Section 2:
Existing Conditions & Trends

Alachua County has a fairly extensive bicycle facilities network and bicycling in the County has been popular for many years. Residents bicycle for both recreation and utilitarian purposes. A large number of students, faculty, and staff commute each day to the University of Florida campus. The City of Gainesville has some of the highest levels of bicycling activity in Florida. Alachua County and the City of Gainesville has a strong reputation across the United States as being bicycle friendly communities. In fact, Gainesville was the first Florida city recognized by the League of American Bicyclists under its national "Bicycle Friendly Community" program. Bicyclists can be seen every day on their way to work, school, to the grocery store, and on a variety of other kinds of trips and numerous children bicycle to school every day.

Some people are bicycle riders by choice - they bicycle to improve their health, to reduce their dependence on the automobile, or for a number of other reasons. For others who cannot afford an automobile, getting around town on a bicycle is necessary to earn a living, go to school, or to buy groceries – it is their primary mode of transportation.

The existing bicycle network has been developed from a variety of sources. For example, the Florida Department of Transportation (FDOT) now incorporates provisions for bicyclists on all state roads. This has helped expand the bicycle network to many of the less urbanized areas of Alachua County. Despite this, many of the major

roadway corridors into the University of Florida campus and into downtown Gainesville currently lack bicycle facilities or operate considerably below the target Bicycle QOS standards that are adopted in this *Plan.* The following sections broadly document these existing conditions as well as bicycle-related trends within the County.

2.1 Roadway Conditions

Bicycle Quality of Service (QOS)

The bicycling conditions ranking criteria was evaluated using the *Bicycle Level of Service (LOS) Model*. The *Model* is the statistically reliable method of evaluating the bicycling conditions of a shared roadway environment. It uses the same measurable traffic and roadway factors that transportation planners and engineers use for other travel modes. With statistical precision, the *Model* clearly reflects the effect on bicycling suitability or "compatibility" due to factors such as roadway width, bike lane widths and striping combinations, traffic volume, pavement surface conditions, motor vehicles' speed and type, and on-street parking.

Low motor vehicle volume roadways and paved shoulders/ bike lanes provide good bicycling conditions.

The *Bicycle Level of Service Model* is based on the proven research documented in *Transportation Re-*

[4] Landis, Bruce W. "Real-Time Human Perceptions: Toward a Bicycle Level of Service" *Transportation Research Record 1578*, Transportation Research Board, Washington DC 1997

search Record 1578 published by the Transportation Research Board of the National Academy of Sciences. It has been applied to over 100,000 miles of evaluated urban, suburban, and rural roads and streets across North America. It has been adopted by the Florida Department of Transportation as the recommended standard methodology for determining existing and anticipated bicycling conditions throughout Florida. Many urbanized area planning agencies and state highway departments throughout the U.S. and Canada are using this established method of evaluating their roadway networks. These include Anchorage AK, Arlington TX, Baltimore MD, Birmingham AL, Buffalo NY, Houston TX, Philadelphia PA, San Antonio TX, Lexington KY, Springfield MA, Tampa FL, as well as the Arizona Department of Transportation (ADOT), Delaware Department of Transportation (DelDOT), New York State Department of Transportation, (NYSDOT), Maine Department of Transportation (MeDOT), and many others.

Poor cycling conditions are an impediment for bicyclists.

On-road bicycling conditions in Alachua County have a tremendous effect on bicyclists' ability to get to and from their destinations. Many of the roadways in the County have existing bicycle facilities or provide acceptable bicycling conditions (with respect to the target minimum QOS standards). On roadways where bicycle facilities (bike lanes/paved shoulders) have been installed, bicycling conditions are greatly improved. However, there are also many road-

ways throughout the County that are high speed and/or high traffic volume facilities or have otherwise poor bicycling conditions. These factors contribute to the perception among residents and visitors that current bicycling conditions within Alachua County are not accommodating of bicyclists.

In order to objectively evaluate the bicycling conditions throughout the County, a comprehensive evaluation of bicycling conditions on the (on-road) study network was performed. This study network included all of the arterial and collector streets in Alachua County as well as several local streets identified by the *Plan's* Steering Committee.

Bicycling conditions were evaluated using the *Bicycle Level of Service (LOS) Model*. The *Bicycle LOS Model* uses measurable traffic and roadway factors such as:

- Lateral separation between bicyclists and adjacent motor vehicle traffic (measured by the width of the right-most lane)
- Volume and speed of motor vehicle traffic
- Percentage of trucks
- Number of travel lanes
- Presence of a paved shoulder/ bike lane
- Pavement conditions

The results of the Bicycle QOS evaluation are represented by a numerical score stratified into six grades or levels of service (see Table 1). Level "A" reflects the best conditions for bicyclists; Level "F" represents the worst.

Table 1 Bicycle Quality of Service Categories

Quality-of-Service	Bicycle QOS Score
A	<= 1.5
B	> 1.5 and <= 2.5
C	> 2.5 and <= 3.5
D	> 3.5 and <= 4.5
E	> 4.5 and <= 5.5
F	> 5.5

The (separately bound) Bicycle QOS Technical Report includes the collected data, tabular, and mapped results of the bicycling conditions evaluation for the study corridors. The average Bicycle Quality of Service (QOS) of the entire study network mileage is “C” (or 3.28 numerically). Figure 1 shows the distribution of the bicycle quality of service grades for the study network. It should be noted that Bicycle quality of service grades are not equivalent to motor vehicle LOS grades, but rather are more similar to school grades. A bicycle quality of service grade of “C” indicates (mathematically) average conditions, whereas a motor vehicle LOS grade of “C” would in most jurisdictions be considered relatively good. The *Bicycle LOS Model* was developed in 1995 based on statistically calibrated user perceptions using an “A” to “F” scale similar to that used for school grades. Thus, the bicycle quality of service of “C” is an average to poor grade for the study network. In fact 36% of the study network mileage has a bicycle quality of service of “D” or “E” (see Figure 1).

Table 2 summarizes the inventory of existing facilities as well as those roads that currently meet or exceed the target Bicycle quality of service (“B” for non-state roads and “C” for state roads). Approximately 28 percent (or 229 miles) of roads within the study network currently have bicycle lanes or paved shoulders.

Figure 1 Bicycle Quality of Service Distribution, Year 2000

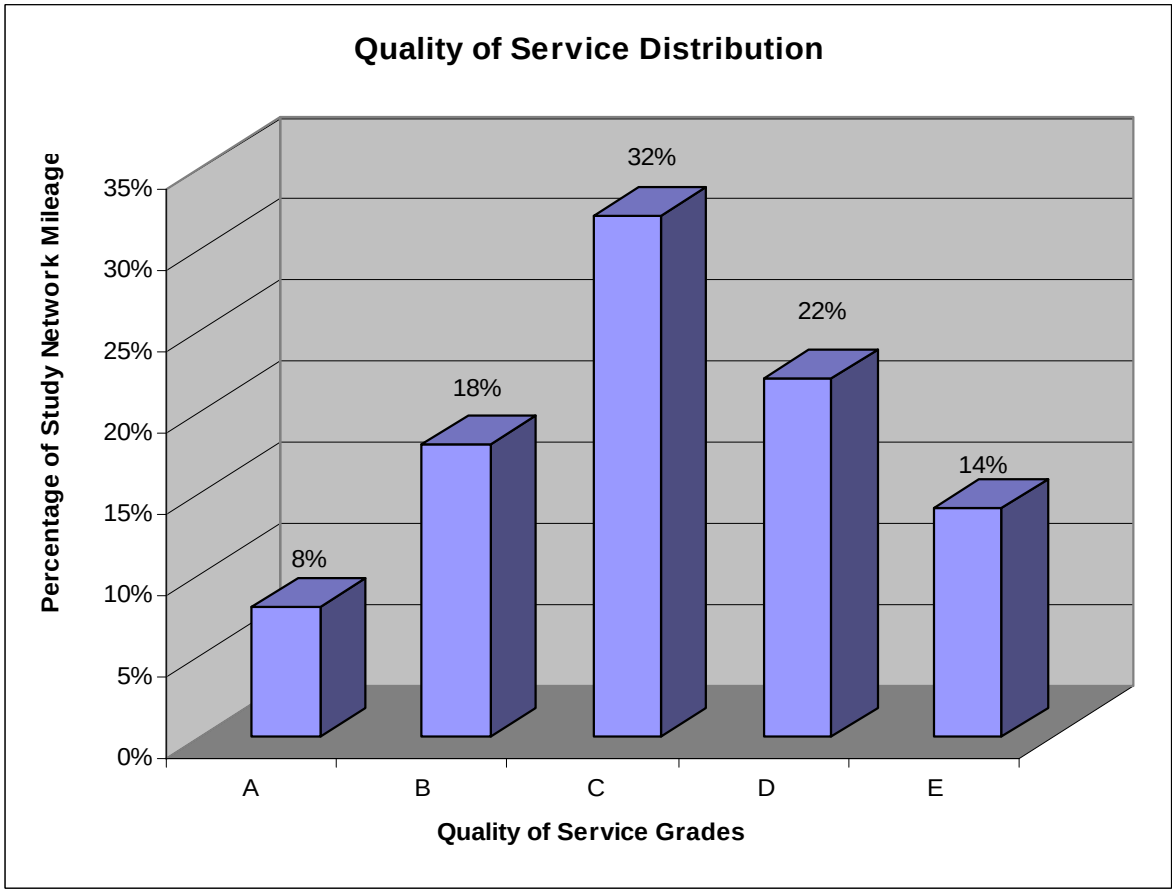


Table 2 Existing Bicycle Facilities and Conditions

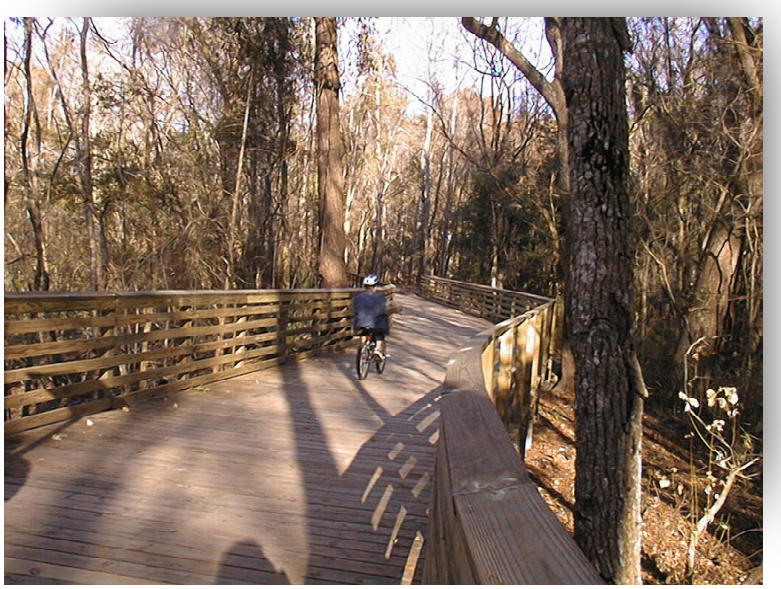
Facility Type	Mileage	Percent of Miles
Existing Bike Lane\Paved Shoulder*	229 miles	28%
Bicycle QOS A/B/C	127 miles	15%
Programmed Improvements	46 miles	6%
Prioritized Roadway Network (retrofit candidates)	421 miles	51%
Total	829 miles	100%

*May or may not be operating at Bicycle QOS A, B, or C (see bound Bicycle QOS technical appendix)

When combined with roadways that currently meet the target Bicycle Quality of Service standards, 43 percent (or 356 miles) of the study network roadways currently accommodate bicyclists (see Map 1A & 1B Bicycle Facility Inventory & Quality of Service Evaluation of the Study Road Network). However, 51% of the existing study network mileage do not currently have bicycle facilities nor meet the target Bicycle Quality of Service standards established in this *Plan*.

2.2 Off-Road Trails

Off-road trails are an important part of the bicycle transportation network. There are 14 existing trails within the study network area. They are a combination of paved and unpaved facilities. The majority of unpaved trails are within recreational/conservation areas such as Paynes Prairie and around Lochloosa Lake. Trails proposed for the Hogtown Creek Greenway within the City of Gainesville are subject to paving restrictions put in place through local referendum.



The Hogtown Creek Greenway provides a pleasant riding experience.

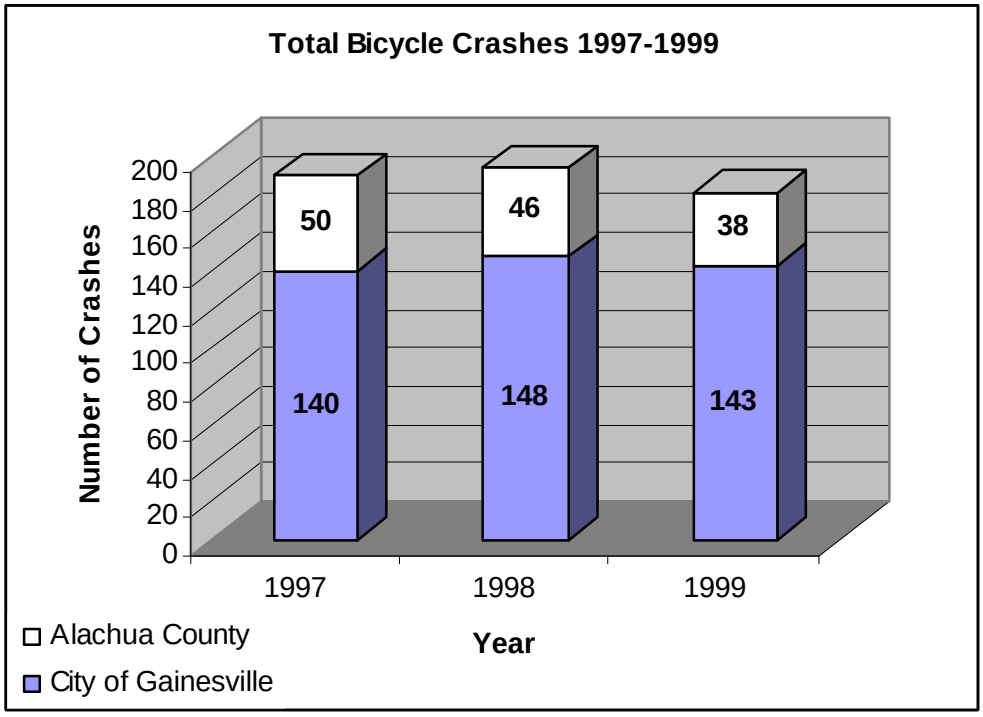
Rails-to-trails conversions account for many of the existing off-road trails. The Gainesville-Hawthorne Trail runs along a former railroad right-of-way and is the most well known of the existing trails. The Depot Avenue and Waldo Road Greenway trails are also popular off-road trails that were once former railroad beds. These trails total 58.2 miles in length.

In addition to the existing trails included in the *Plan's* study network, there are a number of smaller off-road trails that serve as connectors between local streets and neighborhoods. The *Gainesville Bikeway System Map*, available from the City of Gainesville, depicts the location of many of these off-road connector trails.

2.3 Bicycle Crash Analysis

As part of this *Plan*, an analysis of bicycle crashes was performed. Bicycle crashes were evaluated for the period from 1997 to 1999. There were a total of 565 crashes involving bicyclists during the study analysis time frame. Of the 565 crashes, approximately 431 occurred within the City of Gainesville. Figure 2 below depicts that the total number of crashes has remained relatively constant.

Figure 2 Total Bicycle Crashes by Year



The crashes, their location and typology, were evaluated using software developed by the Federal Highway Administration titled "Pedestrian and Bicycle Crash Analysis and Typology" (PBCAT). Information from traffic crash report forms was used to locate the crashes and perform the typology. The following sections provide a description of the different types of crash analyses performed.

Crash Location

The PBCAT software establishes *three* general categories of crash locations: intersection, non-intersection, and non-roadway. Intersections can be classified as either signalized or unsignalized; however, they do not include commercial, industrial, or residential driveways. Non-intersection locations do include driveway access points as well as on-road locations. The highest number of bicycle accidents (349 or 61.8%) occurred at intersections. The second highest number of bicycle crashes (195 or 34.5%) occurred at non-intersection locations. The remaining 3.7% of crashes occured at non-roadway locations. Map 2A and 2B at the end of this section displays the location of each of the accidents (41 crashes could not be mapped due to incomplete crash report data).

Crash Type

The assessment of crash typology was an important part of the crash analysis. The PBCAT method uses numerous criteria from the crash report forms in determining the typology of each crash that occurred. The highest frequency of crash occurrence types have been combined into six crash types that represent 434 or 77% of all crashes (see Table 3). The other 23% of the crashes are spread across another 30 categories of crash types (e.g. turning movements, improper equipment, alcohol, and weather conditions, etc...). The majority of crashes (347 or 61.4%) were due to a motorist failing to yield the

right of way to the bicyclist. The crash data analysis further reveals that a bicyclist failing to yield right-of-way accounted for 80 (or 14%) of the total crashes. Significantly, *the majority of crashes 427 (or 76%) occurred because either the motorist or the bicyclist failed to yield the right-of-way.* Thus it can be surmised that the majority of crashes are not an indication of inadequate bicycle facilities, but rather may be an indication of bicycle travel demand *and* the need for enhanced safety education.

Crash Statistics

Crashes were analyzed several different ways. The following sections outline each of these.

Crash Severity - The injury severity resulting from the bicycle crash was evaluated. The majority of crashes involving a bicyclist did not result in a fatality (see Table 4). However, 11 crashes did result in a bicycle fatality. Few of the bicyclists (77 or 14%) were uninjured.

Table 3 Crash Type

Type of Crash	# of Crashes	% of Crashes
Motorist driving through a controlled intersection	151	26.7%
Motorist driving out from a driveway (commercial, residential, industrial)	60	10.6%
Bicyclist driving through a controlled intersection	58	10.3%
Motorist making a right turn on red	58	10.3%
Uncontrolled intersection (caused by either a motorist or a bicyclist)	55	9.7%
Motorist overtaking	52	9.2%
Total	434	76.8%

Table 4 Severity of Bicyclists Injury

Injury Severity	Number	Percent
Fatality	11	2%
Incapacitated	76	14%
Non-incapacitating	267	47%
Possible	121	21%
None	77	14%
Unknown	13	2%
Total*	565	100%

* Percent rounded

Crashes by Age – In Alachua County, the highest number of bi-cycle/motor vehicle crashes occurred in the 25 - 34 age group (see Figure 3).

Persons between the ages of 20 – 24 accounted for 24% of the bicycle/motor vehicle crashes. Individuals 65 and over represented the fewest number of crashes for any of the age groups.

Crashes by Month – The highest number of crashes occurred in the month of September (see Figure 4). The numbers of crashes per month are fairly constant, except for June and December. The drop in the number of crashes in June and December is likely attributable to the winter and summer breaks for the University of Florida.

Crashes by Time of Day – The vast majority of crashes occurred between noon and 6:00 p.m. (see Figure 5). Relatively few of the crashes occurred during evening hours. Most of the crashes occurred during the weekday, with the highest number of crashes occurring

Figure 3 Crash-by-Age

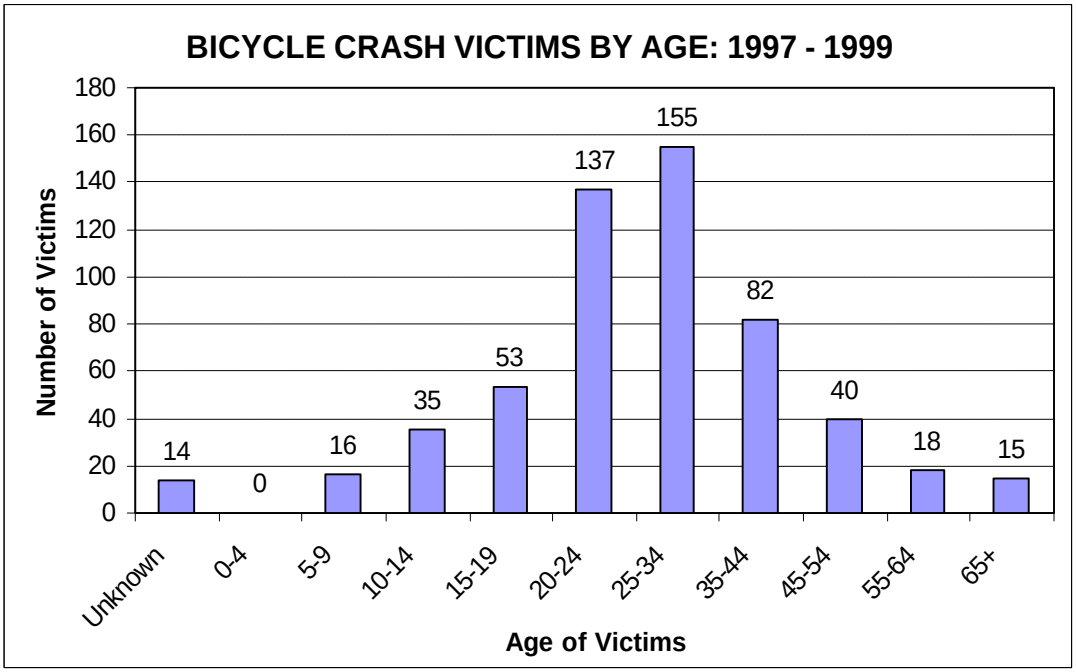
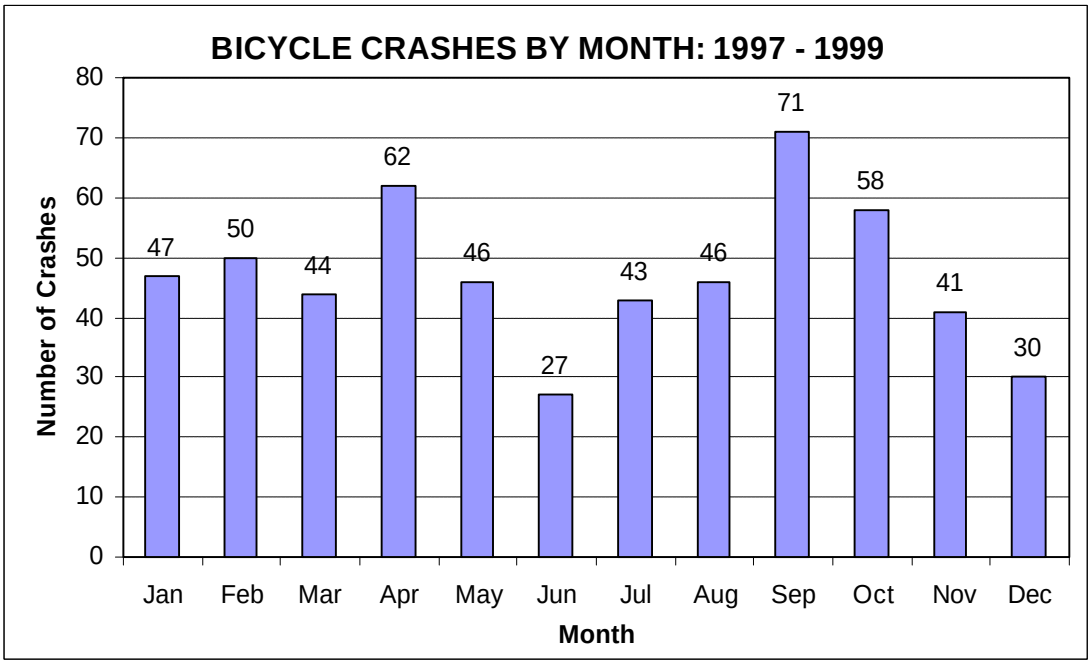


Figure 4 Crash-by-Month



on Tuesday (see Figure 6). The high number of crashes occurring during the weekday and afternoon hours can likely be attributed to the number of bicyclists commuting to and from the UF campus.

High Crash Roadways and Areas

The highest number of crashes occurred along the primary roadway corridors into the UF Campus and downtown Gainesville, specifically along University Ave/SR 26, where 70 crashes occurred. Within an approximately one-mile radius of the main UF campus boundary (including the campus itself), a total of 310 bicycle accidents occurred, accounting for 55% of the total reported bicycle crashes for the three-year period analyzed. Table 5 lists the "high bicycle crash roadways" within the MTPO boundary, with the respective number of crashes that occurred on them. These four roadways represent the borders of the contiguous University of Florida campus.

Figure 5 Crash-by-Time-of-Day

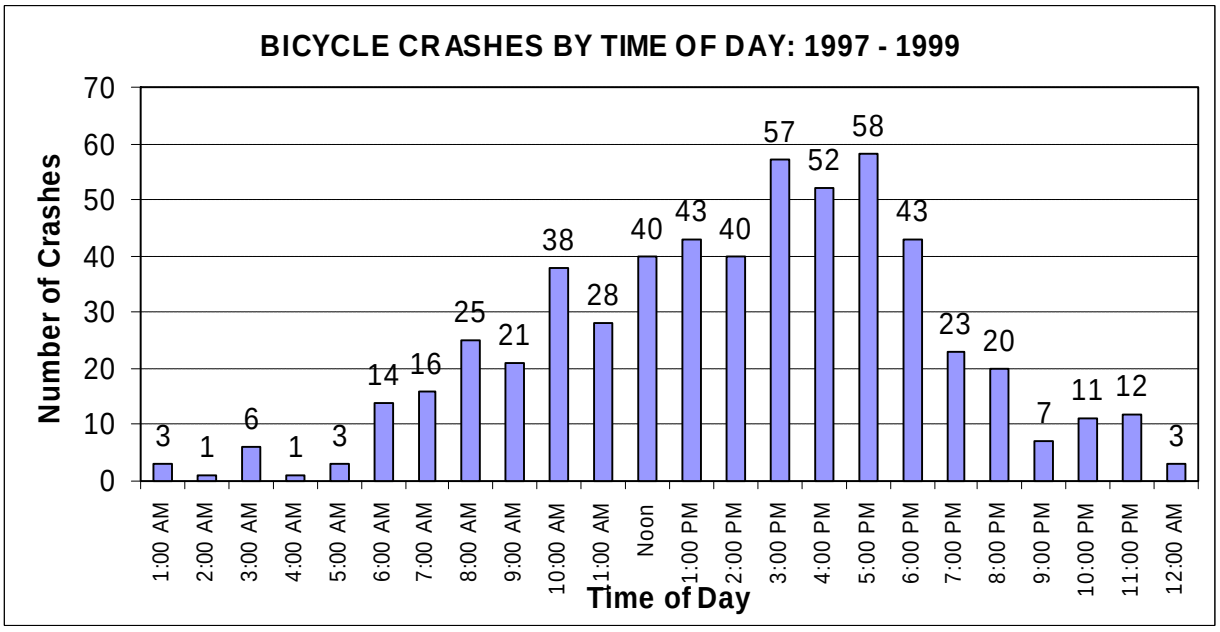


Figure 6 Crash-by-Day of Week

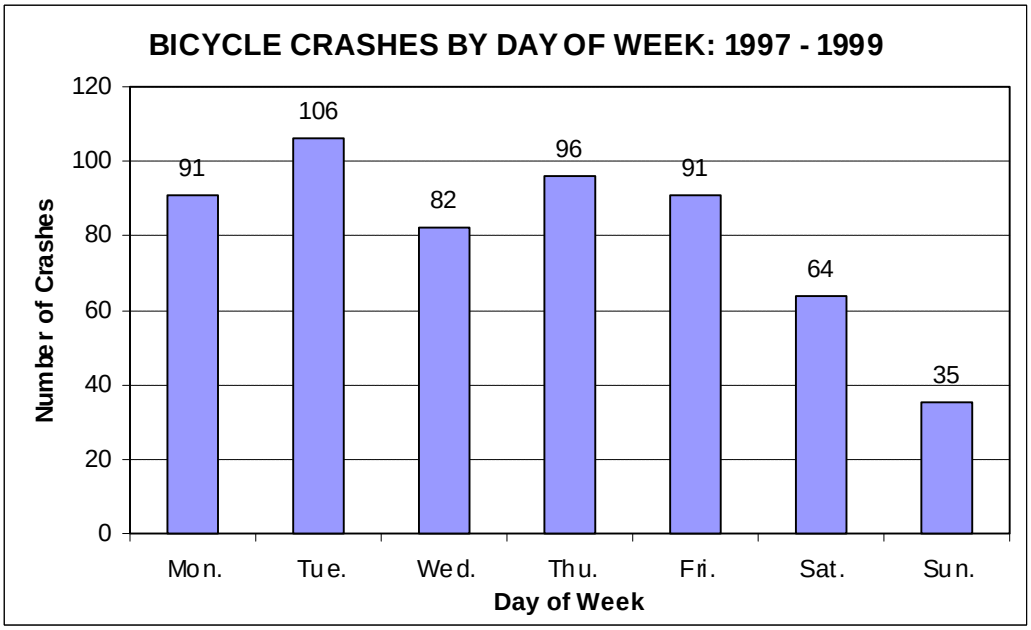


Table 5 High Crash Roadways

Roadway	Number of Crashes
University Ave (SR 26)	70
US 441 (13th Street)	66
Archer Road	36
NW 34th Street	22

The frequency of crashes along these roadways and within the area directly surrounding the University of Florida are most likely due to the high number of cyclists who commute to the campus each day. Improving existing roadway conditions and increasing safety education for bicyclists and motorists alike are important steps that can be

taken by Alachua County, the MTPO, law enforcement agencies, the University of Florida, and the local jurisdictions to help reduce the number of crashes occurring within Alachua County.

Although the analysis of bicycle crashes was an important feature in the development of this *Master Plan*, crashes were not a discrete factor in the prioritization process. This is primarily because the majority of crashes involved failure to yield right-of-way or occurred at intersections or driveway crossings. Only 9.2% of the crashes involved a motorist overtaking (passing) bicyclists and some of these incidents occurred when the bicyclist was on a shoulder or in a bike lane. Since the majority of crashes are caused by behavioral factors, their countermeasures are focused on the education and enforcement initiatives, rather than facility construction.

The development of sidepaths and off-road trails is often cited as a way to increase the safety for bicyclists. However, great care needs to be undertaken in the location of these types of facilities. Furthermore, many believe that sidewalks are also safe places for bicycle riding. This is not necessarily true - according to research published in the National Academy of Sciences *Transportation Research Record No. 1636*, bicyclists riding on sidewalks are 40 times more likely to be involved in a crash than are bicyclists riding in a bike lane or on a paved shoulder. Of the 565 crashes in Alachua County, 293 (52%) occurred

The Bike Memorial is dedicated to those killed or injured in a 1996 automobile/bicycle collision. The collision spawned statewide public safety awarness efforts.

when a bicyclist was riding on or coming from a sidewalk. Of those 293 crashes, 226 occured when the bicyclist was in an intersection, while the remaining 67 crashes occured while the cyclist was traversing a driveway. A bicyclist riding in a bike lane or paved shoulder accounted for 79 (14%) of the total number of crashes.

Off-road bicycle facilities can be constructed and located in a manner will increase bicyclists' safety, increase bicycle travel, and increase mobility choices. However, they need to be designed and located to ensure a high level of saftey for all users. Objective 2.3 of this Plan instructs the implementing agencies to develop a process for ensuring the safe design and construction of off-road bicycle facilities.