

## PROBLEM STATEMENT

The roadways in South Carolina are considered to be the fourteenth deadliest in the United States.<sup>1</sup> A traffic collision is reported every 4.8 minutes and a traffic related death is reported every 9.4 hours. Someone suffers a non-fatal traffic injury every 10.7 minutes.<sup>2</sup> The statistics are staggering especially with alcohol or drug related traffic collisions. South Carolina for the past three years has been included in the *Fatal Fifteen*, which is compiled by the physician-led traffic safety advocacy group called End Needless Death on Our Roadways (END). The *Fatal Fifteen* are states in which 41 percent or more of all traffic fatalities are alcohol related.<sup>3</sup> Driving under the influence of alcohol or drugs was a contributing factor in over 390 fatal collisions in South Carolina, according to the SC Department of Public Safety's preliminary statistics for 2008. These collisions killed more than 430 persons. The preliminary statistics also indicate that more than 5,200 alcohol-related collisions were reported for 2008 resulting in injuries of more than 3700 persons. In 2008, the state experienced approximately the same number of alcohol-related crashes as 2007.<sup>4</sup>

Anderson County, which is located in the northwest corner of South Carolina, is ranked eighth among the forty-five counties in South Carolina for the number of fatal and severe injury crashes that were DUI related from 2005 - 2007.<sup>5</sup> In the last documented five years (2002 - 2006), 92 people in Anderson County have lost their lives due to alcohol or drug related traffic accidents. The roadways in the county are becoming increasingly fatal due to DUI<sup>6</sup> related crashes. The previous five years (1997 - 2001) resulted in 63 persons killed. Therefore, twenty-nine more people were killed in alcohol or drug related crashes between 2002 - 2006 than 1997 - 2001.<sup>7</sup>

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<sup>1</sup> Fatalities by State. Fatality Analysis Reporting System (FARS), [www-fars.nhtsa.dot.gov](http://www-fars.nhtsa.dot.gov)

<sup>2</sup> 2008 Collision Statistics. 2010 Highway Safety Funding Guideline. Page 5.

<sup>3</sup> 2006 Fatal Fifteen Press Release issued by the physician-led traffic safety advocacy group End Needless Death on Our Roadways. (END). 11/30/06.

<sup>4</sup> Alcohol Involvement in Collisions. 2010 Highway Safety Funding Guidelines. Page 5.

<sup>5</sup> South Carolina Fatal & Severe Injury Crashes 2005-2007. 2010 Highway Funding Guidelines. Page 9.

<sup>6</sup> In this paper the terms DWI and DUI are used synonymously and refer to both drugs and alcohol.

<sup>7</sup> Total Killed in Alcohol-Related Crashes by County. Fatality Analysis Reporting System (FARS). [www-fars.nhtsa.dot.gov/states/StatesAlcohol.aspx](http://www-fars.nhtsa.dot.gov/states/StatesAlcohol.aspx)



Anderson County is consistently ranked among the top ten worst counties in South Carolina in regards to alcohol or drug related crashes. Twenty-five persons killed in 2004 caused the county to be the 5<sup>th</sup> worst in the state for traffic collisions involving alcohol or drugs. In 2006 the death toll decreased to 15, however, there was a 4.25% increase in the amount of injuries sustained in alcohol or drug related traffic collisions when comparing 2006 to 2005.<sup>8</sup> The data regarding traffic collisions involving alcohol or drugs between 2002 and 2006 is illustrated below.

**Traffic Collisions Involving Alcohol or Drugs**

	Calendar Year 2002	Calendar Year 2003	Calendar Year 2004	Calendar Year 2005	Calendar Year 2006
Total # of Crashes	204	211	205	154	179
# of Persons Killed	16	15	25	18	15
# of Persons Injured	164	175	133	141	147
Rank for Total ADRC <sup>9</sup>	7 <sup>th</sup> worst	7 <sup>th</sup> worst	7 <sup>th</sup> worst	10 <sup>th</sup> worst	8 <sup>th</sup> worst
Rank for Persons Killed	9 <sup>th</sup> worst	6 <sup>th</sup> worst	5 <sup>th</sup> worst	9 <sup>th</sup> worst	9 <sup>th</sup> worst
Rank for Persons Injured	8 <sup>th</sup> worst	7 <sup>th</sup> worst	8 <sup>th</sup> worst	8 <sup>th</sup> worst	8 <sup>th</sup> worst

In addition to the dismal statistics regarding alcohol or drug related crashes, Anderson County also has an extremely high incidence of overall traffic collisions. In 2006, Anderson County ranked 8<sup>th</sup> worst in regards to the total number of traffic collisions. Anderson County was the 9<sup>th</sup>

<sup>8</sup> South Carolina Traffic Collision Fact Book 2002, 2003, 2004, 2005 and 2006. South Carolina Department of Public Safety. Pages 75,75, 75, and 75 respectively.

<sup>9</sup> ADRC – Alcohol or/and Drug Related Crashes

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worst county in the state for fatal collisions in 2006. Note the following table, which lists the total number of all collisions for Anderson County from 2002 - 2006.<sup>10</sup>

	CY 2002	CY 2003	CY 2004	CY 2005	CY 2006
Crashes in State of South Carolina	108,280	108,886	110,029	111,983	112,949
Crashes in Anderson County	4,348	4,177	4,152	4,080	4,046
Anderson County's Percent of All Crashes in SC	4.02%	3.83%	3.77%	3.64%	3.64%
Average of All Counties	2.2%	2.2%	2.2%	2.2%	2.2%
Difference From Average of All Counties	82.7%	74.1%	71.4%	65.5%	65.5%
Total Crash Deaths in Anderson County	42	33	39	43	44
Average Deaths per County	22.9	21.5	23.2	21.8	22.7
County Deaths Difference From Average	83.4%	53.5%	68.1%	97.2%	94.2%
Rank of County for Total Crash Deaths	Higher 8 <sup>th</sup> worst	Higher 7 <sup>th</sup> worst	Higher 8 <sup>th</sup> worst	Higher 5 <sup>th</sup> worst	Higher 9 <sup>th</sup> worst

Since 2003, more people every year are being killed in traffic accidents in Anderson County. During 2002, 2003, 2004, 2005 and 2006, the county of Anderson averaged between 65.5% (in 2005 and 2006) and 82.7% (in 2002) more crashes than the average for all other counties in the state. The average of crashes and deaths occurring in the county is significantly higher than the average per each county in the state. The average of persons killed in the county ranges from 53.5% higher (in 2003) to 97.2% higher (in 2005) compared to the average of deaths per county. Anderson County has consistently ranked in the top ten worst counties for the total number of crashes since 1999.<sup>11</sup>

An increase in traffic collisions since 1991 is a significant problem for the City of Anderson. Anderson City is located in one of the fastest growing areas of upstate South Carolina and is the county seat and the largest city on the I-85 corridor between Greenville, South Carolina and Atlanta, Georgia. The city is situated roughly half way between Atlanta, Georgia and Charlotte, North Carolina 3 miles east of the interstate. According to the FBI's Crime in the United States 2007 Data, the population of the City of Anderson is 26,326 but due to a daily influx of people, the population of the city frequently swells to as high as 110,000.<sup>12</sup> The city covers approximately 15 square miles and contains 203 miles of linear roadway on 520 streets and roads.<sup>13</sup> Individuals come into Anderson from the surrounding counties in South Carolina and northeast Georgia to work, transact business, and shop at the many outlets as well as the mall. The City of Anderson contains city, county and state government offices, and a federal courthouse. Economic growth on the north end of town has resulted in an increase in the number

<sup>10</sup> South Carolina Traffic Collision Fact Book 2002, 2003, 2004, 2005 and 2006. Pages 81,81,82, and 82 respectively.

<sup>11</sup> South Carolina Traffic Collision Fact Book 1999, 2000, 2001, 2002, 2003, 2004, 2005 and 2006. Pages 85, 85, 81, 81, 82 and 82 respectively.

<sup>12</sup> Crime in the United States 2007. FBI.

<sup>13</sup> City of Anderson Police Department Fiscal Year 2008 Annual Report. Page 3.

of establishments that serve alcohol. An additional incentive for restaurants to establish themselves within the city limits of Anderson occurred on April 8, 2008, when residents voted to allow Sunday alcohol sales for restaurants issued a license to serve alcohol.<sup>14</sup>

Two high schools are located just outside of town. Westside High School is on Highway 28 and T.L. Hanna High School is on Highway 81. These schools have approximately 3,000 attendees, most of which live in the city. The student populations of these two schools contribute disproportionately to the city’s collision rate.

Previous research (on the national level) indicates a strong correlation between DWI collisions and persons between the ages of 17 and 34, especially white males. Also, there is a further correlation with the hours of 6:00 p.m. through 2:00 a.m. for DWIs and DWI related traffic collisions. Both of those theories hold true for many of the DWI related crashes in Anderson City.<sup>15</sup> Due to its proximity to two major four-year colleges the city frequently has an artificially inflated youth population on the weekends. Clemson University, located 20 minutes from the city, and Anderson University, situated within Anderson’s city limits, contribute significantly to the excessive weekend nightly population of the city, thus artificially boosting the city’s youth population in those areas frequented by college students. The city has expanded substantially toward Interstate-85 and along with the expansion there has been a tremendous increase in the number of establishments that serve alcoholic beverages, thus exasperating the drunk and drugged driving problem. Currently, vehicle crashes with a *probable* cause of driving under the influence of alcohol or drugs impact the community in a negative way. The following table describes Anderson City’s problem with alcohol or drug related crashes for the last six years:

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Dispatched Wreck Calls <sup>16</sup>	1599	1629	1750	2022	1793	1630	1806
Investigative Reports <sup>17</sup>	1385	1366	1342	1251	1287	1219	1275
Possible Alcohol or/and Drug Related Crashes <sup>18</sup>	318	314	308	287	296	280	293
Possible Alcohol or/and Drug Related Injuries <sup>19</sup>	289	285	280	261	269	254	267

Although the number of crashes that are potentially related to alcohol or drugs have decreased since 2002, the frequency is still much too high for the size of the town and the population. The city’s estimated alcohol or drug related crash rate is approximately 11.13 per 1,000 population.

<sup>14</sup> Anderson Independent Mail. April 8, 2008.

<sup>15</sup> This was a non-scientific study.

<sup>16</sup> Includes all wrecks and hit & runs combined.

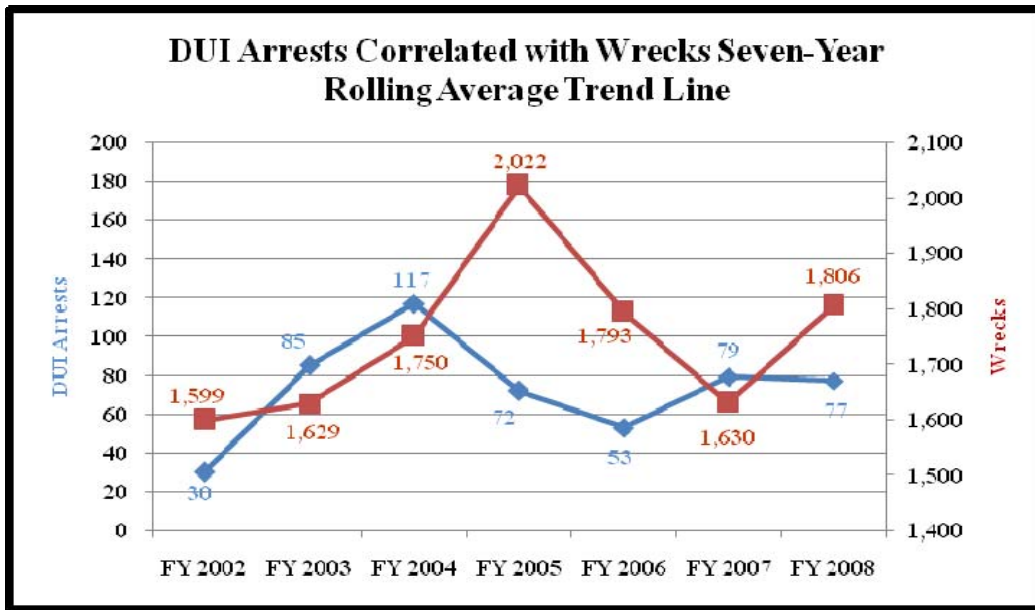
<sup>17</sup> Number provided by City of Anderson Police Department Records Division.

<sup>18</sup> Theoretically, approximately 23% of all traffic crashes documented in written reports were alcohol or drug related.

<sup>19</sup> Theoretically, there are approximately 0.91 injuries for each alcohol or drug related crash.

The Anderson Police Department believes that more wrecks are alcohol or drug related than are currently reported as such.

Historically, in Anderson City, arrests for DUI and citations for other violations correlated with crashes have occurred at a level that is insufficient to affect the overall crash rate. Although DUI arrests sometimes increase, the increase is rarely maintained and does not affect the crash rate. For example, in 2004 the number of DUI arrests increased by 16% compared to 2003, however, the number of wrecks also increased by 3.6%. Although the growth in the number of crashes fluctuates, over time the trend is upward. Since 2002, the arrests for DUI charges have increased; however, the numbers are insufficient to impact the excessive number of motorists who operate vehicles while intoxicated. For that reason the collision rate generally continues to climb. Consider the following chart that depicts the six-year rolling average growth rate of DUI arrests and wreck calls to which traffic officers were dispatched in Anderson City through Fiscal Year 2008:

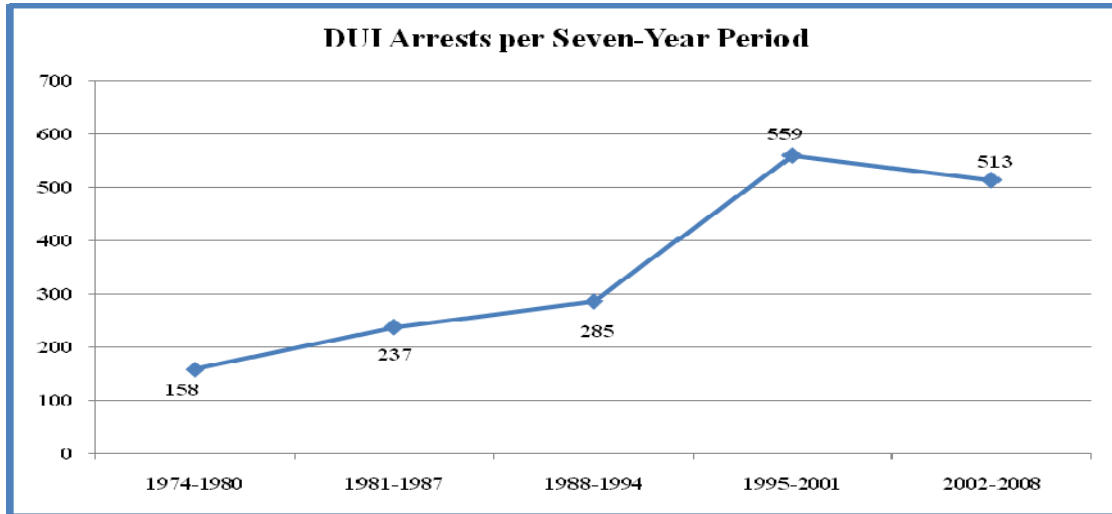


There are approximately 45 establishments located on the north end of the City of Anderson that serve alcoholic beverages. An estimated 13,222 adult persons leave impaired from these establishments between the hours of 6:00 p.m. and 2:00 a.m. on Thursday, Friday, and Saturday nights. Roughly 31% of the restaurant/bar patrons consumed three or more alcoholic drinks during that period.<sup>20</sup> This consumption is in addition to any consumption that may have occurred at any other location(s). The affected roadway consists of less than ten miles of asphalt.

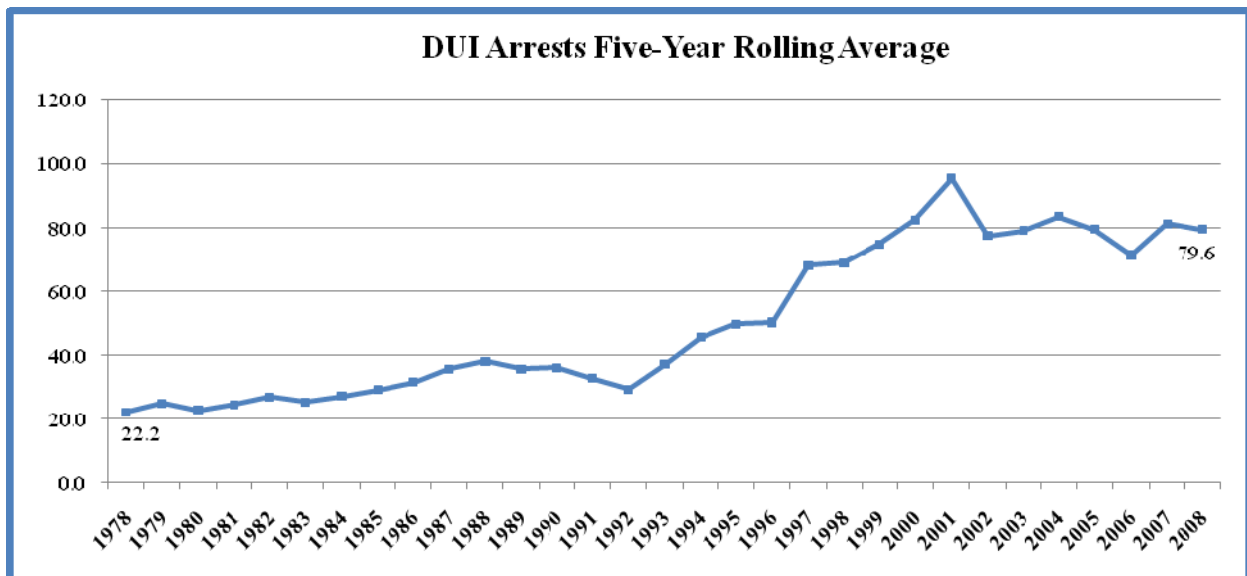
<sup>20</sup> This study was conducted through polling and observation. The Impairment rate was based upon adults who had 3 or more drinks before leaving the establishment.

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Based upon this analysis we infer that during any single hour between 6:00 p.m. and 2:00 a.m. from Thursday to Sunday Morning, there are potentially 555 DWI violators on the ten miles of roadway in the northern section of Anderson City. It averages out to be 55 potentially impaired drivers per mile per target hour. Note the steady increase in DWI apprehensions in the City of Anderson during the last 35 years:



As the chart indicates, a phenomenon took place after the period of 1988 – 1994. That is the period that saw the highest level of economic expansion in the city in many decades. To get a better picture of the scope and magnitude of the problem we calculated a “five-year rolling average” of the yearly number of DUI arrests for 1978 – 2008. Note the following:



As indicated by the above chart, the five-year rolling average number of DUI arrests has increased 259% from 22.2 per year in 1978 to 79.6 in 2008. A further investigation indicates that 1992 was a critical year. The number of annual DUI arrests increased significantly after 1992. That coincides with the economic growth and the development of alcohol serving establishments on the north end of Anderson City, indicating that is probably where the bulk of the problem begins.

In addition to an abundance of available alcohol, the City of Anderson as well as the surrounding cities and towns have virtually any type of illicit drug available upon demand due to the access of the area by a major interstate and the city's location near a major illicit drug manufacturing area. Cocaine, crack, marijuana, methamphetamines, and other types of drugs are readily available for purchase by individuals who are familiar with the local contacts who act as go-betweens in the transactions. Drug use increased substantially during the decade of the 1990s. This adds to the DWI problem. To further exasperate the problem for every DWI offender arrested, three others are contacted face to face by police, but are not arrested.<sup>21</sup>

## **CURRENT RESOURCES AND PROGRAMS**

The City of Anderson Police Department's jurisdiction serves approximately 26,326 city residents within an area that is approximately 15 square miles and contains 203 miles of linear roadway on 520 streets and roads.<sup>22</sup> The City of Anderson Police Department consists of 94 sworn officers. Included in the 94 sworn officers are 2 DUI Traffic Unit Officers funded under the Section 410 Alcohol Impaired Driving Countermeasures Incentive Grants Program. The grant program is currently in its first year of funding. The DUI Traffic Unit Officers have made a significant impact on the number of DUI arrests in the City of Anderson. In the first three months of the grant program, October – December 2008, the number of DUI arrests increased in the City of Anderson from 23 in the same time period in 2007 to 37 in 2008, a 61% increase. The Patrol Officers, excluding the 2 DUI Traffic Unit Officers, are responsible for responding to criminal and traffic calls for service. Therefore, due to the high volume of wrecks and criminal activity in the City of Anderson the patrol officers have minimal time for proactive traffic enforcement.

During the Fiscal Year of 2007 (July 1, 2006 – June 30, 2007) the City of Anderson Police Department answered 64,337 calls-for-service, documented 5,075 criminal incident reports, responded to 1,630 wreck calls (1,440 accidents and 190 hit & runs), made 2,410 criminal charges, wrote 470 parking tickets and issued 7,133 traffic citations. Patrol officers initiated 9,963 traffic stops. These stops were in addition to stops initiated during traffic safety points,

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<sup>21</sup> DUI Detection and Standardized Field Sobriety Testing (Student Manual). South Carolina Department of Public Safety Traffic Safety Unit. February 2001. Page II-3.

<sup>22</sup> Crime in the United States 2007 Data. FBI.

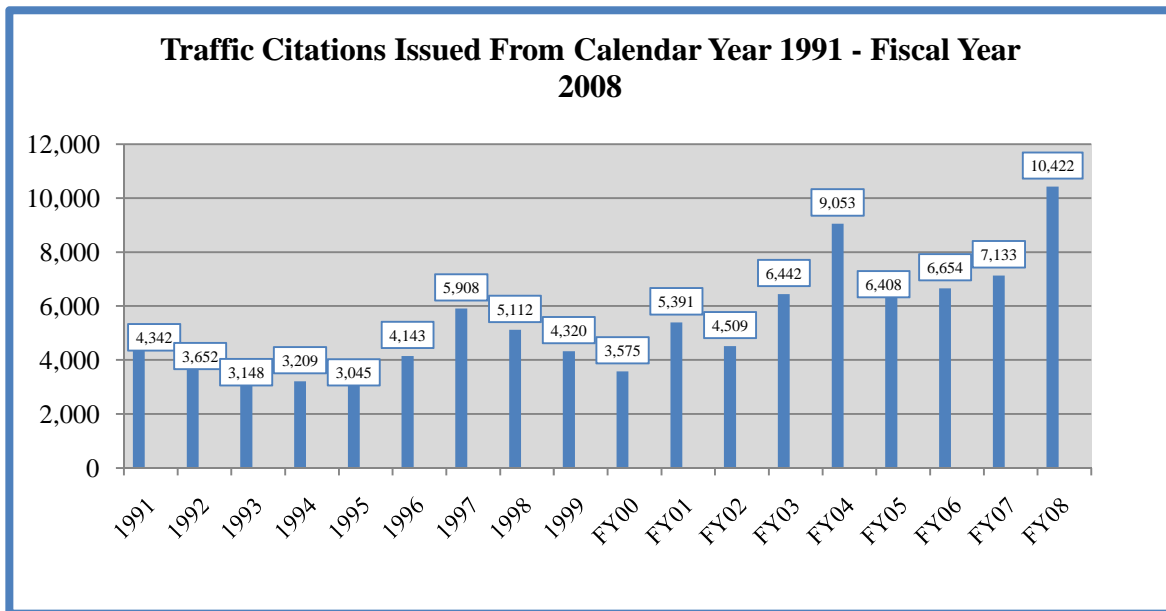
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accidents or crimes in progress. Officers made 258 stops of vehicles suspected of intoxicated driving.<sup>23</sup>

During the Fiscal Year of 2008 (July 1, 2007 – June 30, 2008) the City of Anderson Police Department answered 70,215 calls-for-service, documented 5,848 incident reports, responded to 1,806 traffic crashes (1,585 wrecks and 221 hit & runs), made 2,993 criminal charges, wrote 451 parking tickets and issued 10,392 traffic citations. The number of wreck reports written per 1,000 population was 69. Anderson City patrol officers initiated 13,413 traffic stops, in addition, to stops initiated during traffic safety points, accidents, or crimes in progress. This is an increase of 3,233 traffic stops (39.6%) from the 9,963 documented stops in FY 2007. Officers made 445 stops of vehicles suspected of intoxicated driving in FY 2008, which is an increase of 72.5% over FY 2007.<sup>24</sup>

Over the past eighteen years, traffic tickets were up from their prior numbers and research has indicated that, over time, the issuance of traffic citations in a jurisdiction is correlated negatively with traffic accidents. However, a “critical mass” must be reached (i.e. a minimum number of citations must be issued before any effect on accidents is exhibited). Due to the patrol officers spending more time working accidents than proactive traffic management, this “critical mass” has not been met.

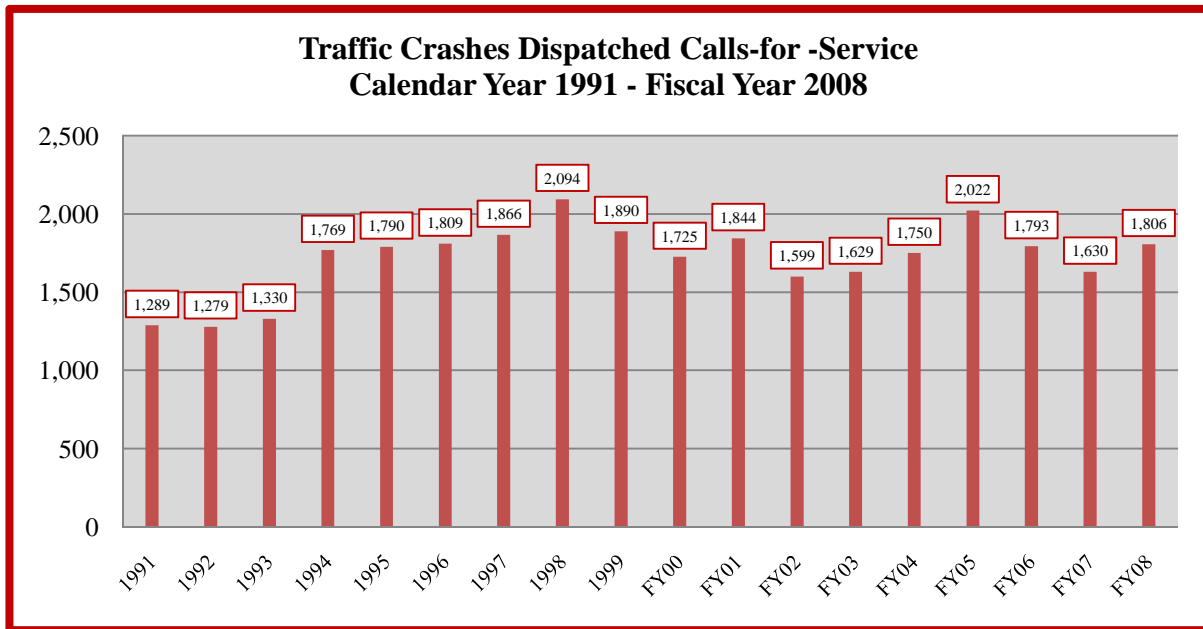
The number of traffic citations issued has increased over the last three years, especially in FY 2008, as indicated by the chart below.



<sup>23</sup> City of Anderson Police Department Fiscal Year 2007 Annual Report. Pages 2-3.

<sup>24</sup> City of Anderson Police Department Fiscal Year 2008 Annual Report. Pages 2-3.

The next chart demonstrates the historical trend for wrecks in the City of Anderson. As depicted, FY08 dispatched traffic crash calls were much lower than the 1998 high of 2,094.



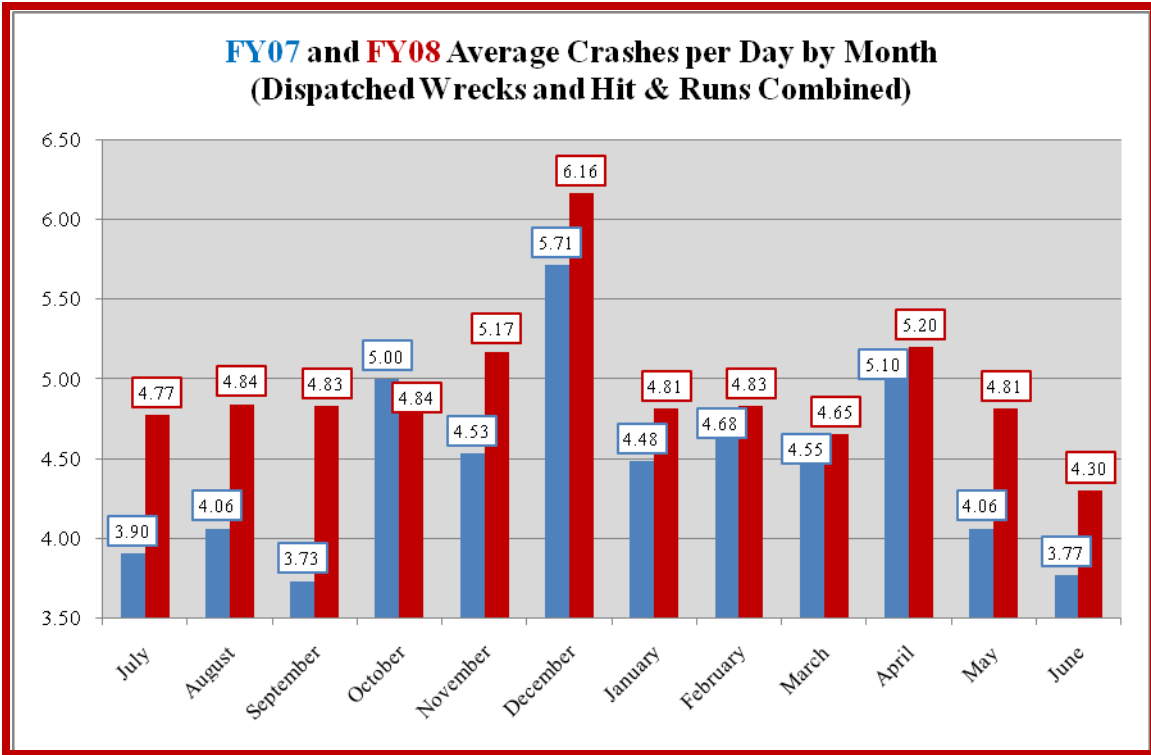
The traffic management model is substantially similar to the criminal model. Just as criminals commit virtually all crime, just about all accidents are the result of one or more motorists committing some sort of violation(s). The motorists who commit the most violations are the persons who are most likely to achieve personal recognition. In addition, the motorists who receive the most tickets could be inferred to be the ones who commit the most violations and are therefore most likely to have the most accidents. This premise is substantiated by a study conducted by a private insurance company which determined that California drivers with one speeding citation in a three-year period had a crash rate 50% higher, on average, than those with no infractions.<sup>25</sup> The crash rate more than doubled for those who had two or more tickets.<sup>26</sup> When officers identify and recognize motorists' violations (by issuing citations) the motorists who receive the citation(s) generally improve their driving – at least temporarily. A study of Ontario traffic statistics, that was reported to have been published in the British medical journal the *Lancet*, found that a conviction for a moving violation cut the risk of a fatal crash in the following month by 35%.

The department attempts to facilitate its traffic management programs by analyzing and evaluating wrecks in an effort to determine when and where accidents occur and how to best allocate resources. To determine when accidents occur, an analysis was performed to determine the variation in the number of traffic crashes across months, weekdays and hours of the day.

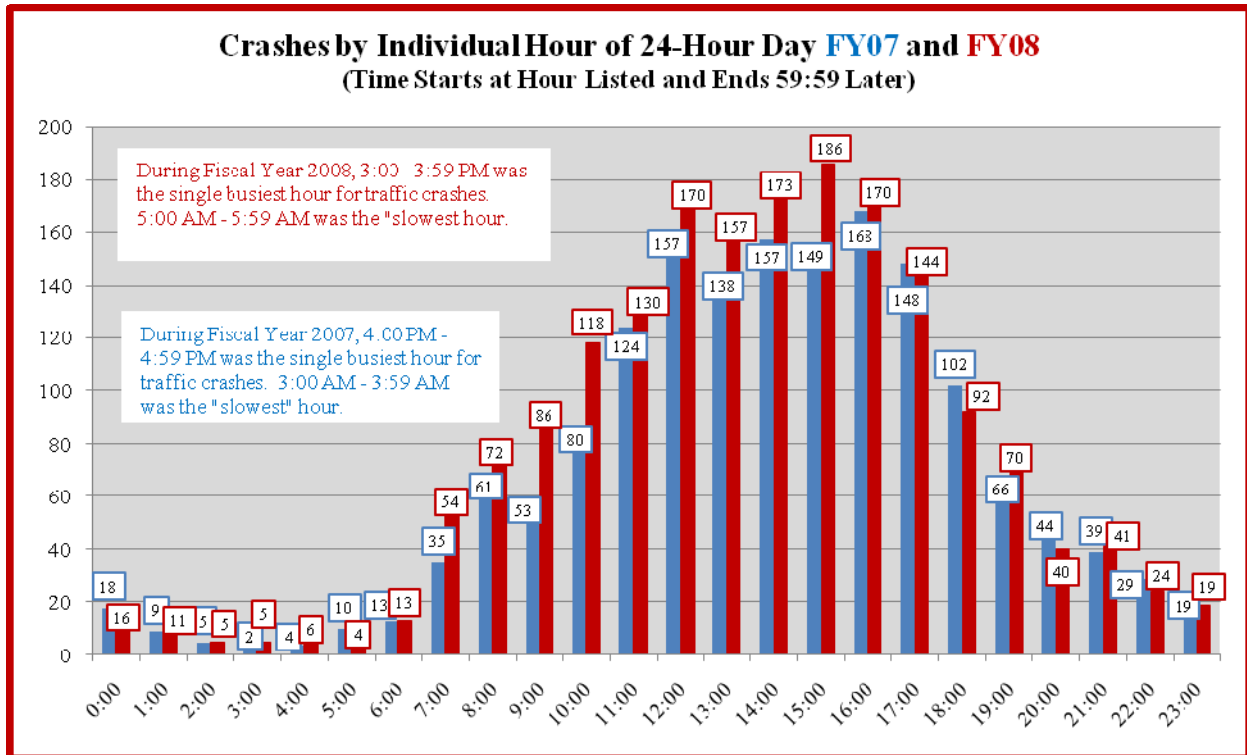
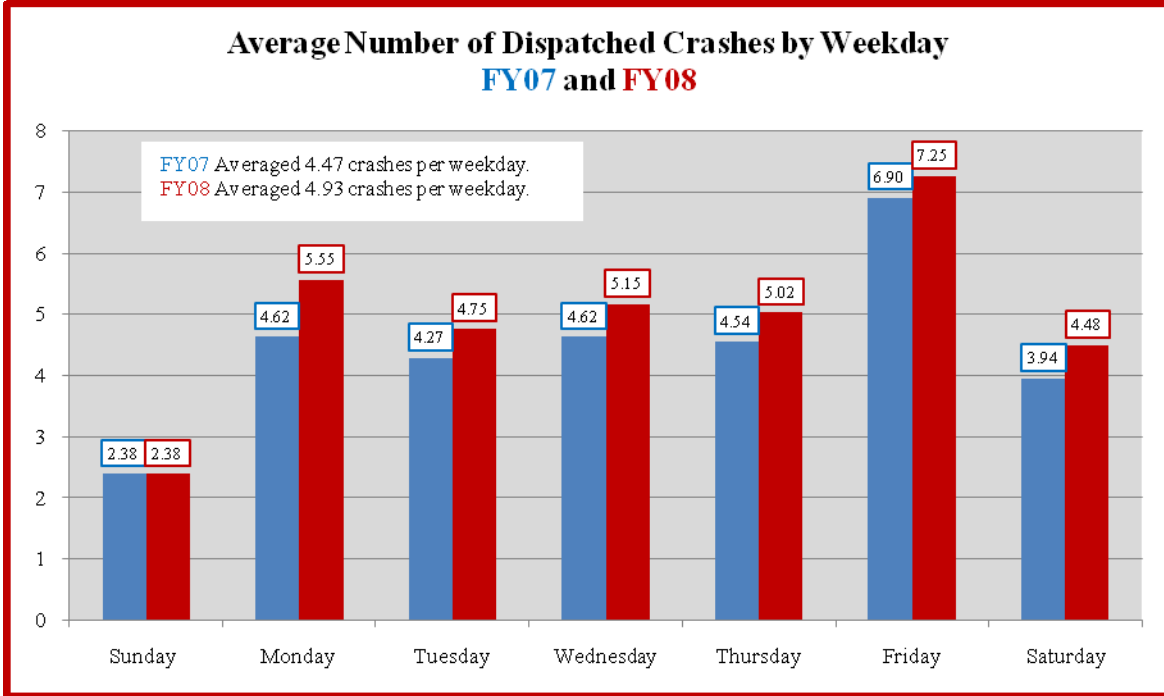
<sup>25</sup> Study cited in an article dated 7/16/03 @ <http://moneycentral.msn.com/content/insurance/insureyourcar/P51288.asp>

<sup>26</sup> Study cited in an article dated 7/16/03 @ <http://moneycentral.msn.com/content/insurance/insureyourcar/P51288.asp>. Study referred to was conducted by the Insurance Institute for Highway Safety and the Highway Loss Data Institute.

This study is provided as an example of how various types of analyses are continually utilized to assist management in the day-to-day allocation of human resources.



In addition to analyzing crash data by month, the department also analyzes weekdays. Fridays showed the highest frequency of accidents during FY08. The following chart indicates the daily averages for dispatched calls-for-service regarding traffic accidents in the City of Anderson for FY08.



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As the previous chart indicates, the period from 3:00 p.m. to 3:59 p.m. showed the highest number of accidents for each one of the 24-hour periods spread across the entire 365 days of FY08. The early morning hours of 5:00 a.m. to 5:59 a.m. are the “slowest” times for accidents. At about 7:00 a.m., the frequency of accidents increases dramatically and is consistent with the typical schedule of city residents. Most of these accidents are motorists commuting to and from work or school.

The day of week chart taken in conjunction with the hourly chart would lead one logically to assume that; overall, the highest frequency of accidents for any one-hour of the week during FY08 would have been on Fridays from 3:00 – 3:59 pm.<sup>27</sup>

While virtually all accidents are caused by at least one motorist committing a violation, we infer that DWI violators are more likely than sober motorists to take unreasonable chances and commit more violations (on average) than sober drivers and thereby contribute disproportionately to the fatal crash statistics. The City of Anderson Police Department believes a significant portion of the collisions in the city are alcohol or drug related and that if the department can continue to enhance its traffic enforcement (addressing specifically Alcohol Countermeasures and other moving violations that are strongly correlated with accidents), it can increase the number of DWI apprehensions as well as moving citations and drive down the overall collision rate for the entire county. The number of DWI arrests and citations for moving violations must increase at a much faster rate than they have in the past in order to “drive down” the correlated collision rate. By targeting violations such as driving under the influence, speeding, disregarding stop lights and signs, failure to yield right of way, and following too, the city believes that it can affect a positive change in the number of crashes occurring in both the city and the county. The following chart depicts the top ten *Primary Contributing Factors* connected to drivers in traffic crashes for the calendar year 2006.<sup>28</sup>

<b><u>Primary Contributing Factors</u></b>	<b><u>Fatal Collisions</u></b>	<b><u>All Collisions</u></b>
Driving too fast for Conditions	221	29,187
Fail to Yield Right of Way	115	23,312
Distracted / Inattention	24	10,570
Followed Too Closely	1	8,340
Improper Lane Usage / Change	18	6,531

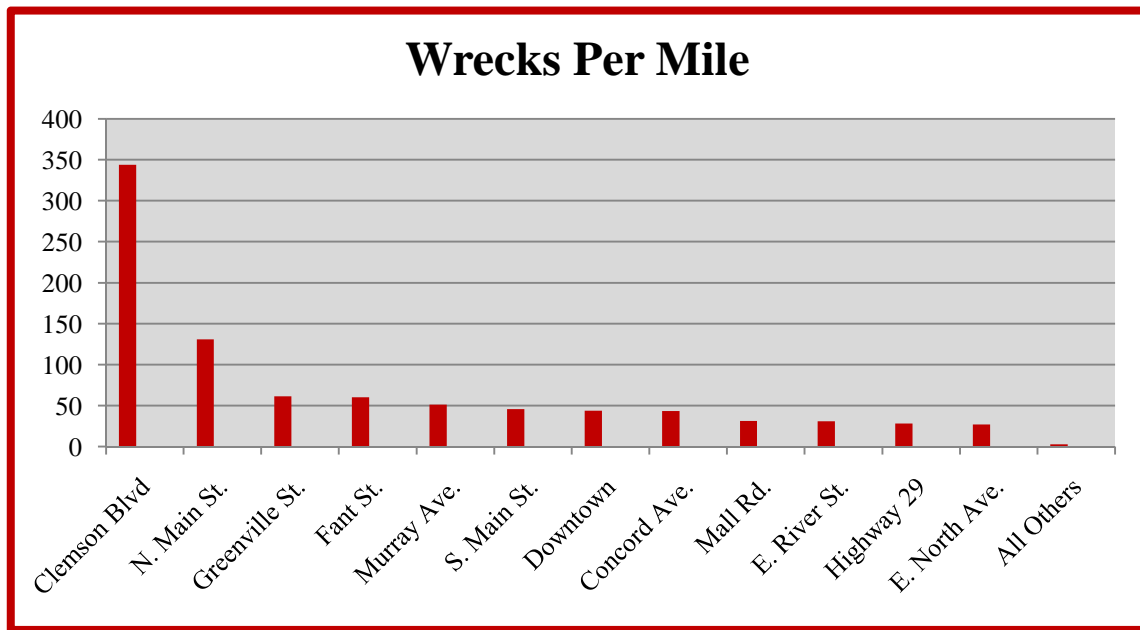
<sup>27</sup> Data obtained from Investigative Reports written for FY 2007.

<sup>28</sup> *South Carolina Traffic Collision Fact Book 2006*. Page 10.

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Disregarding Signs, Signals	49	5,842
Other Improper Action	9	4,563
Under the Influence	148	4,370
Unknown	37	3,019
Made an Improper Turn	<u>3</u>	<u>2,252</u>
<b>TOTAL</b>	<b>625</b>	<b>97,986</b>

The City of Anderson Police Department has conducted a study to determine the roads that are most likely to be listed on collision reports. The two worst roads coincide with the locations that have the most establishments that serve alcohol. The following chart compares the city’s per mile average wrecks on its roadways:



Clemson Boulevard is the primary route into the city from Interstate 85. There are approximately 1.05 miles to this section of the road. South of that point (the same road) is North Main Street with 2.4 miles of roadway. The second major route into and out of the city is East Greenville Street (also known as Highway 81). There are 2.9 miles of East Greenville Street in the city limits. These two roadways have an extremely high per mile collision rate. The average number of wrecks per mile of city roadway is 9.5. The “Top Twelve Worst Roadways” in the city of Anderson consist of 20.05 miles of roadway and have a yearly average of 70.4 wrecks per

mile. Clemson Boulevard and North Main Street (the locations for most of the alcohol serving establishments and areas that are frequented by youngsters) have 343.8 and 130.8 wrecks per mile yearly. East Greenville Street has approximately 61.4 wrecks per mile yearly.<sup>29</sup>

## CONCLUSION

The alcohol or drug related traffic fatality death rate for the county and the traffic collision rate within the city are high and the trend has typically been substantially above the average. Furthermore, the number of DWI arrests has steadily increased since 1974 but are still at an ineffective rate. By increasing the number of apprehensions of DWI and other types of violators, the city should be able to affect a decrease in citywide traffic crashes and alcohol or drug related fatalities as well as countywide alcohol or drug related traffic fatalities. Even though DWI arrests have increased in the city, they are still far too low to affect a positive change in people's behavior and thereby decrease the city's and county's DWI related collision and death rates. The 2<sup>nd</sup> Year DUI Traffic Unit Grant Program will enable the City of Anderson Police Department to continue to establish an educational program with which to educate the public, especially high school students, about the dangers of drinking and driving. The focus of the unit is to provide instruction and education and follow up with an aggressive enforcement component. The City of Anderson Police Department is currently unable to dedicate officers strictly to traffic enforcement and DUI detection, thereby making it necessary to seek outside funding in order to continue the DUI Traffic Unit. The "seed money" from the SCDPS/OHS, has enabled the City of Anderson Police Department to establish a very proactive DUI Traffic Unit that can continue to positively impact impaired driving in the City and County of Anderson through funding for a second year. The Sheriff of Anderson County has signed a Mutual Aid Agreement with the City of Anderson Police Department.<sup>30</sup> This agreement provides the grant-funded officers jurisdiction throughout Anderson County. Therefore, the DUI Traffic Unit is able to positively impact traffic enforcement in all areas of the county.

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<sup>29</sup> City of Anderson Police Department Fiscal Year 2000 Annual Report (Addendum). Page 14.

<sup>30</sup> City of Anderson Police Department and Anderson County Sheriff's Office Mutual Aid Agreement