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A comparison of traffic, parking, and pedestrian control strategies for universities on football gamedays

Christopher Donald Rhodes

To the Graduate Council:

I am submitting herewith a thesis written by Christopher Donald Rhodes entitled "A comparison of traffic, parking, and pedestrian control strategies for universities on football gamedays." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Civil Engineering.

Stephen H. Richards, Major Professor

We have read this thesis and recommend its acceptance:

Frederick J. Wegmann, Arun Chatterjee

Accepted for the Council:
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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A COMPARISON OF TRAFFIC, PARKING, AND PEDESTRIAN CONTROL STRATEGIES FOR UNIVERSITIES ON FOOTBALL GAMEDAYS

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Christopher Donald Rhodes

December 2001

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ABSTRACT

In recent years, fan support and interest in division I-A college football has increased. Increased attendance, financial support from donors and alumni, and the commercialization of college football programs have transcended to the building of larger stadiums or additions to existing structures. This increase in stadium capacity in turn relates to an increase in traffic congestion on campus, a greater demand for nearby parking, and escalation in pedestrian movement adjacent to the stadium. Due to these aforementioned items university officials, police departments, and traffic engineers have implemented different plans to manage vehicular and pedestrian traffic along with parking demands for numerous football facilities throughout the nation.

This study focused on identifying and analyzing what procedures are effective to manage traffic, pedestrians, and parking on a selected number of college campuses as well as strategies that have proven to be inadequate. In a national survey, 110 university police chiefs and university parking administrators were asked to assess their gameday traffic, pedestrian, and parking plan for their respective campus. From these surveys, an extensive list of tools and strategies for gameday traffic management was developed. Data were also compiled to illustrate which strategies have proven to be effective and ineffective for varying university types (public or private), stadium location, and whether the stadium is an on- or off-campus facility.

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I. INTRODUCTION AND PURPOSE

Over the past 50 years interest in NCAA (National Collegiate Athletic Association) division I-A college football has seen a steady increase. Attendance figures have escalated, leading to seating additions to existing facilities and in some cases building new facilities to accommodate larger crowds.

With this increase in fan interest, there comes an increase in both vehicular and pedestrian traffic on a typical football gameday. This increase of traffic has necessitated the implementation of traffic and parking control plans for a great number of college campuses adjacent to their respective stadiums. University and local police departments, university and local officials, and local traffic engineers have teamed together to prepare traffic control plans to better manage traffic, pedestrians and parking on football gamedays.

This study focused on the different approaches the various universities across the United States take in controlling parking, pedestrians, and traffic on a typical football Saturday. With over 100 division I-A football programs across the nation, there are obviously numerous techniques that have been used and are being developed to control traffic, parking, and pedestrians. However, there is little documentation of the tools, approaches, and plans which universities implement at their respective campuses. The

Institute of Transportation Engineers (ITE) produced a report based upon the findings of Technical Council Committee 6A-50. This document, *Traffic Operations Planning for Stadia and Arenas*, is an informational report based upon their experiences in implementing traffic operations plans for stadia and arenas, and does not include recommendations or preferred applications. The ITE committee surveyed 23 stadiums/arenas with only eight being facilities used for division I-A college football.

Using the information provided by ITE as a premise, this study was directed totally towards strategies in use for college football stadiums and provides results of mail-back surveys performed by university officials responsible for the traffic, parking, and/or pedestrian management plans in use on their campuses. In addition, comparisons and analyses were made between public and private universities, universities with on- and off-campus stadiums, and the location of the stadium (downtown, suburban, or small town/rural).

Planning for a college football game is different in some ways from professional sports. First, there are only five to seven events per year. Professional football stadiums accommodate eight or more home games per year, professional baseball has 81 home dates, and professional basketball arenas handle over 40 home games annually. These facilities also typically accommodate other events such as concerts, motor sports events, conventions, and others. Also, in professional sports, arenas and stadiums often do not

reach capacity since there are so many home dates for fans to attend. For a college football game, stadium capacity is often reached in that, sometimes there are only five opportunities for fans to watch their team play at home. Also, college football stadiums, especially if they are on-campus, are seldom used for other events as professional stadiums/arenas are. College football becomes a social outing that often lasts the entire weekend. Alumni from all over the United States use a college football game as a setting, not only to watch their alma mater play football, but also as a means to reunite with friends, classmates, and/or relatives. The effect of tailgating (arriving several hours in advance of the game to picnic and socialize with friends and/or family on-campus/on-site) also makes planning for traffic, parking, and pedestrians different from other sporting events. Therefore, a college football game event is in some ways dissimilar from a professional sporting event.

Another difference in college football and professional sports is the actual facility in which they are played. Frequently college football stadiums, especially if they are on campus, are older facilities that have had numerous additions. These stadiums and supporting facilities were generally built in the early 1900's and were not designed to handle thousands of people as they do today. Therefore, space to accommodate parking and large numbers of pedestrians simply was not incorporated in the design of these facilities. Conversely, professional facilities are usually much newer. With professional franchises moving from city to city and expansion teams being added to all four major

professional leagues (baseball, basketball, football, and hockey), new facilities are being built nearly every year. Ample parking, maximizing access, and coordinating with public transit are all items that are addressed in the design of these new facilities. College football stadiums are just the opposite. Using Neyland Stadium on the campus of the University of Tennessee as an example, one can see how university stadiums differ. Neyland Stadium was completed in 1921 near downtown Knoxville, Tennessee, adjacent to the Tennessee River with a capacity for 3,200 fans. Today, Neyland Stadium is one of the largest on-campus facilities in the Country with a complete double deck facility that seats 102,544 fans (since the beginning of this study in 1997, Neyland Stadium has grown to a present-day capacity of 104,079 fans). In the 1920's parking garages, maximizing public transit opportunities, and other traffic and pedestrian control issues simply were not a concern as they are with sporting facilities today. Therefore college football stadiums – although they do experience some of the same traffic management issues as professional sporting facilities – present some unique issues that differ from professional sporting facilities.

The purpose of this study was to:

1. Identify the types of traffic management tools in use across college campuses to control traffic, parking, and pedestrians.

2. Identify and quantify the usage of traffic management tools across college campuses and gather data on the effectiveness of these management tools.
3. Identify any innovative techniques/strategies in use across the nation.
4. Identify trends and perform cross-comparisons between on- and off-campus facilities, public and private universities, and between stadium setting (downtown, suburban, and small town/rural).
5. Perform a case study of the University of Tennessee gameday traffic management plan. Compare and contrast the tools and techniques used at the University of Tennessee to other on-campus, downtown public university stadiums.

To obtain the needed data, a college football gameday traffic management survey (see Appendix A) was developed and sent to selected parking services department heads and campus police chiefs of each of the 110 division I-A universities. In this survey, general information about the campus and stadium was gathered, and each responding official was asked to give his/her assessment of the parking, pedestrian, and traffic control strategies in place. The results gathered from these surveys were used as the foundation for this study.

II. LITERATURE REVIEW

There have been several reports/studies performed on traffic and parking management approaches for sports facilities, but the vast majority of these were produced specifically for one facility. Based upon a TRIS (Transportation Research Information Services) database search available from the Transportation Research Board (TRB), there were just under 20 publications that related in some way to traffic control for special events the last five years. These reports ranged from a study performed for the Chicago Cubs major league baseball club to coordinate traffic in conjunction with night baseball at Wrigley Field in 1992 to a report to manage traffic for the World Cup soccer matches at the Silverdome in Pontiac, Michigan in 1994. These studies aimed to solve site specific problems for each respective facility and were generally not intended to provide tools/approaches that could be applied to a wide range of facilities.

The one report which provided pertinent information for this study was compiled by the Institute of Transportation Engineers by technical council committee 6A-50 titled, *Traffic Operations Planning for Stadia and Arenas*. This report was compiled based upon a survey of 23 sports stadiums/arenas throughout the Nation. Although only eight college football stadiums were surveyed, this report has served as a premise for this study.

The focus of this informational report was to gather data as to what approaches/tools were in use to coordinate traffic generated by sporting events and provided general recommendations on which elements must be addressed to implement a traffic management plan. Successes and failures for the 23 facilities were presented. Prior planning with periodic reviews of the plan along with cooperation among the involved organizations was stressed. The report identified critical data which transportation planners should acquire to manage a traffic control plan: (1) probable modal splits - automobile, transit, pedestrian, and others, (2) average automobile occupancies, (3) acceptable exit time following the event, (4) acceptable walking distances from parking and transit stations to the facility, (5) distribution of arrivals over time and by direction, and (6) acceptable entry/exit rates for on-site parking (Institute of Transportation Engineers, 1994).

Finally, the committee identified six operational measures to be addressed in developing a traffic control plan. They are increased street capacity, police control, signing, crowd controls, transit use incentives, and special parking zones (Institute of Transportation Engineers, 1994).

Another document produced by ITE by Technical Council Committee 6A5 titled *Traffic Considerations for Special Events* published in 1976 is similar to the aforementioned ITE report published in 1994. However, this document presented

detailed data on 20 sports facilities ranging from professional soccer to college football. Attendance figures as a percent of capacity were available for these facilities broken down on the basis of the type of sport(s) played at the facility. Modal split data, average automobile occupancy rates, arrival/departure curves, and other types of data were provided for the surveyed facilities. The conclusions of this report emphasized coordination, communication, and cooperation among the agencies responsible for the operation of the traffic management plan (Institute of Transportation Engineers, 1976). The document also recommended that origin-destination patterns of the attending fans be identified and that alternative modes of transportation should be encouraged.

III. METHODOLOGY

In order to acquire a significant amount of information on each of the division I-A universities across the United States, a mail-back survey was sent to targeted officials at each of the Universities. One official from each university was mailed a survey. People surveyed ranged from members of the university's police department, parking services/department, or athletic department. The mailing list was compiled by data gathered from two membership directories provided by University of Tennessee officials and inquiries to several universities to qualified individuals to complete the survey. Membership directories used were the *IACLEA (International Association of Campus Law Enforcement Administrators) Membership Directory 1994-1995* provided by Lt. Thomas E. Freels of the University of Tennessee Police Department and *Who's Who in Parking 1996* (a parking professional mailing listed published by the IMPC (Institutional and Municipal Parking Congress)) provided by Ms. Mary Lynn Holloway, Administrator for the University of Tennessee Parking Services Department (IACLEA, 1995 and IMPC, 1996).

There are several tables that summarize the questions found in the college football gameday traffic management survey, and a copy of the survey form along with a sample form letter distributed to the universities can be found in the Appendices of this document Appendices (Appendix A and B).

The survey identified six areas of interests: (1) types of traffic management tools used, (2) types of parking management tools used, (3) types of pedestrian/crowd control tools used, (4) information on parking and transit usage, (5) self-assessment of various performance measures, and (6) additional university identification questions. The university officials were asked to self-report the information on the survey, and in many instances self-report the effectiveness of many of the tools/approaches in use on their campus.

The source of the questions developed for the survey were based upon suggestions from the University of Tennessee Police Department and the University of Tennessee Parking Services Department gathered during personal interviews. Furthermore, ideas for the types of traffic, parking, and crowd/pedestrian management tools listed in the survey were gathered from the ITE document: *Traffic Operations Planning for Stadia and Arenas.*

Survey participants were asked to provide a yes/no answer to a number of traffic management-related questions as illustrated in Table 1. They were first asked whether or not their university had an organized approach to handle gameday traffic and to answer whether or not they used the listed tools to implement their plan. If they had answered yes to the questions, they were then asked to provide a rating from 1 to 5 on the effectiveness of the particular traffic management tool used on their campus. Ratings

Table 1. Traffic Management Survey Questions

Question	Answer		Rating				
Does your University have an organized multi-department approach to handle gameday traffic?	Yes	No	1	2	3	4	5
Which traffic management tools/approaches does your University use?							
Permanent Signing to rout fans to stadium?	Yes	No	1	2	3	4	5
Temporary Signing (only on gameday) to route fans to stadium?	Yes	No	1	2	3	4	5
Convert nearby street to one-way traffic?	Yes	No	1	2	3	4	5
Prohibit on-street parking near the stadium?	Yes	No	1	2	3	4	5
Use uniformed police officers for traffic control?	Yes	No	1	2	3	4	5
Re-time nearby traffic signals?	Yes	No	1	2	3	4	5
Close nearby streets?	Yes	No	1	2	3	4	5
Use police officers to manually control traffic signals?	Yes	No	1	2	3	4	5
Implement turning restrictions at selected intersections (i.e. prohibit left turns)?	Yes	No	1	2	3	4	5
Provide maps to direct fans to stadium?	Yes	No	1	2	3	4	5
Use pre-game media announcements to assist with traffic control?	Yes	No	1	2	3	4	5
Announce post game traffic procedures during the game?	Yes	No	1	2	3	4	5
Provide literature on the traffic control procedures with ticket sales?	Yes	No	1	2	3	4	5
Others? (please describe in the space below)							

were 1 – poor, 2 – below average, 3 – average, 4 – above average, and 5 – excellent. Finally, survey participants were allowed to provide additional information in space provided below the traffic management questions to list and/or explain other management tools used in their plan.

As illustrated in Table 2, parking management survey questions were asked of the survey participants in the same manner as described in Table 1 for the traffic management survey questions. They were also given space at the end of the listed questions to provide information on other parking management tools in use at their university.

Table 2. Parking Management Survey Questions

Question	Answer		Rating				
Does your University have an organized multi-department approach to handle gameday parking?	Yes	No	1	2	3	4	5
Which parking management tools/approaches does your University use?							
Permanent Signing to route fans to parking?	Yes	No	1	2	3	4	5
Temporary Signing (only on gameday) t route fans to parking?	Yes	No	1	2	3	4	5
Are remote park-n-ride lots (busing fans from remote parking sites to the stadium) used?	Yes	No	1	2	3	4	5
Provide maps to direct fans to parking?	Yes	No	1	2	3	4	5
Provide literature on the parking procedures with ticket sales?	Yes	No	1	2	3	4	5
Use pre-game media announcements to assist with parking?	Yes	No	1	2	3	4	5
Others? (please describe in the space below)							

As described in Table 3, there were several crowd/pedestrian control questions asked of the survey participants in the same format as described in Tables 2 and 3. Once again, survey participants were provided space at the end of the questions to provide information on additional crowd/pedestrian control measures used at their university not listed in the questions above.

Table 3. Crowd/Pedestrian Control Survey Questions

Question	Answer		Rating				
Which crowd/pedestrian control measures are used near the stadium?							
Establish vehicle-free streets?	Yes	No	1	2	3	4	5
Use uniformed police officers to handle crowd/pedestrian control?	Yes	No	1	2	3	4	5
Provide pedestrian only phases at signalized intersections? (i.e. hold automobile traffic for a specified time frame while pedestrians use the intersections?	Yes	No	1	2	3	4	5
Use temporary barriers/barricades to separate pedestrians and vehicles?	Yes	No	1	2	3	4	5
Hold vehicle traffic for a specified time near the stadium while pedestrians are allowed to disperse following a game?	Yes	No	1	2	3	4	5
Others? (please describe in the space below)							

Table 4. Parking and Transit Survey Questions

Question	Answer		Rating				
Is free public parking available on-campus/on-site? If yes, please assess its availability.	Yes	No	1	2	3	4	5
Is pay public parking available on-campus/on-site? If yes, please assess its availability.	Yes	No	1	2	3	4	5
Is free donor parking available on-campus/on-site? If yes, please assess its availability.	Yes	No	1	2	3	4	5
Is pay donor parking available on-campus/on-site? If yes, please assess its availability	Yes	No	1	2	3	4	5
Is public transit (bus, rail) used to transport fans to the stadium? If yes, assess its utilization.	Yes	No	1	2	3	4	5
Are private shuttle bus services available to transport fans to the stadium? If yes, assess its utilization.	Yes	No	1	2	3	4	5
If public transit is used, are there any incentives provided to encourage fans to use it? If yes, assess their effectiveness.	Yes	No	1	2	3	4	5

Table 4 lists several additional parking and/or transit-related questions that were included in the survey.

In Table 5, survey participants were asked to rate how their university is performing in each of the listed areas relative to gameday traffic, parking, and pedestrian control management. The rating system from 1 to 5 was based on the same system described for Table 1.

Finally, in Table 6, survey participants were asked several questions concerning stadium location, university type, and the different types of agencies that participate in their traffic, parking, and pedestrian management plan for football gamedays.

Table 5. Gameday Traffic, Parking, and Pedestrian Management

Performance Measure Survey Questions

Performance Measure	Rating				
Congestion/travel delays (before the game)	1	2	3	4	5
Congestion/travel delays (after the game)	1	2	3	4	5
Vehicle traffic safety	1	2	3	4	5
Pedestrian safety	1	2	3	4	5
Availability of parking	1	2	3	4	5
Accessibility of parking	1	2	3	4	5
Accessibility of the stadium	1	2	3	4	5
Ratio of parking spaces per stadium seats	1	2	3	4	5
Ability of nearby roadways to handle gameday traffic	1	2	3	4	5
Overall traffic, parking, and pedestrian management	1	2	3	4	5
Degree of cooperation/coordination among departments involved in traffic, parking, and pedestrian management	1	2	3	4	5

Table 6. Additional Survey Questions

Question	Answer		
Is your University public or private?	Public	Private	
Where is your stadium?	On-Campus	Off-Campus	Adjacent to Campus
The stadium is located. . . .	Downtown	Suburban	Small Town / Rural
Which of the following groups play an active roll in gameday traffic, parking, and pedestrian management at your university?	City Police	Campus Police	State Police
	Campus Parking	City Parking	Athletic Department
	City Traffic Engineering	Central Administration	

Identifying information consisting of the university name and the name and department of the person completing the survey was also requested along with campus enrollment, stadium seating capacity, and the average attendance for home games during the 1996 football season.

A total of 110 division I-A universities received surveys that were sent to university police, parking, or athletic department officials. Table 7 (See Appendix C) presents a listing of the universities that were sent a survey in alphabetical order along with their stadium name, stadium size, and location. The surveys were mailed on April 28, 1997, and survey respondents were asked to return them via postage paid return envelopes by May 15, 1997. Once the surveys were mailed, several of the university officials called with questions regarding whether or not they could forward them on to more qualified officials who handled the gameday traffic management plan for their particular university. Some university officials forwarded their surveys to the local city police departments, the university's athletic department, the university's special event coordinator, and others.

The results from the survey forms sent to the universities are discussed in Chapter IV. Survey Results.

IV. SURVEY RESULTS

A total of 110 division I-A universities were sent the college football gameday traffic management survey. Some universities had different agencies that managed their traffic, parking, and pedestrian control plan for college football gamedays. Therefore, surveys were completed by university police department officials, parking services officials, athletic department officials, special events coordinators, transportation department officials, or others who are responsible for gameday traffic, parking, and pedestrian control measures on their respective campuses.

A total of 88 completed surveys were returned. Therefore the rate of return on the survey questionnaires was a surprising 80% – 88 completed and returned out of a total of 110 sent. The data gathered from these surveys are summarized and discussed in the following sections. There is also a detailed spreadsheet tallying each university's response in the Appendices of this document (See Appendix D). Table 8 summarizes the general information requested at the top of the survey form and includes all 110 division I-A universities regardless of whether they responded or not.

As illustrated in the Table 8, the majority of the responses came from the university police departments (59 responses or 67%). University parking services department responses totaled 23 or 26%. There were three responses from university

Table 8. General Information Survey Results

University	University Department Responding	Campus Enrollment (Estimated)	Stadium Seating Capacity	Average 1996 Attendance (Estimated)
University of Akron	Police	19,000	35,000	10,000
University of Alabama	Parking	18,500	70,123	72,500
University of Alabama – Birmingham	--	16,000	83,091	35,000
University of Arizona	Parking	35,000	56,167	53,000
Arizona State University	Police	44,000	73,656	63,884
University of Arkansas	Police	14,500	51,000	40,000
Arkansas State University	NR			
Auburn University	NR			
Ball State University	Police	20,000	16,319	--
Baylor University	Police	15,000	50,000	43,000
Boise State University	Police	15,000	22,600	18,000
Boston College	Police	14,000	44,500	34,500
Bowling Green State University	NR			
Brigham Young University	Parking	28,000	65,000	55,000
University of California – Berkley	Parking	30,000	75,662	35,000
University of California – Los Angeles	NR			
University of Central Florida	Parking	--	70,349	--
Central Michigan University	Police	17,000	20,086	18,000
University of Cincinnati	Parking	30,000	36,000	20,000
Clemson University	Athletics	16,000	81,473	67,212
Colorado University	Parking	25,000	51,748	50,000
Colorado State University	Police	22,000	30,000	28,000
Duke University	Parking	10,000	33,941	18,000
East Carolina University	Parking	17,500	35,000	29,265
Eastern Michigan University	Police	25,000	30,200	5,000
University of Florida	Parking	40,000	83,000	86,500
Florida State University	Parking	30,000	77,500	80,932
Fresno State University	Police	17,994	41,031	43,000
University of Georgia	Police	--	86,117	80,000
Georgia Institute of Technology	Police	13,500	46,000	38,000
University of Hawaii	NR			
University of Houston	Police	31,000	22,000	20,000
University of Idaho	Parking	11,500	16,000	11,252
University of Illinois	Police	37,000	52,354	59,000
Indiana University	Parking	35,000	69,000	38,000
University of Iowa	NR			
Iowa State University	Police	25,000	43,000	45,000
University of Kansas	Police	24,874	50,250	38,900
Kansas State University	NR			
Kent University	Parking	20,000	30,520	17,000
University of Kentucky	Police	30,000	57,800	40,000
Louisiana State University	Parking	27,000	79,940	79,411
University of Louisville	Police	22,000	35,500	36,00
Miami University	Police	18,000	25,183	10,366
University of Miami	Athletics	--	74,476	50,000
University of Michigan	Athletics	45,000	102,501	104,000

Table 8 Continued.

University	University Department Responding	Campus Enrollment (Estimated)	Stadium Seating Capacity	Average 1996 Attendance (Estimated)
Michigan State University	Police	41,000	73,000	66,700
University of Minnesota	Parking	51,388	63,500	43,500
University of Mississippi	Police	10,000	42,577	36,532
Mississippi State University	Police	14,000	40,656	35,000
University of Missouri	Police	24,000	62,000	45,000
University of Nebraska	NR			
University of New Mexico	Police	24,000	32,218	17,000
New Mexico State University	Police	16,000	30,343	--
University of Nevada	Police	12,000	31,545	25,000
University of Nevada – Las Vegas	Police	21,000	32,000	12,000
University of North Carolina	NR			
North Carolina State University	Parking	25,000	52,000	40,000
University of North Texas	Police	25,000	30,500	13,000
Northeast Louisiana University	Police	11,300	30,427	20,000
Northern Illinois University	Police	22,000	31,000	16,000
Northwestern University	Police	14,000	49,256	--
University of Notre Dame	NR			
Ohio University	NR			
Ohio State University	Parking	48,000	89,841	90,000
University of Oklahoma	NR			
Oklahoma State University	Police	20,000	50,614	48,000
University of Oregon	NR			
Oregon State University	Police	14,500	35,362	23,000
Pennsylvania State University	Police	39,860	93,967	96,000
University of Pittsburgh	Special Events	30,000	56,500	32,480
Purdue University	Police	35,000	67,861	40,000
Rice University	Police	4,100	70,000	20,000
Rutgers State University	Police	32,000	42,000	28,000
San Diego State University	NR			
San Jose State University	Police	25,000	61,121	17,000
University of South Carolina	Police	28,000	80,250	78,000
University of Southern California	Parking	28,000	94,159	50,000
Southern Methodist University	NR			
University of Southern Mississippi	Police	12,000	33,000	20,000
University of Southwestern Louisiana	Police	17,500	31,000	28,000
Stanford University	Police	--	85,500	--
Syracuse University	Parking	15,000	50,000	--
Temple University	NR			
University of Tennessee	Police	27,000	102,544	107,000
University of Texas	Police	50,000	75,512	57,000
Texas A&M University	Parking	43,000	70,210	66,000
Texas Christian University	Police	7,000	46,000	32,000
University of Texas – El Paso	Police	15,000	52,000	20,000
Texas Tech University	Police	25,000	50,500	45,000
University of Toledo	Police	--	26,248	20,000
Tulane University	Police	10,000	69,065	--

Table 8 Continued.

University	University Department Responding	Campus Enrollment (Estimated)	Stadium Seating Capacity	Average 1996 Attendance (Estimated)
University of Tulsa	NR			
United States Air Force Academy	Police	5,000	50,126	46,000
United States Military Academy	Police	4,000	39,929	35,000
United States Naval Academy	NR			
University of Utah	Police	26,000	32,500	29,000
Utah State University	Parking	20,000	30,257	19,000
Vanderbilt University	NR			
University of Virginia	Police	20,000	40,000	45,000
Virginia Polytechnic Institute and State University	Police	24,000	51,000	50,000
Wake Forest University	Facilities Mgmt	3,600	31,500	22,000
University of Washington	Police	37,500	72,500	69,000
Washington State University	NR			
West Virginia University	Police	23,000	63,500	49,000
Western Michigan University	Police	26,000	30,100	18,000
University of Wisconsin	NR			
University of Wyoming	NR			

NR = No Response
-- = No Response to the specific question

athletic departments (3%), and one response each from a university facilities management department and a special event coordinator's office. One survey respondent did not identify his/her university department. From these data, one could assume that the majority of traffic, parking, and pedestrian management activities on college football Saturdays is coordinated through either the university police or parking services departments.

Traffic Management Tools

As illustrated in Table 9, the vast majority (86%) of the survey respondents stated that their university implements a multi-department approach to handle gameday traffic management. Out of the 14 traffic management tools listed on the survey form, the use of uniformed police officers was the most common. 93% of the survey respondents stated that police officers were used to handle their gameday traffic management needs, and the use of uniformed police officers had the highest average effectiveness rating as depicted in Figure 1. Furthermore, the second most common tool was the use of police officers to manually control traffic signals. 77% of the survey participants stated that this tool was implemented on their campus/stadium site. Next, the use of temporary traffic signs to route fans to the stadium was a commonly used traffic management tool with 76% of the survey respondents stating that this tool was used for gameday traffic management. The least common traffic management tool found in the survey, was the use of reversible flow traffic lanes at a 33% use rate and announcing post game traffic procedures during the game at a 23% use rate. However, use rates of 33% and 23% are a significant percentage even though these particular traffic management tools were the least common used. In terms of the average effectiveness rating of the traffic management tools, the use of permanent signing had the lowest effectiveness rating at 3.34, and the use of pre-game media announcements to distribute traffic control information had the second lowest effectiveness rating at 3.41.

Table 9. Traffic Management Survey Response Results

Question	Answer		Rating						
	YES	NO	1	2	3	4	5	NR	Avg.
	Number (#)	Number (#)	#	#	#	#	#	#	
	Percent (%)	Percent (%)	%	%	%	%	%	%	
Does your University have an organized multi-department approach to handle gameday traffic?	75	12	1	1	14	27	21	11	4.03
	86%	14%	1%	1%	19%	36%	28%	15%	
Which traffic management tools/approaches does your University use?									
Permanent Signing to rout fans to stadium?	40	47	1	3	19	12	3	2	3.34
	46%	54%	2%	8%	48%	30%	7%	5%	
Temporary Signing (only on gameday) to route fans to stadium?	66	21	0	5	29	24	5	3	3.46
	76%	24%	0%	7%	44%	38%	7%	4%	
Convert nearby street to one-way traffic?	53	34	0	1	14	22	15	1	3.98
	61%	39%	0%	2%	26%	42%	28%	2%	
Prohibit on-street parking near the stadium?	56	31	0	1	15	18	17	5	4.00
	64%	36%	0%	2%	27%	37%	30%	4%	
Use uniformed police officers for traffic control?	81	6	0	1	11	33	31	5	4.24
	93%	7%	0%	1%	14%	41%	38%	6%	
Re-time nearby traffic signals?	43	44	0	1	14	18	8	2	3.80
	49%	51%	0%	2%	33%	42%	19%	4%	
Close nearby streets?	44	43	0	1	12	16	10	5	3.90
	51%	49%	0%	2%	27%	37%	23%	11%	
Use police officers to manually control traffic signals?	67	20	0	2	16	31	14	4	3.90
	77%	23%	0%	3%	24%	46%	21%	6%	
Implement turning restrictions at selected intersections (i.e. prohibit left turns)?	62	25	0	1	18	24	15	4	3.91
	71%	29%	0%	2%	29%	39%	24%	6%	
Provide maps to direct fans to stadium?	53	34	1	5	19	15	10	3	3.56
	61%	39%	2%	9%	36%	28%	19%	6%	
Use pre-game media announcements to assist with traffic control?	58	29	2	5	23	17	7	4	3.41
	67%	33%	3%	9%	40%	29%	12%	7%	
Use temporary reversible flow traffic lanes?	29	58	1	1	7	10	9	1	3.89
	33%	67%	3%	3%	24%	35%	32%	3%	
Announce post game traffic procedures during the game?	20	67	0	1	7	5	5	2	3.78
	23%	77%	0	5%	35%	25%	25%	10%	
Provide literature on the traffic control procedures with ticket sales?	41	46	0	3	16	11	9	2	3.67
	47%	53%	0%	7%	39%	27%	22%	5%	

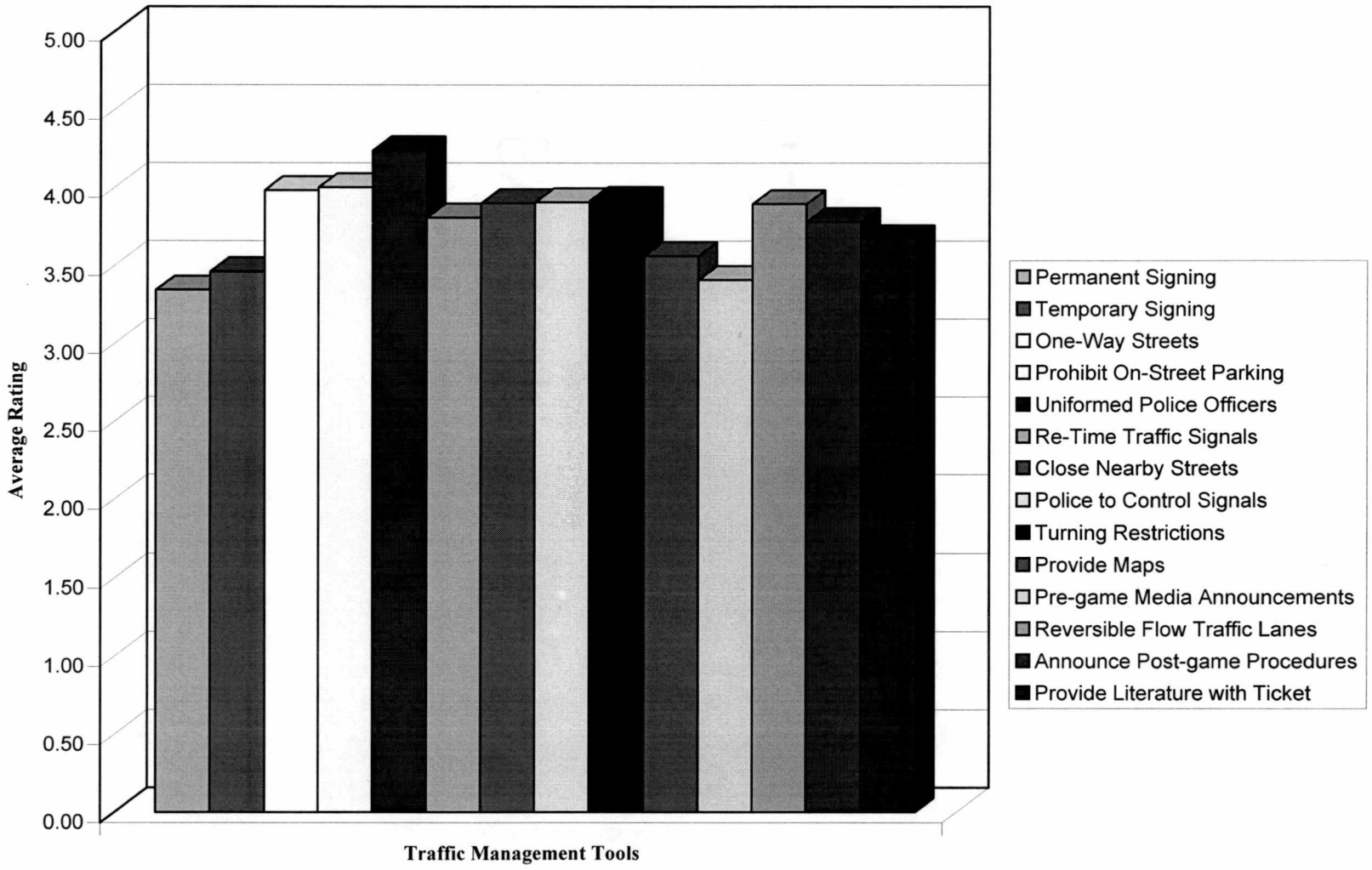


Figure 1. Traffic Management Tools - Average Effectiveness Ratings

As summarized in Table 10, many of the survey respondents used the spaces provided to elaborate on their overall gameday management practices and identification of the involved parties rather than providing information on the additional traffic management tools used at their university. There were several innovative/non-conventional tools to note: the use of a helicopter to monitor traffic was a traffic management tool not mentioned by any of the survey respondents with the exception of the Virginia Polytechnic and State University. Using a private contractor to handle gameday traffic management, as done at North Carolina State University, is another approach not mentioned by any of the other 88 survey respondents. Having a pre- and post-season yearly meeting to discuss the traffic management plan with all involved parties, as mentioned by the University of Michigan Athletics Department, is another tool (although not a tool implemented on the actual gameday) which may be useful for other universities to adopt. Finally, the University of Maryland listed that they employ student aides to assist with traffic management. This could be a low-cost alternative for other universities to explore.

Table 10. Additional Traffic Management Comments Listed by Survey Respondents

University / Department Responding	Additional Traffic Management Comments
University of Alabama – Birmingham / Police	City Police handle all aspects.
University of Arizona / Parking	Parking personnel control streets, lots; police control major city street intersections.
Arizona State University / Police	Main traffic control is handled through the City of Tempe Police Department and coordinated through ASU Police. ASU Police supplements Tempe Police on gameday.
East Carolina University / Police	Traffic signals on flash Maps provided only to season ticket holders.
University of Florida	Use traffic engineer to computer control traffic signals.
Florida State University / Parking	Parking information is provided through the media-newspaper, radio, and ticket sales.
University of Georgia	University Police Department prepares an after-action report that alerts the Athletic Department to issues that either worked well or with which there were significant problems.
University of Maryland / Police	We also use student police aides to assist with traffic plus we hire troopers from the Maryland State Police and members from the State Highway Administration.
University of Michigan / Police	Provide yearly pre- and post-season meetings with all involved parties
University of Mississippi / Police	We one way only one street after the game, none before. Maps are available upon request for the general public. All parking in stadium area reserved (VIP's Handicap, etc.).
Mississippi State University / Police	Provide info. with ticket sales regarding location and route to reserved parking and public parking.
University of Missouri / Police	Assisted with traffic by Highway Patrol and City & County Police Depts.
North Carolina State University / Parking	Athletics contracts with a private contractor to run parking. Highway Patrol assists directing traffic into the facility. Those parking outside the facility can park for free on fair grounds property and on city streets. Private property owners sell parking in their lots.
Pennsylvania State University / Police	Police officers are not used for traffic control on campus. We use uniformed auxiliary student officers, however local police departments due use officers on traffic.
University of Southwestern Louisiana / Police	Reserved parking passes are color coded with maps and respective gate entrances listed.
Stanford University / Police	Temporary signs are being completely re-done and improved this year. New color-coded maps are being designed this year.
Texas A&M University / Parking	We have a traffic management task force made up of the University, City, State that cooperate on gameday traffic control. TAMU Department of Parking, Traffic, and Transportation Services manages all parking and traffic control for game.
Tulane University / Police	The entire traffic/pedestrian matter is handled by overtime New Orleans police officers – our games are all played in the New Orleans Superdome.
Unites States Military Academy / Police	West Point has no traffic signals.
Virginia Polytechnic Institute and State University / Police	Traffic signals are handled by computer, we use helicopter to determine when to adjust.

Parking Management Tools

As depicted in Table 11, the vast majority (80%) of the universities participating in the survey has an organized, multi-department approach to handle parking demands on a college football Saturday. In addition, of those who responded that they had an organized approach, 59% rated their approach as above average or excellent (rating of 4 or 5) and the overall average rating was 3.86. The most common parking management tool based upon the survey was the use of temporary signing to route fans to the designated parking area. A total of 82% of the survey respondents listed this parking management tool as one implemented on their campus/site. Close behind was the use of literature given to fans during the purchase of the tickets at 68%. Several of the survey respondents provided the actual literature that was given to the season ticket holders with their survey. A listing of the items provided by the survey respondents in addition to the completed surveys is tallied in Appendix F.

The most effective parking management tools listed by the survey respondents were providing literature on the parking procedures with ticket sales and providing maps to direct fans to parking with average effectiveness rating of 3.68 and 3.63, respectively. Similar to the traffic management tools section, the least effective parking management tool based upon the survey was the use of pre-game media announcements to assist with parking with an average rating of 3.29. See Figure 2 for a bar chart illustration of the average effectiveness ratings of each parking management tool.

Table 11. Parking Management Survey Response Results

Question	Answer		Rating						
	YES	NO	1	2	3	4	5	NR	Avg.
	Number (#)	Number (#)	#	#	#	#	#	#	
	Percent (%)	Percent (%)	%	%	%	%	%	%	
Does your University have an organized multi-department approach to handle gameday parking?	70	17	0	3	12	31	10	14	3.86
	80%	20%	0%	4%	17%	45%	14%	20%	
Which parking management tools/approaches does your University use?									
Permanent Signing to rout fans to parking?	35	52	0	5	15	10	3	2	3.33
	40%	60%	0%	14%	43%	29%	9%	5%	
Temporary Signing (only on gameday) to route fans to parking?	71	16	0	4	28	28	8	3	3.59
	82%	18%	0%	5%	40%	40%	11%	4%	
Are remote park-n-ride lots (busing fans from remote parking sites to the stadium) used?	43	44	0	9	12	8	11	3	3.53
	49%	51%	0%	21%	28%	19%	25%	7%	
Provide maps to direct fans to parking?	51	36	0	4	16	19	7	5	3.63
	59%	41%	0%	7%	31%	38%	14%	10%	
Provide literature on the parking procedures with ticket sales?	59	28	0	3	22	17	11	6	3.68
	68%	32%	0%	5%	37%	29%	19%	10%	
Use pre-game media announcements to assist with parking?	44	43	2	6	14	11	5	6	3.29
	51%	49%	4%	14%	32%	25%	11%	14%	

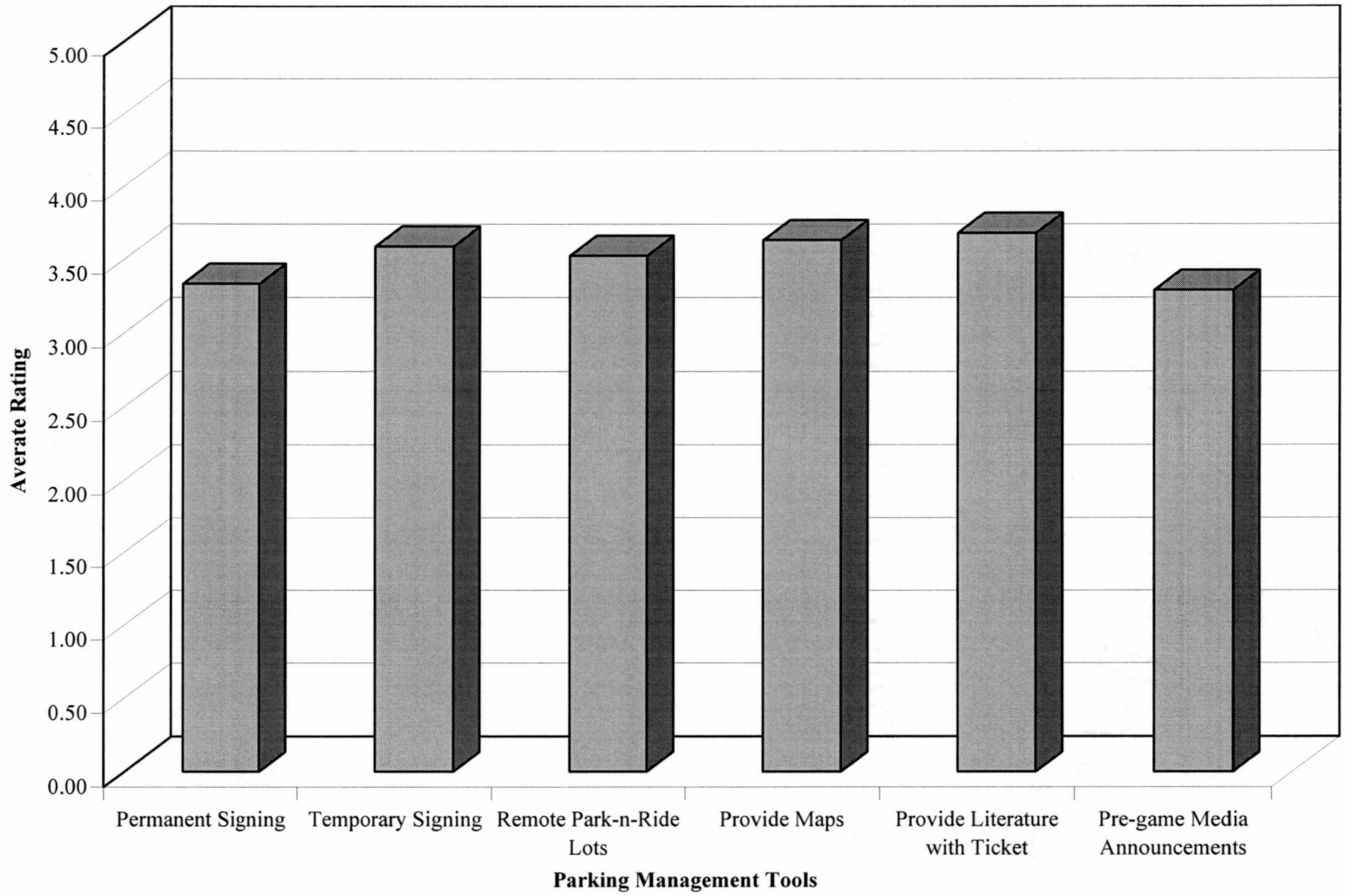


Figure 2. Parking Management Tools - Average Effectiveness Ratings

Table 12 summarizes any additional information written in on the mail-back surveys for parking management tools. Both Duke University and East Carolina University listed the use of AM radio stations (similar to Highway Advisory Radio (HAR) along U.S. and State Routes) or the campus radio station to provide parking information to fans on gameday. This could be a useful means of communicating parking instructions to fans at other campuses/sites. One interesting response also from Duke University was the implementation of park-n-ride lots for their 1996 home games. Based upon the comments and subsequent ranking (See Table 15, Page 34 for additional park-n-ride survey results) of the effectiveness of this parking management tool, it seems as though this approach was not a positive experience on the Duke University campus. Another innovative technique, via the use of ITS (Intelligent Transportation Systems) technology, listed by Pennsylvania State University was the implementation of variable message signs (electronic message boards) to facilitate parking information to gameday fans. These devices can be placed at permanent sites or can be attached to trailers and used as portable devices. The messages can be changed throughout the gameday as parking areas are filled, and they can flash a series or different messages to motorists. This is certainly a parking management tool, and also a traffic management tool, which could be beneficial at other campuses/sites across the United States.

Table 12. Additional Parking Management Comments Listed by Survey Respondents

University / Department Responding	Additional Parking Management Comments
Duke University / Parking	Parking information provided on AM radio station. Park-n-ride first utilized in Fall '96. 1997 plans do not include a park-n-ride.
East Carolina University / Parking	Maps are sent to season ticket holders, use of AM 530 – ECU parking information station.
Florida State University / Parking	A person is located at every entrance to a lot on campus to assist patrons with parking information and direction to the Stadium.
Fresno State University / Police	On sales of season tickets, holders are given the opportunity to buy parking in advance.
University of Kansas / Police	A map is included on the back of the parking pass (hand tag) showing the locations of the lots relative to the stadium. Provide officers pre-game to assist with cars entering the lots.
Kent University / Police	We work with the Athletic Department and Campus Bus Service to encourage fans to park on the central campus and ride the free shuttle to the stadium. Stadium is 1.5 miles from central campus and only has 2,900 parking spaces.
University of Maryland / Police	The Police Department and Campus Parking (DCP) work together in traffic management and parking.
Michigan State University / Police	Provide announcements during 4th quarter announcing road closures on area roads including expressways when appropriate.
Pennsylvania State University / Police	Permanently mounted signs (Aug/Dec) usually folded closed are opened on gameday – also use electronic message boards.
Purdue University / Police	Provide parking maps to paying donors, most parking lots around the football stadium are reserved.
University of Texas / Police	Longhorn booster club assigns members to lots near stadium, general public gets the rest.
Texas Tech University / Police	Colored parking passes which hang from the rearview mirror of their vehicle. These passes tell the person where their parking is available and also allows the Police Officer a visual sign to determine where they should direct the vehicle at controlled points. On the back of each pass there is a campus map that also give the driver a visual reference on where to park. The Athletic Department contracted with a civilian group for events parking. The new "Event Staff" personnel wear yellow traffic vests, control all access into parking areas and are perceived as a source of information. This allows Police Officers and Parking Officers to concentrate on other issues during that time.
University of Toledo / Police	We assign parking passes to season ticket holders which gives them a specific lot to park in.
Tulane University / Police	All parking is controlled in the Superdome area.
United States Military Academy / Police	Literature on parking provided by the Directorate of Athletics.

Crowd/Pedestrian Management Tools

By far, the most widely used crowd/pedestrian control measure used on a typical college football gameday is the use of uniformed police officers (See Table 13). An overwhelming 91% of the survey respondents listed this tool as one used on their campus/site. Furthermore, 64% of the respondents who listed the use of uniformed police officers as one of their crowd/pedestrian control measures rated this tool as a 4 or 5 (i.e. above average or excellent rating). This tool had the highest average effectiveness rating at 3.96. Figure 3 illustrates the average effectiveness rating for each of the crowd/pedestrian control measures surveyed. The least common tool was the establishment of vehicle-free streets with only 32% listing it as a crowd/pedestrian control measure on their campus/site. Nonetheless, nearly a third (32%) of the universities surveyed listed this particular tool as one in which they implement on their respective campus. Furthermore, its average effectiveness rating matches that of the use of uniformed police officers as the highest average rating of the tools surveyed (See Figure 3).

The use of uniformed auxiliary student officers as mentioned in the Pennsylvania State University response (similar to the response by the University of Maryland found in Table 10) could be a cost-saving alternative to managing crowd/pedestrians at other universities across the Country (See Table 14).

Table 13. Crowd/Pedestrian Control Measures Survey Response Results

Question	Answer		Rating						
	YES	NO	1	2	3	4	5	NR	Avg.
	Number (#)	Number (#)	#	#	#	#	#	#	
	Percent (%)	Percent (%)	%	%	%	%	%	%	
Which crowd/pedestrian control measures are used near the stadium?									
Establish vehicle-free streets?	28	59	0	1	8	8	9	2	3.96
	32%	68%	%	3%	29%	29%	32%	7%	
Use uniformed police officers to handle crowd/pedestrian control?	79	8	0	1	19	32	18	9	3.96
	91%	9%	0%	1%	24%	41%	23%	11%	
Provide pedestrian only phases at signalized intersections? (i.e. hold automobile traffic for a specified time frame while pedestrians use the intersection)	53	34	1	2	14	20	11	5	3.79
	61%	39%	2%	4%	26%	38%	21%	9%	
Use temporary barriers/barricades to separate pedestrians and vehicles?	46	41	2	0	15	14	11	4	3.76
	53%	47%	4%	0%	33%	30%	24%	9%	
Hold vehicle traffic for a specified time near the stadium while pedestrians are allowed to disperse following a game?	46	41	2	0	15	14	11	4	3.61
	53%	47%	4%	0%	43%	15%	24%	9%	

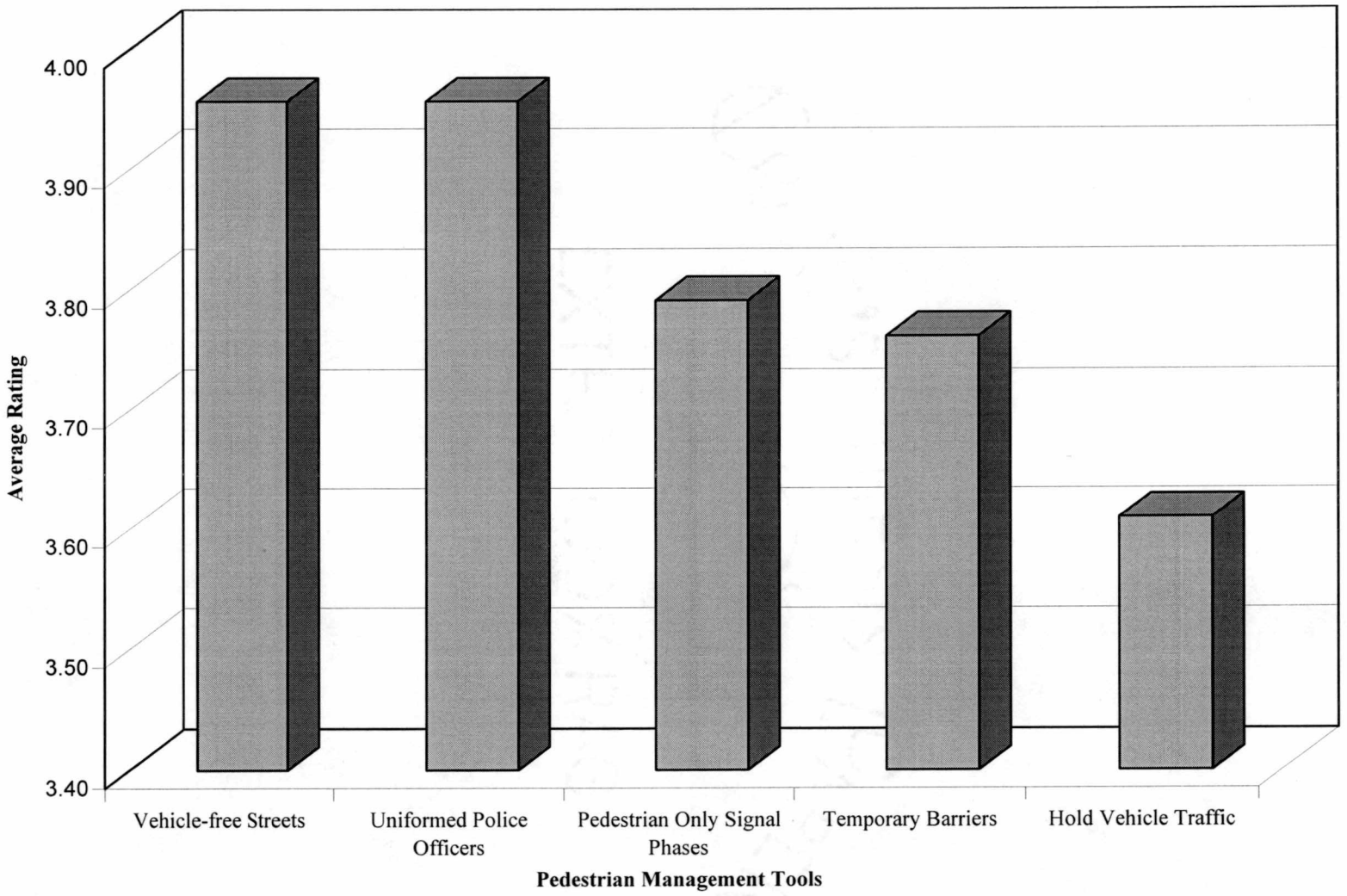


Figure 3. Pedestrian Management Tools - Average Effectiveness Ratings

Table 14. Additional Crowd/Pedestrian Control Measures

Comments Listed by Survey Respondents

University / Department Responding	Additional Crowd/Pedestrian Control Measures Comments
Baylor University / Police	We use portable barricades to create traffic lanes for post-game exits.
Florida State University / Parking	Persons are located around the vicinity of the stadium, giving out information on parking and street that are closed off to traffic.
Fresno State University / Police	Regarding traffic signals – both vehicle and pedestrian phases are electronically controlled allowing each some time.
Pennsylvania State University / Police	Vehicle and pedestrian traffic is controlled with uniformed auxiliary student officers.
United State Air Force Academy	Parking lots are built around falcon stadium. Pedestrians are never a problem.

Parking and Transit Questions

Table 15 summarizes several additional parking and transit related questions found on the second page of the college football gameday traffic management survey.

In comparing free versus pay parking for both the general public and athletic donors, the responses are higher for the availability of pay parking in both categories. Concerning the transit/shuttle bus questions, there were similar percentages that answered that these modes of transportation were used (62% and 54 %), and the assessment of its utilization was similar as well.

Table 15. Supplemental Parking and Transit Survey Response Results

Question	Answer		Rating					
	YES	NO	1	2	3	4	5	NR
	Number (#)	Number (#)	#	#	#	#	#	#
	Percent (%)	Percent (%)	%	%	%	%	%	%
Is free public parking available on-campus/on-site? If yes, assess its availability.	50	37	3	10	13	17	7	0
	57%	43%	5%	10%	20%	26%	34%	0%
Is pay public parking available on-campus/on-site? If yes, assess its availability.	63	24	0	5	19	23	16	0
	72%	28%	0%	8%	30%	37%	25%	0%
Is free donor parking available on-campus/on-site? If yes, assess its availability.	51	36	0	0	9	21	20	1
	59%	41%	0%	0%	18%	41%	39%	2%
Is pay donor parking available on-campus/on-site? If yes, assess its availability.	54	33	0	3	10	17	21	3
	62%	38%	0%	6%	18%	31%	39%	6%
Is public transit (bus, rail) used to transport fans to the stadium? If yes, assess its utility.	54	33	1	9	17	14	11	2
	62%	38%	2%	17%	31%	26%	20%	4%
Are private shuttle bus services available to transport fans to the stadium? If yes, assess their utility.	47	40	2	5	22	8	7	3
	54%	46%	4%	11%	47%	17%	15%	6%
If public transit is used, are there any incentives provided to encourage fans to use it? If yes, assess its effectiveness.	27	50	0	6	12	3	4	2
	31%	69%	0%	22%	45%	11%	15%	7%

Self-Assessment of Performance Measures

In Table 16, each survey respondent was asked to assess (or rank on a scale of 1 to 5) how their university was doing in a number of areas relative to gameday traffic, parking, and pedestrian management.

As illustrated in Table 16, an overwhelming 80% of the respondents felt their ability to handle gameday congestion and limit travel delays was 'average' to 'above

Table 16. University Performance Measures Survey Response Results

Question	Rating					
	1	2	3	4	5	NR
	#	#	#	#	#	#
	%	%	%	%	%	%
Congestion/travel delays (before the game)	1	6	27	4	5	5
	1%	7%	30%	50%	6%	6%
Congestion/travel delays (after the game)	2	5	28	42	7	5
	2%	6%	31%	47%	8%	6%
Vehicle traffic safety	0	0	27	39	18	5
	0%	0%	30%	44%	20%	6%
Pedestrian Safety	1	3	22	37	21	5
	1%	3%	25%	41%	24%	6%
Availability of parking	1	15	28	23	17	5
	1%	17%	31%	26%	19%	6%
Accessibility of parking	1	14	27	29	13	5
	1%	16%	30%	33%	14%	6%
Accessibility of the stadium	3	12	17	34	18	5
	3%	14%	19%	38%	20%	6%
Ratio of parking spaces per stadium seats	4	24	25	22	8	6
	4%	27%	28%	25%	9%	7%
Ability of nearby roadways to handle gameday traffic	3	22	30	22	7	5
	3%	25%	34%	25%	7%	6%
Overall traffic, parking, and pedestrian management	0	2	19	44	15	8
	0%	2%	22%	50%	17%	9%
Degree of cooperation/coordination among departments involved in traffic, parking, and pedestrian management	0	3	11	30	39	6
	0%	3%	12%	34%	44%	7%

average' when compared to others. Only 7% responded that their ability to handle gameday traffic and limit travel delays was 'below average' or 'poor'. Similar results were also tabulated for congestion/travel delays after the game.

The categories that received the lower ratings – average, below average, and poor (ratings 1 to 3) – were those in reference to the existing infrastructure (i.e. roadways, parking stalls/garages) available on-campus/on-site to handle gameday traffic and parking demands. Nearly 50% of the respondents felt that the availability of parking was 'average' to 'poor' for their campus/site, and nearly 60% felt that the ratio of parking spaces to stadium seats were 'average' to 'poor'.

Finally, 67% of the responding universities felt that their overall traffic, parking, and pedestrian management plan was above average to excellent (ratings of 4 and 5). Furthermore, nearly 80% believed that the degree of cooperation and coordination between participating departments was above average to excellent.

University Identification Questions

The final elements of the college football traffic control survey were questions regarding the location and setting of the stadium, the types of agencies that participate in gameday traffic, parking, and pedestrian management, and others. Table 17 summarizes information about the university and its location within the city. The vast majority of the

Table 17. Additional Survey Question Results

Question	Answer			
	Number of Responses (#) Percentage (%)			
Is your University public or private?	Public	Private	No Response	
	73	13	2	
	83%	15%	2%	
Where is your stadium?	On-Campus	Off-Campus	Adjacent to Campus	No Response
	64	14	9	2
	72%	16%	10%	2%
The stadium is located. . . .	Downtown	Suburban	Small Town / Rural	No Response
	32	33	16	2
	39%	40%	19%	2%

universities were public institutions with on-campus football facilities. The locations of the stadiums were mostly either downtown or suburban.

Table 18 summarizes the types of agencies listed by the survey respondents that participate in their gameday traffic, parking, and pedestrian management techniques on a college football gameday. Based upon the responses of the survey participants, the four most active agencies involved in the planning and implementation of gameday traffic, parking, and pedestrian management on a college football gameday are: campus police (86%), city police (79%), athletic department (77%), and campus parking (65%). The least active agency based upon the results of this survey was Central Administration at 9%.

Table 18. Agency Participation Results

Question: Which of the following groups play an active roll in gameday traffic, parking, and pedestrian management at your university?			
Agency Participating	Yes (Number) Percent (%)	No (Number) Percent (%)	No Response (#) Percent (%)
City Police	70 79%	17 19%	2 2%
Campus Police	76 86%	11 12%	2 2%
State Police	38 43%	49 55%	2 2%
Campus Parking	58 65%	29 33%	2 2%
City Parking	13 15%	74 83%	2 2%
City Traffic Engineering	24 27%	63 71%	2 2%
Athletic Department	68 77%	19 21%	2 2%
Central Administration	8 9%	79 89%	2 2%
Others	31 35%	58 65%	0 0%

Of the write-in participants in the 'Others' category, the County Sheriff's Department received the highest tally with twelve survey respondents listing this agency. There was a wide range of write-in responses in the 'Others' category. Responses included contract parking employees, consultants, private parking contractors, county sheriff's department, outside police agencies, booster club members, physical plant division staff, campus maintenance staff, campus physical facilities staff, the opposing school's police department, state highway administration, township police, county police, game management personnel, state traffic engineer, city street department, state

departments of transportation, military police, and contract officers from the constable's office.

The reference to the other school's police department was provided by the University of Kansas in reference to their yearly game against in-state rival Kansas State University. This is an approach that could be beneficial for other schools that play an in-state school on a yearly basis which are within close proximity to one another.

Finally, several of the survey respondents (a total of 35) provided additional information to supplement their responses to the survey. Parking pamphlets, copies of parking passes, campus maps depicting parking areas, and other information brochures were enclosed. A listing of the types of brochures, maps, etc. received from each of the survey respondents is included as Appendix F of this document.

VI. TRENDS AND CROSS-CAMPARISONS

In addition to the raw survey results summarized in Chapter V., additional trends and cross-comparisons were performed for several scenarios. Selected results were summarized and divided between public and private universities, on-campus and off-campus stadium locations, and whether or not the stadium was located in a downtown, suburban, or small town/rural setting. A cross-comparison of these independent variables was made based upon how the survey respondents answered the following questions found in the college football gameday traffic management survey which were the dependent variables:

1) Congestion/travel delays (before and after the game)
2) Safety (vehicle and pedestrian)
3) Parking (availability and accessibility)
4) Degree of cooperation/coordination among departments involved in traffic, parking, and pedestrian management
5) Total number of traffic management tools used
6) Total number of parking management tools used
7) Total number of pedestrian management tools used

To simplify the results an average of the survey responses for congestion/travel delays (before the game) and congestion/travel delays (after the game) was combined into one category. The same holds true for vehicle traffic safety being combined with pedestrian safety to provide an overall safety response and availability of parking being combined with accessibility of parking to provide an overall parking responses. They were averaged together to acquire composite response ratings for congestion/travel delays, safety, and parking. Once again, the rating scheme used was: 1 – poor, 2 – below average, 3 – average, 4 – above average, and 5 – excellent. Table 19 below illustrates the results of the seven categories via a cross-comparison between public and private universities.

As depicted in Table 19, both the public and private universities had similar averages for each of the seven categories compiled. None of the spreads between the two averages were greater than one for any of the seven categories. However, the private university averages were slightly higher for five out of the seven categories. The public university average was slightly higher in terms of the average number of pedestrian management tools used and the average number of traffic management tools used.

To determine whether or not the averages between the two independent samples were statistically different, a two-tailed statistical *t*-Test was performed for each of the categories using a 90% confidence interval. The critical *t*-ratio for a two-tailed *t*-Test at a

Table 19. Cross-Comparison Between Public and Private Universities

Comparison Category	Range	Public University Average Rating	Private University Average Rating	*t*-Ratio
		Sample Size = 72	Sample Size = 11	
Congestion/travel delays (before and after the game)	1-5	3.54	3.73	0.717
Safety (vehicle and pedestrian)	1-5	3.84	4.09	1.175
Parking (availability and accessibility)	1-5	3.41	3.91	1.767
Degree of cooperation/coordination among departments involved in traffic, parking, and pedestrian management	1-5	4.25	4.36	1.074
Total number of traffic management tools used	0-14	8.53	8.15	0.431
Total number of parking management tools used	0-6	3.49	4.00	1.190
Total number of pedestrian management tools used	0-5	2.65	2.54	0.384

90% confidence interval is 1.671. As shown in Table 19, the majority of the *t*-ratios fall below the critical *t*-ratio. Thus, the averages between the public and private universities do not have any statistical difference with the exception of the parking (availability and accessibility) category. Detailed spreadsheets illustrating the calculations of the statistical *t*-Test and the computation of the sample averages (shown in Table 19) are included as Appendices D and E of this document.

In addition to comparing these categories between public and private universities, data was also compiled for on- and off-campus stadiums. For the purposes of this

comparison the category titled 'adjacent to campus' was included in the on-campus sample size.

Unlike the public/private comparisons, there is a larger difference between the averages for many of the categories for on-/off-campus stadiums. For instance, the largest differences are found in the number of tools used to manage traffic, parking, and pedestrians (See Table 20). Universities with on-campus stadiums used an average of over 8.5 traffic management tools whereas universities with off-campus stadiums used only 7. The same holds true for the number of parking and pedestrian management tools used. An average of nearly 3 pedestrian management tools (2.81) were used for on-campus stadiums, whereas only 2 tools (an average of 2.08) were used for off-campus stadiums. For each of the categories, universities with on-campus stadiums averaged a higher number of tools used or a higher rating when compared to universities with off-campus stadiums.

To determine whether or not the averages between the universities with on-campus and off-campus stadiums were statistically different, once again a two-tailed statistical *t*-Test was performed for each of the categories using a 90% confidence interval. The critical *t*-ratio for a two-tailed *t*-Test at a 90% confidence interval is 1.671. As illustrated in Table 20, there are three dependent variable *t*-ratios that are greater than the critical *t*-ratio. Each of the traffic, parking, and pedestrian management tool

Table 20. Cross-Comparison Between On- and Off-Campus Stadiums

Comparison Category	Range	On-Campus Average Rating	Off-Campus Average Rating	*t*-Ratio
		Sample Size = 71	Sample Size = 12	
Congestion/travel delays (before and after the game)	1-5	4.02	3.33	0.715
Safety (vehicle and pedestrian)	1-5	3.92	3.75	0.817
Parking (availability and accessibility)	1-5	3.52	3.25	0.987
Degree of cooperation/coordination among departments involved in traffic, parking, and pedestrian management	1-5	4.31	4.00	1.300
Total number of traffic management tools used	0-14	8.56	7.00	1.753
Total number of parking management tools used	0-6	3.68	2.92	1.769
Total number of pedestrian management tools used	0-5	2.81	2.08	2.760

categories has a *t*-ratio greater than the critical *t*-ratio. This means that there is a statistical difference in the average number of management tools used by universities with on-campus stadiums when compared to those with off-campus stadiums. Therefore, the averages between the two independent variables are not equal.

Potential explanations as to why universities with on-campus facilities implement a larger number of traffic, parking, or pedestrian management tools when compared to off-campus facilities could be that they often have exclusive control of the on-campus street network. Hence, universities with on-campus stadiums would have a greater flexibility to implement and develop a larger number of gameday traffic, parking, or

pedestrian management tools. For example, universities with on-campus facilities could install both permanent and temporary parking signs more easily as opposed to universities with off-campus facilities who are often required to coordinate with and acquire approval from state and/or local municipalities prior to implementing signing plans. This may lead to delays and even the abandonment of a permanent and/or temporary signing plan/package. In terms of pedestrian management practices, universities with on-campus stadiums may have a greater flexibility to establish vehicle-free streets, provide pedestrian-only signal phases, and implement barriers and/or barricades to separate vehicle and pedestrian traffic along their roadway network since they often have exclusive control of the transportation network within the bounds of their campus.

Detailed spreadsheets illustrating the calculations of the statistical *t*-Test and the computation of the sample averages (shown in Table 20) are included as Appendices D and E of this document.

Finally, a comparison of the actual stadium setting (downtown, suburban, and small town/rural) was compiled for the seven categories. Table 21 summarizes the results of the comparison.

As depicted in Table 21, there are only minor differences in the average responses for the categories. One category to note, is the safety (vehicle and pedestrian) category.

Table 21. Cross-Comparison of Stadium Setting

Comparison Category	Range	Downtown Setting Average Rating	Suburban Setting Average Rating	Small Town / Rural Setting Average Rating
		Sample Size = 31	Sample Size = 33	Sample Size = 15
Congestion/travel delays (before and after the game)	1-5	3.53	3.70	3.37
Safety (vehicle and pedestrian)	1-5	3.89	3.91	3.90
Parking (availability and accessibility)	1-5	3.36	3.70	3.30
Degree of cooperation/coordination among departments involved in traffic, parking, and pedestrian management	1-5	4.09	4.52	4.13
Total number of traffic management tools used	0-14	8.97	8.55	8.93
Total number of parking management tools used	0-6	3.19	3.73	3.93
Total number of pedestrian management tools used	0-5	2.65	2.45	2.67

There is only .002 (two hundredths) of a difference in the average respondent ratings between downtown, suburban, and small town/rural stadium settings (average rating of 3.89 for downtown setting and 3.91 for small town/rural setting). The largest difference found in the seven categories is the number of parking management tools used. However, this as well, is only a small difference in the averages. The average number of parking management tools used for a downtown setting is 3.19, and the average number of parking management tools used for a small town/rural setting is 3.91.

V. THE UNIVERSITY OF TENNESSEE PLAN

Neyland Stadium, home of the University of Tennessee Volunteers, is the nation's largest collegiate stadium with capacity at 102,544 fans with the 1996 average home attendance at 105,418 (See Table 22). Like many other collegiate stadiums, controls for traffic, parking and pedestrians are needed. Due to the location of Neyland stadium, accessibility for vehicles and pedestrians as well as the availability of parking are major concerns.

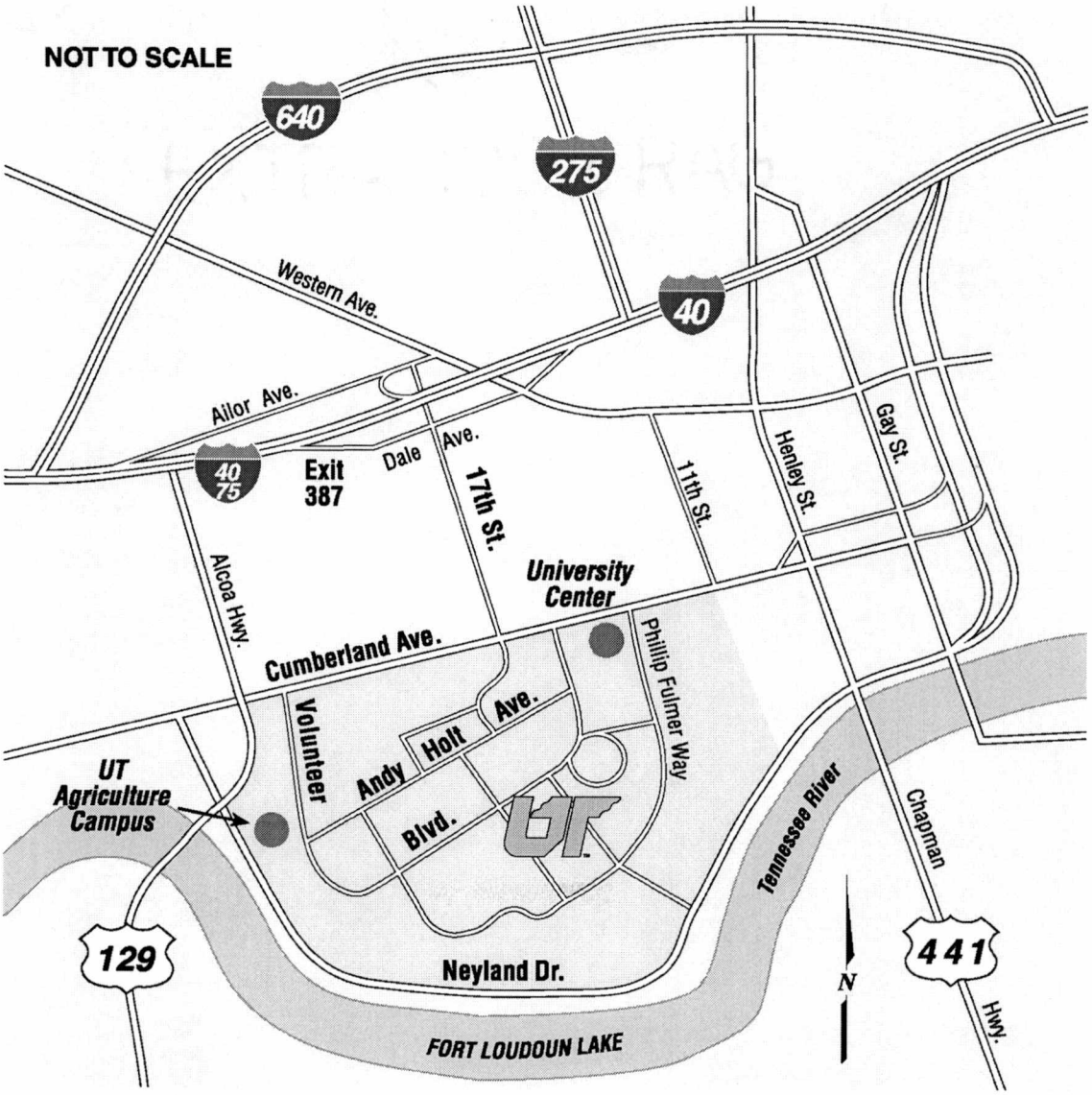
Neyland Stadium is located on the campus of the University of Tennessee adjacent to downtown Knoxville, Tennessee, with a 1990 population of 165,121 (Tennessee Department of Transportation, 1997). The stadium is adjacent to the Tennessee River that limits direct access to the facility from the South (See Figure 4). There are two major interstates, Interstate 40 (east-west) and Interstate 75 (north-south), which travel through Knoxville as well as one, Interstate 81 (north-south) approximately 30 miles east of Knoxville, which provide fans from across the region access to the campus. Fans who arrive via McGhee Tyson Airport can reach the stadium on U.S. Route 129/State Route 115 (Alcoa Highway) which is approximately 15 miles south of the campus. Although access to Knoxville is sufficient via principal arterials and interstate highways, direct access to the stadium cannot be achieved by these means. All access to Neyland Stadium is via local, collector, and minor arterial surface streets. The

Table 22. 1996 Attendance Figures for University of Tennessee Football

Date	Opponent	Site (Stadium)	Attendance
August 31, 1996	University of Nevada – Las Vegas	Knoxville, Tennessee (Neyland Stadium)	106,212
September 7, 1996	University of California – Los Angeles	Knoxville, Tennessee (Neyland Stadium)	106,297
September 21, 1996	University of Florida	Knoxville, Tennessee (Neyland Stadium)	107,608
October, 3, 1996	University of Mississippi	Memphis, Tennessee (Liberty Bowl)	62,640
October, 12, 1996	University of Georgia	Athens, Georgia (Sanford Stadium)	86,117
October 26, 1996	University of Alabama	Knoxville, Tennessee (Neyland Stadium)	106,700
November 2, 1996	University of South Carolina	Columbia, South Carolina (Williams-Brice Stadium)	82,808
November 9, 1996	University of Memphis	Memphis, Tennessee (Liberty Bowl)	65,885
November 16, 1996	University of Arkansas	Knoxville, Tennessee (Neyland Stadium)	103,158
November 23, 1996	University of Kentucky	Knoxville, Tennessee (Neyland Stadium)	102,534
November 30, 1996	Vanderbilt University	Nashville, Tennessee (Vanderbilt Stadium)	40,289
January 1, 1997	Northwestern University	Orlando, Florida (Citrus Bowl)	63,467
		1996 Average Home Attendance:	**105,418**

Source: (*University of Tennessee Volunteers Football Guide,* 1997).

University and stadium are sandwiched between Downtown Knoxville to the East, the Tennessee River to the South, CSXT West Knox Yard (a local railroad service yard) to the West, and the Fort Sanders residential neighborhood (an older, established neighborhood which accommodates many off-campus students) to the North. Thus the campus is 'land-locked' with few areas for relief or future expansion for parking and/or transportation improvements.



Source: University of Tennessee Geography Department – Cartographic Services

Figure 4. Knoxville Urban Area Map

A statement that further illustrates the magnitude of the size of this stadium in comparison to the area is as follows. Neyland Stadium, if it were to be classified as a City, would become the fifth largest city (102,544) in the State when filled to capacity behind only Memphis (610,337), Nashville (510,784), Knoxville (165,121), and Chattanooga (152,466) (Tennessee Department of Transportation, 1990). Thus, a University of Tennessee football game generates a significant amount of traffic, pedestrian, and parking demands with limited infrastructure in terms of sufficient roadways and parking facilities to accommodate these demands. Because of this demand, the University has developed a plan to accommodate traffic, parking, and pedestrians on a football gameday.

The University of Tennessee's plan to manage traffic, parking, and pedestrians has been developed and refined by a group of officials which includes members from the University Police Department, University Athletics Department, the University's Center for Transportation Research, University Central Administration, University Parking Services, University Student Affairs, University Music Department, City of Knoxville Police Department, Tennessee Highway Patrol, the County Sheriff's Office, City of Knoxville Traffic Engineering Division, the Tennessee Department of Transportation, area transit officials, and others. Each year, this committee refines its plan based upon

the results from last year's approach, and a meeting is scheduled each Monday before an upcoming home game to discuss strategies and approaches.

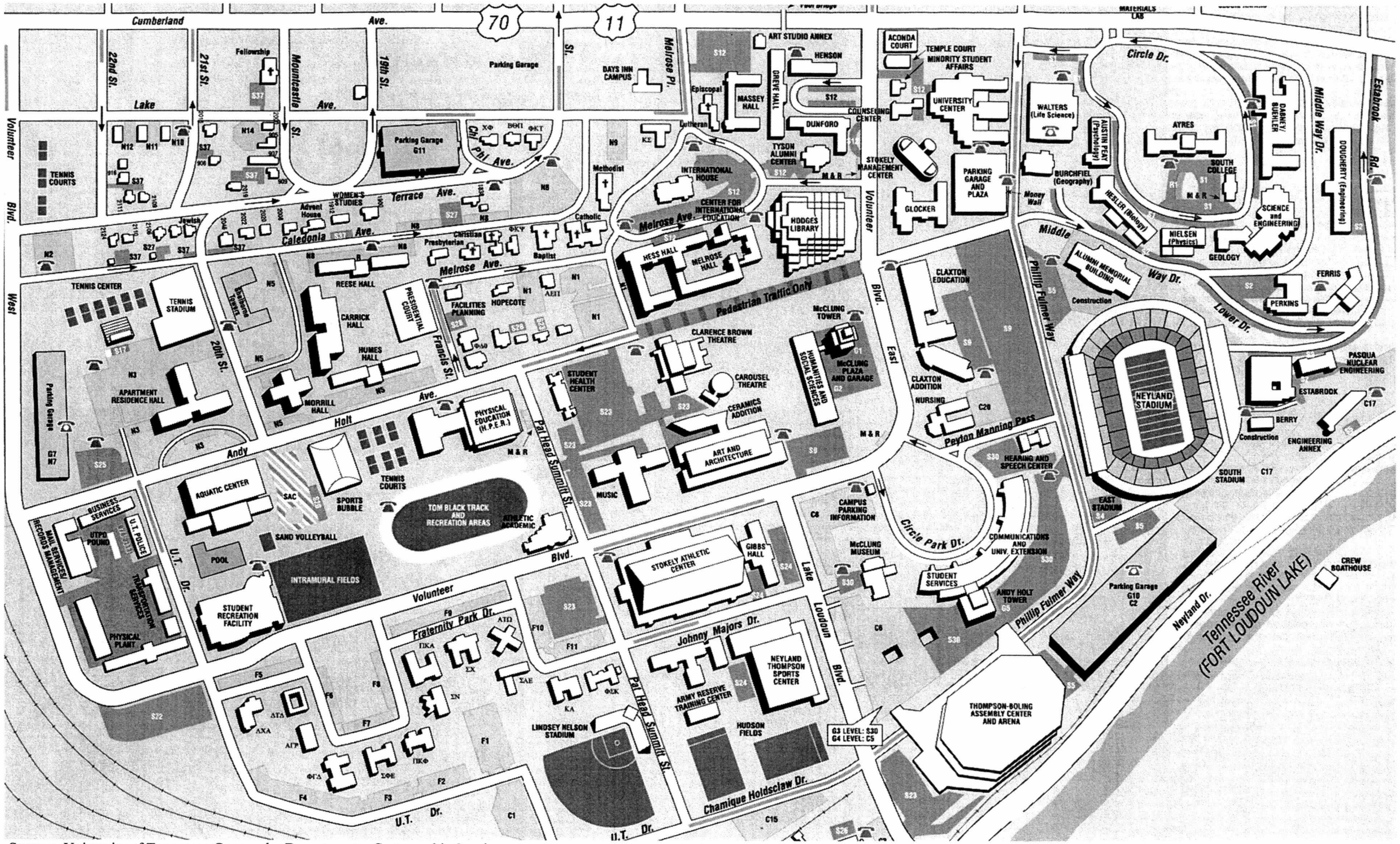
To provide an overview of the strategies which the University of Tennessee implements on a football gameday, a three part explanation is needed beginning first with traffic control, followed by parking control approaches, and finally discussing pedestrian management strategies.

Traffic control for a University of Tennessee home football game begins with establishing no parking zones on streets around the stadium to allow for increased traffic flow on nearby streets. On-street metered parking adjacent to the stadium is eliminated the night before the game (Friday evening) to prohibit parking (Freels, 1996). In addition to prohibiting selected areas for on-street parking, the University utilizes reversible flow streets, converts selected streets to one way control, uses portable and permanent signing for parking regulations, prohibits left turns at selected intersections, and uses temporary channelizing devices to direct motorists (Geldmeier, 1996).

One way streets are established on select roadways to handle the increased traffic. Some are operated as reversible flow streets to accommodate inbound traffic before the game and outbound traffic after the game. The following streets are reserved for one way flow before the game: Phillip Fulmer Way (one way south and west from Cumberland

Avenue to Lake Loudon Boulevard), UT Drive (one way south and east from Volunteer Boulevard to Lake Loudon Boulevard), and Peyton Manning Pass (one way east from Volunteer Boulevard to Phillip Fulmer Way). After the game, these streets become one way: Lake Loudon Boulevard (one way south from Volunteer Boulevard to Neyland Drive), Phillip Fulmer Way (one way south and west from Peyton Manning Pass to Lake Loudon Boulevard and one way north from Peyton Manning Pass to Cumberland Avenue), and Peyton Manning Pass (one way west from Phillip Fulmer Way to Volunteer Boulevard) (Richards, 1996). Refer to Figure 5 for an illustration of the street network adjacent to Neyland Stadium on and around the University of Tennessee Campus.

Parking for a Tennessee home football game is a challenge. Trying to accommodate parking for over 100,000 fans in addition to the parking already required for the thousands of student who normally park their vehicles on campus is challenging. Prior to the football season, the University provides literature with season ticket packages to notify season ticket holders of their designated parking areas and alert them of any new procedures for parking during the upcoming season. A map of the campus and adjacent area is mailed to season parking pass holders illustrating the designated parking areas (paved lots and parking garages) and the pre-determined route to and from the parking areas. Parking passes in the form of tags that are designed to be hung from the rear view mirror are provided to season ticket holders who purchase parking passes. The University also coordinates park-n-ride lots. The agricultural campus, located approximately one



Source: University of Tennessee Geography Department – Cartographic Services

Figure 5. University of Tennessee Campus Map

mile from Neyland Stadium, provides several hundred parking spots. Season ticket holders can purchase a season parking pass for the agricultural campus. The University, in cooperation with Knoxville Area Transit (KAT), provides free shuttle service between the agricultural campus and the stadium on gameday (Holloway, 1996).

On gameday, all of the on-campus parking facilities are reserved for alumni and donors who pay to park on-campus and near the stadium or for handicapped fans. There are approximately 9,800 parking stalls available on-campus for alumni, donors, and handicapped fans. Law enforcement officials monitor certain streets on campus. Only those vehicles that have parking tags for the on-campus parking areas are allowed access to certain on-campus streets.

Outside of the parking facilities maintained by the University, there are numerous parking garages and surface lots in the Downtown Knoxville area for fans to utilize. The City-County Building (a large office complex in Downtown Knoxville for City and County offices) provides several hundred parking stalls for fans and is operated by a quasi-governmental agency within the City. In addition to the City-County Building garage, there are a few other City-maintained parking garages within Downtown Knoxville that are available for gameday parking. There are also numerous private parking garages and surface lots that provide parking areas for fans.

In addition to Downtown Knoxville, the Fort Sanders area of town (just north of the University of Tennessee campus) provides parking for fans. There are a few private surface lots and most of the streets within the Fort Sanders area are striped to accommodate on-street parking. Furthermore, many of the residents will allow fans to park in their driveways and on their lawns for a fee.

University of Tennessee Campus Police and City of Knoxville Police handle pedestrian control measures for gameday on the University of Tennessee campus. Virtually all of the intersections around or near Neyland Stadium and the on-campus parking garages are controlled by uniformed police officers both before and after the game. At signalized intersections, multiple officers are used to manually control select signals, and at certain locations the signals are turned off and traffic is controlled by the officers (Freels, 1996).

All of the streets adjacent to Neyland Stadium are closed to vehicle traffic except for those vehicles destined for parking areas that require they access the streets to reach their parking destination. These streets are used primarily for pedestrian traffic and are controlled by uniformed police officers. The University of Tennessee pedestrian control plan also includes the use of temporary barricades/ barriers. These are used to keep

vehicles separated from pedestrians along selected routes and are also used to prohibit vehicles from accessing closed streets and entries.

Neyland Stadium, on the campus of the University of Tennessee, is one of the largest on-campus facilities in the Nation. Coupled with the fact that it is located in the downtown area of a major city, there are significant traffic, parking and pedestrian control issues for the University to manage and monitor. To determine the differences and/or similarities of the University of Tennessee Plan with that of other on-campus, downtown, public universities, a comparison of the responses of the college football gameday traffic management survey have been developed and are summarized in Table 23. There were a total of 21 survey responses that fell within the same on-campus, downtown, and public university categories as the University of Tennessee.

As summarized in Table 23, even after minimizing the comparison categories to a downtown, on-campus setting for a public university, there are still huge differences when one compares the stadium capacity and average attendance. This further supports the notion that the University of Tennessee has a unique and challenging task to manage and control traffic, parking, and pedestrian activities on a college football gameday. Nonetheless, the comparisons listed in Table 23 illustrate that the University of Tennessee implements a larger number of traffic, parking and pedestrian management tools than their peers do on average. This seems logical since the University of

Table 23. Comparison of the University of Tennessee Survey Responses with other On-campus, Downtown Public Universities

Comparison Category	Range	University of Tennessee Survey Response	Average Rating of other On-Campus, Downtown, Public Universities
		Sample Size = 1	Sample Size = 21
Stadium Size	NA	102,544	51,752
Average 1996 Attendance	NA	107,000	42,727
Congestion/travel delays (before and after the game)	1-5	3.00	3.71
Safety (vehicle and pedestrian)	1-5	3.00	3.93
Parking (availability and accessibility)	1-5	2.00	3.45
Degree of cooperation/coordination among departments involved in traffic, parking, and pedestrian management	1-5	3.00	4.10
Total number of traffic management tools used	0-14	11.00	8.33
Total number of parking management tools used	0-6	4.00	3.38
Total number of pedestrian management tools used	0-5	3	2.86

Tennessee has twice the seating capacity and twice the average attendance than those of the other pubic university survey respondents with on-campus, downtown locations for their stadiums.

In an effort to formulate a more accurate comparison, the sample size of the other public universities with on-campus, downtown stadiums was further limited to those with

seating capacities of 50,000 fans or greater. Table 24 summarizes the results of this comparison.

As illustrated in Table 24, the University of Tennessee responses for their perception of congestion/travel delays, safety, and the availability/accessibility of parking are each lower than the average response of other public universities with on-campus, downtown football facilities. When comparing the stadium capacity and average attendance figures, this seems logical. The University of Tennessee, even after reducing the comparison sample size to universities that have seating capacities in excess of 50,000 fans, has a seating capacity of nearly 30,000 more fans and an average attendance in excess of 40,000 fans greater than the comparison sample size averages. One would expect a perception of greater congestion/travel delays and a smaller availability of parking with larger demands which may be why the University of Tennessee responded with lower ratings in these categories.

Additionally, the numbers of traffic, parking, and pedestrian management tools for the comparison sample size are closer to those used at the University of Tennessee. By removing public universities with stadium seating capacities less than 50,000 fans, a more similar comparison can be made. This is reflected in the number of management tools used. The average number of traffic management tools used by the comparison sample

Table 24. Comparison of the University of Tennessee Survey Responses with other On-campus, Downtown Public Universities (Seating Capacity > 50,000 Fans)

Comparison Category	Range	University of Tennessee Survey Response	Average Rating of other On-Campus, Downtown, Public Universities
		Sample Size = 1	Sample Size = 8
Stadium Size	NA	102,544	72,800
Average 1996 Attendance	NA	107,000	65,236
Congestion/travel delays (before and after the game)	1-5	3.00	3.75
Safety (vehicle and pedestrian)	1-5	3.00	3.94
Parking (availability and accessibility)	1-5	2.00	3.75
Degree of cooperation/coordination among departments involved in traffic, parking, and pedestrian management	1-5	3.00	4.31
Total number of traffic management tools used	0-14	11.00	10.50
Total number of parking management tools used	0-6	4.00	3.86
Total number of pedestrian management tools used	0-5	3.00	3.38

was 10.5 whereas the University of Tennessee implements 11 traffic management tools. This holds true for both the numbers of parking and pedestrian management tools as well.

VI. CONCLUSIONS AND FINDINGS

The management of traffic, parking, and pedestrians on a college football gameday is a significant undertaking for university officials, local law enforcement agencies, and numerous other agencies throughout the nation. There are varying degrees of traffic, parking, and pedestrian management plans in use on college campuses and on off-campus sites.

The findings from this study reflected that an overwhelming majority of the universities do implement an organized multi-departmental approach to handle gameday traffic. Of the 88 responses to the survey, 86% responded that their university had a traffic management plan. In addition, this study identified that 80% of the universities that responded to the survey have an organized multi-departmental approach to handle gameday parking.

The most common traffic management tool determined by this study is the use of uniformed police officers for traffic control. This traffic management tool was also the most effective tool listed by the survey respondents with the highest average effectiveness rating. The least commonly used tool for managing traffic identified in the study is to announce post-game traffic procedures during the game. In addition, the least effective

traffic management tool based upon this survey is the use of permanent signing to route fans to the stadium.

In terms of parking management tools, the most widely used is the use of temporary signs to route fans to parking areas, and the least commonly used is the use of permanent signing. The most effective parking management tool is providing literature on the parking procedures with ticket sales, and the least effective tool is using pre-game media announcements to assist with parking procedures.

Similar to the traffic management tools summary, the most commonly used crowd control and pedestrian management tool identified in the survey is the use of uniformed police officers to handle crowds/pedestrians. Establishing vehicle-free streets was found to be the least commonly used pedestrian management tool. Nonetheless, its use was identified by nearly a third (32%) of the survey respondents. The most effective crowd control/pedestrian management tool is the establishment of vehicle-free streets and the use of uniformed police officers. The least effective pedestrian management tool is to hold vehicle traffic for a specified time near the stadium while pedestrians are allowed to disperse following the game.

There were also several unconventional and innovative management tools to note that may be of some benefit to others that are responsible for gameday traffic, parking,

and pedestrian management. The use of a helicopter to monitor traffic conditions as done at the Virginia Polytechnic and State University is a tool not mentioned by any of the other survey respondents. This tool could give other universities an opportunity to get a bird's eye view of how their present management plan works and an optimal vantage point to identify areas for improvement. The use of student aides to assist with traffic management as done at the University of Maryland could be beneficial for other universities to implement. It would be a low-cost alternative to paying university staff overtime pay or contracting out private contractors to assist in their traffic management demands.

Both Duke University and East Carolina University listed AM radio stations as a means for disseminating parking information to fans. Furthermore, Pennsylvania State University listed the use of variable message signs to alert motorists of parking information. Both of these tools – variable message signs and radio broadcasts via AM radio (highway advisory radio)– are elements that many urban and rural areas are incorporating into transportation management systems (TMS) through ITS technology. Many State Departments of Transportation (DOT) have built, or are in the process of building, transportation management systems in both urban and rural areas across the nation. Universities could coordinate with their State DOT and have additional means to relay gameday traffic, parking, and pedestrian management instructions to fans via these State DOT transportation management system.

This study identified and summarized many trends and cross-comparisons between public and private universities, universities with on-campus and off-campus stadiums, and the different locations for the university/stadium: downtown, suburban, and small town/rural. When performing these comparisons via the use of a statistical *t*-Test, there were only a few instances where the averages proved to be statistically different. The vast majority of the comparisons resulted in no statistical difference in the averages when comparing public versus private universities and universities with on-campus stadiums versus off-campus stadiums. The averages that were found to be statistically different are as follows:

1. The average number of traffic management tools used by universities with on-campus stadiums had a higher average when compared to those universities with off-campus stadiums (an average of 8.56 tools compared to 7.00 tools). A statistical *t*-Test confirmed that there was a difference in the averages between the two samples at a 90% confidence interval.
2. The average number of parking management tools used by universities with on-campus stadiums had a higher average when compared to those universities with off-campus stadiums (an average of 3.68 tools compared to 2.92 tools). A statistical *t*-Test confirmed that there was a difference in the averages between the two samples at a 90% confidence interval.

3. The average number of pedestrian management tools used by universities with on-campus stadiums had a higher average when compared to those universities with off-campus stadiums (an average of 2.81 tools compared to 2.08 tools). A statistical *t*-Test confirmed that there was a difference in the averages between the two samples at a 90% confidence interval.

This study also further solidified the opinion by many that the University of Tennessee has a unique situation in its challenge to manage gameday traffic, parking, and pedestrians. There are only a handful of universities across the nation that has a similar situation that the University of Tennessee is confronted with on a typical college football gameday. Even after comparing the University of Tennessee plan with other public universities with on-campus, downtown locations for their football facility, the comparisons were not at all similar since the University of Tennessee has such a large seating capacity and is always over-capacity for their football games. As the University of Tennessee continues to address ways to improve their gameday management plan, one approach may be to visit one of the few universities that has similar characteristics. A visit could consist of attending a game and monitoring the types of management tools in use to determine whether or not they would be feasible at the University of Tennessee. Another approach could consist of having a peer-to-peer workshop with each of the University's campus police, parking, and/or transportation staff to share ideas, discuss failed management tools, share positive management tools, etc. Exploration into

increased transit usage is also a possibility that could lessen the traffic congestion and parking demand for gamedays.

It is obvious that there is much more information to be gathered and comparisons to be made in the area of traffic, parking, and pedestrian control measures in use for college football gamedays across the United States. This study identified many of the tools used to manage traffic, parking, and pedestrians for college football gamedays. However, it relied heavily on the opinions of the individual survey respondents when assessing the effectiveness of the tools used. Further studies to gain unbiased, objective data on the effectiveness of the many traffic, parking, and pedestrian management tools in use across the Nation are needed. Methods to independently measure the effectiveness of the management tools outside of the opinions of the individuals involved in developing and implementing the management tools are needed to accurately form comparisons.

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APPENDICES

APPENDIX A.

COLLEGE FOOTBALL TRAFFIC CONTROL SURVEY

COLLEGE FOOTBALL TRAFFIC CONTROL SURVEY

Name _____ Campus Enrollment (est.) _____

Title/Department _____ Stadium Seating Capacity _____

University Name _____ Avg. 1996 Attendance (est.) _____

Please circle Yes or No for each question below as it relates to how your University handles traffic, parking, and pedestrians on a typical college football Saturday. If your answer is Yes, please provide your assessment of the particular question. (1 = poor, 2 = below average, 3 = average, 4 = above average, 5 = excellent)

Does your University have an organized multi-department approach to handle gameday traffic?	Yes	No	1	2	3	4	5
Which traffic management tools/approaches does your University use?							
Permanent Signing to route fans to stadium?	Yes	No	1	2	3	4	5
Temporary Signing (only on gameday) to route fans to stadium?	Yes	No	1	2	3	4	5
Convert nearby streets to one-way traffic?	Yes	No	1	2	3	4	5
Prohibit on-street parking near the stadium?	Yes	No	1	2	3	4	5
Use uniformed police officers for traffic control?	Yes	No	1	2	3	4	5
Re-time nearby traffic signals?	Yes	No	1	2	3	4	5
Close nearby streets?	Yes	No	1	2	3	4	5
Use police officers to manually control traffic signals?	Yes	No	1	2	3	4	5
Implement turning restrictions at selected intersections (i.e. prohibit left turns)?	Yes	No	1	2	3	4	5
Provide maps to direct fans to stadium?	Yes	No	1	2	3	4	5
Use pre-game media announcements to assist with traffic control?	Yes	No	1	2	3	4	5
Use temporary reversible flow traffic lanes?	Yes	No	1	2	3	4	5
Announce post game traffic procedures during the game?	Yes	No	1	2	3	4	5
Provide literature on the traffic control procedures with ticket sales?	Yes	No	1	2	3	4	5
Others ? (please describe in the space below)							

_____

_____

_____

_____

Does your University have an organized multi-department approach to handle gameday parking?	Yes	No	1	2	3	4	5
Which parking management tools/approaches does your University use?							
Permanent Signing to route fans to parking?	Yes	No	1	2	3	4	5
Temporary Signing (only on gameday) to route fans to parking?	Yes	No	1	2	3	4	5
Are remote park-n-ride lots (busing fans from remote parking sites to the stadium) used?	Yes	No	1	2	3	4	5
Provide maps to direct fans to parking?	Yes	No	1	2	3	4	5
Provide literature on the parking procedures with ticket sales?	Yes	No	1	2	3	4	5
Use pre-game media announcements to assist with parking?	Yes	No	1	2	3	4	5
Others ? (please describe in the space below)							

_____

_____

_____

_____

Which crowd/pedestrian control measures are used near the stadium?							
Establish vehicle-free streets?	Yes	No	1	2	3	4	5
Use uniformed police officers to handle crowd/pedestrian control?	Yes	No	1	2	3	4	5
Provide pedestrian only phases at signalized intersections? (i.e. hold automobile traffic for a specified time frame while pedestrians use the intersection)	Yes	No	1	2	3	4	5
Use temporary barriers/barricades to separate pedestrians and vehicles?	Yes	No	1	2	3	4	5
Hold vehicle traffic for a specified time near the stadium while pedestrians are allowed to disperse following a game?	Yes	No	1	2	3	4	5
Others? (please describe in the space below)							

_____

_____

_____ *(OVER)*

Is free public parking available on-campus/on-site? If yes, assess its availability.	Yes	No	1	2	3	4	5
Is pay public parking available on-campus/on-site? If yes, assess its availability.	Yes	No	1	2	3	4	5
Is free donor parking available on-campus/on-site? If yes, assess its availability.	Yes	No	1	2	3	4	5
Is pay donor parking available on-campus/on-site? If yes, assess its availability.	Yes	No	1	2	3	4	5
Is public transit (bus, rail) used to transport fans to the stadium? If yes, assess its utility.	Yes	No	1	2	3	4	5
Are private shuttle bus services available to transport fans to the stadium? If yes, assess its their utility.	Yes	No	1	2	3	4	5
If public transit is used, are there any incentives provided to encourage fans to use it? If yes, assess their effectiveness.	Yes	No	1	2	3	4	5

Please rate how your University is doing in each of the following areas relative to gameday traffic, parking, and pedestrian management.

Congestion/travel delays (before the game)	1	2	3	4	5
Congestion/travel delays (after the game)	1	2	3	4	5
Vehicle traffic safety	1	2	3	4	5
Pedestrian safety	1	2	3	4	5
Availability of parking	1	2	3	4	5
Accessability of parking	1	2	3	4	5
Accessability of the stadium	1	2	3	4	5
Ratio of parking spaces per stadium seats	1	2	3	4	5
Ability of nearby roadways to handle gameday traffic	1	2	3	4	5
Overall traffic, parking and pedestrian management	1	2	3	4	5
Degree of cooperation/coordination among departments involved in traffic, parking, and pedestrian management	1	2	3	4	5

Please circle your answer to the following questions/statements.

Is your university public or private?	**Public**	**Private**	
Where is your stadium?	**On-Campus**	**Off-Campus**	**Adjacent to Campus**
The stadium is located....	**Downtown**	**Suburban**	**Small Town/Rural**

Which of the following groups play an active roll in gameday traffic, parking, and pedestrian management at your university?

City Police	**Campus Police**	**State Police**	**Campus Parking**
City Parking	**City Traffic Engineering**	**Athletic Department**	**Central Administration**

Others_____

Would you like a summary of my findings? **Yes** **No**

Please include any pamphlets, informational brochures, gameday traffic plans, maps, flyers, etc. which might be beneficial to this study. Thank you.

Please return by Thursday, May 15, 1997, to:

c/o Dr. Steve Richards/Chris Rhodes
The University of Tennessee Transportation Center
309 Conference Center Building
Knoxville, TN 37996-4133

APPENDIX B.

SAMPLE SURVEY FORM LETTER

Transportation Center

Research/Service

The University of Tennessee
600 Henley Street, Suite 309
Knoxville, Tennessee 37996-4133
Phone (423) 974-5255
Fax (423) 974-3889

28 April 1997

Andrea G. Loughner
University of Pittsburgh
Parking Services
204 Brackenridge Hall
Pittsburgh, PA 15260

Dear Ms. Loughner:

I am a graduate student pursuing a masters degree in Traffic Engineering at the University of Tennessee. To finish my degree requirements, I am presently working on my thesis which pertains to traffic, parking, and pedestrian management strategies for Division I-A Universities on college football Saturdays.

To obtain data for my thesis I am administering the enclosed survey to all Division I-A Universities. I would greatly appreciate it if you or the appropriate individual at your University would complete the survey and return it to me by May 15, 1997. I have included a postage paid return envelope for returning the completed survey. Also, please forward copies of any pamphlets, brochures or informational literature which your University uses to alert fans of parking areas or special traffic control procedures. Any additional information you can provide will be appreciated and very helpful.

Thanks for your help. If you are interested in a copy of my findings, please circle YES to the appropriate question found near the end of the enclosed survey. If you have any questions and/or comments, please contact me or my major professor, Dr. Steve Richards, at (423) 974-5255.

Sincerely,

Christopher D. Rhodes

Christopher D. Rhodes

Enclosure

APPENDIX C.

TABLE 7. NCAA DIVISION I-A UNIVERSITIES IN THE UNITED STATES

Table 7. NCAA Division I-A Universities in the United States

University	Site	Stadium	Capacity
University of Akron	Akron, OH	Rubber Bowl	35,202
University of Alabama	Tuscaloosa, AL	Bryant-Denny Stadium	70,133
University of Alabama-Birmingham	Birmingham, AL	Legion Field	83,091
University of Arizona	Tucson, AZ	Arizona Stadium	56,167
Arizona State University	Tempe, AZ	Sun Devil Stadium	73,656
University of Arkansas	Fayetteville, AR	Razorback Stadium	51,000
Arkansas State University	Jonesboro, AR	Indian Stadium	33,410
Auburn University	Auburn, AL	Jordan-Hare Stadium	85,214
Ball State University	Muncie, IN	Ball State Stadium	16,319
Baylor University	Waco, TX	Floyd Casey Stadium	50,000
Boise State University	Boise, ID	Bronco Stadium	22,600
Boston College	Chestnut Hill, MA	Alumni Stadium	44,500
Bowling Green State University	Bowling Green, OH	Doyt Perry Stadium	30,599
Brigham Young University	Provo, UT	Cougar Stadium	65,000
University of California-Berkeley	Berkeley, CA	Memorial Stadium	75,662
University of California-Los Angeles	Los Angeles, CA	Rose Bowl	100,089
University of Central Florida	Orlando, FL	Citrus Bowl	70,349
Central Michigan University	Mount Pleasant, MI	Kelly/Shorts Stadium	20,086
University of Cincinnati	Cincinnati, OH	Nippert Stadium	36,000
Clemson University	Clemson, SC	Clemson Memorial Stadium	81,473
Colorado University	Boulder, CO	Folsom Field	51,748
Colorado State University	Fort Collins, CO	Hughes Stadium	30,000
Duke University	Durham, NC	Wallace Wade Stadium	33,941
East Carolina University	Greenville, NC	Dowdy-Ficklen Stadium	35,000
Eastern Michigan University	Ypsilanti, MI	Rynearson Stadium	30,200
University of Florida	Gainesville, FL	Ben Hill Griffith Stadium	83,000
Florida State University	Tallahassee, FL	Doak S. Campbell Stadium	77,500
Fresno State University	Fresno, CA	Bulldog Stadium	41,031
University of Georgia	Athens, GA	Sanford Stadium	86,117
Georgia Institute of Technology	Atlanta, GA	Bobby Dodd Stadium	46,000
University of Hawaii	Honolulu, HI	Aloha Stadium	50,000
University of Houston	Houston, TX	The Astrodome	60,000
University of Idaho	Moscow, ID	Kibbie-ASUI Dome	16,000
University of Illinois	Champaign, IL	Memorial Stadium	52,354
Indiana University	Bloomington, IN	Memorial Stadium	69,000

Table 7 continued.

University	Site	Stadium	Capacity
University of Iowa	Iowa City, IA	Kinnick Stadium	70,397
Iowa State University	Ames, IA	Cyclone Stadium	43,000
University of Kansas	Lawrence, KS	Memorial Stadium	50,250
Kansas State University	Manhattan, KS	KSU Stadium	42,000
Kent University	Kent, OH	Dix Stadium	30,520
University of Kentucky	Lexington, KY	Commonwealth Stadium	57,800
Louisiana State University	Baton Rouge, LA	Tiger Stadium	79,940
University of Louisville	Louisville, KY	Cardinal Stadium	35,500
University of Maryland	College Park, MD	Byrd Stadium	48,000
University of Memphis	Memphis, TN	Liberty Bowl Memorial Stadium	62,380
Miami University	Oxford, OH	Yager Stadium	25,183
University of Miami	Coral Gables, FL	Orange Bowl	74,476
University of Michigan	Ann Arbor, MI	Michigan Stadium	102,501
Michigan State University	East Lansing, MI	Spartan Stadium	73,000
University of Minnesota	Minneapolis, MN	Hubert H. Humphrey Metrodome	63,500
University of Mississippi	Oxford, MS	Vaught-Hemingway Stadium	42,577
Mississippi State University	Starkville, MS	Scott Field	40,656
University of Missouri	Columbia, MO	Memorial Stadium	62,000
University of Nebraska	Lincoln, NE	Memorial Stadium	72,700
University of New Mexico	Albuquerque, NM	University Stadium	31,218
New Mexico State University	Las Cruces, NM	Aggie Memorial Stadium	30,343
University of Nevada	Reno, NV	Mackay Stadium	31,545
University of Nevada-Las Vegas	Las Vegas, NV	Sam Boyd Stadium	32,000
University of North Carolina	Chapel Hill, NC	Kenan Memorial Stadium	52,000
North Carolina State University	Raleigh, NC	Carter-Finley Stadium	59,000
University of North Texas	Denton, TX	Fouts Field	30,500
Northeast Louisiana University	Monroe, LA	Malone Stadium	30,427
Northern Illinois University	DeKalb, IL	Huskie Stadium	31,000
Northwestern University	Evanston, IL	Dyche Stadium	49,256
University of Notre Dame	South Bend, IN	Notre Dame Stadium	81,000
Ohio University	Athens, OH	Peden Stadium	20,000
Ohio State University	Columbus, OH	Ohio Stadium	89,841
University of Oklahoma	Norman, OK	Oklahoma Memorial Stadium	75,004
Oklahoma State University	Stillwater, OK	Lewis Field	50,614
University of Oregon	Eugene, OR	Autzen Stadium	41,698

Table 7 continued.

University	Site	Stadium	Capacity
Oregon State University	Corvallis, OR	Parker Stadium	35,362
Pennsylvania State University	University Park, PA	Beaver Stadium	93,967
University of Pittsburgh	Pittsburgh, PA	Pitt Stadium	56,500
Purdue University	West Lafayette, IN	Ross-Ade Stadium	67,861
Rice University	Houston, TX	Rice Stadium	70,000
Rutgers State University	New Brunswick, NJ	Rutgers Stadium	42,000
San Diego State University	San Diego, CA	San Diego Jack Murphy Stadium	61,121
San Jose State University	San Jose, CA	Spartan Stadium	61,121
University of South Carolina	Columbia, SC	Williams-Brice Stadium	80,250
University of Southern California	Los Angeles, CA	Los Angeles Memorial Stadium	94,159
Southern Methodist University	Dallas, TX	Cotton Bowl	68,252
University of Southern Mississippi	Hattiesburg, MS	M.M. Roberts Stadium	33,000
University of Southwestern Louisiana	Lafayette, LA	Cajun Field	31,000
Stanford University	Palo Alto, CA	Stanford Stadium	85,500
Syracuse University	Syracuse, NY	Carrier Dome	50,000
Temple University	Philadelphia, PA	Veterans Stadium	66,592
University of Tennessee	Knoxville, TN	Neyland Stadium	102,544
University of Texas	Austin, TX	Memorial Stadium	75,512
Texas A&M University	College Station, TX	Kyle Field	70,210
Texas Christian University	Fort Worth, TX	Amon G. Carter Stadium	46,000
University of Texas-El Paso	El Paso, TX	Sun Bowl	52,000
Texas Tech University	Lubbock, TX	Jones Stadium	50,500
University of Toledo	Toledo, OH	Glass Bowl Stadium	26,248
Tulane University	New Orleans, LA	Louisiana Superdome	69,065
University of Tulsa	Tulsa, OK	Skelly Stadium	40,386
United States Air Force Academy	Colorado Springs, CO	Falcon Stadium	50,126
United States Military Academy	West Point, NY	Michie Stadium	39,929
United States Naval Academy	Annapolis, MD	Navy-Marine Corps Mem. Stadium	30,000
University of Utah	Salt Lake City, UT	Rice Stadium	32,500
Utah State University	Logan, UT	Romney Stadium	30,257
Vanderbilt University	Nashville, TN	Vanderbilt Stadium	41,600
University of Virginia	Charlottesville, VA	Scott Stadium	40,000
Virginia Tech University	Blacksburg, VA	Lane Stadium	51,000
Wake Forest University	Winston-Salem, NC	Groves Stadium	31,500
University of Washington	Seattle, WA	Husky Stadium	72,500

Table 7 continued.

University	Site	Stadium	Capacity
Washington State University	Pullman, WA	Martin Stadium	37,600
West Virginia University	Morgantown, WV	Mountaineer Field	63,500
Western Michigan University	Kalamazoo, MI	Waldo Stadium	30,100
University of Wisconsin	Madison, WI	Camp Randall Stadium	76,129
University of Wyoming	Laramie, WY	War Memorial Stadium	33,500

Source: (*Athlon Sports Southeastern Football Edition*, 1996).

APPENDIX D.

SURVEY RESULTS SPREADSHEET

	Tag Number univ dept enrollment capacity avg. 1996	58 Akron Police 19000 35202 10000	115 Alabama Parking 18500 70123 72500	105 UAB 16000 83091 35000	42 Arizona Park 35000 56167 53000	19 Arizona St. Police 44000 73656 63884	32 Arkansas Police 14500 51000 40000	11 Ball State Police 20000 16319	50 Baylor Police 12000 50000 43000	54 Boise St. Police 15000 22600 18000
(1=yes, 0=no)	**ORGANIZED TRAFFIC**	1 4	1 4		1 5	1 4	1 5	0	1 4	1 3
(1=yes, 0=no)	Permanent Signing	1 2	1 4		0	0	1 4	0	1 4	
(1=yes, 0=no)	Temporary Signing	1 3	1 3		1 4	1 3	1 5	1 2	1 2	1 4
(1=yes, 0=no)	Convert to One-Way	1 4	1 4		1 5	1 5	1 5	0	1 4	0
(1=yes, 0=no)	Prohibit On-Street Park	0	1 4		1 5	1 4	0	1	1 3	0
(1=yes, 0=no)	Police to Control Traffic	1 4	1 4		1 3	1 5	1 5	1 4	1 5	0
(1=yes, 0=no)	Re-Time Nearby Signals	0	1 3		0	1 5	0	0	1 3	0
(1=yes, 0=no)	Close Streets	1 4	1 3		1 5	1 5	1 5	0	0	0
(1=yes, 0=no)	Police for Signals	0	1 3		0	1 5	1 5	0	1 5	1
(1=yes, 0=no)	Turning Restrictions	0	1 3		1 4	1 5	1 5	0	1 4	0
(1=yes, 0=no)	Provide Maps	0	1 5		0	1 5	1 5	1 3	1 3	1 3
(1=yes, 0=no)	Pre-game Media	1 4	1 4		1 4	1 4	1 5	1 3	1 3	1 2
(1=yes, 0=no)	Reversible Flow Lanes	1 4	1 4		1 4	1 5	1 5	0	0	0
(1=yes, 0=no)	Announce Post Traffic	0	1 4		0	1 3	0	0	0	0
(1=yes, 0=no)	Literature W/ Ticket	0	1 4		0	1 5	1 5	0	0	0
(1=yes, 0=no)	Others	0	0	1	1	1	0	0	0	0
	Total # of Traffic Tools	7	14		9	13	11	5	10	4

	Tag Number univ dept enrollment capacity avg. 1996	111 BC Police 14000 44500 34500	101 BYU Parking 28000 65000 55000	22 CAL Park 30000 75662 35000	84 UCF Park 70349	109 C. Mich. Police 17000 20086 18000	28 Cincinnati Park 30000 36000 20000	45 Clemson Athletics 16000 81473 67212	21 Colorado Park 25000 51748 50000
(1=yes, 0=no)	**ORGANIZED TRAFFIC**	1	1 5			1 4	1 5	1 4	1 5
(1=yes, 0=no)	Permanent Signing	0	0	0		1 2		1 4	1 3
(1=yes, 0=no)	Temporary Signing	1 4	1	0		1 4	1 3	1 4	1 3
(1=yes, 0=no)	Convert to One-Way	1 4	0	0		0	0	1 4	1 4
(1=yes, 0=no)	Prohibit On-Street Park	1 4	1 3	1 5		0	0	0	1 4
(1=yes, 0=no)	Police to Control Traffic	1 4	1 5	1 5		1 4	1 4	1 4	1 5
(1=yes, 0=no)	Re-Time Nearby Signals	0	1 3	0		0	0	1 4	1 5
(1=yes, 0=no)	Close Streets	0	1 3	1 5		1 4	0	1 4	1 3
(1=yes, 0=no)	Police for Signals	1 4	1 4	1 5		0	1 4	1 4	1 2
(1=yes, 0=no)	Turning Restrictions	1 4	1 4	0		1 3	0	1 4	1 4
(1=yes, 0=no)	Provide Maps	1 4	1 4	1 4		1 2	1 4	1 4	1 3
(1=yes, 0=no)	Pre-game Media	1 4	1 4	0		0	0	1 3	1 3
(1=yes, 0=no)	Reversible Flow Lanes	1 4	0	0		0	0	1 4	0
(1=yes, 0=no)	Announce Post Traffic	1 4	1 4	0		0	0	0	0
(1=yes, 0=no)	Literature W/ Ticket	1 4	1 4	0		1 3	0	1 4	1 3
(1=yes, 0=no)	Others	0	0	0		0	0	0	0
	Total # of Traffic Tools	11	11	5		7	4	12	12

	Tag Number univ dept enrollment capacity avg. 1996	31 Colorado St. Police 22000 30000 28000	70 Duke Park 10000 33941 18000	65 ECU Park 17500 35000 29265	95 E. Mich. Police 25000 30200 5000	44 Florida Park 40000 83000 86500	20 FSU Park 30000 77500 80932	76 Fresno St. Police 17994 41031 43000	30 Georgia Police 86117 80000	4 GA Tech Police 13500 46000 38000
(1=yes, 0=no)	**ORGANIZED TRAFFIC**	1 4	1 2	1	0	1 4	1 3	1 4	1 5	1 3
(1=yes, 0=no)	Permanent Signing	1 4	0	1	0	0	0	1 3	1 3	0
(1=yes, 0=no)	Temporary Signing	1 4	0	1	1 3	1 3	1 4		0	1 3
(1=yes, 0=no)	Convert to One-Way	1 3	0	0	0	1 4	1 3	1 3	1 5	1 3
(1=yes, 0=no)	Prohibit On-Street Park	1 4	0	0	0	1 5	1 4	1 4	1 4	1 3
(1=yes, 0=no)	Police to Control Traffic	1 4	1 2	1	1 4	1 4	1 5	1 4	1 5	1 4
(1=yes, 0=no)	Re-Time Nearby Signals	1 4	0	0	1 3	1 4	1 4	1 4	1 4	0
(1=yes, 0=no)	Close Streets	1 3	0	1	0	0	1 4	1 3	1 5	1 4
(1=yes, 0=no)	Police for Signals	1 3	1 3	0	0	1 4	1 4	1 5	1 5	0
(1=yes, 0=no)	Turning Restrictions	1 3	1 3	1	0	0	1 3	1 5	0	1 4
(1=yes, 0=no)	Provide Maps	1 4	1 4	1	0	0	0	0	1 3	0
(1=yes, 0=no)	Pre-game Media	1 4	1 3	1	0	1 3	1 3	1 3	1 4	0
(1=yes, 0=no)	Reversible Flow Lanes	0	0	0	0	0	1 3	1 3	0	0
(1=yes, 0=no)	Announce Post Traffic	1 3	0	0	0	0	0	1	0	0
(1=yes, 0=no)	Literature W/ Ticket	1 3	1 3	0	0	0	1 2	0	0	0
(1=yes, 0=no)	Others	0	0	1	0	0	1	0	0	0
	Total # of Traffic Tools	13	6	7	3	7	11	11	9	6

	Tag Number univ dept enrollment capacity avg. 1996	99 Houston Police 31000 22000 20000	52 Idaho Park 11500 16000 11252	18 Illinois Police 37000 52354 59000	40 Indiana Park 35000 69000 38000	93 Iowa St. Police 25000 43000 45000	88 Kansas Police 24874 50250 38900	92 Kent Park 20000 30520 17000	75 Kentucky Police 30000 57800 40000	56 LSU Park 27000 79940 79411
(1=yes, 0=no)	**ORGANIZED** **TRAFFIC**	1 1		1 5	1 4	1 3	1 4	1 4	1 4	1 5
(1=yes, 0=no)	Permanent Signing	0	0	1 3	1 3	1 3	0	1 3	0	1 3
(1=yes, 0=no)	Temporary Signing	1 3	1 3	0	0	1 4	1 3	1 4	1 3	1 3
(1=yes, 0=no)	Convert to One-Way	0	1 3	1 5	1 4	0	1 3	0	1 3	1 4
(1=yes, 0=no)	Prohibit On-Street Park	0	1 3	1 5	0	1 3	1 3	1 3	1 3	1 4
(1=yes, 0=no)	Police to Control Traffic	1 4	1 3	1 5	1 4	1 4	1 4	1 5	1 4	1 5
(1=yes, 0=no)	Re-Time Nearby Signals	0	1 2	1 5	1 4	0	0	0	1 4	1 3
(1=yes, 0=no)	Close Streets	0	0	1 5	1 4	0	0	0	1 4	1 4
(1=yes, 0=no)	Police for Signals	1 4	1 3	1 5	1 4	1 4	1 4	1 4	1 3	1 4
(1=yes, 0=no)	Turning Restrictions	0	1 3	1 5	1 4	0	1 3	1 4	1 3	1 4
(1=yes, 0=no)	Provide Maps	0	0	1 2	1 3	1 2	1 3	1 3	1 3	1 3
(1=yes, 0=no)	Pre-game Media	0	0	1 3	0	1 3	1 3	1 3	1 3	1 4
(1=yes, 0=no)	Reversible Flow Lanes	0	0	0	0	0	1 4	0	1 3	
(1=yes, 0=no)	Announce Post Traffic	0	0	0	1 4	0	0	0	0	0
(1=yes, 0=no)	Literature W/ Ticket	0		1 4		1 3	0	0	1 3	
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	0	0
	Total # of Traffic Tools	3	7	11	9	8	9	8	12	11

	Tag Number univ dept enrollment capacity avg. 1996	15 Louisville Police 22000 35500 36000	26 Maryland Police 50000 48000 25000	102 Memphis Parking 62380 	98 Miami Athletics 74476 50000	87 Miami OH Police 18000 25183 10366	23 Michigan Ticket 45000 102501 104000	59 Mich. St. Police 41000 73000 66700	89 Minnesota Parking 51388 63500 43500
(1=yes, 0=no)	**ORGANIZED** **TRAFFIC**	1	1 4		1	1 4	1 5	1 4	1 3
(1=yes, 0=no)	Permanent Signing	0	1 3		1 3	0	1 5	1 4	0
(1=yes, 0=no)	Temporary Signing	0	1 5		0	1 2	0	1 4	0
(1=yes, 0=no)	Convert to One-Way	0	1 4		1 3	0	1 5	1 4	0
(1=yes, 0=no)	Prohibit On-Street Park	1 2	1 3		1 3	0	1 5		1
(1=yes, 0=no)	Police to Control Traffic	1 4	1 4		1 3	1 5	1 5	1 4	1
(1=yes, 0=no)	Re-Time Nearby Signals	0	1 4		1 3	1 4	1 5	0	0
(1=yes, 0=no)	Close Streets	0	1 4		1	0	1 5	0	0
(1=yes, 0=no)	Police for Signals	1 3	1 4		0	1 4	1 5	1 4	0
(1=yes, 0=no)	Turning Restrictions	0	1 4		1 5	1 3	1 5	1 4	0
(1=yes, 0=no)	Provide Maps	1 3	1 2		0	1 4	1 5	1 3	0
(1=yes, 0=no)	Pre-game Media	0	1 3		1 2	0	1 5	1 4	0
(1=yes, 0=no)	Reversible Flow Lanes	0	0		0	0	1 5	0	0
(1=yes, 0=no)	Announce Post Traffic	1 3	0		0	0	1 5	0	0
(1=yes, 0=no)	Literature W/ Ticket		1 3		0	1 4	1 5	1 3	
(1=yes, 0=no)	Others	0	1		0	0	1	0	0
	Total # of Traffic Tools	5	12		8	7	13	9	2

	Tag Number univ dept enrollment capacity avg. 1996	116 Mississippi Police 10000 42577 36532	35 Mississippi St Police 14000 40656 35000	108 Missouri Police 24000 62000 45000	62 N. Mexico Police 24000 31218 17000	53 NMSU Police 16000 30343	79 Nevada Police 12000 31545 25000	80 UNLV Police 21000 32000 12000	25 NC State Park 25000 52000 40000
(1=yes, 0=no)	**ORGANIZED** **TRAFFIC**		1 5	1 3	1 4	1 3	1 4	1 3	0
(1=yes, 0=no)	Permanent Signing	0	0	1 2	0	0	0	1 4	1 3
(1=yes, 0=no)	Temporary Signing	1 4	1 4	1 3	0	0	1 4	1 5	1 3
(1=yes, 0=no)	Convert to One-Way	0	1 4	1 3	0	0	0	0	0
(1=yes, 0=no)	Prohibit On-Street Park	0	1 5	1 3	0	1 5	0	0	0
(1=yes, 0=no)	Police to Control Traffic	1 4	1 5	1 4	1 4	1 5	1 4	1 5	1 3
(1=yes, 0=no)	Re-Time Nearby Signals	0	1 4	1 4	0	1 3	1 4	1 5	0
(1=yes, 0=no)	Close Streets	0	1 4	0	0	0	0	0	0
(1=yes, 0=no)	Police for Signals		1 5	1 4	1 4	1	1 4	1 4	1 3
(1=yes, 0=no)	Turning Restrictions	1 3	1 5	1 2	0	1 5	1 4	1 4	0
(1=yes, 0=no)	Provide Maps	0	1 4	1 3	0	0	0	1 4	0
(1=yes, 0=no)	Pre-game Media	0	1 5	1 2	0	1 5	1 4	1 3	0
(1=yes, 0=no)	Reversible Flow Lanes	0	1 5	1 2	0	1 5	0	1 4	0
(1=yes, 0=no)	Announce Post Traffic	1 4	1 5	1 3	0	0	0	0	0
(1=yes, 0=no)	Literature W/ Ticket	1 5	1 4		0	0	0	0	0
(1=yes, 0=no)	Others	1	1	1	0	0	0	0	1
	Total # of Traffic Tools	5	13	12	2	7	6	9	4

	Tag Number univ dept enrollment capacity avg. 1996	49 N. Texas Police 25000 30500 13000	71 NE Louisiana Police 11300 30427 20000	113 N. Illinois Police 22000 31000 16000	81 Northwestern Police 14000 49256	29 Ohio St. Park 48000 89841 90000	55 Okl. St. Police 20000 50614 48000	39 Oregon St. Police 14500 35362 23000	85 Penn St. Police 39860 93967 96000
(1=yes, 0=no)	**ORGANIZED TRAFFIC**	1 4	1 4	1 4	1 3	1 4	1 5	1	1 5
(1=yes, 0=no)	Permanent Signing	0	1 3	1 4	1 3	1 1	1 3	1 4	1 4
(1=yes, 0=no)	Temporary Signing	1 4	1 3	0	1 3	1 3	1 3	1 3	1 4
(1=yes, 0=no)	Convert to One-Way	1 4	1 3	1 4	1 4	1 5	1 4	0	1 5
(1=yes, 0=no)	Prohibit On-Street Park	1 4	1 3	1 4	1 3	1 5	1 4	0	1 5
(1=yes, 0=no)	Police to Control Traffic	1 5	1 3	0	1 4	1 5	1 5	1 4	1 5
(1=yes, 0=no)	Re-Time Nearby Signals	0	0	0	0	1 5	1 3	1 4	0
(1=yes, 0=no)	Close Streets	1 4	0	1 4	1 4	0	1 3	0	1
(1=yes, 0=no)	Police for Signals	1 4	1 3	0	1 4	1 5	1 5	1 3	1 3
(1=yes, 0=no)	Turning Restrictions	0	1 3	1 4	1 4	1 5	1 3	1 3	1 5
(1=yes, 0=no)	Provide Maps	0	0	1 3	1 4	1 3	1 3	1 3	1 2
(1=yes, 0=no)	Pre-game Media	0	1 2	0	0	1 4	1 3	1 3	1 2
(1=yes, 0=no)	Reversible Flow Lanes	0	1 3	0	0	1 4	0	0	1 5
(1=yes, 0=no)	Announce Post Traffic	0	0	0	0	0	0	1 3	1 3
(1=yes, 0=no)	Literature W/ Ticket	0	0	0		1 3	1 3	1 3	1 4
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	1
	Total # of Traffic Tools	6	9	6	9	12	12	9	13

	Tag Number univ dept enrollment capacity avg. 1996	64 Pitt Event 30000 56500 32480	37 Purdue Police 35000 67861 40000	24 Rice Police 4100 70000 20000	63 Rutgers Police 32000 42000 28000	90 San Jose St. Police 25000 61121 17000	67 S. Carolina Police 28000 80250 78000	82 USC Park 28000 94159 50000	73 S. Miss. Police 12000 33000 20000
(1=yes, 0=no)	**ORGANIZED TRAFFIC**	1 3	1 4	1		1 3	1 5	0	1 4
(1=yes, 0=no)	Permanent Signing	1 3	1 3	1	1 4	1 3	0	0	1 3
(1=yes, 0=no)	Temporary Signing	1 3	1 3	0	1 4	1 2	1 4	1 3	1 4
(1=yes, 0=no)	Convert to One-Way	1 2	0	0	1 4	0	1 5	1 3	1 5
(1=yes, 0=no)	Prohibit On-Street Park	1 3	0	1	1 4	0	1 5	1 4	0
(1=yes, 0=no)	Police to Control Traffic	1 3	1 4	1	1 4	1 4	1 5	1 3	1 5
(1=yes, 0=no)	Re-Time Nearby Signals	0	0	1	0	0	1 4	1 3	0
(1=yes, 0=no)	Close Streets	1 2	0	0	1 4	1 3	0	1 3	1 5
(1=yes, 0=no)	Police for Signals	1 2	1 4	1	1 4	1 3	0	1 3	1 5
(1=yes, 0=no)	Turning Restrictions	0	1 3	1	1 4	1 3	1 4	1 3	1 5
(1=yes, 0=no)	Provide Maps	1 4	0	0	1 5	0	1 4	0	1 4
(1=yes, 0=no)	Pre-game Media	1 4	1 1	1	1 5	0	1 4	0	1 3
(1=yes, 0=no)	Reversible Flow Lanes	0	0	0	1 5	0	0	0	1 4
(1=yes, 0=no)	Announce Post Traffic	0	0	0	1 5	0	0	0	0
(1=yes, 0=no)	Literature W/ Ticket	1 3	1 2		1 5	0	1 5	0	0
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	0
	Total # of Traffic Tools	10	7	7	13	6	9	8	10

	Tag Number univ dept enrollment capacity avg. 1996	72 SW Louisiana Police 17500 31000 28000	100 Stanford Police 85500	114 Syracuse Parking 15000 50000	16 Tennessee Police 27000 102544 107000	77 Texas Police 50000 75512 57000	103 TAMU Park 43000 70210 66000	27 TCU Police 7000 46000 32000	51 UTEP Police 15000 52000 20000	94 Tx Tech Police 25000 50500 45000
(1=yes, 0=no)	**ORGANIZED TRAFFIC**	1 5	1 5	1 4	1	1 5	1	1 3		1 4
(1=yes, 0=no)	Permanent Signing	1 5	0	1 3	0	0	0	0	0	0
(1=yes, 0=no)	Temporary Signing	0	1 2	1 3	1 3	1 4	1	0	1 3	1 4
(1=yes, 0=no)	Convert to One-Way	0	1 4	0	1 3	1 5	1	1 3	1 4	1 5
(1=yes, 0=no)	Prohibit On-Street Park	1 5	1 4	1 4	1 3	0	0	1 5	0	1 4
(1=yes, 0=no)	Police to Control Traffic	1 5	1 3	1 4	1 3	1 5	0	1 5	1 3	1 5
(1=yes, 0=no)	Re-Time Nearby Signals	1 5	1 3	0	1 3	0	1	1 3	1 3	0
(1=yes, 0=no)	Close Streets	0	0	0	1 3	1 4	1	1 3	1 3	1 4
(1=yes, 0=no)	Police for Signals	1 5	1 4	1 4	1 3	1 4	0	1 3	1 3	1 4
(1=yes, 0=no)	Turning Restrictions	1 4	0	1 4	1 3	1 5	1	0	1 3	1 4
(1=yes, 0=no)	Provide Maps	1 5	1 1	1 5	1 3	0	1	0	0	0
(1=yes, 0=no)	Pre-game Media	0	1 1	1 5	1 3	0	1	0	1 3	0
(1=yes, 0=no)	Reversible Flow Lanes	0	0	0	1 3	0	1	0	1 1	0
(1=yes, 0=no)	Announce Post Traffic	0	0	1 2	0	0	1	0	0	0
(1=yes, 0=no)	Literature W/ Ticket	1 5	1 2	1 5	0	0	1	NA	1 3	1 4
(1=yes, 0=no)	Others	1	1	0	0	0	1	0	0	0
	Total # of Traffic Tools	8	9	10	11	6	10	6	10	8

	Tag Number univ dept enrollment capacity avg. 1996	48 Toledo Police 26248 20000	83 Tulane Police 10000 69065	61 Air Force Police 5000 50126 46000	12 Army Police 4000 39929 35000	2 Utah Police 26000 32500 29000	57 Utah St. Parking 20000 30257 19000	86 Virginia Police 20000 40000 45000	96 VA Tech Police 24000 51000 50000	60 Wake Forest Facilitiy MGT 3600 31500 22000
(1=yes, 0=no)	**ORGANIZED TRAFFIC**	1 3	0	1 5	1 5	1 3	1	1 5	1 5	1
(1=yes, 0=no)	Permanent Signing	0	0	0	0	0	0	0	0	1 4
(1=yes, 0=no)	Temporary Signing	1 3	0	1 4	1 4	1 4	0	1 3	1 5	1 4
(1=yes, 0=no)	Convert to One-Way	1 4	0	1 4	1 4	0	0	1 5	1 5	0
(1=yes, 0=no)	Prohibit On-Street Park	0	1	1 5	1 5	0	1	1 4	1 5	1 5
(1=yes, 0=no)	Police to Control Traffic	1 4	0	1 5	1 5	1 3	1	1 4	1 5	1 5
(1=yes, 0=no)	Re-Time Nearby Signals	1 4	0	0	0	1 3	0	1 4	1 5	1 4
(1=yes, 0=no)	Close Streets	0	0	1 5	1	0	0	1 4	1 5	0
(1=yes, 0=no)	Police for Signals	0	0	1 4	0	1 3	1	1 4	0	1 4
(1=yes, 0=no)	Turning Restrictions	0	0	1 5	0	0	1	1 4	1 5	1 4
(1=yes, 0=no)	Provide Maps	0	0	1 5	1 4	0	1	0	1 5	1 3
(1=yes, 0=no)	Pre-game Media	1 3	0	1 3	0	1 4	0	1 3	1 5	1 4
(1=yes, 0=no)	Reversible Flow Lanes	0	0	1 5	1 4	0	0	0	1 5	1 3
(1=yes, 0=no)	Announce Post Traffic	0	0	0	0	1 3	0	0	1 5	0
(1=yes, 0=no)	Literature W/ Ticket	1 3	0	1 4	1 4	1 3	0	0	1 5	0
(1=yes, 0=no)	Others	0	1	0	1	0	0	0	1	0
	Total # of Traffic Tools	6	1	11	8	7	5	9	12	10

	Tag Number univ dept enrollment capacity avg. 1996	9 Wash. Police 37500 72500 69000	74 WVU Police 23000 63500 49000	112 W. Mich. Police 26000 30100 18000	TALLY YES	 NO	 % YES	 % NO
(1=yes, 0=no)	**ORGANIZED TRAFFIC**	1 5	1 4	1	75	12	86.21	13.79
(1=yes, 0=no)	Permanent Signing	0	1 5	0	40	47	45.98	54.02
(1=yes, 0=no)	Temporary Signing	1 5	1 3	0	66	21	75.86	24.14
(1=yes, 0=no)	Convert to One-Way	1 5	1 3	0	53	34	60.92	39.08
(1=yes, 0=no)	Prohibit On-Street Park	1 5	0	0	56	31	64.37	35.63
(1=yes, 0=no)	Police to Control Traffic	1 5	1 4	1	81	6	93.10	6.90
(1=yes, 0=no)	Re-Time Nearby Signals	0	0	0	43	44	49.43	50.57
(1=yes, 0=no)	Close Streets	0	0	0	44	43	50.57	49.43
(1=yes, 0=no)	Police for Signals	1 5	1 4	0	67	20	77.01	22.99
(1=yes, 0=no)	Turning Restrictions	1 5	1 4	0	62	25	71.26	28.74
(1=yes, 0=no)	Provide Maps	1 5	0	0	53	34	60.92	39.08
(1=yes, 0=no)	Pre-game Media	0	1 4	1	58	29	66.67	33.33
(1=yes, 0=no)	Reversible Flow Lanes	0	1 3	0	29	58	33.33	66.67
(1=yes, 0=no)	Announce Post Traffic	0	1 5	0	20	67	22.99	77.01
(1=yes, 0=no)	Literature W/ Ticket		1 3	1	41	46	47.13	52.87
(1=yes, 0=no)	Others	0	0	0	18	69	20.69	79.31
	Total # of Traffic Tools	7	10	3				

	Tag Number univ dept enrollment capacity avg. 1996	RATING												Avg Rating
		1	%	2	%	3	%	4	%	5	%	NR	%	
(1=yes, 0=no)	**ORGANIZED TRAFFIC**	1	1.33	1	1.33	14	18.67	27	36.00	21	28.00	11	14.67	4.03
(1=yes, 0=no)	Permanent Signing	1	2.50	3	7.50	19	47.50	12	30.00	3	7.50	2	5.00	3.34
(1=yes, 0=no)	Temporary Signing	0	0.00	5	7.58	29	43.94	24	36.36	5	7.58	3	4.55	3.46
(1=yes, 0=no)	Convert to One-Way	0	0.00	1	1.89	14	26.42	22	41.51	15	28.30	1	1.89	3.98
(1=yes, 0=no)	Prohibit On-Street Park	0	0.00	1	1.79	15	26.79	18	32.14	17	30.36	5	8.93	4.00
(1=yes, 0=no)	Police to Control Traffic	0	0.00	1	1.23	11	13.58	33	40.74	31	38.27	5	6.17	4.24
(1=yes, 0=no)	Re-Time Nearby Signals	0	0.00	1	2.33	14	32.56	18	41.86	8	18.60	2	4.65	3.80
(1=yes, 0=no)	Close Streets	0	0.00	1	2.27	12	27.27	16	36.36	10	22.73	5	11.36	3.90
(1=yes, 0=no)	Police for Signals	0	0.00	2	2.99	16	23.88	31	46.27	14	20.90	4	5.97	3.90
(1=yes, 0=no)	Turning Restrictions	0	0.00	1	1.61	18	29.03	24	38.71	15	24.19	4	6.45	3.91
(1=yes, 0=no)	Provide Maps	1	1.89	5	9.43	19	35.85	15	28.30	10	18.87	3	5.66	3.56
(1=yes, 0=no)	Pre-game Media	2	3.45	5	8.62	23	39.66	17	29.31	7	12.07	4	6.90	3.41
(1=yes, 0=no)	Reversible Flow Lanes	1	3.45	1	3.45	7	24.14	10	34.48	9	31.03	1	3.45	3.89
(1=yes, 0=no)	Announce Post Traffic	0	0.00	1	5.00	7	35.00	5	25.00	5	25.00	2	10.00	3.78
(1=yes, 0=no)	Literature W/ Ticket	0	0.00	3	7.32	16	39.02	11	26.83	9	21.95	2	4.88	3.67
(1=yes, 0=no)	Others													
	Total # of Traffic Tools													

		58 Akron Police 19000 35202 10000	115 Alabama Parking 18500 70123 72500	105 UAB 16000 83091 35000	42 Arizona Park 35000 56167 53000	19 Arizona St. Police 44000 73656 63884	32 Arkansas Police 14500 51000 40000	11 Ball State Police 20000 16319	50 Baylor Police 12000 50000 43000	54 Boise St. Police 15000 22600 18000
(1=yes, 0=no)	**ORGANIZED PARKING**	1 4	1 4	0	1 4	1 5	1 5	0	0	1
(1=yes, 0=no)	Permanent Signing	1 2	1 3		0	0	1 4	0	1 3	0
(1=yes, 0=no)	Temporary Signing	1 3	1 4		1 5	1 3	1 5	1 3	1 2	1 3
(1=yes, 0=no)	Park-n-Ride Lots	0	1 3		1 4	0	1 3	0	1 4	1 2
(1=yes, 0=no)	Provide Maps	0	1 4		1 4	1 5	0	1 3	0	0
(1=yes, 0=no)	Literature on Parking	0	1 4		0	1 5	1 3	1 3	0	1 3
(1=yes, 0=no)	Pre-Game Media	1 4	1 4		0	1 4	0	1 3	1 2	1 2
(1=yes, 0=no)	Others	0	0		0	0	0	0	0	1
	Total # of Parking Tools	3	6		3	4	4	4	4	4
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	0	1 2		1 4	1 5	0	0	0	0
(1=yes, 0=no)	Police for Crowd	1 4	1 3		1 4	1 5	1 5	1 3	1 5	0
(1=yes, 0=no)	Ped. Only Phases	0	1 3		1 4	1 5	0	0	1 5	0
(1=yes, 0=no)	Barriers/ Barricades	1 4	0		1 4	1 5	1 4	1 3	0	1 4
(1=yes, 0=no)	Hold Vehicle Traffic	0	1 3		1 3	1 5	0	1 3	1 5	0
(1=yes, 0=no)	Others	0	0		0	0	0	0	1	0
	Total # of Ped. Tools	2	3		4	4	2	3	3	1

		111 BC Police 14000 44500 34500	101 BYU Parking 28000 65000 55000	22 CAL Park 30000 75662 35000	84 UCF Park 70349	109 C. Mich. Police 17000 20086 18000	28 Cincinnati Park 30000 36000 20000	45 Clemson Athletics 16000 81473 67212	21 Colorado Park 25000 51748 50000
(1=yes, 0=no)	**ORGANIZED PARKING**	1 4	0	1 4		1 4	1 4	1 4	1 4
(1=yes, 0=no)	Permanent Signing	0	1 2	0		0	0	1 4	0
(1=yes, 0=no)	Temporary Signing	1 4	1 3	1 4		1 4	1 2	1 4	1 4
(1=yes, 0=no)	Park-n-Ride Lots	1 4	1 4	1 2		0	0	0	1 2
(1=yes, 0=no)	Provide Maps	1 4	1 4	1 4		1 3	1	1 4	1 2
(1=yes, 0=no)	Literature on Parking	1 4	1 4	1 5		1 3	1	1 4	1 3
(1=yes, 0=no)	Pre-Game Media	1 4	1 3	0		0	0	0	0
(1=yes, 0=no)	Others	0	0	0		0	0	0	0
	Total # of Parking Tools	5	6	4		3	3	4	4
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	1 4	1 3	1 5		0	0	0	0
(1=yes, 0=no)	Police for Crowd	1 4	1 4	1 5		1 4	1	1 4	1 4
(1=yes, 0=no)	Ped. Only Phases	1 4	1 4	1 5		0	1	1 4	1 4
(1=yes, 0=no)	Barriers/ Barricades	0	0	0		1 3	0	1 4	1 5
(1=yes, 0=no)	Hold Vehicle Traffic	1 4	1 3	0		1 4	0	1 4	0
(1=yes, 0=no)	Others	0	0	0		0	0	0	0
	Total # of Ped. Tools	3	3	2		3	2	4	3

		31 Colorado St. Police 22000 30000 28000	70 Duke Park 10000 33941 18000	65 ECU Park 17500 35000 29265	95 E. Mich. Police 25000 30200 5000	44 Florida Park 40000 83000 86500	20 FSU Park 30000 77500 80932	76 Fresno St. Police 17994 41031 43000	30 Georgia Police 86117 80000	4 GA Tech Police 13500 46000 38000
(1=yes, 0=no)	**ORGANIZED PARKING**	1 3	1	1		1	1 3	1 4	1 4	1 3
(1=yes, 0=no)	Permanent Signing	1 3	1 3	1	0	0	0	1 3	0	0
(1=yes, 0=no)	Temporary Signing	1 2	0	1	1 3	1 4	1 4	1 3	0	1 3
(1=yes, 0=no)	Park-n-Ride Lots	0	1 4	0	0	1 4	1 3	1 3	1 3	0
(1=yes, 0=no)	Provide Maps	1 3	1 4	1	0	0	0	0	1 4	0
(1=yes, 0=no)	Literature on Parking	1 3	1 4	0	0	0	1 3	1 4	1 3	0
(1=yes, 0=no)	Pre-Game Media	1 3	1 3	1	0	1 3	1 2	1 4	1 4	0
(1=yes, 0=no)	Others	0	1	1	0	0	1	1	0	0
	Total # of Parking Tools	5	5	4	1	3	4	5	4	1
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	0	1 3	0	0	0	0	0	1 5	1 3
(1=yes, 0=no)	Police for Crowd	1 3	1 3	1	1 4	1 3	1 4	1 5	1 5	1 3
(1=yes, 0=no)	Ped. Only Phases	0	0	0	1 3	1 3	1 3	1 4	1 5	1 3
(1=yes, 0=no)	Barriers/ Barricades	0	0	1	0	1 3	1 3	0	0	1 4
(1=yes, 0=no)	Hold Vehicle Traffic	0	1 2	1	1 3	1 3	1 3	0	1 5	1 3
(1=yes, 0=no)	Others	0	0	0	0	0	1	1	0	0
	Total # of Ped. Tools	1	2	3	3	4	4	2	3	4

		99 Houston Police 31000 22000 20000	52 Idaho Park 11500 16000 11252	18 Illinois Police 37000 52354 59000	40 Indiana Park 35000 69000 38000	93 Iowa St. Police 25000 43000 45000	88 Kansas Police 24874 50250 38900	92 Kent Park 20000 30520 17000	75 Kentucky Police 30000 57800 40000	56 LSU Park 27000 79940 79411
(1=yes, 0=no)	**ORGANIZED PARKING**	0	1 2	0	1 4	1 3	1 3	1 4	1 3	1
(1=yes, 0=no)	Permanent Signing	0	0	1 3	1 4	0	0	1 4	0	1 4
(1=yes, 0=no)	Temporary Signing	1 3	1 3	0	0	1 3	1 3	1 4	1 3	1 4
(1=yes, 0=no)	Park-n-Ride Lots	1 2	1 2	0	0	0	1 3	1 3	0	1 2
(1=yes, 0=no)	Provide Maps	0	0	0	1 4	1 3	1 3	1 3	1 3	0
(1=yes, 0=no)	Literature on Parking	0	0	1 4	1 4	1 3	0	0	1 3	1
(1=yes, 0=no)	Pre-Game Media	0		1 2	1 3	0	0	1 2	1 3	1
(1=yes, 0=no)	Others	0	0	0	0	0	1	1	0	0
	Total # of Parking Tools	2	2	3	4	3	3	5	4	5
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	0	0	0	0	0	0	0	1 3	1 4
(1=yes, 0=no)	Police for Crowd	1 4	1 3	1 5	1 4	1 4	1 4	1 3	1 3	1 4
(1=yes, 0=no)	Ped. Only Phases	1 4	0	1 5	0	1 4	1 3	1 3	0	1 3
(1=yes, 0=no)	Barriers/ Barricades	0	0	1 5	1 4	0	0	1 3	1 3	1 3
(1=yes, 0=no)	Hold Vehicle Traffic	0	0	1 5	0	1 4	0	0	0	1 3
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	0	0
	Total # of Ped. Tools	2	1	4	2	3	2	3	2	4

		15 Louisville Police	26 Maryland Police	102 Memphis Parking	98 Miami Athletics	87 Miami OH Police	23 Michigan Ticket	59 Mich. St. Police	89 Minnesota Parking
		22000	50000			18000	45000	41000	51388
		35500	48000	62380	74476	25183	102501	73000	63500
		36000	25000		50000	10366	104000	66700	43500
(1=yes, 0=no)	**ORGANIZED PARKING**	1	1 4		1 5	1 3	1 4	1 4	1 2
(1=yes, 0=no)	Permanent Signing	1 3	1 3		1 5		1 4	1 4	0
(1=yes, 0=no)	Temporary Signing	0	1 5		0	1 3	1 4	1 4	0
(1=yes, 0=no)	Park-n-Ride Lots	0	1 3		1 5	1 3	1 5	1 5	1
(1=yes, 0=no)	Provide Maps	0	1 2		1 5	1 3	1 4	1 3	0
(1=yes, 0=no)	Literature on Parking	1 3	1 3		1 5	1 4	1 4	1 3	0
(1=yes, 0=no)	Pre-Game Media	0	1 4		1 5	0	1 4	1 4	0
(1=yes, 0=no)	Others	0	1		0	0	0	0	0
	Total # of Parking Tools	2	6		5	4	6	6	1
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	0	1 3		1 5	0	0	0	1
(1=yes, 0=no)	Police for Crowd	1 3	1 4		1 5	1 4	1 5	1 4	1
(1=yes, 0=no)	Ped. Only Phases	0	1 4		1 5	0	1 5	0	1
(1=yes, 0=no)	Barriers/ Barricades	1 3	1 3		1 5	1 3	0	0	0
(1=yes, 0=no)	Hold Vehicle Traffic	0	1 3		1 5	0	1 5	1 4	1
(1=yes, 0=no)	Others	0	0		0	0	0	0	0
	Total # of Ped. Tools	2	4		4	2	3	2	3

		116 Mississippi Police 10000 42577 36532	35 Mississippi St Police 14000 40656 35000	108 Missouri Police 24000 62000 45000	62 N. Mexico Police 24000 31218 17000	53 NMSU Police 16000 30343	79 Nevada Police 12000 31545 25000	80 UNLV Police 21000 32000 12000	25 NC State Park 25000 52000 40000
(1=yes, 0=no)	**ORGANIZED PARKING**	1 4	1 4	1 2	1 4	0	0	1 4	0
(1=yes, 0=no)	Permanent Signing	0	0	1 2	0	0	0	0	0
(1=yes, 0=no)	Temporary Signing	1 4	1 4	1 2	0	0	1 4	1 4	1 3
(1=yes, 0=no)	Park-n-Ride Lots	0	0	0	0	0	0	0	0
(1=yes, 0=no)	Provide Maps	0	1 4	1 2	0	0	0	0	1 3
(1=yes, 0=no)	Literature on Parking	1 5	0	1 2	0	1 5	0	0	0
(1=yes, 0=no)	Pre-Game Media	0	0	1 2	0	1	0	0	0
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	0
	Total # of Parking Tools	2	2	5	0	2	1	1	2
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	0	1 4	0	0	0	0	0	0
(1=yes, 0=no)	Police for Crowd	1 5	1 5	1 4	1 4	1 3	1 4	1	0
(1=yes, 0=no)	Ped. Only Phases	0	1 4		1 4	0	1 4	0	0
(1=yes, 0=no)	Barriers/ Barricades	1 3	1 4	1 1	0	0	0	0	0
(1=yes, 0=no)	Hold Vehicle Traffic	0	1 4	0	0	1	0	0	0
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	0
	Total # of Ped. Tools	2	4	2	2	2	2	1	0

		49 N. Texas Police 25000 30500 13000	71 NE Louisiana Police 11300 30427 20000	113 N. Illinois Police 22000 31000 16000	81 Northwestern Police 14000 49256	29 Ohio St. Park 48000 89841 90000	55 Okl. St. Police 20000 50614 48000	39 Oregon St. Police 14500 35362 23000	85 Penn St. Police 39860 93967 96000
(1=yes, 0=no)	**ORGANIZED PARKING**	1 4	1 4	1 4	1 3	1 4	1 3	1	1
(1=yes, 0=no)	Permanent Signing	0	1 3	1 4	1 2	1 2	0	0	1 4
(1=yes, 0=no)	Temporary Signing	1 4	1 3	1 4	1 3	1 4	1 3	1 4	1 4
(1=yes, 0=no)	Park-n-Ride Lots	0	0	0	1 4	1 5	1 2	0	1 2
(1=yes, 0=no)	Provide Maps	0	0	0	1 4	1	1 3	1 3	1 5
(1=yes, 0=no)	Literature on Parking	0	0	0	0	1 3	1 3	1 3	1 5
(1=yes, 0=no)	Pre-Game Media	0	1 3	0	1 3	1 5	0	0	1 1
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	1
	Total # of Parking Tools	1	3	2	5	6	4	3	6
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	1 4	0	0	0	1 4	0	0	1 3
(1=yes, 0=no)	Police for Crowd	1 4	1 3	1 3	0	1 5	1 5	1 4	1
(1=yes, 0=no)	Ped. Only Phases	0	0	1 1	1 2	1 5	1 5	0	0
(1=yes, 0=no)	Barriers/ Barricades	1 4	0	0	0	1 4	1 3	0	1 5
(1=yes, 0=no)	Hold Vehicle Traffic	0	1 3	1 3	1 3	0	1 3	0	1 2
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	1
	Total # of Ped. Tools	2	2	3	2	3	4	1	3

		64 Pitt Event 30000 56500 32480	37 Purdue Police 35000 67861 40000	24 Rice Police 4100 70000 20000	63 Rutgers Police 32000 42000 28000	90 San Jose St. Police 25000 61121 17000	67 S. Carolina Police 28000 80250 78000	82 USC Park 28000 94159 50000	73 S. Miss. Police 12000 33000 20000
(1=yes, 0=no)	**ORGANIZED PARKING**	1 4	1 5	1	1 5	1 3	1 4	0	1 4
(1=yes, 0=no)	Permanent Signing	0	0	1	1 5	0	1 4	1 3	1 3
(1=yes, 0=no)	Temporary Signing	1 4	1 4	0	1 5	1 3	1 5	1 3	1 4
(1=yes, 0=no)	Park-n-Ride Lots	0	0	0	1 5	0	0	0	0
(1=yes, 0=no)	Provide Maps	1 4	0	0	1 5	0	1 4	1 3	1 4
(1=yes, 0=no)	Literature on Parking	1 4	1 2	1	1 5	0	1 5	0	1 3
(1=yes, 0=no)	Pre-Game Media	1 3	0	1	1 5	0	0	0	1 4
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	0
	Total # of Parking Tools	4	2	3	6	1	4	3	5
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	1 3	0	0	1 4	0	0	0	0
(1=yes, 0=no)	Police for Crowd	1 3	1 2	1	1 4	1	1 4	1 3	1 4
(1=yes, 0=no)	Ped. Only Phases	1 3	0	1	1 4		1 4	1 3	1 4
(1=yes, 0=no)	Barriers/ Barricades	0	0	0	1 5	1 1	0	1 3	1 4
(1=yes, 0=no)	Hold Vehicle Traffic	1 3	0	0	1 5	1 1	0	0	0
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	0
	Total # of Ped. Tools	3	1	2	4	3	2	3	3

		72 SW Louisiana Police 17500 31000 28000	100 Stanford Police 85500	114 Syracuse Parking 15000 50000	16 Tennessee Police 27000 102544 107000	77 Texas Police 50000 75512 57000	103 TAMU Park 43000 70210 66000	27 TCU Police 7000 46000 32000	51 UTEP Police 15000 52000 20000	94 Tx Tech Police 25000 50500 45000
(1=yes, 0=no)	**ORGANIZED PARKING**	1 5	1	1 4		0	1	1 5	1 3	1 4
(1=yes, 0=no)	Permanent Signing	1 5	0	1 3	0	0		1 3	0	0
(1=yes, 0=no)	Temporary Signing	0	1 3	1 3	1 3	0	1	1 3	1 3	1 4
(1=yes, 0=no)	Park-n-Ride Lots	0	0	1 5	1 3	1 2	1	0	1 3	1 5
(1=yes, 0=no)	Provide Maps	1 5	1 2	1 4	1 3	0	1		1 4	1 4
(1=yes, 0=no)	Literature on Parking	1 5	1 2	1 4	0	1 4	1	1 3	1 3	1 4
(1=yes, 0=no)	Pre-Game Media	0	1 1	1 5	1 3	0	1	0	1 3	0
(1=yes, 0=no)	Others	0	0	0	0	1	0	0	0	0
	Total # of Parking Tools	3	4	6	4	2	5	3	5	4
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	0	0	1 5	1 3	0	1	1 5	0	1 4
(1=yes, 0=no)	Police for Crowd	1 4	1 4	1 3	1 4	1 4	0	1 4	1 3	1 5
(1=yes, 0=no)	Ped. Only Phases	0	1 4	1 2	1 4	1 4	1	0	1 3	1 4
(1=yes, 0=no)	Barriers/ Barricades	1 5	1 4	1 4	1 5	0	1	0	1 4	1
(1=yes, 0=no)	Hold Vehicle Traffic	0	1 5	1 5	0	0	1	1 4	1 3	1 3
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	0	0
	Total # of Ped. Tools	2	4	4	3	2	3	2	4	4

		48 Toledo Police 26248 20000	83 Tulane Police 10000 69065	61 Air Force Police 5000 50126 46000	12 Army Police 4000 39929 35000	2 Utah Police 26000 32500 29000	57 Utah St. Parking 20000 30257 19000	86 Virginia Police 20000 40000 45000	96 VA Tech Police 24000 51000 50000	60 Wake Forest Facilitiy MGT 3600 31500 22000
(1=yes, 0=no)	**ORGANIZED PARKING**	1 3	0	1	1 4	0	1	1 5	1 5	
(1=yes, 0=no)	Permanent Signing	0	0		1 3	0	0	0	0	0
(1=yes, 0=no)	Temporary Signing	1 3	0	1 5	1 4	1 3	0	1 3	1 5	1 4
(1=yes, 0=no)	Park-n-Ride Lots	0	0	0	1 5	1 4	0	1 3	1 5	0
(1=yes, 0=no)	Provide Maps	0	0	0	1 4	1 3	1	0	1 5	1 3
(1=yes, 0=no)	Literature on Parking	1 3	0	1 4	1 4	1 3	1	0	1 5	1 4
(1=yes, 0=no)	Pre-Game Media	1 3		0	0	1	0	1 3	1 5	0
(1=yes, 0=no)	Others	1	1	0	1	0	0	0	0	0
	Total # of Parking Tools	3	0	2	5	5	2	3	5	3
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	0	0	0	1 5	0	0	0	1 5	1 5
(1=yes, 0=no)	Police for Crowd	1 4	0	0	1 5	1 3	1	1 4	1 5	1 5
(1=yes, 0=no)	Ped. Only Phases	1 3	0	0	0	1 3	1	1 4	1 5	0
(1=yes, 0=no)	Barriers/ Barricades	0	0	0	1 5	1 3	1	0	1 5	0
(1=yes, 0=no)	Hold Vehicle Traffic	1 3	0	0	0	1 3	0	0	1 5	0
(1=yes, 0=no)	Others	0	0	0	0	0	0	0	0	0
	Total # of Ped. Tools	3	0	0	2	4	3	2	4	1

		9 Wash. Police 37500 72500 69000	74 WVU Police 23000 63500 49000	112 W. Mich. Police 26000 30100 18000	TALLY			
					YES	NO	% YES	% NO
(1=yes, 0=no)	**ORGANIZED PARKING**	1 5	1 4	1	70	17	80.46	19.54
(1=yes, 0=no)	Permanent Signing	0	1 3	0	35	52	40.23	59.77
(1=yes, 0=no)	Temporary Signing	1 5	1 4	1	71	16	81.61	18.39
(1=yes, 0=no)	Park-n-Ride Lots	1 5	1 5	1	43	44	49.43	50.57
(1=yes, 0=no)	Provide Maps	1 5	0	0	51	36	58.62	41.38
(1=yes, 0=no)	Literature on Parking	1 5	1 3	1	59	28	67.82	32.18
(1=yes, 0=no)	Pre-Game Media	0	1 4	0	44	43	50.57	49.43
(1=yes, 0=no)	Others	0	0	0	13	74	14.94	85.06
	Total # of Parking Tools	4	5	3				
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	0	0	0	28	59	32.18	67.82
(1=yes, 0=no)	Police for Crowd	1 5	1 3	1	79	8	90.80	9.20
(1=yes, 0=no)	Ped. Only Phases	1 5	1 3	0	53	34	60.92	39.08
(1=yes, 0=no)	Barriers/ Barricades	1 5	1 3	0	46	41	52.87	47.13
(1=yes, 0=no)	Hold Vehicle Traffic	1 5	1 3	1	46	41	52.87	47.13
(1=yes, 0=no)	Others	0	0	0	4	83	4.60	95.40
	Total # of Ped. Tools	4	4	2				

		RATING												Avg Rating
		1	%	2	%	3	%	4	%	5	%	NR	%	
(1=yes, 0=no)	**ORGANIZED PARKING**	0	0.00	3	4.29	12	17.14	31	44.29	10	14.29	14	20.00	3.86
(1=yes, 0=no)	Permanent Signing	0	0.00	5	14.29	15	42.86	10	28.57	3	8.57	2	5.71	3.33
(1=yes, 0=no)	Temporary Signing	0	0.00	4	5.63	28	39.44	28	39.44	8	11.27	3	4.23	3.59
(1=yes, 0=no)	Park-n-Ride Lots	0	0.00	9	20.93	12	27.91	8	18.60	11	25.58	3	6.98	3.53
(1=yes, 0=no)	Provide Maps	0	0.00	4	7.84	16	31.37	19	37.25	7	13.73	5	9.80	3.63
(1=yes, 0=no)	Literature on Parking	0	0.00	3	5.08	22	37.29	17	28.81	11	18.64	6	10.17	3.68
(1=yes, 0=no)	Pre-Game Media	2	4.55	6	13.64	14	31.82	11	25.00	5	11.36	6	13.64	3.29
(1=yes, 0=no)	Others													
	Total # of Parking Tools													
(1=yes, 0=no)	**VEHICLE-FREE STREETS**	0	0.00	1	3.57	8	28.57	8	28.57	9	32.14	2	7.14	3.96
(1=yes, 0=no)	Police for Crowd	0	0.00	1	1.27	19	24.05	32	40.51	18	22.78	9	11.39	3.96
(1=yes, 0=no)	Ped. Only Phases	1	1.89	2	3.77	14	26.42	20	37.74	11	20.75	5	9.43	3.79
(1=yes, 0=no)	Barriers/ Barricades	2	4.35	0	0.00	15	32.61	14	30.43	11	23.91	4	8.70	3.76
(1=yes, 0=no)	Hold Vehicle Traffic	1	2.17	2	4.35	20	43.48	7	15.22	11	23.91	5	10.87	3.61
(1=yes, 0=no)	Others													
	Total # of Ped. Tools													

	Tag Number univ dept enrollment capacity avg. 1996	58 Akron Police 19000 35202 10000	115 Alabama Parking 18500 70123 72500	105 UAB 16000 83091 35000	42 Arizona Park 35000 56167 53000	19 Arizona St. Police 44000 73656 63884	32 Arkansas Police 14500 51000 40000	11 Ball State Police 20000 16319	50 Baylor Police 12000 50000 43000	54 Boise St. Police 15000 22600 18000
(1=yes, 0=no)	**FREE PUBLIC** **ON-SITE**	0	1 5		0	1 2	1 3	0	0	1 4
(1=yes, 0=no)	Pay Public On-Site	1 2	0		1 4	1 4	0	1 4	1 4	1 4
(1=yes, 0=no)	Free Donor On-Site	0		1 5	0	0	0	0	1 3	0
(1=yes, 0=no)	Pay Donor On-Site	0		1 4	1 4	1 4	1 4	1 5	0	1
(1=yes, 0=no)	Use of Public Transit	1 2	1 2	0	1 3	0	1 5	1 4	1 4	1 4
(1=yes, 0=no)	Private Shuttle Bus	0	0	0	1 3	1 3	1 5	1 5	1 5	1 4
(1=yes, 0=no)	Public Transit Incentives	1 2	0	0	1 3	0	0	1 3	0	0
	CONG./DELAYS B4	4	4		4	4	4	5	3	3
	cong./delays after vehicle traffic safety	4 4	4 3		4 3	4 5	5 3	5 5	3 4	4 4
	pedestrian safety availability of parking	4 2	3 3		4 4	5 5	3 3	2 3	4 5	4 2
	access. of parking access to stadium	2 3	3 3		4 4	5 5	2 1	4 3	4 4	3 3
	ratio parking/seats nearby road to handle	2 4	2 3		2 2	3 3	2 1	3 4	3 3	1 2
	overall TC, park, peds. degree of coop/coord	4 5	4 4		4 3	5 5	4 5	4 5	4 5	3 3

	Tag Number univ dept enrollment capacity avg. 1996	111 BC Police 14000 44500 34500	101 BYU Parking 28000 65000 55000	22 CAL Park 30000 75662 35000	84 UCF Park 70349	109 C. Mich. Police 17000 20086 18000	28 Cincinnati Park 30000 36000 20000	45 Clemson Athletics 16000 81473 67212	21 Colorado Park 25000 51748 50000
(1=yes, 0=no)	**FREE PUBLIC** **ON-SITE**	0	1 4	0		1 2	0	1 4	0
(1=yes, 0=no)	Pay Public On-Site	0	0	0		1 5	1 5	0	1 3
(1=yes, 0=no)	Free Donor On-Site	1	1 4	0		0	0	1 4	0
(1=yes, 0=no)	Pay Donor On-Site	0	0	0		1 5	1 5	0	1 3
(1=yes, 0=no)	Use of Public Transit	1	1 4	1 4		0	0	0	1 2
(1=yes, 0=no)	Private Shuttle Bus	1	0	1 4		1 3	0	0	1 3
(1=yes, 0=no)	Public Transit Incentives	1	1 3	1 3		0		0	0
	CONG./DELAYS B4	5	4	2		3	4	3	3
	cong./delays after vehicle traffic safety	5 5	4 3	3 4		3 4	4 4	4 4	3 3
	pedestrian safety availability of parking	5 4	4 4	4 2		4 2	4 5	4 4	3 2
	access. of parking access to stadium	5 4	4 4	3 2		4 4	5 5	4 4	2 2
	ratio parking/seats nearby road to handle	3 3	4 3	2 2		1 3	4 4	4 4	2 1
	overall TC, park, peds. degree of coop/coord	4 4	4 5	3 4		3 4	4 4	4 4	4 5

	Tag Number univ dept enrollment capacity avg. 1996	31 Colorado St. Police 22000 30000 28000	70 Duke Park 10000 33941 18000	65 ECU Park 17500 35000 29265	95 E. Mich. Police 25000 30200 5000	44 Florida Park 40000 83000 86500	20 FSU Park 30000 77500 80932	76 Fresno St. Police 17994 41031 43000	30 Georgia Police 86117 80000	4 GA Tech Police 13500 46000 38000
(1=yes, 0=no)	**FREE PUBLIC** **ON-SITE**	0	1 4	1 4	0	1 3	1 2	1 3	1 4	1 2
(1=yes, 0=no)	Pay Public On-Site	1 4	0	0	1 3	0	1 4	1 4	1 4	1 3
(1=yes, 0=no)	Free Donor On-Site	0	1 5	1 5	1 3	1 4	0	0	1 4	1 4
(1=yes, 0=no)	Pay Donor On-Site	1 4	0	0	1 3	0	1 3	0	1 5	1 3
(1=yes, 0=no)	Use of Public Transit	1 3	0	0	1 3	1 3	1 3	0	1 3	1 5
(1=yes, 0=no)	Private Shuttle Bus	1 2	1 3	1 5	1 3	0	0	1 3	1 3	1 2
(1=yes, 0=no)	Public Transit Incentives	1 3	0	0	0	1 3	1 3	0	0	0
	CONG./DELAYS B4	4	4	3	3	4	3	4	4	4
	cong./delays after vehicle traffic safety	3 4	2 3	4 4	3 3	4 4	4 4	4 4	4 4	3 3
	pedestrian safety availability of parking	4 5	3 4	4 4	4 3	4 4	5 4	5 4	5 3	3 3
	access. of parking access to stadium	3 3	5 4	4 4	3 4	4 4	4 5	4 5	3 4	3 3
	ratio parking/seats nearby road to handle	4 3	4 2	3 4	3 3	4 4	2 3	3 4	2 2	3 4
	overall TC, park, peds. degree of coop/coord	4 5	3 3	4 5	4 4	4 4	4 5	4 5	5 5	4 4

	Tag Number univ dept enrollment capacity avg. 1996	99 Houston Police 31000 22000 20000	52 Idaho Park 11500 16000 11252	18 Illinois Police 37000 52354 59000	40 Indiana Park 35000 69000 38000	93 Iowa St. Police 25000 43000 45000	88 Kansas Police 24874 50250 38900	92 Kent Park 20000 30520 17000	75 Kentucky Police 30000 57800 40000	56 LSU Park 27000 79940 79411
(1=yes, 0=no)	**FREE PUBLIC** **ON-SITE**	1 3	1 2	1 2	1 2	0	1 1	1 4	0	1 4
(1=yes, 0=no)	Pay Public On-Site	1 2	1 3	1 5	1 4	1 3	1 4	0	1 3	1 5
(1=yes, 0=no)	Free Donor On-Site	1 4	1 3	1 5	1 5	1 4	0	1 4	0	1 5
(1=yes, 0=no)	Pay Donor On-Site	0	0	0	1 4	0	1 2	0	1 3	1 5
(1=yes, 0=no)	Use of Public Transit	0	0	1 3	1 3	0	0	1 5	0	1 3
(1=yes, 0=no)	Private Shuttle Bus	0	1 2	1 3	0	1 3	1 3	0	0	1 3
(1=yes, 0=no)	Public Transit Incentives		0	0	0	0		1 2	0	0
	CONG./DELAYS B4	4	2	5	4	3	3	4	3	3
	cong./delays after vehicle traffic safety	4 4	3 3	5 5	4 4	3 3	4 4	4 4	3 4	3 4
	pedestrian safety availability of parking	4 3	3 4	5 5	3 5	3 3	4 2	4 3	4 3	4 5
	access. of parking access to stadium	2 2	3 3	5 5	5 5	3 5	2 2	2 2	3 3	3 4
	ratio parking/seats nearby road to handle	3 2	3 2	5 5	4 3	2 3	2 2	2 2	4 3	 2
	overall TC, park, peds. degree of coop/coord	3 3	3 3	5 5	4 4	3 2	3 4	3 4	3 5	4 5

	Tag Number univ dept enrollment capacity avg. 1996	15 Louisville Police 22000 35500 36000	26 Maryland Police 50000 48000 25000	102 Memphis Parking 62380	98 Miami Athletics 74476 50000	87 Miami OH Police 18000 25183 10366	23 Michigan Ticket 45000 102501 104000	59 Mich. St. Police 41000 73000 66700	89 Minnesota Parking 51388 63500 43500
(1=yes, 0=no)	**FREE PUBLIC ON-SITE**	0	1 4		0	0	0	1 4	0
(1=yes, 0=no)	Pay Public On-Site	1 3	1 4		1 4	1 3	1 3	1 4	1 4
(1=yes, 0=no)	Free Donor On-Site	0	1 4		0	0	1 5		0
(1=yes, 0=no)	Pay Donor On-Site	1 4	1 4		1 4	1 4	1 5	1 5	1 5
(1=yes, 0=no)	Use of Public Transit	0	1 3		1 4	0	1 4	1 5	1 5
(1=yes, 0=no)	Private Shuttle Bus	0	0		1 2	0	0	1 5	1 4
(1=yes, 0=no)	Public Transit Incentives	0	1 3		1 3	0	0	1 5	0
	CONG./DELAYS B4	2	4		4	3	4	4	3
	cong./delays after vehicle traffic safety	2 3	4 5		4 5	3 3	5 4	4 4	3 3
	pedestrian safety availability of parking	3 4	4 3		5 3	3 2	5 4	4 4	5 3
	access. of parking access to stadium	3 3	4 4		3 5	2 2	3 4	4 4	2 5
	ratio parking/seats nearby road to handle	3 2	2 2		1 5	2 1	3 5	4 4	3 2
	overall TC, park, peds. degree of coop/coord	2 2	4 4		5 5	3 5	5 5	4 4	4 4

	Tag Number univ dept enrollment capacity avg. 1996	116 Mississippi Police 10000 42577 36532	35 Mississippi St Police 14000 40656 35000	108 Missouri Police 24000 62000 45000	62 N. Mexico Police 24000 31218 17000	53 NMSU Police 16000 30343	79 Nevada Police 12000 31545 25000	80 UNLV Police 21000 32000 12000	25 NC State Park 25000 52000 40000
(1=yes, 0=no)	**FREE PUBLIC** **ON-SITE**	1 4	1 5	1 2	0	1 5	1 3	0	1 4
(1=yes, 0=no)	Pay Public On-Site	0	1 5	1 3	1 3	1 5	0	1 3	1 3
(1=yes, 0=no)	Free Donor On-Site	1 5	1 5	1 3	0	1 5	0	0	1 3
(1=yes, 0=no)	Pay Donor On-Site	1 5	1 5	1 3	0	1 5	1 4	1 2	1 3
(1=yes, 0=no)	Use of Public Transit	0	0	1 2	1 2	1 5	0	0	0
(1=yes, 0=no)	Private Shuttle Bus	0	0	1 1	0	0	0	0	1 3
(1=yes, 0=no)	Public Transit Incentives	0		0	1 2		0	0	0
	CONG./DELAYS B4	3	3	4	3	4	4	4	3
	cong./delays after vehicle traffic safety	4 4	4 5	1 3	2 3	4 5	3 4	4 4	3 3
	pedestrian safety availability of parking	5 3	4 5	3 2	3 2	5 5	3 3	5 5	2 3
	access. of parking access to stadium	3 4	5 5	2 4	2 3	3 4	4 4	5 5	3 3
	ratio parking/seats nearby road to handle	2 3	4 4	3 4	3 4	5 4	2 3	4 5	4 2
	overall TC, park, peds. degree of coop/coord	5	5 5	4 4	3 3	5 5	4 4	4 4	3 3

	Tag Number univ dept enrollment capacity avg. 1996	49 N. Texas Police 25000 30500 13000	71 NE Louisiana Police 11300 30427 20000	113 N. Illinois Police 22000 31000 16000	81 Northwestern Police 14000 49256	29 Ohio St. Park 48000 89841 90000	55 Okl. St. Police 20000 50614 48000	39 Oregon St. Police 14500 35362 23000	85 Penn St. Police 39860 93967 96000
(1=yes, 0=no)	**FREE PUBLIC** **ON-SITE**	1 3	1 3	0	1 3	0	1 4	1 4	0
(1=yes, 0=no)	Pay Public On-Site	0	0	1 4	1 3	1 5	0	1 2	1 5
(1=yes, 0=no)	Free Donor On-Site	1 4	1 4	1 4		1 4	1 4	1 4	0
(1=yes, 0=no)	Pay Donor On-Site	0	1 4	1 3		1 5	0	0	1 5
(1=yes, 0=no)	Use of Public Transit	0	0	0	1 4	1 2	1 2	1 3	1 3
(1=yes, 0=no)	Private Shuttle Bus	0	0	0	1 4	1 3	1 2	0	1 3
(1=yes, 0=no)	Public Transit Incentives	0	0	0	1 3	0	0	0	1 2
	CONG./DELAYS B4	3	3	3	4	4	5	4	4
	cong./delays after vehicle traffic safety	3 4	3 3	3 3	3 3	4 5	5 5	4 3	3 5
	pedestrian safety availability of parking	5 3	3 4	3 3	4 2	5 4	5 3	3 3	4 5
	access. of parking access to stadium	2 4	4 4	3 3	3 1	4 3	4 4	4 4	3 4
	ratio parking/seats nearby road to handle	2 2	4 3	3 3	2 3	5 3	4 4	2 3	5 2
	overall TC, park, peds. degree of coop/coord	4 3	4 5	4 4	4	5 5	4 5	4 5	4 5

	Tag Number univ dept enrollment capacity avg. 1996	64 Pitt Event 30000 56500 32480	37 Purdue Police 35000 67861 40000	24 Rice Police 4100 70000 20000	63 Rutgers Police 32000 42000 28000	90 San Jose St. Police 25000 61121 17000	67 S. Carolina Police 28000 80250 78000	82 USC Park 28000 94159 50000	73 S. Miss. Police 12000 33000 20000
(1=yes, 0=no)	**FREE PUBLIC** **ON-SITE**	0	1 3		1 2	0	0	0	1 3
(1=yes, 0=no)	Pay Public On-Site	1 4	1 2		1 5	1 3	1 3	1 4	0
(1=yes, 0=no)	Free Donor On-Site	1 4	1 4		1 5	0	1 5	0	1 5
(1=yes, 0=no)	Pay Donor On-Site	1 4	0		1 5	0	1 4	1 5	0
(1=yes, 0=no)	Use of Public Transit	1 3	0	1 5	1 5	0	1 4	0	0
(1=yes, 0=no)	Private Shuttle Bus	1 4	0	0	1 5	0	1 4	1 3	0
(1=yes, 0=no)	Public Transit Incentives	0	0	1 5	1 5	0	0	0	0
	CONG./DELAYS B4	4	4		4	2	3	4	4
	cong./delays after vehicle traffic safety	3 4	4 4		4 5	3 3	3 4	4 4	5 4
	pedestrian safety availability of parking	4 4	4 2		5 4	2 2	4 3	4 4	4 3
	access. of parking access to stadium	4 4	2 2		4 4	2 2	3 4	4 4	4 5
	ratio parking/seats nearby road to handle	3 3	2 3		4 3	2 2	2 3	4 4	4 4
	overall TC, park, peds. degree of coop/coord	4 3	3 4		5 5	2 2	3 5	4 4	4 5

	Tag Number univ dept enrollment capacity avg. 1996	72 SW Louisiana Police 17500 31000 28000	100 Stanford Police 85500	114 Syracuse Parking 15000 50000	16 Tennessee Police 27000 102544 107000	77 Texas Police 50000 75512 57000	103 TAMU Park 43000 70210 66000	27 TCU Police 7000 46000 32000	51 UTEP Police 15000 52000 20000	94 Tx Tech Police 25000 50500 45000
(1=yes, 0=no)	**FREE PUBLIC**	1	1	0	0	1	1	1	1	1
	ON-SITE	5	5			1	1	3	3	4
(1=yes, 0=no)	Pay Public	1	0	1		1	1	1	0	1
	On-Site	5		4		2	5	3		5
(1=yes, 0=no)	Free Donor	1	1	0	0	1	1	1	1	1
	On-Site	5	3			3	5	5	3	5
(1=yes, 0=no)	Pay Donor	1	0	1	1	1	0	1	0	1
	On-Site	5		4		3		5		5
(1=yes, 0=no)	Use of	1	1	1	1	1	1	0	1	1
	Public Transit	5	2	4	4	2			3	4
(1=yes, 0=no)	Private	0	0	1	1	0	1	0	1	1
	Shuttle Bus			3	3				3	3
(1=yes, 0=no)	Public Transit	0	0	1	0	1	1	0	1	1
	Incentives			4		2			3	4
	CONG./DELAYS B4	4	3	5	3	2	1	3	4	4
	cong./delays after	4	3	4	3	2	1	3	4	4
	vehicle traffic safety	4	4	5	3	3	3	4	4	5
	pedestrian safety	4	4	5	3	3	1	4	4	5
	availability of parking	5	4	3	2	2	1	4	4	5
	access. of parking	5	4	3	2	4	1	4	4	5
	access to stadium	5	2	3	2	3	1	4	4	5
	ratio parking/seats	5	3	3	1	3	2	3	4	5
	nearby road to handle	4	2	4	2	3	2	2	4	5
	overall TC, park, peds.	4	4	4	3	3	1	3	4	5
	degree of coop/coord	5	5	5	3	4		4	4	4

	Tag Number univ dept enrollment capacity avg. 1996	48 Toledo Police 26248 20000	83 Tulane Police 10000 69065	61 Air Force Police 5000 50126 46000	12 Army Police 4000 39929 35000	2 Utah Police 26000 32500 29000	57 Utah St. Parking 20000 30257 19000	86 Virginia Police 20000 40000 45000	96 VA Tech Police 24000 51000 50000	60 Wake Forest Facilitiy MGT 3600 31500 22000
(1=yes, 0=no)	**FREE PUBLIC** **ON-SITE**	1 4	0	0	1 5	0	0	1 3	1 4	1 5
(1=yes, 0=no)	Pay Public On-Site	1 4	1 4	1 5	0	1 3	1 4	1 4	0	1 5
(1=yes, 0=no)	Free Donor On-Site	1 4	0	1 4	1 3	1 4	1 4	1 5	1 5	1 5
(1=yes, 0=no)	Pay Donor On-Site		1		1 3	0	1 4	1 4	0	1 5
(1=yes, 0=no)	Use of Public Transit	0	0	0	1 4	1 3	1 1	1 4	1 5	0
(1=yes, 0=no)	Private Shuttle Bus	0	1 4	0	0	1 3	1 1	0	1 4	1
(1=yes, 0=no)	Public Transit Incentives	0	0	0	0	0	0	0	1 4	1 2
	CONG./DELAYS B4	3		4	4	4	2	4	4	4
	cong./delays after vehicle traffic safety	4 4		4 5	4 5	4 3	3 5	4 5	4 4	4 4
	pedestrian safety availability of parking	3 4		5 5	5 3	3 3	5 3	4 3	4 5	4 5
	access. of parking access to stadium	4 4		5 5	3 3	3 2	3 5	4 4	5 5	5 5
	ratio parking/seats nearby road to handle	4 3		5 5	3 3	3 4	3 3	3 3	5 5	4 4
	overall TC, park, peds. degree of coop/coord	4 4		5 5	5 4	5	5 5	4 5	5 5	4 4

	Tag Number univ dept enrollment capacity avg. 1996	9 Wash. Police 37500 72500 69000	74 WVU Police 23000 63500 49000	112 W. Mich. Police 26000 30100 18000	TALLY YES	NO	% YES	% NO
(1=yes, 0=no)	**FREE PUBLIC ON-SITE**	0	0	1 2	50	37	57.47	42.53
(1=yes, 0=no)	Pay Public On-Site	1 5	1 3	1 5	63	24	72.41	27.59
(1=yes, 0=no)	Free Donor On-Site	0	0	0	51	36	58.62	41.38
(1=yes, 0=no)	Pay Donor On-Site	1 5	1 2	1 5	54	33	62.07	37.93
(1=yes, 0=no)	Use of Public Transit	1 5	1 3	1 3	54	33	62.07	37.93
(1=yes, 0=no)	Private Shuttle Bus	1 5	1 3	0	47	40	54.02	45.98
(1=yes, 0=no)	Public Transit Incentives	1 5	1 3	0	27	60	31.03	68.97
								Totals
	CONG./DELAYS B4	4	3	4				89.00
	cong./delays after vehicle traffic safety	4 4	3 3	4 4				89.00 89.00
	pedestrian safety availability of parking	4 5	3 3	4 4				89.00 89.00
	access. of parking access to stadium	4 4	3 3	4 4				89.00 89.00
	ratio parking/seats nearby road to handle	4 3	2 3	4 4				89.00 89.00
	overall TC, park, peds. degree of coop/coord	5 5	3 3	4 5				88.00 89.00

	Tag Number univ dept enrollment capacity avg. 1996	RATING												Avg Rating
		1	%	2	%	3	%	4	%	5	%	NR	%	
(1=yes, 0=no)	**FREE PUBLIC ON-SITE**	3	6.00	10	20.00	13	26.00	17	34.00	7	14.00	0	0.00	3.30
(1=yes, 0=no)	Pay Public On-Site	0	0.00	5	7.94	19	30.16	23	36.51	16	25.40	0	0.00	3.79
(1=yes, 0=no)	Free Donor On-Site	0	0.00	0	0.00	9	17.65	21	41.18	20	39.22	1	1.96	4.22
(1=yes, 0=no)	Pay Donor On-Site	0	0.00	3	5.56	10	18.52	17	31.48	21	38.89	3	5.56	4.10
(1=yes, 0=no)	Use of Public Transit	1	1.85	9	16.67	17	31.48	14	25.93	11	20.37	2	3.70	3.48
(1=yes, 0=no)	Private Shuttle Bus	2	4.26	5	10.64	22	46.81	8	17.02	7	14.89	3	6.38	3.30
(1=yes, 0=no)	Public Transit Incentives	0	0.00	6	22.22	12	44.44	3	11.11	4	14.81	2	7.41	3.20
		1	%	2	%	3	%	4	%	5	%	o Ratin	%	
	CONG./DELAYS B4	1	1.12	6	6.74	27	30.34	45	50.56	5	5.62	5	5.62	3.56
	cong./delays after	2	2.25	5	5.62	28	31.46	42	47.19	7	7.87	5	5.62	3.56
	vehicle traffic safety	0	0.00	0	0.00	27	30.34	39	43.82	18	20.22	5	5.62	3.89
	pedestrian safety	1	1.12	3	3.37	22	24.72	37	41.57	21	23.60	5	5.62	3.88
	availability of parking	1	1.12	15	16.85	28	31.46	23	25.84	17	19.10	5	5.62	3.48
	access. of parking	1	1.12	14	15.73	27	30.34	29	32.58	13	14.61	5	5.62	3.46
	access to stadium	3	3.37	12	13.48	17	19.10	34	38.20	18	20.22	5	5.62	3.62
	ratio parking/seats	4	4.49	24	26.97	25	28.09	22	24.72	8	8.99	6	6.74	3.07
	nearby road to handle	3	3.37	22	24.72	30	33.71	22	24.72	7	7.87	5	5.62	3.10
	overall TC, park, peds.	0	0.00	2	2.27	19	21.59	44	50.00	15	17.05	8	9.09	3.90
	degree of coop/coord	0	0.00	3	3.37	11	12.36	30	33.71	39	43.82	6	6.74	4.27

	Tag Number univ dept enrollment capacity avg. 1996	58 Akron Police 19000 35202 10000	115 Alabama Parking 18500 70123 72500	105 UAB 16000 83091 35000	42 Arizona Park 35000 56167 53000	19 Arizona St. Police 44000 73656 63884	32 Arkansas Police 14500 51000 40000	11 Ball State Police 20000 16319	50 Baylor Police 12000 50000 43000	54 Boise St. Police 15000 22600 18000
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	1	1	1	1	1	1	2	1
(1=on, 2-off, 3=adj)	location	2	1	2	1	1	1	3	2	1
(1=dt, 2=sub, 3=smll)	setting	2	1	1	1	1	2	2	2	1
(1=yes, 0=no)	City Police	1	1	1	1	1	1	0	1	0
(1=yes, 0=no)	Campus Police	1	1	0	1	1	1	1	1	1
(1=yes, 0=no)	State Police	0	0	0	0	1	1	0	1	0
(1=yes, 0=no)	Campus Parking	0	1	0	1	1	1	1	1	1
(1=yes, 0=no)	City Parking	0	1	0	1	1	0	0	0	0
(1=yes, 0=no)	City Traffic Engineering	0	1	0	1	1	0	0	0	0
(1=yes, 0=no)	Athletic Department	0	1	0	1	1	1	1	1	1
(1=yes, 0=no)	Central Admin.	0	0	0	0	0	0	0	0	0
(1=yes, 0=no)	Others	1	0	0	1	0	1	0	0	0
	COPY OF FINDINGS	1	1	0	1	1	1	1	1	1
	any notes?	1	1	1	1	1	0	0	1	1
	any literature?	0	1	0	0	0	0	0	1	1

	Tag Number	111	101	22	84	109	28	45	21
	univ	BC	BYU	CAL	UCF	C. Mich.	Cincinnati	Clemson	Colorado
	dept	Police	Parking	Park	Park	Police	Park	Athletics	Park
	enrollment	14000	28000	30000		17000	30000	16000	25000
	capacity	44500	65000	75662	70349	20086	36000	81473	51748
	avg. 1996	34500	55000	35000		18000	20000	67212	50000
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	2	2	1		1	1	1	1
(1=on, 2-off, 3=adj)	location	1	1	1		1	1	1	1
(1=dt, 2=sub, 3=smll)	setting	2	3	1		3	1	3	1
(1=yes, 0=no)	City Police	1	1	1		0	1	1	1
(1=yes, 0=no)	Campus Police	1	1	1		1	1	1	1
(1=yes, 0=no)	State Police	1	1	0		0	0	1	0
(1=yes, 0=no)	Campus Parking	1	1	1		0	1	1	1
(1=yes, 0=no)	City Parking	0	1	1		0	0	0	0
(1=yes, 0=no)	City Traffic Engineering	0	1	1		0	0	0	1
(1=yes, 0=no)	Athletic Department	1	1	1		1	1	1	1
(1=yes, 0=no)	Central Admin.	1	0	0		0	0	0	0
(1=yes, 0=no)	Others	0	0	0		0	0	0	0
	COPY OF FINDINGS	1	1	1		1	1	1	1
	any notes?	0	0	1		0	0	0	0
	any literature?	1	1	1		0	0	1	0

	Tag Number	31	70	65	95	44	20	76	30	4
	univ	Colorado St.	Duke	ECU	E. Mich.	Florida	FSU	Fresno St.	Georgia	GA Tech
	dept	Police	Park	Park	Police	Park	Park	Police	Police	Police
	enrollment	22000	10000	17500	25000	40000	30000	17994		13500
	capacity	30000	33941	35000	30200	83000	77500	41031	86117	46000
	avg. 1996	28000	18000	29265	5000	86500	80932	43000	80000	38000
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	2	1	1	1	1	1	1	1
(1=on, 2-off, 3=adj)	location	2	1	1	1	1	3	1	1	1
(1=dt, 2=sub, 3=smll)	setting	2	2		2	1	2	2	3	1
(1=yes, 0=no)	City Police	1	1	1	0	1	1	1	1	1
(1=yes, 0=no)	Campus Police	1	1	1	1	1	1	1	1	1
(1=yes, 0=no)	State Police	1	1	1	0	0	1	0	1	0
(1=yes, 0=no)	Campus Parking	1	0	1	1	0	1	1	1	1
(1=yes, 0=no)	City Parking	0	0	0	0	0	0	1	0	0
(1=yes, 0=no)	City Traffic Engineering	1	0	1	0	0	0	1	1	0
(1=yes, 0=no)	Athletic Department	1	1	1	1	1	1	1	1	1
(1=yes, 0=no)	Central Admin.	0	0	0	0	1	0	0	0	1
(1=yes, 0=no)	Others	1	1	0	0	1	1	0	0	0
	COPY OF FINDINGS	1	1	1	0	1	1	0	1	1
	any notes?	0	1	1	0	1	1	1	0	0
	any literature?	1	0	0	0	0	1	0	1	0

	Tag Number	99	52	18	40	93	88	92	75	56
	univ	Houston	Idaho	Illinois	Indiana	Iowa St.	Kansas	Kent	Kentucky	LSU
	dept	Police	Park	Police	Park	Police	Police	Park	Police	Park
	enrollment	31000	11500	37000	35000	25000	24874	20000	30000	27000
	capacity	22000	16000	52354	69000	43000	50250	30520	57800	79940
	avg. 1996	20000	11252	59000	38000	45000	38900	17000	40000	79411
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	1	1	1	1	1	1	1	1
(1=on, 2-off, 3=adj)	location	1	1	1	3	3	1	2	1	1
(1=dt, 2=sub, 3=smll)	setting	1	3	1	3	3	1	3	2	2
(1=yes, 0=no)	City Police	0	1	1	1	1	1	0	1	1
(1=yes, 0=no)	Campus Police	1	0	1	1	1	1	1	1	1
(1=yes, 0=no)	State Police	0	0	1	1	1	1	1	1	0
(1=yes, 0=no)	Campus Parking	0	1	1	0	1	1	1	1	1
(1=yes, 0=no)	City Parking	0	0	0	0	0	0	0	0	0
(1=yes, 0=no)	City Traffic Engineering	0	0	0	0	1	0	0	0	0
(1=yes, 0=no)	Athletic Department	1	1	1	1	1	0	1	1	1
(1=yes, 0=no)	Central Admin.	0	0	0	0	0	0	1	0	0
(1=yes, 0=no)	Others	0	0	0	0	0	1	0	0	0
	COPY OF FINDINGS	1	1	1	1	1	1	1	1	1
	any notes?	0	0	0	0	0	1	1	0	1
	any literature?	1	0	0	1	0	1	1	0	0

	Tag Number	15	26	102	98	87	23	59	89
	univ	Louisville	Maryland	Memphis	Miami	Miami OH	Michigan	Mich. St.	Minnesota
	dept	Police	Police	Parking	Athletics	Police	Ticket	Police	Parking
	enrollment	22000	50000			18000	45000	41000	51388
	capacity	35500	48000	62380	74476	25183	102501	73000	63500
	avg. 1996	36000	25000		50000	10366	104000	66700	43500
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	1		2	1	1	1	1
(1=on, 2-off, 3=adj)	location	2	1		2	1	3	1	2
(1=dt, 2=sub, 3=smll)	setting	1	1		1	3	2	2	1
(1=yes, 0=no)	City Police	1	0		1	1	1	1	1
(1=yes, 0=no)	Campus Police	0	1		0	1	1	1	0
(1=yes, 0=no)	State Police	0	1		0	0	1	0	0
(1=yes, 0=no)	Campus Parking	0	1		0	1	1	1	1
(1=yes, 0=no)	City Parking	0	0		1	0	0	0	1
(1=yes, 0=no)	City Traffic Engineering	0	0		0	0	1	0	1
(1=yes, 0=no)	Athletic Department	0	0		0	1	1	1	1
(1=yes, 0=no)	Central Admin.	0	0		0	0	0	0	0
(1=yes, 0=no)	Others	1	1		0	1	0	0	0
	COPY OF FINDINGS	1	1		1	1	0	0	1
	any notes?	0	1		0	0	1	1	0
	any literature?	0	0		1	0	1	0	1

	Tag Number univ dept enrollment capacity avg. 1996	116 Mississippi Police 10000 42577 36532	35 Mississippi St Police 14000 40656 35000	108 Missouri Police 24000 62000 45000	62 N. Mexico Police 24000 31218 17000	53 NMSU Police 16000 30343	79 Nevada Police 12000 31545 25000	80 UNLV Police 21000 32000 12000	25 NC State Park 25000 52000 40000
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	1	1	1	1	1	1	1
(1=on, 2-off, 3=adj)	location	1	1	1	3	1	1	1	2
(1=dt, 2=sub, 3=smll)	setting			3	1	2	1	2	2
(1=yes, 0=no)	City Police	1	1	1	1	1	0	0	0
(1=yes, 0=no)	Campus Police	1	1	1	1	1	1	1	0
(1=yes, 0=no)	State Police	0	1	1	0	1	0	0	1
(1=yes, 0=no)	Campus Parking	0	0	1	0	0	0	1	0
(1=yes, 0=no)	City Parking	0	0	0	0	0	0	0	0
(1=yes, 0=no)	City Traffic Engineering	0	0	0	0	0	0	0	0
(1=yes, 0=no)	Athletic Department	1	1	1	0	0	0	1	1
(1=yes, 0=no)	Central Admin.	0	0	0	0	0	0	0	0
(1=yes, 0=no)	Others	1	0	1	0	1	1	0	1
	COPY OF FINDINGS	1	0	1	1	1	1	1	1
	any notes?	1	1	1	0	0	0	0	1
	any literature?	0	0	1	0	0	0	0	0

	Tag Number univ dept enrollment capacity avg. 1996	49 N. Texas Police 25000 30500 13000	71 NE Louisiana Police 11300 30427 20000	113 N. Illinois Police 22000 31000 16000	81 Northwestern Police 14000 49256	29 Ohio St. Park 48000 89841 90000	55 Okl. St. Police 20000 50614 48000	39 Oregon St. Police 14500 35362 23000	85 Penn St. Police 39860 93967 96000
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	1	1	2	1	1	1	1
(1=on, 2-off, 3=adj)	location	1	1	1	3	1	1	1	1
(1=dt, 2=sub, 3=smll)	setting	3	2	2	2	1	1	2	3
(1=yes, 0=no)	City Police	0	1	1	1	1	1	1	1
(1=yes, 0=no)	Campus Police	1	1	1	1	1	1	1	1
(1=yes, 0=no)	State Police	0	0	0	0	1	1	1	1
(1=yes, 0=no)	Campus Parking	1	0	1	0	1	1	1	1
(1=yes, 0=no)	City Parking	0	0	0	1	0	0	0	0
(1=yes, 0=no)	City Traffic Engineering	1	1	0	0	1	0	1	1
(1=yes, 0=no)	Athletic Department	1	0	1	1	1	1	1	1
(1=yes, 0=no)	Central Admin.	0	0	0	0	1	0	0	0
(1=yes, 0=no)	Others	1	1	1	0	1	0	1	1
	COPY OF FINDINGS	1	0	1	0	1	1	0	1
	any notes?	0	0	0	0	0	0	0	1
	any literature?	0	0	0	0	1	0	0	1

	Tag Number	64	37	24	63	90	67	82	73
	univ	Pitt	Purdue	Rice	Rutgers	San Jose St.	S. Carolina	USC	S. Miss.
	dept	Event	Police	Police	Police	Police	Police	Park	Police
	enrollment	30000	35000	4100	32000	25000	28000	28000	12000
	capacity	56500	67861	70000	42000	61121	80250	94159	33000
	avg. 1996	32480	40000	20000	28000	17000	78000	50000	20000
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	1	2	1	1	1	2	1
(1=on, 2-off, 3=adj)	location	1	1	1	1	2	2	2	1
(1=dt, 2=sub, 3=smll)	setting	1	2		2	1	1	1	1
(1=yes, 0=no)	City Police	0	1	0	1	1	1	0	1
(1=yes, 0=no)	Campus Police	1	1	1	1	1	1	1	1
(1=yes, 0=no)	State Police	0	1	0	0	1	1	0	1
(1=yes, 0=no)	Campus Parking	1	1	0	1	1	0	1	1
(1=yes, 0=no)	City Parking	0	0	0	0	0	0	1	0
(1=yes, 0=no)	City Traffic Engineering	0	0	0	0	0	1	0	0
(1=yes, 0=no)	Athletic Department	1	1	0	1	0	1	0	1
(1=yes, 0=no)	Central Admin.	0	0	0	1	0	0	0	0
(1=yes, 0=no)	Others	0	1	1	0	1	0	0	0
	COPY OF FINDINGS	1	1	1	1	0	1		1
	any notes?	0	0	1	0	0	0	0	0
	any literature?	1	0	0	1	0	0	0	0

	Tag Number	72	100	114	16	77	103	27	51	94
	univ	SW Louisiana	Stanford	Syracuse	Tennessee	Texas	TAMU	TCU	UTEP	Tx Tech
	dept	Police	Police	Parking	Police	Police	Park	Police	Police	Police
	enrollment	17500		15000	27000	50000	43000	7000	15000	25000
	capacity	31000	85500	50000	102544	75512	70210	46000	52000	50500
	avg. 1996	28000			107000	57000	66000	32000	20000	45000
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	2	2	1	1	1	2	1	1
(1=on, 2-off, 3=adj)	location	3	1	1	1	1	1	1	1	1
(1=dt, 2=sub, 3=smll)	setting	1	2	1	1	1		2		2
(1=yes, 0=no)	City Police	1	1	1	1	0	0	1	1	1
(1=yes, 0=no)	Campus Police	1	1	0	1	1	0	1	1	1
(1=yes, 0=no)	State Police	0	0	0	1	0	0	0	0	0
(1=yes, 0=no)	Campus Parking	0	0	1	1	0	1	0	1	0
(1=yes, 0=no)	City Parking	0	0	0	1	0	0	0	0	0
(1=yes, 0=no)	City Traffic Engineering	0	0	0	1	0	0	0	0	0
(1=yes, 0=no)	Athletic Department	1	0	1	1	0	0	1	1	1
(1=yes, 0=no)	Central Admin.	0	0	0	0	0	0	0	0	0
(1=yes, 0=no)	Others	1	0	0	0	0	0	0	0	0
	COPY OF FINDINGS	1	1	1	1	1	1	1	1	1
	any notes?	1	1	0	0	1	1	0	0	0
	any literature?	0	0	0	0	0	0	0	0	1

	Tag Number	48	83	61	12	2	57	86	96	60
	univ	Toledo	Tulane	Air Force	Army	Utah	Utah St.	Virginia	VA Tech	Wake Forest
	dept	Police	Police	Police	Police	Police	Parking	Police	Police	Facilitiy MGT
	enrollment		10000	5000	4000	26000	20000	20000	24000	3600
	capacity	26248	69065	50126	39929	32500	30257	40000	51000	31500
	avg. 1996	20000		46000	35000	29000	19000	45000	50000	22000
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	2	1	NA	1	1	1	1	2
(1=on, 2-off, 3=adj)	location	1	2	1	1	1	3	1	1	2
(1=dt, 2=sub, 3=smll)	setting	2	1	2	3	2	3	2	3	1
(1=yes, 0=no)	City Police	1	1	1	1	1	1	1	1	1
(1=yes, 0=no)	Campus Police	1	0	1	0	1	1	1	1	1
(1=yes, 0=no)	State Police	0	0	1	1	1	0	1	1	0
(1=yes, 0=no)	Campus Parking	1	0	0	0	1	1	1	1	0
(1=yes, 0=no)	City Parking	0	1	0	0	0	0	1	0	0
(1=yes, 0=no)	City Traffic Engineering	0	0	0	0	0	0	1	0	1
(1=yes, 0=no)	Athletic Department	0	1	1	1	1	1	1	1	1
(1=yes, 0=no)	Central Admin.	0	0	0	0	0	0	1	0	0
(1=yes, 0=no)	Others	0	0	1	1	0	0	1	1	0
	COPY OF FINDINGS	1	0	1	1	1	0	1	1	1
	any notes?	1	1	1	1	0	0	0	1	0
	any literature?	0	0	1	1	0	0	0	1	0

	Tag Number	9	74	112				
	univ	Wash.	WVU	W. Mich.				
	dept	Police	Police	Police				
	enrollment	37500	23000	26000				
	capacity	72500	63500	30100	TALLY			
	avg. 1996	69000	49000	18000	YES	NO	% YES	% NO
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	1	1	1				88.00
(1=on, 2-off, 3=adj)	location	1	1	1				89.00
(1=dt, 2=sub, 3=smll)	setting	2	2	2				83.00
(1=yes, 0=no)	City Police	1	1	1	70	17	80.46	19.54
(1=yes, 0=no)	Campus Police	1	1	1	76	11	87.36	12.64
(1=yes, 0=no)	State Police	0	1	0	38	49	43.68	56.32
(1=yes, 0=no)	Campus Parking	1	1	1	58	29	66.67	33.33
(1=yes, 0=no)	City Parking	0	0	0	13	74	14.94	85.06
(1=yes, 0=no)	City Traffic Engineering	1	1	0	24	63	27.59	72.41
(1=yes, 0=no)	Athletic Department	0	1	1	68	19	78.16	21.84
(1=yes, 0=no)	Central Admin.	0	1	0	8	79	9.20	90.80
(1=yes, 0=no)	Others	0	0	1	31	56	35.63	64.37
	COPY OF FINDINGS	1	1	0	72	15	82.76	17.24
	any notes?	1	0	0	35	52	40.23	59.77
	any literature?	0	0	0	26	61	29.89	70.11

	Tag Number univ dept enrollment capacity avg. 1996	RATING												Avg Rating
		1	%	2	%	3	%	4	%	5	%	NR	%	
(1=pub, 2=pvt)	**PUBLIC/PRIVATE**	73	82.95	13	14.77		0.00					2	2.27	
(1=on, 2-off, 3=adj)	location	64	71.91	14	15.73	9	10.11					2	2.25	
(1=dt, 2=sub, 3=smll)	setting	32	38.55	33	39.76	16	19.28					2	2.41	
(1=yes, 0=no)	City Police	70		17								2		
(1=yes, 0=no)	Campus Police	77		10								2		
(1=yes, 0=no)	State Police	39		48								2		
(1=yes, 0=no)	Campus Parking	59		28								2		
(1=yes, 0=no)	City Parking	13		74								2		
(1=yes, 0=no)	City Traffic Engineering	24		63								2		
(1=yes, 0=no)	Athletic Department	69		18								2		
(1=yes, 0=no)	Central Admin.	8		79								2		
(1=yes, 0=no)	Others													
	COPY OF FINDINGS													
	any notes?													
	any literature?													

APPENDIX E.

CROSS-COMPARISON AND STATISTICAL DATA SPREADSHEETS

	Congestion (Before/After)		Safety (Vehicle/Pedestrian)		Parking (Accessibility/Availability)		Cooperation/Coordination	
	Public	Private	Public	Private	Public	Private	Private	Public
x1	4	3	4	4	2	4.5	5	5
x2	4	5	3	5	3	4.5	4	4
x3	4	4	3.5	3.5	4	4	5	3
x4	4	3	5	3	5	4.5	3	5
x5	4.5	4	3	5	2.5	3	5	5
.....								
x70	4		4		4.5			3
x71	3		3		3			5
x72	4		4		4			
sum	255	41	276.5	45	245.5	43	48	302
avg (X Bar)	3.5417	3.7273	3.8403	4.0909	3.4097	3.9091	4.3636	4.2535
	Public	Private	Public	Private	Public	Private		
n (1 or 2) = Sample Size 1 or 2	72	11	72	11	72	11	11	71
s (1 or 2)^2 = Variance of Sample 1 of 2	0.52640845	2.06818182	0.50581964	0.440909091	0.910749218	0.590909091	0.45454545	0.73480885
X Bar	3.5417	3.7273	3.8403	4.0909	3.4097	3.9091	4.3636	4.2535
s^2 = Weighted Average Variance	0.71675084		0.497805992		0.871262782		0.69977593	
Sum (Xi^2)	940.5	173.5	1097.75	188.5	901.75	174	214	1336
Sum (Xi)^2	65025	1681	76452.25	2025	60270.25	1849	2304	91204
d sub f	81		81		81		80	
S sub d Bar	0.25890316		0.213382803		0.282587605		0.10253969	
***t* sub df**	**0.717**		**1.175**		**1.767**		**1.074**	
t ratio @ 90% C.I.	1.671		1.671		1.671		1.671	
2-Tail *t*-Test Result	Accept Null Hypothesis		Accept Null Hypothesis		Reject Null Hypothesis		Accept Null Hypothesis	
F-test	*3.92885375*		*1.147219802*		*1.541267907*		*0.61859006*	

	Congestion (Before/After)		Safety (Vehicle/Pedestrian)		Parking (Access./Avail.)		Cooperation/Coordination	
	On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus
x1	4	4	3	4	3	2	4	5
x2	4	3	3.5	4	4	4.5	3	5
x3	4	3.5	5	4	5	4	5	5
x4	4.5	4	3	4	2.5	2.5	5	4
x5	5	2	3.5	3	3.5	3.5	5	2
.....								
x70	3		3		3		5	
x71	4		4		4			
x72								
sum	285.5	40	278.5	45	250	39	302	48
avg (X Bar)	4.0211	3.3333	3.9225	3.7500	3.5211	3.2500	4.3143	4.0000
	On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus
n (1 or 2) = Sample Size 1 or 2	71	12	71	12	71	12	70	12
s (1 or 2)^2 = Variance of Sample 1 of 2	12.688833	0.46969697	0.533199195	0.522727273	0.888832998	0.931818182	0.59544513	1.27272727
X Bar	4.0211	3.3333	3.9225	3.7500	3.5211	3.2500	4.3143	4.0000
s^2 = Weighted Average Variance	11.02944415		0.531777082		0.894670492		0.68857143	
Sum (Xi^2)	2036.25	138.5	1129.75	174.5	942.5	137	1344	206
Sum (Xi)^2	81510.25	1600	77562.25	2025	62500	1521	91204	2304
d sub f	81		81		81		80	
S sub d Bar	0.961873558		0.211284211		0.274835152		0.24171107	
***t* sub df**	**0.715**		**0.817**		**0.987**		**1.300**	
t ratio @ 90% C.I.	1.671		1.671		1.671		1.671	
2-Tail *t*-Test Result	Accept Null Hypothesis		Accept Null Hypothesis		Accept Null Hypothesis		Accept Null Hypothesis	
F-test	*27.01493477*		*1.020033243*		*1.04836137*		*2.13743836*	

	Congestion (Before/After)		Safety (Vehicle/Pedestrian)		Parking (Accessibility/Availability)		Cooperation/Coordination	
	Downtown	Sub/Small	Downtown	Sub/Small	Downtown	Sub/Small	Downtown	Suburban
x1	4	4	3	4	3	2	4	5
x2	4	4.5	3.5	3	4	2.5	3	5
x3	4	5	5	3.5	5	3.5	5	5
x4	3.5	3	4	4	2.5	4.5	3	5
x5	2.5	5	4	5	2.5	4.5	4	4
.....								
x70								
x71								
x72								
sum	123.5	172.5	136	187.5	117.5	171.5	139	211
avg (X Bar)	3.5286	3.5938	3.8857	3.9063	3.3571	3.5729	4.0882	4.3958
	Downtown	Sub/Small	Downtown	Sub/Small	Downtown	Sub/Small	Downtown	Suburban
n (1 or 2) = Sample Size 1 or 2	35	48	35	48	35	48	34	48
s (1 or 2)^2 = Variance of Sample 1 of 2	0.7197479	0.37932181	0.5894958	0.49634309	1.111344538	0.733931738	0.81016043	0.58466312
X Bar	3.5286	3.5938	3.8857	3.9063	3.3571	3.5729	4.0882	4.3958
s^2 = Weighted Average Variance	0.52221671		0.53544422		0.892351925		0.67768076	
Sum (Xi^2)	460.25	637.75	548.5	755.75	432.25	647.25	595	955
Sum (Xi)^2	15252.25	29756.25	18496	35156.25	13806.25	29412.25	19321	44521
d sub f	81		81		81		80	
S sub d Bar	0.10486861		0.10636391		0.137769741		0.11983792	
***t* sub df**	**0.622**		**0.193**		**1.566**		**2.567**	
t ratio @ 90% C.I.	1.671		1.671		1.671		1.671	
2-Tail *t*-Test Result	Accept Null Hypothesis		Accept Null Hypothesis		Accept Null Hypothesis		Reject Null Hypothesis	
F-test	*1.89745984*		*1.18767807*		*1.5142342*		*1.38568759*	

	# of Traffic Tools		# of Parking Tools		# of Pedestrian Tools		# of Traffic Tools	
	Public	Private	Public	Private	Public	Private	On-Campus	Off-Campus
x1	7	10	3	4	2	3	14	7
x2	17	11	6	5	3	3	9	10
x3	9	11	3	6	4	3	13	13
x4	13	6	4	5	4	2	11	8
x5	11	8	4	5	2	4	5	5
.....								
x70	7		4		4		3	
x71	10		5		4			
x72	3		3		2			
sum	614	106	251	52	191	33	599	91
avg (X Bar)	8.5278	8.1538	3.4861	4.0000	2.6528	2.5385	8.5571	7.0000
	Public	Private	Public	Private	Public	Private	On-Campus	Off-Campus
n (1 or 2) = Sample Size 1 or 2	72	13	72	13	72	13	70	13
s (1 or 2)^2 = Variance of Sample 1 of 2	9.9992175	7.474359	2.2814945	2.6666667	1.07492175	1.43589744	8.3952381	11.3333333
X Bar	8.5278	8.1538	3.4861	4.0000	2.6528	2.5385	8.5571	7.0000
s^2 = Weighted Average Variance	9.6341777		2.3371821		1.12711101		8.83051146	
Sum (Xi^2)	5946	954	1037	240	583	101	5705	773
Sum (Xi)^2	376996	11236	63001	2704	36481	1089	358801	8281
d sub f	83		83		83		81	
S sub d Bar	0.9044466		0.4317892		0.29737169		0.88839585	
***t* sub df**	**0.413**		**1.190**		**0.384**		**1.753**	
t ratio @ 90% C.I.	1.671		1.671		1.671		1.671	
2-Tail *t*-Test Result	Accept Null Hypothesis		Accept Null Hypothesis		Accept Null Hypothesis		Reject Null Hypothesis	
F-test	*1.3378027*		*1.1688245*		*1.3358158*		*1.34997164*	

	# of Parking Tools		# of Pedestrian Tools		# of Traffic Tools		# of Parking Tools	
	On-Campus	Off-Campus	On-Campus	Off-Campus	Downtown	Sub/Small	Downtown	Sub/Small
x1	6	3	3	2	14	7	6	3
x2	3	4	4	3	9	11	3	4
x3	4	5	4	1	13	5	4	4
x4	4	5	2	3	4	10	4	4
x5	4	2	3	2	5	11	4	5
.....								
x70	4		4					
x71	5		4					
x72	3		2					
sum	265	38	197	27	278	416	99	182
avg (X Bar)	3.6806	2.9231	2.8143	2.0769	8.9677	8.6667	3.1935	3.7917
	On-Campus	Off-Campus	On-Campus	Off-Campus	Downtown	Sub/Small	Downtown	Sub/Small
n (1 or 2) = Sample Size 1 or 2	72	13	70	13	31	48	31	48
s (1 or 2)^2 = Variance of Sample 1 of 2	2.22046166	2.74358974	0.79109731	1.57692308	54.4322581	7.12056738	3.02795699	1.99822695
X Bar	3.6806	2.9231	2.8143	2.0769	8.9677	8.6667	3.1935	3.7917
s^2 = Weighted Average Variance	2.29609463		0.90751594		25.5536936		2.39942047	
Sum (Xi^2)	1133	144	609	75	4126	3940	407	784
Sum (Xi)^2	70225	1444	38809	729	77284	173056	9801	33124
d sub f	83		81		77		77	
S sub d Bar	0.42819732		0.26717323		0.80910532		0.23067313	
t sub df	**1.769**		**2.760**		**0.372**		**2.593**	
t ratio @ 90% C.I.	1.671		1.671		1.671		1.671	
2-Tail *t*-Test Result	Reject Null Hypothesis		Reject Null Hypothesis		Accept Null Hypothesis		Reject Null Hypothesis	
F-test	*1.23559429*		*1.99333642*		*7.6443709*		*1.51532187*	

	# of Pedestrian Tools		Congestion (Before/After)		Safety (Vehicle/Pedestrian)		Parking (Availability/Accessibility)	
	Downtown	Sub/Small	UT	Other Similar	UT	Other Similar	UT	Other Similar
x1	3	2	3	4	3	3	2	3
x2	4	2		4		3.5		4
x3	4	3		4		5		5
x4	1	3		3.5		4		2.5
x5	2	3		2.5		4		2.5
.....								
x70								
x71								
x72								
sum	82	121	3	78	3	82.5	2	72.5
avg (X Bar)	2.6452	2.5208	3.0000	3.7143	3.0000	3.9286	2.0000	3.4524
	Downtown	Sub/Small	UT	Other Similar	UT	Other Similar	UT	Other Similar
n (1 or 2) = Sample Size 1 or 2	31	48						
s (1 or 2)^2 = Variance of Sample 1 of 2	1.16989247	1.14849291						
X Bar	2.6452	2.5208						
s^2 = Weighted Average Variance	1.1568304							
Sum (Xi^2)	252	359						
Sum (Xi)^2	6724	14641						
d sub f	77							
S sub d Bar	0.15809338							
t sub df	**0.786**							
t ratio @ 90% C.I.	1.671							
2-Tail *t*-Test Result	Accept Null Hypothesis							
F-test	*1.01863274*							

	Cooperation/Coordination		# of Traffic Tools		# of Parking Tools		# of Pedestrian Tools	
	UT	Other Similar	UT	Other Similar	UT	Other Similar	UT	Other Similar
x1	3	4	11	14	4	6	3	3
x2		3		9		3		4
x3		5		13		4		4
x4		3		4		4		1
x5		4		5		4		2
.....								
x70								
x71								
x72								
sum	3	86	11	175	4	71	3	60
avg (X Bar)	3.0000	4.0952	11.0000	8.3333	4.0000	3.3810	3.0000	2.8571
	UT	Other Similar	UT	Other Similar	UT	Other Similar	UT	Other Similar
n (1 or 2) = Sample Size 1 or 2								
s (1 or 2)^2 = Variance of Sample 1 of 2								
X Bar								
s^2 = Weighted Average Variance								
Sum (Xi^2)								
Sum (Xi)^2								
d sub f								
S sub d Bar								
***t* sub df**								
t ratio @ 90% C.I.								
2-Tail *t*-Test Result								
F-test								

	Stadium Size		Average Attendance		Congestion (Before/After)		Safety (Vehicle/Pedestrian)	
	UT	Other Similar	UT	Other Similar	UT	Other (50K)	UT	Other (50K)
x1	102544	70123	107000	72500	3	4	3	3
x2		56167		53000		4		3.5
x3		73656		63884		4		5
x4		22600		18000		3		3
x5		75662		35000		4		4
.....								
x70								
x71								
x72								
sum	102,544	1,086,790	107,000	897,264	3	30	3	31.5
avg (X Bar)	102,544	51,752	107,000	42,727	3.0000	3.7500	3.0000	3.9375
	UT	Other Similar	UT	Other Similar	UT	Other (50K)	UT	Other (50K)
n (1 or 2) = Sample Size 1 or 2								
s (1 or 2)^2 = Variance of Sample 1 of 2								
X Bar								
s^2 = Weighted Average Variance								
Sum (Xi^2)								
Sum (Xi)^2								
d sub f								
S sub d Bar								
***t* sub df**								
t ratio @ 90% C.I.								
2-Tail *t*-Test Result								
F-test								

	Parking (Availability/Accessibility)		Cooperation/Coordination		# of Traffic Tools		# of Parking Tools	
	UT	Other (50K)	UT	Other (50K)	UT	Other (50K)	UT	Other (50K)
x1	2	3	3	4	11	14	4	6
x2		4		3		9		3
x3		5		5		13		4
x4		2		4.5		12		4
x5		4		4		7		3
.....								
x70								
x71								
x72								
sum	2	30	3	34.5	11	84	4	31
avg (X Bar)	2.0000	3.7500	3.0000	4.3125	11.0000	10.5000	4.0000	3.8750
	UT	Other (50K)	UT	Other (50K)	UT	Other (50K)	UT	Other (50K)
n (1 or 2) = Sample Size 1 or 2								
s (1 or 2)^2 = Variance of Sample 1 of 2								
X Bar								
s^2 = Weighted Average Variance								
Sum (Xi^2)								
Sum (Xi)^2								
d sub f								
S sub d Bar								
***t* sub df**								
t ratio @ 90% C.I.								
2-Tail *t*-Test Result								
F-test								

	# of Pedestrian Tools		Stadium Size		Average Attendance	
	UT	Other (50K)	UT	Other (50K)	UT	Other (50K)
x1	3	3	102544	70123	107000	72500
x2		4		56167		53000
x3		4		73656		53884
x4		3		51748		50000
x5		4		83000		86500
.....						
x70						
x71						
x72						
sum	3	27	102,544	582,401	107,000	521,884
avg (X Bar)	3.0000	3.3750	102,544	72,800	107,000	65,236
	UT	Other (50K)	UT	Other (50K)	UT	Other (50K)
n (1 or 2) = Sample Size 1 or 2						
s (1 or 2)^2 = Variance of Sample 1 of 2						
X Bar						
s^2 = Weighted Average Variance						
Sum (Xi^2)						
Sum (Xi)^2						
d sub f						
S sub d Bar						
***t* sub df**						
t ratio @ 90% C.I.						
2-Tail *t*-Test Result						
F-test						

APPENDIX F.

LISTING OF ADDITIONAL INFORMATION PROVIDED

BY THE SURVEY RESPONDENTS

APPENDIX F.

Additional Information Provided by the Survey Respondents

University Name:	Information Provided:
University of Alabama	Tuscaloosa Gameday: Traffic Flow, Parking and Exit Route for Tuscaloosa and Bryant-Denny Stadium, 1996 (brochure)
Baylor University	campus map, stadium map, and street and lot information brochure
Boise State University	campus parking map
Boston College	Boston College Football: The Game Plan, 1996 (important parking, traffic, transit, and stadium information for all football games)
Brigham Young University	Utah DOT news bulletin on traffic and road construction around the campus
	Brigham Young Police Department football briefing and special event directive document for football games
University of California – Berkley	The Easy Way to Cal Games…BART & Bus for the BEARS! (public transit brochure)
Clemson University	Memorial Stadium: Policy and Information (stadium brochure)
	General Parking Information (parking brochure)
	Clemson Athletic Department Reserved Football Parking Map (flyer)

University Name:	Information Provided:
	1997 Clemson Football Ticket and Parking Information (flyer)
Colorado State University	Season Summary – Football 1996 (memorandum from campus police capt.)
	Several individual traffic control plans for campus streets/intersections
	Inbound and outbound traffic flow maps and detailed information for uniformed police officers at several locations
Florida State University	Transportation and Parking Rules and Regulations, September 1, 1996 – August 31, 1997 (brochure and campus parking map)
University of Georgia	The entire 1996 University of Georgia football file from the University Police Department which includes: Alcohol & Parking Guidelines for Georgia Football Games (brochure) Campus parking map Itinerary for Saturday 10-12-96 (Georgia vs. Tennessee) Several letters and memorandums Newspaper clippings
University of Houston	Letter describing the two locations for University of Houston games and the attendance figures for each
Indiana University	Indiana University: Bloomington Campus Guide and Parking Regulations (brochure)
	Indian University: Campus Bus/Stadium Express (brochure)

University Name:	Information Provided:
	Indiana University: Campus Bus Service, Schedules, Route Map, and General Information (brochure)
Kansas University	Newspaper clipping
Kent University	Football Game Parking (inter-departmental correspondence)
	Campus Map
	Game Day Reminders From the Blue and Gold Club (flyer)
	Shuttle Service (inter-departmental correspondence)
University of Miami	Campus Map
	Stadium Map (Orange Bowl)
University of Michigan	Catch the AATA Football Ride!: The best way to enjoy U of M football Saturdays (public transit brochure)
	Michigan Stadium: A Guide to Football Saturdays a t the University of Michigan (brochure)
	Football parking map (flyer)
University of Minnesota	1996 University of Minnesota Metrodome Park and Ride Shuttle Bus Service for Home Gopher Football Games (flyer)
University of Missouri	University of Missouri Police Department: 1996 Home Football Information (a report given to each officer that includes schedule, post assignments, traffic patterns, cadet OIC

University Name:	Information Provided:
	assignments, cadet assignments, disturbance plan, evacuation plan, telephone contacts, miscellaneous information, and after action report)
The Ohio State University	Ohio State 1996 Football Parking Information (brochure)
	Football Parking Map (flyer)
	OSU Football General Traffic Information and Instructions (document given to officers)
Pennsylvania State University	Penn State FOOTBALL 1996 Season: Parking and Stadium Information (brochure)
University of Pittsburgh	PITT FOOTBALL: Stadium & Parking Information Guide, 1996 (brochure)
	VOIDED parking pass (to be hung from rear view mirror)
	Football 1996 Parking (color coded parking maps given to season parking pass holders)
	Football Parking 1996 – Corner Assignment Descriptions (document given to officers)
	Football parking packet given to all university permit parkers
Rutgers University	N. J. Rutgers: Athletic Information Guide (brochure describing lodging, shopping, directions, restaurants, transportation, and athletic phone numbers)
	N.J. Rutgers: Rutgers Stadium Football Game Day Information Guide (brochure)

University Name:	Information Provided:
Texas Tech University	Letter describing parking procedures
United States Air Force Academy	10th Security Police Football Guide for Coning of Intersection/Traffic Flow and Stadium Security (packet given to officers)
United State Military Academy	Army Football (brochure describing directions, parking, shuttle bus service, etc.)
Virginia Tech University	Virginia Tech vs. UVA November 29, 1996 (internal memorandum sent to all police personnel describing traffic control procedures)

VITA

Christopher Donald Rhodes was born in Union City, Tennessee, on October 2, 1972. He attended public schools in three counties in Northwest Tennessee (Obion, Weakley, and Henry Counties) and graduated from Henry County High School in Paris, Tennessee, in May 1990. He later attended the University of Tennessee at Martin for two years concentrating on a Civil Engineering curriculum. He then transferred to the University of Tennessee at Knoxville where he earned a Bachelor of Science in Civil Engineering degree in May of 1995. Next, Chris entered graduate school at the University of Tennessee at Knoxville while working full-time for the Tennessee Transportation Assistance Program (TTAP) at the University's Center for Transportation Research.

Chris began his professional career in June 1997 when he accepted a position as Transportation Analyst with Kimley-Horn and Associates, Inc., an engineering consulting firm, in Virginia Beach, Virginia. During his four-year stint in Virginia, he worked on a wide variety of traffic and transportation engineering projects including traffic signal design, traffic signal timing/optimization, traffic impact analyses/assessments, intersection design, transportation planning studies, traffic sign and pavement marking design, Intelligent Transportation System (ITS) projects, and others. In February 2000, he became a licensed Professional Engineer in the Commonwealth of Virginia. Chris became licensed in the State of Tennessee in April 2001.

In July 2001, Chris moved back to Knoxville, Tennessee, with his current employer, Kimley-Horn and Associates, Inc. and is assisting in building a consulting practice in Knoxville. Finally, he received a Master of Science degree in Civil Engineering from the University of Tennessee in December 2001.