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An Analysis of Visitor Safety in the Natchez Trace Parkway

Devin S. McGee
University of Southern Mississippi

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The University of Southern Mississippi

An Analysis of Visitor Safety in the Natchez Trace Parkway

by

Devin McGee

A Thesis
Submitted to the Honors College of
The University of Southern Mississippi
in Partial Fulfillment
of the Requirements for the Degree of
Bachelor of Science
in the Department of Criminal Justice

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Approved by

Charles Scheer, Ph.D., Thesis Adviser
Professor of Criminal Justice

Dr. Lisa Nored, Director
School of Criminal Justice

Ellen Weinauer, Ph.D., Dean
Honors College

Abstract

The following study focuses on the safety of visitors travelling the Natchez Trace Parkway and their general safety while on Parkway property. The aim of the study was to conduct qualitative research in order to assess the hazards and risks that may befall the visitors of the Natchez Trace Parkway and how to combat these risks in the most direct way possible. A sample of recreational and law enforcement rangers took part in a questionnaire regarding their opinions of the level of safety at the park, and a diluted risk assessment was conducted while travelling through the section of the Parkway that traverses through Mississippi. Any past data related to this topic of research was analyzed and compared to the findings of the present research. Essentially, the need for increased funding, park ranger alertness, safety warning, roadside assistance, emergency phones, and general maintenance are all necessities when it comes to protecting visitors. This study hopes to contribute to the field of visitor safety by surfacing the weaknesses associated with park security. These weaknesses are not due to a lack of compassion and work ethic from the park staff, but rather from a lack of the necessary funds and resources to fully combat crime on park grounds. In summation, this study aims to promote visitor safety on the Natchez Trace Parkway.

Key Words: Natchez Trace Parkway, hazard, visitor safety, risks, park ranger

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Chapter 1: Introduction

The National Parks across the United States are regarded as one of America's greatest ideas. Currently, there are fifty-eight national parks in the United States and each year millions of people visit these parks. As visitation rates continue to rise, so may crime on park property. The crime that occurs in these parks can go relatively unnoticed, but that does not change the fact that the national parks have virtually the same crime as an urban environment. Simple assault, vandalism, vehicular crimes, sex offenses, and theft are all examples of the types of crime that a park ranger may come in contact with. With so few rangers on duty, this crime tends to go unnoticed, ignored, unsolved, or is simply not divulged. Of the advantages that may come with gaining a better understanding of crime in the national park system, the most beneficial is visitor safety.

In January of 2013, the National Park Service (NPS) adapted its current database and incident reporting system. The current database, known as The Incident Management, Analysis and Reporting System (IMARS), enables the law enforcement rangers to electronically document incidents and store them in a secure database. Unfortunately, this database does not fully encompass the crime that is occurring because rangers choose not to record certain types of crime; some crime goes unnoticed because of the low ratio of rangers to the park's land. In order to gather the necessary information to fathom the exact breadth of crime in national parks, a basic risk assessment was conducted, identifying any factors that could bring about issues in times of panic, such as inability to contact law enforcement, lack of escape routes, or lack of emergency response plans. Secondly, interviews were conducted with park rangers to gain an understanding of their greatest areas of concern. This approach is adaptable and can be

applied to any National Park across the United States, but this research focuses on the Natchez Trace Parkway, located in the South-Eastern United States. This parkway is ideal for the study because urban environments and also rural environments surround it.

The Natchez Trace traverses across Mississippi, Alabama, and Tennessee, with its southern terminus in Natchez, Mississippi and its northern terminus near Nashville, Tennessee. It is approximately four hundred and forty-four miles long with several points of interest along the route. The safety of visitors on the Natchez Trace Parkway relies on the number of park rangers present (law enforcement rangers and non-law enforcement rangers), the general upkeep of the facilities located at points of interest or information cabins, the regulation of rules and laws along the route. As a whole, the NPS holds the safety of its visitors to a reasonably high standard. The organization recognizes the concerns held by the public with regards to crime, and established a management policy that states:

“The saving of human life will take precedence over all other management activities. The National Park Service and its concessionaires, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees. The Park Service will work cooperatively with other federal, state, and local agencies, organizations, and individuals to carry out this responsibility. However, park visitors assume a certain degree of risk and responsibility for their own safety when visiting areas that are managed and maintained as natural, cultural, or recreational environments.” (U.S. Department of the Interior, 2006)

Concern for visitor safety should and will continue to rise as the number of visitors to the park each year rises.

Chapter 2: Literature Review

Crime in national parks can be influenced by several factors such as: number of visitors to the park, type of visitors present, number of park rangers present, enforced rules and regulations, the environment that the park is surrounded by (urban versus rural), and the size of the park itself. When looking at how visitors may affect crime in a park, it is important to note that as visitation increases in the national parks, so does the crime rate in these parks. Rises in tourism rates lead to increased crime in the visitor destination (Fujji & Mak, 1980). These parks can range from under an acre in size, such as Thaddeus Kosciuszko National Memorial, to thirteen million square miles in size, such as Aniakchak National Monument and Preserve; they can be located in a densely populated county or a sparsely populated county (Staha, Mustard, Grinols, 2011). In the report, “A Comprehensive Study of Visitor Safety in the National Park System”, the authors declared the four main concerns for visitors that responded to the survey. These four concerns included an increase in signs warning about hazards (84%), more stringent enforcement of rules and regulations (70%), stricter guidelines regarding what visitors should and should not do (84%), and an increase in enforcement of alcoholic beverage restrictions (63%). Moreover, a substantial number of respondents reported that many more rangers should be present to enforce the rules and regulations (19%) (Tuler and Golding, 2002). Across the board, there is substantial public support for more rangers, more brochures warning about hazards, and greater enforcement of alcoholic beverage restrictions as means for improving visitor safety. In the study titled “How do Visitors Affect Crime?” it was found that the type of visitor (economic background, ethnicity, overnight or day camper) did not significantly affect the crime rates of a park, but this

was the first study of its kind. Another major potential issue is the number of rangers versus the vast expanse of land. It is impossible for the rangers to cover it all. According to “Policing the National Parks: 21st Century Requirements”, visitation rates, distance between ranger stations, and park landscape make it difficult for the rangers to communicate and manage the park (Needle, et al., 2000). In addition to these issues, the number of park rangers is decreasing while visitation is increasing. Crime occurring within the structure of the national park system is seldom explored and is not regarded as a major concern by the National Park System. Unfortunately, crime in America’s national parks will likely continue to increase as visitation, population, and urban crime increase.

In a study done on Gettysburg National Park, it was found that although Part I index crimes have decreased, Part II index crimes have increased significantly (see table 1) (Gilbert, 2000). Part I index crimes include murder, rape, robbery, aggravated assault, burglary, motor vehicle theft, larceny, and arson, while Part II index crimes include less serious crime such as simple assault, disorderly conduct, drug offenses, vandalism, fraud, and driving under the influence. Drug possession, sale, and trafficking are overlooked because they are victimless crimes, even though they make up a substantial portion of the crime occurring in Gettysburg National Park at the time of the study. With the lack of necessary ranger numbers in national parks, a proactive way to combat the increase in crime is through watch programs like the one implemented in Gettysburg, the use of detection technology, and constant observation of crime trends (Gilbert, 2000). Because visitor count is on the rise and criminal justice personnel and criminal justice budgets are decreasing, these steps are imperative for the safety of visitors. According to Table 1, which was taken from “Policing the National Parks: 21st Century Requirements”, less

serious crimes are on the rise in national parks. These less serious crimes include things such as simple assault, drug abuse, thefts, and sex offenses

LESS SERIOUS (PART II) CRIMES 1995-1999							
Offense	1995	1996	1997	1998	1999	Change Number	Change Percent
r Simple Assault	235	237	248	207	207	-28	-11.9%
r Forgery/Counterfeiting	19	23	19	18	33	14	73.7%
r Fraud	89	235	225	185	149	60	67.4%
r Embezzlement	14	22	23	21	30	16	114.2%
r Stolen Property	318	274	264	287	233	-85	-26.7%
r Vandalism	3,511	3,586	3,474	3,796	3,484	-27	0.8%
r Weapons	1,763	1,210	1,386	1,219	1,080	-683	-38.7%
r Prostitution/Commercial	28	38	42	17	14	-14	-50.0%
Vice							
r Sex Offenses	378	363	418	340	437	59	15.6%
r Gambling	4	1	20	9	1	-3	-75.0%
r Offenses Against Children	160	126	136	98	115	-45	-28.1
r Driving While Intoxicated	1,783	1,447	1,334	1,316	1,238	-545	-30.6%
r Drunkenness	1,529	828	1,067	880	905	-624	-40.8%
r Drug Abuse	3,824	2,853	3,661	3,437	2,744	-1080	-28.2%
r Disorderly Conduct	2,789	2,130	2,394	2,274	1,953	-846	-30.2%
r Liquor Law Violations	5,551	4,496	4,473	4,895	4,251	-1300	-23.4%
r Resource Violations	14,714	12,196	13,475	13,578	19,840	5,126	34.8%
r Suspicion	703	470	640	611	1,224	521	74.1%
r Curfew/Runaways	438	592	272	791	177	-261	-59.5%
r Thefts	546	265	352	364	401	-145	-26.5%
TOTALS	38,406	31,392	33,923	34,343	38,516	110	0.2%

Source: Annual Law Enforcement Report

Figure 1: Part II crimes in national parks: 1995-1999. Reprinted from *Policing the National Parks: 21st Century Requirements*, Needle et al., 2000, retrieved from <http://www.jmu.edu/>

The above table is from the study *Policing the National Parks: 21st Century Requirements*, page 18 (Needle, et al., 2000). It includes crimes from 1995-1999 and is the most recent study done compiling exactly which crimes are occurring on a yearly basis; however, the Uniform Crime Reports (UCR) documented the number of offenses known to law enforcement for the year of 2014. These numbers can be found in Table 2: offenses known to law enforcement. This table,

Agency	Unit	Violent crime	Murder and nonnegligent manslaughter	Rape (legacy definition)	Robbery	Aggravated assault	Property crime	Burglary	Larceny - theft	Motor vehicle theft	Arson
United States Department of the Interior	Bureau of Indian Affairs	5,381	75	863	299	4,144	24,020	5,305	15,584	3,131	877
	Bureau of Land Management	6	0	0	2	4	712	18	669	25	3
	Bureau of Reclamation	0	0	0	0	0	2	1	1	0	1
	Fish and Wildlife Service	21	8	4	1	8	117	12	87	18	6
	National Park Service	360	16	83	62	199	4,895	645	4,158	92	69

Table 1: Offenses known to law enforcement by federal agencies 2014. United States Federal Bureau of Investigation (2014). *Crime in the United States*. Retrieved February 6, 2017, from <https://ucr.fbi.gov/>

A serious concern in any national park is the safety of its rangers, as well as its visitors. If the rangers on duty in a park are not properly equipped and are becoming victims of assault themselves, they cannot keep the visitors safe. In the study, “Analysis of Assaults on National Park Service Rangers”, the authors found that “current raw data suggests that Law Enforcement Rangers in the employ of the National Park Service (NPS) have the highest rate of victimization for assault of all Federal Law Enforcement Agents” (Gould et al, 2016). According to Table 3, taken from the UCR, the National Park Service had 2,231 law enforcement employees in the year 2014. If we compare this number to the number of visitors to the national parks each year, which was approximately 305 million people in the year 2015, it is obvious why the crime in national parks is so hard to control or even document.

Agency	Unit/Office	Total law enforcement employees	Total officers	Total civilians
United States Department of the Interior:	Bureau of Indian Affairs	737	348	389
	Bureau of Land Management	280	265	15
	Bureau of Reclamation	108	17	91
	Fish and Wildlife Service	685	545	140
	National Park Service	2,231	1,996	235

Table 2: Full time law enforcement employees by federal agencies, 2014. United States Federal Bureau of Investigation (2014). *Crime in the United States*. Retrieved February 6, 2017, from <https://ucr.fbi.gov/>

Finally, the Uniform Crime Report for federal crime data in 2014 reported that the National Park System had 360 accounts of violent crime, 16 counts of murder and non-negligent manslaughter, 83 counts of rape, 62 counts of robbery, 199 counts of aggravated assault, 4,895 counts of property crime, 645 counts of burglary, 4,158 counts of larceny-theft, 92 counts of motor vehicle theft, and 69 counts of arson. Unfortunately, the UCR can only document the offenses known to law enforcement so these numbers do not include unreported or undocumented incidents (United States Federal Bureau of Investigation, 2014).

In order for park rangers to confidently fulfill their job requirements, they themselves must also feel safe in their work environment. Unfortunately, according to the study titled “Analysis of Assaults on National Park Service Rangers”, the authors state “current raw data suggests that Law Enforcement Rangers in employ of the National Park

Service (NPS) have the highest rate of victimization for assault of all Federal Law Enforcement Agents.” And according to the International Association of Chiefs of Police, in their study conducted with regards to the law enforcement program in the National Park System, NPS rangers suffer the highest rate of assaults of any Federal law enforcement agency (Needle et al., 2000). These studies highlight the high number of assaults committed against national park rangers. These numbers harshly contradict the idyllic setting that the general public seems to think the NPS Rangers work in.

Unfortunately, if these assaults are left unresolved, several risks will bloom, such as lost workdays, high medical cost, and injured personnel (Gould et al., 2016, pp. 1). In the past, park rangers have used soft enforcement to deal with crime in national parks. Soft enforcement uses a relaxed approach that focuses on prevention and community relations. Unfortunately, as the crime in the parks rises, the rangers are being forced to shift to hard enforcement to protect the visitors and the natural setting (Pendleton, 1998). Rangers would prefer to keep the law enforcement spectrum out of their duties in the National Parks, but as the crime in parks increases so does the law enforcement component of the ranger duties. In a study done on the perspective of the park rangers with respect to their law enforcement duties, out of two hundred participants, half had a negative attitude towards increased law enforcement duties, but NPS rangers will incorporate these duties willingly if they must (Soden & Hester, 1989).

With regards to the Natchez Trace Parkway, visitation rates have remained relatively constant in the last five years, but according to the NPS page, in 2014, the parkway was the 8th most visited park in the national park system (National Park Service, 2014). These rates of recreation visits can be seen in the following table that is available

to the public via the national park service website. Figure 1 shows that in 2016, there were approximately 6 million recreational visitors to the Natchez Trace. This table is from the National Park Service Visitor Use Statistics website.

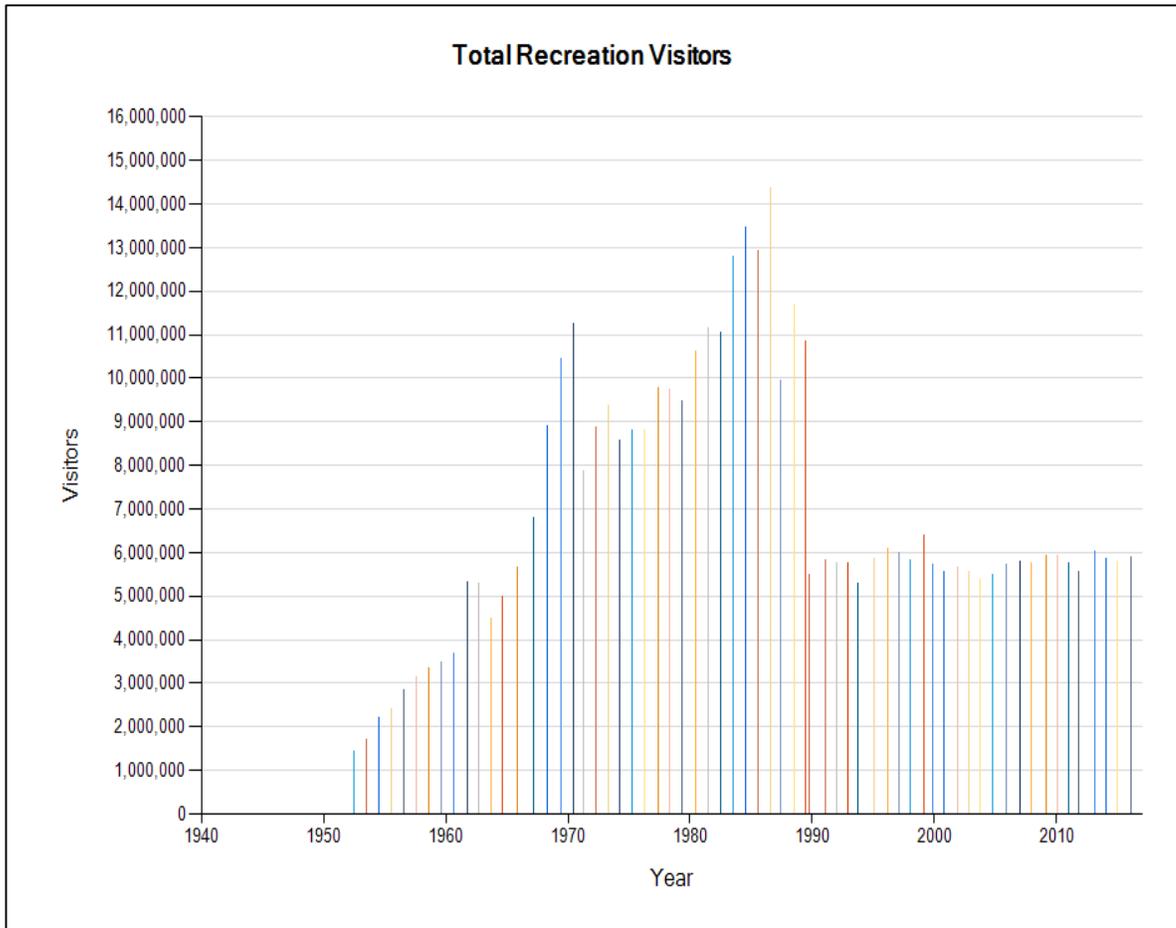


Figure 2: Visitors to the Natchez Trace Parkway (2016). Retrieved from <https://irma.nps.gov/>

Chapter 3: Methodology

The first step in pinpointing and analyzing the safety of visitors at Natchez Trace Parkway included conducting a diluted risk assessment of the park. A risk assessment is, simply put, the process of identifying any hazards and risk factors that may cause harm to visitors or staff while at the facility. These hazards can be identified by way of walking around and recording risks that are obvious to the observer or by asking the employees at the facility what risks they believe can befall themselves or visitors. Following the identification of any potential risks, it is necessary to identify the type of hazard that may arise because of said risk and decide who may be harmed as a result of these hazards. Finally, the appropriate ways to eliminate the hazard(s) must be determined. If the hazard cannot be fully eliminated, the risks can be controlled by implementation of a “plan”. Although the facility may be exposed to these risks, the likelihood of the hazards occurring and the severity of the risk will decide the measures that should be put in place.

While conducting a risk assessment of the Natchez Trace Parkway, the parkway was travelled from its southern terminus in Natchez to the visitor center in Tupelo. All ranger stations were stopped at and evaluated along with several of the points of interest along the Parkway. The travelling was done on a Saturday and Sunday, which, according to the Natchez Trace Parkway visitation rates, host particularly high visitation rates. Figure 3 shows a map of the Natchez Trace Parkway with all points of interest highlighted.



Figure 3: Map of the Natchez Trace Parkway. Retrieved from <https://natchez-trace.thefuntimesguide.com/files/Map-of-Natchez-Trace-Parkway.gif>

At the southern terminus in Natchez, the entrance to the parkway was clearly marked. There were no visible risks associated with the southern terminus of the parkway located at milepost 0. Driving north, between the beginning of the parkway and the information center located at milepost 15.5, there were six points of interest to stop and explore. These points of interest were well maintained to the naked eye with the necessary signs indicating when a driver was half a mile from the point of interest and obvious signs indicating where the turnoff for the point of interest was located. This made it possible for drivers to safely engage their brakes without infringing traffic. Although the sites were well maintained, there were concerns with regards to stairs located on a very popular site known as Emerald Mound. The most obvious hazard was a lack of rangers at any of the six sites located between the southern terminus and the information center. Not only were they not at any of the points of interest, but there were also none patrolling the roadway. Many vehicles were blatantly surpassing the posted speed limit for the parkway. Although there were very few vehicles on the parkway, my vehicle was overcome several times even when the road was marked with double yellow lines to indicate that it was too dangerous to pass whether from low visibility due to turns or dangerous conditions such as uneven pavement. This was concerning because the speed limit exists to not only protect motorists, but also cyclists and hikers.

Upon arrival at Mount Locust Information Center, there were only two other visitors present. I was informed that Mount Locust has an average of sixty six visitors a day, and while these visitors were making appearances at scattered times between the working hours of the information center, it can be deemed difficult for only two rangers to properly control all aspects of the site. Images of the information center can be found

in the photo appendix. While approaching the building, it was documented that the facility was very well maintained. The bathrooms were well marked, and a fire hydrant was visible from the parking lot of the center. The information center was inviting and open to the public. The biggest risk that I noticed was a lack of warning signs outside of the center and there were no warning pamphlets located inside. With regards to warning signs, this may include posted notices informing visitors to lock their cars and protect their valuables, making the visitors aware that the park is not responsible for any damage done to their cars or any property stolen. After inspecting the information center, I walked along a well-maintained path to the Mount Locust Inn, a historical landmark on the parkway. The restored plantation home was open to the public and several historical and archaeological objects were on display. The bulk of concern at the information center came from the fact that neither law enforcement rangers nor recreational park rangers were patrolling the Inn. The Inn houses several important artifacts that have been preserved for hundreds of years. It would be tragic for any of these artifacts to be stolen or taken from the park property. Both rangers that were working at Mount Locust that day stayed in the information cabin while I explored the grounds. I was informed that a law enforcement ranger was possibly patrolling the grounds, but he was never seen.

After leaving the Inn and travelling north, the most apparent risk came from the realization that the next information center where rangers would be present was located at milepost 102.4 in Ridgeland, almost one hundred miles from the first information cabin. This stretch poses several risks considering a law enforcement ranger had yet to be encountered. The biggest concern that I documented while driving from the information center in Natchez to the information center in Ridgeland was the need for several more

signs telling motorists to be aware of cyclists. Because of the relatively high numbers of cyclists on the parkway, it is highly probable that accidents will occur involving a motor vehicle and these cyclists. Not only this, but the road is narrow and has low shoulder. In an information pamphlet provided by the Natchez Trace Parkway Association, the Gary Holdiness Cycling Fund was explained. This fund was established in 2012, after the death of Dr. Gary Holdiness, a parkway supporter and avid cyclist. This fund has already assisted in the implementation of several projects along the parkway, the most important being the installation of signs and arrows at parkway locations making motorists aware of cyclists on the road. Although this project is relatively new and funds continue to assist with the addition of more warning posts along the road, the pamphlet states that these warning signs were installed at only three parkway locations. The fund also relied completely on tax-deductible donations and fundraisers, which is not enough active support to promote the safety of these cyclists, especially since an accident will likely result in death. On my drive to the Ridgeland information center, only one warning sign was documented. This could have been due to diverted focus, but it was more likely due to the apparent lack of signs. Not only did I document this hazard, but I also logged the steep ditches and lack of shoulder on the road. This hazard leads into risks associated with foot traffic on the parkway.

The Natchez Trace Parkway is a motor vehicle and bicycle friendly park, but this does not mean that visitors exploring the beauty of the park will not opt to travel by foot. While travelling along the Trace, the inability to safely walk on the shoulder of the roadway was documented. The ditch on both sides of the road was steep and would be difficult to navigate on foot. If a visitor was hiking and oncoming traffic seemed to pose a

risk to their safety, it would be very difficult to exit the roadway and continue in the grass next to the road. The parkway should look into the possibility of adding warning signs to make motorists aware of the possibility of hikers on the Natchez Trace. The third and final risk recorded while driving between Natchez and Ridgeland was observed while at the points of interest located along the road.

At these points of interest along the road, several people at a time were stopping at these locations to fully capture the beauty of the parkway, but at several of the locations it would have been almost impossible to phone for help in case of an emergency situation. At several locations, phones have little to no service. If someone were to encounter a natural hazard or a human hazard, the only means of escape would be to make it back to a vehicle and leave the site. Not only was the service extremely limited, but also I failed to see a ranger during my entire travel from Natchez to Ridgeland, which is around a ninety-mile stretch. In order to correct such a hazard and avoid potential risks that may arise, I believe that an emergency phone system should be implemented park wide. These emergency phones are located on university campuses all across the United States. If a person feels threatened or unsafe in anyway, they need only make their way to the nearest emergency phone and press the call button. It is my belief that such a system would not only make visitors feel safe, but the system would also encourage acceptable behavior at these points of interest. It is understandable that this could be a potentially expensive project to undertake, but much like the cycling fund, a goal could be set and reached using donations and fundraising events if federal funding is unavailable. The assessment can now move into the risks associated with the second information center located in Ridgeland at milepost 102.4.

The Parkway Information Cabin located at milepost 102.4 has the same risks associated with the Mount Locust Information Cabin that were explored early in the assessment. There were again, two rangers on duty, no law enforcement rangers patrolling the grounds, and a lack of posted signs regarding vehicle safety in the parking lots. Because of the similarity between the two locations, it is unnecessary to delve into detail with regards to this area of the assessment. Not only did the risks remain the same with regards to park buildings, but, once again, the next visitor center was located in Tupelo at milepost 266. This is approximately 163.6 miles away from the Parkway Information Cabin. The same risks associated with the previous stretch of road were also documented for this stretch. Lack of law enforcement rangers was recorded, whether at points of interest or in any form of park vehicle. The road was still narrow with low shoulders, but it was documented that the area to the sides of the road was much more hiker friendly than it was between Natchez and Ridgeland. Parts of the Old Trace were extremely well maintained and it was clear that foot traffic frequented these available trails. After the risk assessment was conducted, the next implemented method included ranger surveys conducted at the three previously addressed information centers: Mount Locust Inn, Ridgeland Information Cabin, and the Visitor Information Center in Tupelo.

In order to capture the full scope of visitor safety on the Natchez Trace Parkway, it was necessary to understand whether or not the park rangers on staff felt that the parkway was safe. To do so, surveys were conducted with ten park rangers, five belonging to the recreation ranger branch and five belonging to the law enforcement ranger branch. Before administering the surveys the rangers were given a notice of consent and an information letter. Both of these documents were distributed before the

rangers were given the surveys to complete. The basis of these documents is to inform the staff that the surveys are confidential and will not put their employment at risk or cause any harm to the organization as a whole. It also gives the rangers the opportunity to say no to the survey if they feel uncomfortable participating or to withdraw from the questionnaire at any given moment. The information letter can be seen in Figure 3 and the notice of consent can be seen in Figure 4.

Figure 4: Information Letter

February 8th, 2017

Title of Project: Park Rangers Safety/Security Concerns for Visitors

Student Researcher: Devin McGee
University of Southern Mississippi, Department of Criminal
Justice
Devin.mcgee@usm.edu

You are invited to participate in a study that concerns visitor safety at the Natchez Trace Parkway. As a participant in this study, you will be asked to complete a questionnaire that will ask questions about the general safety of visitors at the park and any safety and security concerns that involve the visitors at the park, if any.

Participation in this study is voluntary, and will take approximately one hour of your time. By volunteering for this study, you will be able to help the park pinpoint the areas of concern, if there are any. There are no personal benefits to participation. You may decline to answer any questions presented during the study if you so wish. Further, you may decide to withdraw from this study at any time by advising the researcher, and may do so without any penalty. All information you provide is considered completely confidential; your name will not be included or in any other way associated, with the data collected in the study. Furthermore, because the interest of this study is in the average responses of the entire group of participants, you will not be identified individually in any way in any written reports of this research. Data collected during this study will be retained indefinitely, in a locked office and locked filing cabinet to which only researchers associated with this study have access. There are no known or anticipated risks associated to participation in this study.

I would like to assure you that this study has been reviewed and approved by the Research Ethics Review Board at the University of Southern Mississippi. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact myself at devin.mcgee@usm.edu or my research advisor at charles.scheer@usm.edu.

Thank you for your assistance in this project.

Devin McGee
(228) 324-5601

Figure 5: Notice of Consent

**The University of Southern Mississippi/Natchez Trace Parkway
Fall 2016/Spring 2017**

NOTICE OF CONSENT

An undergraduate student from the University of Southern Mississippi will be giving an oral survey measuring the opinions of the park rangers with regards to visitor safety at Natchez Trace Parkway. Participation in the survey is voluntary, and no identifying information will be used to link surveys to participants. Participation is confidential.

What the research will do:

The research asks questions about the general safety of visitors at the park and any safety or security concerns that involve the visitors at the park, if any. To measure this, general questions about the park's security measures will be asked.

Your right to participate or say no to the survey:

The survey is voluntary. You do not have to participate in the survey, which is simply asking if the safety guidelines at the park are successful. You may change your mind about participation at any time during the survey, and your survey will be withdrawn. You may choose not to answer specific questions. Information about your participation will not be disclosed to the department.

Risks of filling out the survey:

There is no identifying information on the survey about you. Therefore, because the survey is confidential, risks of your disclosing your impressions of visitor safety are minimal.

Contact information for questions or comments:

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the student researcher Devin McGee at devin.mcgee@usm.edu or at 228-324-5601

Documentation of informed consent:

Because of the confidential nature of the survey, your signature is not required. ***You indicate your voluntary agreement to participate in this survey by completing the actual survey.***

Once the notice of consent was distributed, the rangers were given the opportunity to accept or decline the questionnaire. Fortunately, all of the rangers accepted. The questionnaire was only two pages with nine open-ended questions and thirteen Likert response questions. The survey is as follows:

Open-Ended Interview Questions:

Consider the facilities you see at Natchez Trace Parkway that are frequented by visitors and tourists. Answer the following questions about potential crime in those facilities and areas.

1. Do you have any safety or security concerns regarding the **park buildings** (restroom facilities, picnic areas, etc.)?
2. Do you have any safety or security concerns regarding the **parking areas** (scenic overlooks, parking lots, etc.)?
3. Do you have any safety or security concerns regarding the **common areas** (historical sites, etc.)?
4. Do you have any safety or security concerns regarding **special events in the park** (holiday events, concerts, weddings, etc.)?
5. What is your **primary** safety and security concern regarding the park in general?
6. What do you think **the visitors'** major concerns are, in general?
7. If Natchez Trace Parkway were to implement any safety and security improvements, what would you want them to be?
8. What recent safety and security improvements have occurred at Natchez Trace Parkway? Have they worked?
9. Do you have any other general comments about the safety and security of Natchez Trace Parkway?

Likert response questions:

1. At Natchez Trace Park, what potential crime threats do you see throughout your daily work routine? For each of the options below, circle the response that best characterizes how you feel where 1= most serious, 2= serious, 3= neutral, 4= not serious, and 5= least serious.

Crime threats	Most serious	Serious	Neutral	Not serious	Least serious
Visitor Violence – Non Weapon-Related	1	2	3	4	5
Visitor Violence – Weapon-Related	1	2	3	4	5
Active Shooter	1	2	3	4	5
Bomb Threat / IED Incident	1	2	3	4	5
Civil Disobedience / Demonstrations	1	2	3	4	5
Violent Crime	1	2	3	4	5
Non Violent Crime (Theft/Vandalism)	1	2	3	4	5
Act of Terrorism	1	2	3	4	5
Arson / Intentional Fire	1	2	3	4	5
Hostage Situation	1	2	3	4	5
Hate Crime	1	2	3	4	5
Stalking	1	2	3	4	5
Biological Threat	1	2	3	4	5

The previous questionnaire is a modified version of the questionnaire used in Hall's dissertation (Hall, 2012). The rangers' answers and analysis of these answers will be explored and explained in the results section. Ten rangers participated in the questionnaire, five belonging to the recreational park ranger branch and five belonging to the law enforcement ranger branch. With regards to the open-ended questions, there

answers tended to vary, and with regards to the Likert response questions, most of the answers tended fell into the “not serious” or “least serious” category.

Finally, the analysis of available crime log data occurred using second-hand sources. This is due to data only from the year 2014 being made available from the UCR. All other data was collected from the study titled “Analysis of Assaults on National Park Service Rangers” conducted in 2006 by Gould.

Chapter 4: Results

During the study of visitor safety on the Natchez Trace Parkway, a risk assessment was conducted stretching from Natchez to Tupelo. This was approximately 242.5 miles of roadway. In addition to the risk assessment, ten park rangers were interviewed, five of whom were law enforcement rangers and five of whom were recreational park rangers. Lastly, crime logs from the National Crime Victimization Survey and previous studies done on the crime logs for the park were analyzed.

Risk Assessment

The risk assessment of the Natchez Trace Parkway took a total of three days to conduct. During this time, the roadway, points of interest, and three different visitor information centers were heavily assessed for any hazards that existed and the risks that could stem from these hazards. The following results explain what the hazard was, who might be harmed by the hazard, what is already being done to combat the hazard, and any further actions that need to be taken with regards to the hazard.

The first hazard that was identified was observed at Emerald Mound, a point of interest located at milepost 10.3. The hazards associated with this site included an obvious lack of upkeep with regards to the structures. This can be seen in images 1, 2, and 3, which can be found in the photo appendix found on page 41. Not only were the stairs a hazard, but there was also a lack of cones or signs to bring the structural flaw to the attention of the visitors. Currently, there is no obvious action being taken to repair the stairs, and if there were to be in the future, the repairs would have to be made through the National Park System and come from the budget for the Natchez Trace Parkway. The second risk that was identified was the lack of rangers (recreational or law enforcement)

at the sites between the southern terminus and the information center at milepost 15.5. There are five points of interest in the fifteen-mile stretch. A potential hazard that may result at any one of these sites can range from motor vehicle theft, simple assault, robbery, or stalking. These can occur with or without a ranger present, but having an employee of the park at these points of interest can help to deter crime. A visitor can also easily be injured at any of these sites and without a ranger there, coupled with the poor phone service on the Trace, it may be hard for said visitor to find the help that they need. It is possible that because the assessment was being conducted on a Friday and Saturday, most of the rangers were not scheduled to work and therefore very few were out patrolling the Trace, but Fridays and Saturdays are two of the busiest days with regard to visitation.

The next risk that I identified occurred on the roadway. In the fifteen-mile stretch from the southern terminus to Mount Locust Information Center, the speed limit is fifty miles per hour. There are several speed limit signs, including one at the start of the Parkway in Natchez. While traversing this section of the park I was overcome by another vehicle three different times. These vehicles were surpassing the speed limit and they were passing in areas that were deemed too dangerous by double yellow lines on the roadway. There were no rangers patrolling in vehicles or any type of law enforcement personnel present to enforce the speed limit on the roadway. Risks that can stem from a lack of law enforcement personnel patrolling the roadway can include vehicular accidents, speeding, a lack of roadside assistance, cyclist accidents, or vehicular manslaughter. The current measures being taken in this section of the park to counteract hazards such as speeding and lack of rangers present is unknown or not occurring. Any

future steps that should be taken may include, but are not limited to an increase in the speeding fine on the parkway; increase in number of law enforcement rangers patrolling the Trace on Fridays and Saturdays; and the lowering of the speed limit in more dangerous areas of the Trace such as areas with low visibility or uneven pavement.

The following hazards were all documented at the Mount Locust Information Center or on the Parkway heading north towards the information cabin in Ridgeland. The first hazard documented occurred in the parking lot of the information center. Although a minor hazard, there was a lack of posted warning signs informing the visitors to lock their cars and stow any valuable items. There is also a lack of cameras at the site that would record any vehicular crimes. Visitors risk having valuable personal items stolen. Because of the lack of cameras, they may also be the victims of person on person crimes, such as simple assault or robbery, in the parking lots.

The rangers may also be victims of the same crimes. Currently, law enforcement rangers are regularly patrolling the grounds of Mount Locust to help combat these issues. Further action that can be taken would include the addition of security cameras at the site and posted warning signs or warning pamphlets inside the information center to make visitors aware of the potential hazards. The second hazard documented at Mount Locust was the lack of law enforcement rangers patrolling the Inn itself. The Inn houses several artifacts that could be stolen due to lack of security; therefore the main victim would be the Parkway itself. There is no current action being taken, but in the future a law enforcement ranger or a recreational park ranger should always accompany the visitors to the historical landmark to deter crime at the site.

The third hazard documented on this stretch of the parkway was the vast distance between the Mount Locust visitor center and the Ridgeland Visitor Information Center. There are 86.9 miles in between the two information centers. Visitors run the risk of not being able to find a ranger in a time of need. If someone were to get injured it would be difficult to make it to the nearest information center or if a car accident occurred it would be difficult to find help. Currently, no action is being taken to counteract this risk. Further action that may be necessary could include roadside assistance phones or roadside assistance signs that give visitors a number to call in case of an emergency.

The fourth hazard documented was the lack of cyclist awareness signs. This is the most important risk associated with the Natchez Trace and requires the most attention. There are a high number of cyclists on the parkway, and the road is narrow, uneven, and winding. Visitors risk injury or death while biking on the parkway, and drivers of motor vehicles also risk injury if an accident were to occur. The Natchez Trace Parkway already has a fund known as the Gary Holdiness Cycling Fund that was established in 2012, after the death of a cyclist on the roadway. It has assisted in implementing signs and arrows at parkway locations informing motorists to share the road. The fund has only installed signs at three parkway locations and relied on tax-deductible donations and fundraisers. Further action could include the addition of more signs throughout the parkway, a bicycle lane on the parkway, and road rails/winding road signs on the dangerous curves of the Parkway to assure that drivers slow down in low visibility areas.

Another hazard documented is the lack of signs warning motorists of visitors that may be hiking on the Trace. No action is currently being taken to combat the risks associated with this, but in the future warning signs could be posted along the parkway.

The last risk associated with the stretch from the southern terminus to the Ridgeland information cabin was observed at the points of interest along the roadway in between milepost 15.5 and 102.4. At the points of interest, there was very little phone service. In most cases, there was none. Several people were stopping at these locations and in a time of emergency it would be impossible to call for help in an emergency. With the heavy foot traffic, the amount of parked cars, and the remote location, it would be easy for theft, assault, stalking, robbery, or auto burglary to occur. Currently, the only measure being taken is to have law enforcement rangers patrolling these points of interest, but when they aren't available visitors have no way to call for help. In order to combat this hazard, an emergency phone system should be implemented, with such a phone at the most popular points of interest along the parkway. Similar phone systems are located on university campuses and they make it easy for potential victims to call for help.

The following risks are associated with the section of the Trace ranging from milepost 102.4 to milepost 266.6 at the Parkway Visitor Center and Headquarters. The Parkway Information Cabin located at MP 102.4 has the same risks associated with the Mount Locust Information Cabin at milepost 15.5. There were two rangers on duty and no law enforcement rangers patrolling the grounds. The parking lot lacked warning signs and there were no security cameras located on the exterior of the building. The next risk is again associated with the distance between the two information cabins. There are approximately 163.3 miles stretching between the Ridgeland Information Center and the Parkway Visitor Center in Tupelo. The same risks stated previously also apply here, including lack of patrolling law enforcement rangers, narrow roads and low shoulders, little to know bicycle awareness signs, and no emergency contact signs.

The risk assessment performed on the Natchez Trace Parkway noted several hazards and concerns associated with the park, some of which need immediate attention and some that will take the necessary time and funding to implement. The assessment was used in contrast to findings from the survey results

Park Ranger Surveys

Ten (10) park rangers were interviewed for this section of the research, five of whom were law enforcement rangers and five of whom were recreational park rangers. The first half of the survey included nine open-ended interview questions, with answers varying for each of the respondents. The first question asked about safety concerns regarding the park buildings (restrooms, picnic areas), and the main issues included falling hazards because of lack of maintenance to steps at the sites, the need for new locks on the doors because some no longer work or replica keys were made for people who are no longer employees, and the need for security cameras at the visitor centers. The second question asked if there were any safety concerns regarding the parking areas of the Natchez Trace (scenic overlooks, parking lots). All answers for this question were relatively similar and the concerns were associated with evening times on the parkway. One of the rangers expressed concern about drug exchanges he had witnessed in the parking lot, another ranger was concerned with local people hosting parties at some of the points of interest after the closing hours, and three of the rangers were concerned with visitors not complying with the sunset regulation set at the parking areas.

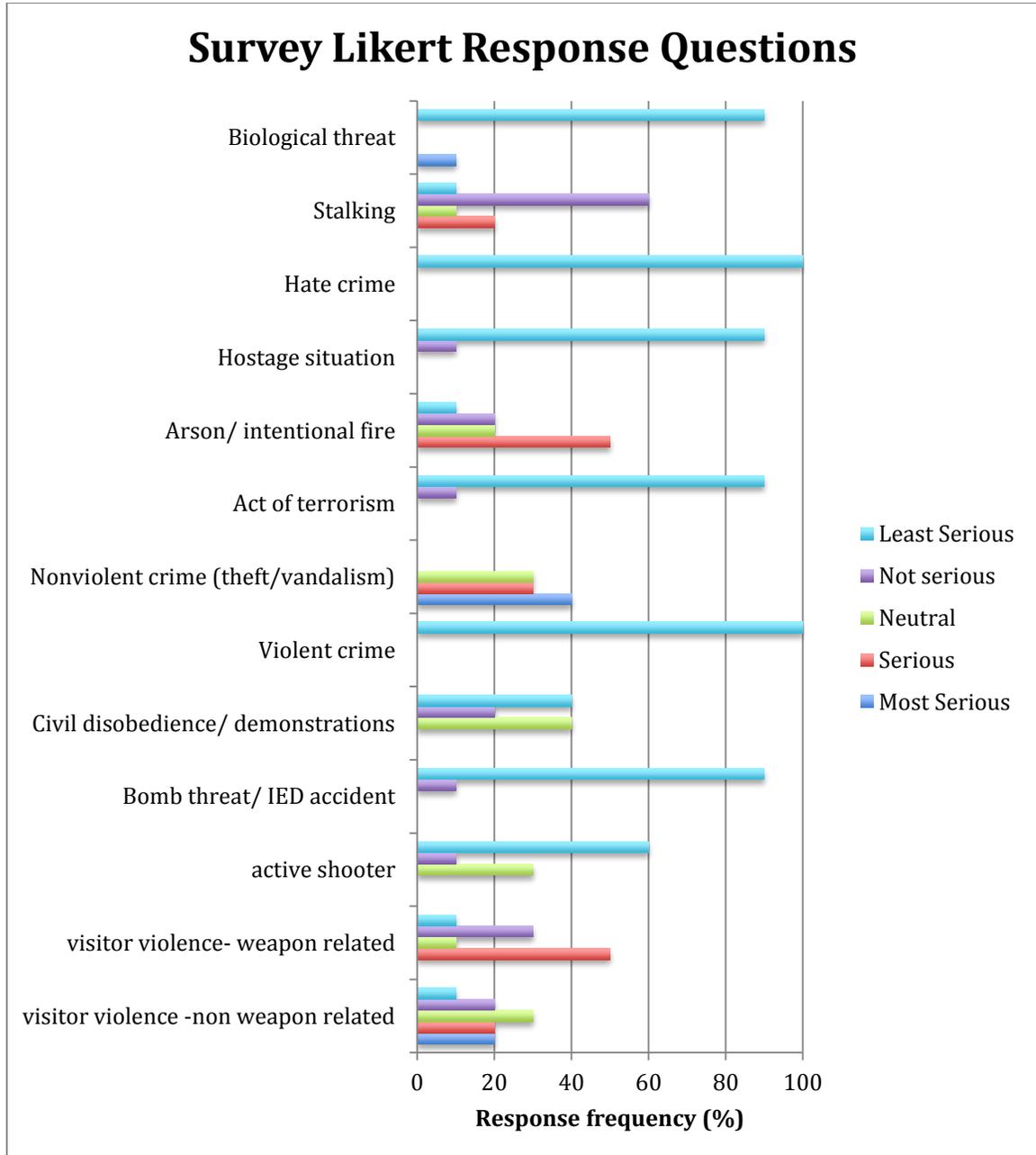
The third question asked about any safety or security concerns associated with the common areas and historical sites on the parkway. The answers included protecting the sites from vandalism, protecting the sites and artifacts from theft, the need for funding for

structural upkeep, and problems with visitors not complying with the sunset regulation. The fourth question asked about security concerns with regards to special events held at the park. Most rangers did not answer this question and the two that did reported that the park hosts the events and officers facilitate arrangements for safety plans and emergencies to make sure the event is in compliance. The fifth question asked the rangers what their primary safety concern is regarding the park in general. The most predominant answer was bicycle safety, but speeding and the distance between the information cabins were also mentioned. The sixth question asked the rangers what they think the visitors' major concerns are. The answers included hitting wildlife on the roadway, bicycle safety, the upkeep of the facilities (bathrooms), the remoteness of the points of interest, and road maintenance.

The seventh question asked if the Natchez Trace Parkway were to implement any safety and security improvements, what they would be. All of the respondents answered with increased bicycle safety, but answers also mentioned better regulation of motorist speeds in the city districts of the Parkway, such as Tupelo, Jackson, Ridgeland, and Natchez. The eighth question asked about any recent safety and/or security improvements that have recently occurred on the Natchez Trace Parkway. Almost all of the respondents mentioned the addition of more bicycle awareness signs, one mentioned an attempt to boost cellphone signal at Mount Locust, and one mentioned new self-driving lawn mowers so that employees do not have to drive them in dangerous areas along the roadway. The ninth question asked about any other general comments with regards to park safety, and one respondent mentioned that vehicles must adhere to the speed limit on the Parkway.

The second section of the survey included thirteen Likert response questions. The Likert survey asked the rangers about potential crime threats that they witness throughout their daily work routine and how they characterize these threats. The results can be seen in the following figure (figure 6).

Figure 6: Likert Survey Responses



Final results and recommendations for the Natchez Trace Parkway

New Technology

The NPS lacks a reliable incident reporting system. Without such a system, the reality of crime in the parks cannot and will not be uncovered. This creates a problem for the employees and the visitors. The FBI mandates that they have a system that meets their reporting needs. It is recommended that the Natchez Trace Parkway provide training to its employees so that they know how to report crimes to the incident reporting system.

Emergency phone system

The Natchez Trace Parkway has a high visitation rate and traverses approximately four hundred and forty four miles through Mississippi, Alabama, and Tennessee. Because of its length, the rangers cannot patrol every area of the Parkway at all times. In order to combat this, it is recommended that the NPS implement an emergency phone system that would traverse the parkway and provide the visitors with a means of contacting rangers or law enforcement in case of an emergency.

NPS funding for law enforcement training

Because assault on park rangers is so high, it is recommended that employees be trained to deal with a range of situations. This may include a domestic violence call, simple assault call, public indecency call, or a weapon related call. Recreational rangers may have to deal with a situation that a law enforcement ranger would typically handle if they were the first to respond so they should be trained as such.

Permanent employee staff increases

One of the most important issues with the NPS is the lack of employees. It is recommended that the Natchez Trace Parkway permanently hire a portion of the seasonal employees so that more rangers are at the points of interest during the day and patrolling the roadway to enforce traffic laws.

Recreation ranger safety

The recreational rangers at the Natchez Trace Parkway reported being involved in incidents where they were the victims of stalking, witnessed a drug exchange, or witnessed domestic violence. In all of these situations they were unable to defend themselves or help because they are not allowed to carry any sort of weapon. It is recommended that the recreational rangers are permitted to carry a stun gun or pepper spray for extreme cases and are properly trained to use these “weapons” only when necessary.

Chapter 5: Discussion

This study was conducted to bring to light the need for increased safety measures at national parks across the United States. In order to surface evidence of this need, the Natchez Trace Parkway was assessed for hazards and risks along its route and at its monuments. Overall the staff had few safety concerns, but they did share concerns with regards to the lack of funding to help combat hazards and with the hazards associated with motor vehicles. The rangers were also concerned about the distance that exists between areas where help may be located. In order to combat concerns associated with motor vehicles, it was suggested that the Trace increase vehicle patrols to enforce the speed limit much more strictly in areas such as Tupelo, Ridgeland, and Jackson to promote safety for cyclists. If the Trace were to implement any safety and security concerns, it was suggested that more bicycle awareness signs should be erected along the Trace.

Concerns were also found during the risk assessment portion of the study with regards to the lack of patrols at the points of interest along the Trace and the need for general upkeep in these areas with regards to facilities looking unkempt. Rangers voiced concerns with regards to vandalism, locks on the facility doors, drug exchange in the parking lots, sunrise/sunset regulations, and gatherings occurring in the parking lots at night. It can be said that the Natchez Trace does not have any one severe issue, but instead it has several small issues that could create an unsafe environment for the rangers and the visitors. In order to counter these concerns, the Parkway would need increased funding, whether that be federal or through fundraisers, and more rangers on duty throughout the day and at night.

These results are important not only because it will make the Natchez Trace Parkway a safer place for visitors and rangers, but also because they have the potential to save the lives of people on the parkway. The visitors are the primary concern at a facility that thrives on visitation rates. In this study, unlike any others, the risk assessment focused on hazards associated with criminal activity and disregarded natural risks, such as landslides, falling trees, and wildfire. Instead, facilities, roadways, and staff were analyzed to understand exactly where any weaknesses may exist and how to reverse or control these hazards. Although the risk assessment conducted indicates the need for increased funding and better safety regulations, the rangers that were given the questionnaire voiced little concern in the Likert response questions, labeling most crime as “not serious” or “least serious.” This may be due to the fact that several of the rangers work at the Natchez or Ridgeland sites, which do not garner as much foot traffic as the Visitor Center in Tupelo. However, they all voice the same concern with regards to motor vehicle safety.

Although this study focused solely on the Natchez Trace Parkway, to gain a better understanding of visitor safety at national parks as a whole, it would be necessary to gather the same information from a large pool of parks across the nation. This study was limited because of the lack of available staff while the research was being conducted. Although weekends harbor some of the busiest days, the majority of the staff is off duty. In order for the rangers to work to their full potential they must be given days off, but this can be the source of concern for weekend visitors. In addition to the limited number of volunteers able to engage in the questionnaire, the study was also limited because the Natchez Trace Parkway does not have any points of interest where large crowds tend to

gather all at once. Unlike a park, such as the Grand Canyon, where hundreds of people may be in a location all at once, the Natchez Trace Parkway sites will have at most thirty visitors at an information center all in the same block of time. Even suggesting that thirty visitors will be present could be seen as an exaggeration. While visiting the information center, there were seven visitors, including myself, present. The Natchez Trace Parkway shed a new light on visitor safety in national parks because it introduced motor vehicle safety and bicycle safety, which is seldom explored. A second limitation to the study stems from the issue that the NPS lacks a reliable database for recording their crime. Obtaining statistical crime data is difficult because the reports travel through several sources before they are reported to the National Crime Victimization Report.

I firmly believe that this study can assist the Natchez Trace Parkway in garnering support and funds in order to affirm the safety of its visitors. The state of Mississippi is generally lacking in national landmarks, monuments, and national parks. Great pride should be shed on the Natchez Trace Parkway, not only for the visitors, but also for the preservation of its rich history. I recommend furthering research on this topic because any addition of resources will have to come from federal funding or from park led fundraisers. National Parks are a key staple of the American landscape and their upkeep should be a priority. The Natchez Trace Parkway has, unfortunately, been subject to several tragic accidents and they cannot allow the numbers to continue to grow.

Chapter 6: Conclusion

The National Park System brings in millions of visitors each year and the numbers are continuing to grow. In order to properly protect the visitors and rangers that explore the park grounds, it is necessary to uncover any weaknesses in the NPS security. To do so, the Natchez Trace Parkway was dissected and analyzed for any hazards that might bring about risks to the visitors. This Parkway traverses through Mississippi, into Alabama and Tennessee and is approximately four hundred and forty four miles long. The southern terminus is in Natchez and its northern terminus is near Nashville. Because of its immense length and high number of points of interest, the park tends to be difficult to monitor. These factors are what led the research to focus on this park and to analyze the risk that may befall the visitors. It is the view of the general public that national parks are a staple of American society. They capture the beauty of the nation and provide a haven for wildlife and visitors alike. It is frustrating to acknowledge the harsh reality that crime leaks into these idyllic settings and can fragment the peace that surrounds these landmarks.

The presented research aims to combat these hazards in order to keep the risks at bay. Without such research, crime in national parks would go relatively unnoticed or unresolved. On the Natchez Trace Parkway, vehicular crimes, vandalism, drug exchange, theft, civil disobedience, non-weapon related violence, intentional fire, and stalking are all crimes that can and have occurred in the park. The safety of the park rangers and the visitors of the Parkway rely heavily on the maintenance of the facilities, the monitoring of points of interest, the number of park rangers present throughout the day and at specific areas of the parkway, and the regulation of the rules of the facilities and of the

roadway. All of these variables have been explored and hopefully the looming safety hazards associated with the park can be combated. As visitation rates along the Natchez Trace Parkway continue to rise, so too should the concern for the safety of the visitors and the time and effort needed to expend in order to keep the Parkway up to its expected standards of safety.

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Appendix A: Photographs



Photo 1



Photo 2



Photo 3

Appendix B: IRB Approval Letter



INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 17020103
PROJECT TITLE: Visitor Safety at Natchez Trace Parkway
PROJECT TYPE: New Project
RESEARCHER(S): Devin McGee
COLLEGE/DIVISION: College of Science and Technology
DEPARTMENT: Criminal Justice
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Exempt Review Approval
PERIOD OF APPROVAL: 03/29/2017 to 03/28/2018
Lawrence A. Hosman, Ph.D.
Institutional Review Board