitigate any crashes for Donahue Drive in the vicinity of the study roadway segment:

- Increase roadway lighting along Donahue Drive;
- Re-stripe Donahue Drive with reflective thermoplastic traffic stripe and raised pavement markings as required by the City of Auburn standards; and,
- Increase speed enforcement along Donahue Drive in the vicinity of the study roadway segment.