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Spatial pattern analysis of police use of force: Exploratory findings

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Abstract

Relative to American culture and justice today is the issue of police using force on citizens to control a situation. Many believe the use of force by police can be excessive and it has changed police-citizen interactions. Currently, much of the research into the topic has been limited, and often shows conflicting results with unclear conclusions. To better understand the influences of police use of force, this study uses qualitative and quantitative methods to examine spatial patterning that may help explain which factors contribute to a use of force event. Taking information provided by a police department of a mid-sized city in the western United States, this study analyses reports of use of force by mapping cases and determining significant clusters that develop based on numerous variables. Results show incidents of use of force cluster around the downtown area of the region and suggests neighborhood contexts which lead to police using force.

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Chapter 1

Introduction

There has been an increasing awareness in America of incidents involving police use of force on citizens, especially in cases where the officer is white and the suspect is a minority. Often, the American public acknowledges such incidents, which results in a biased view of law enforcement officers that may be detrimental to crime control and public safety. However, most situations involving use of force by police are justified and supported in court. Furthermore, an understanding of what situational factors contribute to the use of force is incomplete, and research has provided varied results. Continued efforts are necessary for America to prosper as a nation founded on the notion of due process and equality.

Why Study Police Use Of Force?

Police officers are tasked with protecting order, upholding safety, and serving the public by means of criminal sanctions and, sometimes, physical force. The discretion given to officers to use force is seen as a “necessary evil” to maintain safety and order. Further, in a perfect society where transgressions never occurred, it would be unnecessary (Alpert & Dunham, 2004, McElvain & Kposowa, 2004). However, in modern society, police are subjected to more and more scrutiny in how they perform their jobs and, as Alpert and Dunham (2004) put it, “expecting citizen compliance is a gamble at best” (p.18). This provides for a historically unique situation. Police must do their duties, which have always included the use of force, but now under the watchful eye of all citizens with cameras (Kappeler, 1993) and internet connections, and gives reason to rethink the role of force in police interactions, and basic ideas of justice. Still, it would be

absurd to disallow use of force by police (Alpert & Dunham, 2004); a better solution is to demand police use it responsibly and only in situations where it is required.

Incidents of police use of force are known to be relatively infrequent (Alpert & Dunham, 2004; Kappeler, et al., 1993). Older studies indicate a higher rate of use of force, with as much as six percent of arrests resulting in use of force by the police (Adams, 1995). More recent research, however, indicates the trend may be decreasing. One study found police use force in less than one percent of all citizen-police encounters (Langan et al., 2001), but with Blacks and Hispanics more likely than Whites to experience force, or threat of force, by police. The rate at which *excessive* force is used, generally considered as unjustified or exceeding the amount necessary to control a situation (McElvain & Kposowa, 2004), is lower still. Adams (1995) estimates the use of excessive force in one-third of one percent of all citizen encounters. These facts beg the question of whether such issues are worth a researcher's or practitioner's time and money to study. *Why study a phenomenon that occurs so rarely?* As we have seen in the past, however, and as recently as 2014, use of force incidents, whether appropriate or not, can have drastic results in public opinion of the police and interactions with them (Weitzer, 2002; Cunha, 2014; Micucci & Gomme).

Ronald Weitzer (2002) shows evidence of citizen attitudes toward the police decreasing after a use of force event. Using the Rodney King incident, and another involving the beating of two Mexican immigrants after a high-speed car chase, Weitzer (2002) shows job performance approval for the Los Angeles Police Department (LAPD) decreasing. Most notably, approval ratings dropped the most for Hispanics and African Americans. Police approval ratings by Whites also decreased, albeit at a lower rate. The

incident involving the beating of the two Mexican immigrants occurred out of the jurisdiction of the LAPD, suggesting such events affect the opinion of police officers everywhere.

It has become common practice and a matter of necessity for police departments to elicit the help of the community in solving crime (Walker & Katz, 2008; Micucci & Gomme, 2005). This, of course, demands respect and cooperation between citizens and police, which is negatively impacted when use of force incidents are discovered and broadcast through mainstream media. Because the media plays its part in sensationalizing use of force incidents (Kappeler & Potter, 2005; Hirschfield & Simon, 2010), it is crucial for departments to prevent them so as to maintain any respect held between police and citizens. Furthermore, as seen above, these incidents often transcend agencies and departments and can influence virtually any citizen, regardless of location (Weitzer, 2002), and foster anti-police attitudes (Cunha, 2014). Clearly, issues of this type should be the concern of all departments interested in building police-citizen relations.

There are other problems besides the theoretical influence such incidents have on attitudes and behaviors of citizens; the practical impact of such incidents can be a nightmare for departments as well. Financial impact of court litigations between 1978 and 1990 averaged just over \$134,000 per police defendant (Kappeler et al., 1993), and in the 1990s the City of Detroit paid out \$124 million to plaintiffs for allegations of police misconduct. Beyond damages awarded, financing the court procedure can be extremely expensive and time consuming as well (Walker & Katz, 2005). In addition to building police-citizen relations, departments could also save money and embarrassment if they took steps to limit use of force occurrences (Micucci & Gomme, 2005).

The final reason to study police use of force, which happens so rarely, is answered with an ethical consideration. Police being granted the authority to use force against citizens requires that there should be strict scrutiny and a clear understanding of the situations when it occurs. History documents well that those with authority routinely abuse it, including American justice institutions (Miller, 2012). When deliberate analysis is applied, however, practitioners can employ methods that help recognize the prevalence of such occurrences and better understand factors that lead to them, in order to modify training practices.

Chapter II

Literature Review

Understanding Police Use of Force

Trying to understand police use of force is a daunting task, and the issues surrounding the problem seem almost limitless. Alpert and Dunham (2004) state that data reflecting police use of force come from three main sources; official records documented by police agencies themselves (e.g. incident reports, statements, evidence), reports by citizens who experienced use of force by police (e.g. citizen complaints, surveys), and observations by researchers of police behavior. As with all social science research, these sources have limitations to their reliability and it is best when all are used simultaneously to ascertain information concordance. Often, however, material restraints prevent such an approach. As explained above, the infrequent occurrence of use of force in police activity renders the observational approach impractical, expensive, and time consuming (Adams, 1995) as researchers must spend many hours observing before a use of force incident can be recorded. In addition, officers may also be influenced when an observer is present, and a supposedly accurate measurement of police behavior could be inaccurate and misleading. Still, studies using the observational approach offer a unique perspective that is the least biased source of use of force data because it is being done by researchers who understand problems with methodologies and try to account for them (Alpert & Dunham, 2004).

Both citizen reports and police records are biased in that they represent the perceptions of their respective groups. Police who use force, and citizens who resist, tend to justify their actions, which are represented in their documentation of the event.

Unfortunately, for those studying and trying to understand police use of force, police records and citizen complaints are the major sources of data available for analysis (Alpert & Dunham, 2004). Additionally, citizen complaints have also been criticized as being incomplete due to the fact that the numbers of complaints by citizens differ by agency and the way a department collects and documents them (Alpert & Dunham, 2004; Adams, 1995; Cao & Huang, 2000). Hence, departments that may fear poor publicity could limit the time or place a citizen can make a complaint, effectively limiting the number received.

The most readily available data on police use of force is taken from the police records themselves. As police administrators began to look for evidence to inform their decisions on officer training, supervision, and discipline practices, they have also started to collect their own data on use of force incidents (Alpert & Dunham, 2004). Problems arise, however, because most police administrators are not researchers and do not share the same methodological rigor and motivation than those educated in research methods. “Police managers often have different interests than researchers, and therefore collect only the types of information relevant to, or important for, their own ends. This often results in inadequate data for research purposes” (Alpert & Dunham, 2004, p. 24). Furthermore, data collected by police are rarely comparable between agencies and departments because of differences in how they define use of force events, and how they record them. Again, this makes it extremely difficult for comparison, as well as any generalizations about trends or geographical influences. There is some good news to report. That departments and agencies are beginning to collect such data expresses their desire to understand more about it, how important it is to their work, and that these data

should be utilized by researchers. For example, some departments currently require information beyond the incident report, such as separate data forms relating to use of force, or a detailed description of what transpired in a given case (Alpert & Dunham, 2004). Of course, there is still much work to be done, but the groundwork has been identified.

Although police records present an abundance of data, obtaining that information can pose yet another obstacle for researchers. Most police managers are aware of police-citizen interactions and try never to upset the delicate relationship, or to give citizens reasons to question the department's legitimacy. Of course, data show that the disproportionate use of force can incite disrespect and anti-police attitudes that are counterintuitive to the department and crime control. The area of effect of such a finding is also a concern for police everywhere. These realizations force police managers to be ever cautious and meticulous about allowing outside analysis, and are a problem for researchers trying to understand use of force by police officers.

Some argue of an ethical component when police administrators refuse to release data. The argument suggests as public law enforcement agencies, police owe at least some allegiance to those they serve. In a democratic society this requires transparency for proper policy and voting decisions. If data are not released, analyses cannot be done and a shroud of ignorance covers the need for critical discussion. In the end, it becomes apparent any meaningful analysis and understanding is limited to the quality of data collected (Cao & Huang, 2000), and thus should be a focus of police departments and agencies, as well as researchers everywhere.

What has been discovered?

Given the limitations stated previously, some research has been conducted on the issue of police use of force, including excessive force, which tells us much about how such incidents arise, escalate, and what factors influence the rate that individual officers and whole departments use force against citizens. Below is a review of those factors and theories that might help explain them.

Officer Age and Experience. The usual culprits that may influence police use of force have been analyzed in past research and focus on major demographic characteristics that may help explain use of force by police; such variables as age, race, and gender of both the suspects and officers involved. A definitive conclusion taken from these analyses, however, has eluded researchers and studies have produced only mixed results. For instance, in a review of literature, Brandl et al. (2001) illustrates that younger officers are more likely to use force than older ones, but Alpert's (1989) research indicated the age of an officer had no effect on the decision to use force during an arrest. Lersch and Mieczkowski (1996) report that officers with multiple complaints against them were more likely to be newer, younger officers. Brandl et al's. (2001) research also reported younger officers with less experience were most likely to have complaints of excessive force filed against them. It is important to note that as data collection methods improve, a more thorough understanding may emerge, helping to explain the inconsistencies found in these studies. Interestingly, as recently as 2004 McElvain and Kposowa found that officers with less than five years of experience were 4.4 times more likely to be investigated for claims of use of force than senior officers with 20 or more years of experience, consistent with past research. More importantly however, the authors found officers with five to nine years of experience were eight times more likely to be

investigated than their senior counterparts. These findings suggest a more complex interaction demanding of continued research. Micucci and Gomme (2005) also report a kind of curvilinear relationship of officers' tolerance toward use of force with newer and highly experienced officers less accepting of use of force situations, seeing them as more serious than officers with moderate levels of experience.

Officer Gender. Gender also becomes salient when predicting use of force situations. It has been generally accepted that male officers are more likely to use force than female officers for a variety of reasons. In a review of the literature, Lersch and Mieczkowski (2005) report previous research showing the presence of female officers decreased the number of complaints received about police violence, presented a less threatening image to suspects, and were more effective in calming a situation that could lead an officer to use force. However, Hoffman and Hickey (2005) found “no statistically significant differences between female and male officers” (p.149) in overall use of force rates. Likewise, female officers were no more likely to use force that included a specific weapon. When combined to include all weapon types, however, females were statistically less likely to use a weapon in a use of force case than their male counterparts (2% versus 2.4%, $\chi^2 = 4.2$, $p < 0.05$, p. 149). Again these mixed findings may be a result of more thorough research in recent years and should encourage researchers and police managers to continue to collect and analyze data to determine which of these possibilities is most accurate.

Officer Race. Like other variables mentioned, research into officer race playing a role in use of force incidents has produced mixed results with no clear conclusion (Lersch & Mieczkowski, 2005). In one of the best and most rigorous studies on police use of

force, Alpert and Dunham (2004) found officers were most likely to use force against suspects of their own ethnicity and report, for example, Anglo officers using force against Anglo suspects in 26 percent of cases, while black officers used force on Anglo suspects in only 16 percent of cases. Likewise, black officers used force against black suspects in 67 percent of cases, while Anglo officers used force on black suspects in only 40 percent of cases (p. 70). These findings suggest there is an interaction of race, and that officers feel more comfortable using force against their own races. While this finding is by no means established, it presents a new perspective with which to consider use of force events.

Suspect Characteristics. Although no clear indication has yet been established, suspect characteristics can also aid understanding of when police use force. Race of the suspect seems only to be marginally identified as a predictor in only some studies, with younger black suspects found to be more likely targets for abuse (Lersch & Mieczkowski, 2005). Lersch and Mieczkowski's (2005) review of pertinent literature also revealed unarmed black suspects were more likely to be shot than unarmed whites or Hispanics, and that in 1,428 justifiable shootings resulting in death, 60 percent were black. The sex of a suspect also seems important in predicting police use of force, with one study identifying 90 percent of suspects in use of force cases were males, while only ten percent were females (Alpert & Dunham, 2004). Alpert and Dunham (2004) also provide evidence that may suggest age influencing interactions with the police ending in use of force. Looking at first, second, and third subsequent actions of both the officer and the suspect in a use of force incident, the authors found 62 percent of persons under the age of 30 responded to a verbal first action by the officer with physical resistance. Likewise,

when the first two actions of an officer were verbal, the percentage of physical resistance by persons under 30 increased to 72 percent.

Department Leadership and Officer Attitudes. Various research into department organization and leadership has also been conducted, with some interesting results related to understanding police use of force situations. Using bivariate analysis Worden (1995) shows officers' attitudes helped predict their use of force. He reports officers that believed police should not concern themselves with calls of public nuisances (e.g. barking dogs, burning garbage) or social disturbances that do not involve a crime, were more likely to use force. Also, those officers who said problems in troubled neighborhoods would diminish if restrictions on use of force were lifted were also more likely to use force in police-citizen encounters. Likewise, in accordance to police culture, Worden (1995) shows officers who believed appropriate use of force could only be deciphered by other officers, were, again, more likely to use force.

A similar study asked police officers to rate the seriousness of a situation, in which respondents read about two officers responding to a property call and find the suspect fleeing. The two officers chase the suspect a couple of blocks, are able to wrestle him to the ground and apprehend him. After doing so, the officers proceed to punch the suspect as punishment for fleeing. This narrative is not uncommon in police work, but clearly representative of an example of *excessive* use of force. The authors found that out of 3,200 respondents, 15 percent rated the event as non-serious, with another 13 percent indicating a moderate level of seriousness (Micucci & Gomme, 2005, p. 493). Furthermore, and perhaps more importantly, about one third (32%) of participants reported they would be unlikely to report a fellow officer involved in the scenario

described. 90 percent of respondents reported such a scenario would illicit an official sanction, and that more than half believed the sanction would be severe (Micucci & Gomme, 2005, p. 493).

Another report by the National Institute of Justice surveyed officers about their opinions on community based policing and found just over half (50.9%) reported the number of cases involving excessive force were reduced due to the policing style. Almost as many (42.2%) reported it decreased the seriousness of a given incident. Very few (2.0%) indicated community policing would increase the frequency of excessive use of force cases, or inflate the seriousness of them (Weisburd, & Greenspan, 2000). These findings are suggestive of department mission statements, leadership, and new recruit qualifications having an impact on attitudes officers formulate and support.

The training police officers receive has also been the focus of much research related to use of force and interactions police have with the public. Arguments for continued and extensive education of officers consider philosophy of law and interactions between police and citizens, focusing on the coercive nature of their job. When officers are more aware of this predicament, it is suggested they are more sensitive about it, and respond to citizen resistance more reasonably. Educated officers may offer other benefits as well, including different and innovative crime fighting techniques, and better communication skills (Paoline & Terrill, 2007). Opposing arguments suggest police work is not intuitive and no amount of training or education can prepare a new recruit to act perfectly when assigned to street service. Interestingly, although these arguments have traditionally been in opposition to each other, recent research has indicated empirical evidence supporting both assumptions. With regards to education and using a

multinomial logit model, Paoline and Terrill (2007) report statistically less verbal force at the $p < .05$ level by officers with some college ($b = -.555$, $p = .191$) or a four year degree ($b = -.728$, $p = .191$) than officers with a high school education. Furthermore, officers with a bachelor's degree also used statistically less physical force ($p < .05$, $b = -.527$, $p = .191$). The same study also reports officer experience predicting less verbal ($p < .05$, $b = -.021$, $p = .191$) and physical force ($p < .05$, $b = -.041$, $p = .191$) than those with less experience. Viewing experience as a form of training, these findings lend support of better qualified police officers using less force in their interactions with the public, and may be crucial to understanding police use of force.

Situational Characteristics. The most salient predictor of use of force incidents are the situational characteristics present when an officer uses force. These, of course, include a combination of the factors mentioned above, as well as others such as the interaction between a suspect and an officer, intoxication of a suspect, or the type of crime being investigated. Worden's (1995) study reports that the use of both reasonable and excessive force were more likely to involve, (1) a violent crime, (2) automobile pursuits, (3) at least four bystanders and, (4), more than one officer (Worden, 1995, p. 37). Regarding the suspects, they indicated a more frequent likelihood of force in situations where the citizen, (1) was black, male, and over eighteen, (2) exhibited signs of drunkenness or mental disorder, (3) had a weapon and, (4) was hostile or antagonistic (p. 37). Alpert and Dunham (2004) also show findings consistent with this and report when suspects were under the influence of alcohol or drugs, or seemed agitated or upset, they were more likely to generate a use of force report. Even the type of call for service has been found to associate with use of force occurrences. Using an analysis of variance

(ANOVA), Macdonald et al. (2003) show officers responding to calls concerning a property offense (e.g. burglary, larceny, vandalism,) use statistically more force in relation to suspect resistance, than those responding to domestic disturbance calls (mean diff. = 0.55, $p < .05$; p. 124). Alpert and Dunham (2004) found similar results.

Suspect resistance is generally accepted in the literature as highly associated with police use of force encounters with citizens. Alpert and Dunham (2004) report 97 percent of control-of-persons reports in their study involved at least some degree of resistance by the suspect (p. 66). While the degree of resistance varies, importantly, the authors report, “The vast majority of suspects who resisted did so with their body (91%) rather than using any type of weapon” (Alpert and Dunham, 2004, p. 68). While this high association exists, some scholars have questioned whether the responding officers’ demeanor and demand for respect influence, and perhaps instigate, suspect resistance, leading to appropriate apprehension by force (Lersch & Mieczkowski, 2005). Indeed, the first action upon arriving on a scene of a crime can heavily influence decisions of officers and suspects, and complicate understanding about police use of force events (Alpert & Dunham, 2004).

While most scholars have focused on individual level characteristics to understand police use of force, others have broadened the units of analysis to larger classifications, perhaps in part due to the mixed results reported in the literature. Terrill and Reisig (2003) have questioned the neighborhood context in shaping incidents of use of force, basing much of their hypothesis on Black’s (1976) publication *The Behavior of Law*. Terrill and Reisig (2003) examine whether use of force by police is influenced by particular neighborhoods, distancing themselves from individual level explanations (e.g.

race, gender, demeanor) for more contextual explanations. The authors ask, “Do officers exercise force differently in some neighborhoods as opposed to others?” (Terrill & Reisig, 2003, p. 292) A body of research exists, again indicating mixed results to this question, but Terrill and Reisig (2003) believe, “a consistent theme has emerged: Police behavior is patterned territorially” (Terrill & Reisig, 2003, p. 296). In light of this deduction, the authors conclude police officers’ behavior may be more influenced by the norms and compartmentalization of a particular area than they are by individual characteristics. That is, police officers behave according to their environment and what they believe about that environment. This conclusion not only highlights the importance of proper police leadership and department organization argued above, but also provides a different perspective with which to consider the understanding of use of force; an area lacking in the literature. Researchers must also consider suspect behavior toward police may be influenced by contextual factors such as neighborhoods as well (Terrill & Reisig, 2003).

Important, too, when considering incidents of police use of force, are suspects’ propensities to engage in suspicious or criminal activity, and an officer’s interpretation of those activities. Such considerations influence what initiates a police-citizen encounter, which then may lead to the use of force. Routine activities theory can help explain these considerations and may lend understanding to police use of force incidents. Such factors as the neighborhood one is in, similar to what was explained above, influence interactions between citizens and police, but also factors like the time of day, the season, the presence of crime attractors and capable guardians, and whether an offender is motivated or not (Cohen & Felson, 1979).

Chapter III

Present Study

With the information given above and the inconsistencies reported in studies, it becomes apparent that further delving is required to better understand the complex realities of when police use force. Benefits in cost effectiveness, ease of police functions and community relations, and ideals of justice are all tied to this understanding, and warrant further investigation. To ignore it, or surrender because of the intimidating task of sorting it out, would be detrimental to basic American principals. The current study uses both qualitative and quantitative methods to assess use of force associations of a mid-sized western United States police department. A unique aspect of the surrounding area, involving gaming culture and casinos will also be investigated and may provide insight about neighborhood contexts and whether they play a role when police use force. The city in which the study is conducted incorporates a central downtown area with a strong casino/resort presence. Throughout the year casinos and city organizers hold events and promotions to draw people to the area and alcohol is widely available. The downtown area also consists of numerous budget motels that seem to attract drugs and other criminal activity. The presence of both crime attractors and capable guardians can be seen throughout downtown and may influence police-citizen interactions and use of force reports.

The purpose of this study is to attempt to replicate other existing studies, to add to the discussion and evidence available to researchers and practitioners, and to decipher possible spatial differences and justifications for rates of police use of force. Also, by broadening the units of analysis from the individual and examining situational

characteristics representative of a particular neighborhood, this study also hopes to add to the spatial context in which use of force incidents congregate, especially with regards to casino characteristics. Due to inconsistencies and mixed results of many studies attempting to decipher use of force incidents by police, much of the current study is exploratory and aims to add to pertinent literature.

Using spatial contexts proposed by Terrill and Reisig (2003) the following five research questions consider spatial patterning of police use of force incidents on respective variables, providing exploratory insight. Mixed results of suspect ethnicity contributing to cases of police use of force have provided the reason for the study's first research question (Alpert & Dunham, 2004; Lersch & Mieczkowski (2005).

1) H_a - Does ethnicity of a suspect play a role in incidents of police use of force?

H_0 – There is no difference in suspect ethnicity and incidents of police use of force.

H_1 – There are differences in suspect ethnicity and incidents of police use of force.

H_b - Is there a spatial pattern between suspect ethnicity and police use of force incidents?

H_0 – No spatial pattern exists between suspect ethnicity and police use of force incidents.

H_1 – There is a spatial pattern between use of force incidents by police and suspect ethnicity.

Applying Alpert and Dunham's (2004) research on suspect sex and involvement in use of force cases, the second research question proposed is:

2) H_a - Does the sex of a suspect play a role in incidents of use of force by police?

H_0 – There is no difference in regards to the sex of a suspect involved in police use of force incidents.

H_1 – There is a significant difference of incidents of police use of force and the sex of the suspect involved.

H_b - Is there a spatial pattern between the sex of a suspect and use of force incidents?

H_0 – There is no spatial pattern between the sex of a suspect and use of force incidents by police.

H_1 – A spatial pattern exists between the sex of a suspect and involvement in use of force incidents by police.

The salience of officer education and experience have also been identified as possible influences in use of force incidents by police (Brandl et al., 2001; McElvian & Kposowa, 2004; Paoline & Terrill, 2007) and are the bases for the current studies third and fourth research questions.

3) H_a - Does officer education (both formal or through the department) play a role in incidents of police use of force?

H_0 – There is no difference in officer education and involvement in use of force incidents.

H_1 – There is a significant difference between officers involved in use of force incidents and their level of education.

H_b - Is there a spatial pattern between an officer's level of education and involvement in use of force cases?

H_0 – No spatial pattern exists between officers' level of education and involvement in use of force cases.

H_1 – There is a special pattern between officers' level of education and involvement in use of force cases.

- 4) H_a - Do the number of years an officer is employed at the department play a role in incidents of police use of force?

H_0 – There is no difference in use of force incidents and the number of years an officer is employed at the department?

H_1 – There is a significant difference between officers' experience and involvement in use of force incidents.

- H_b - Is there a spatial pattern between the number of years an officer has been employed by the department and their involvement in use of force incidents?

H_0 – There is no difference between the number of years an officer has been employed at the department and involvement in incidents of use of force.

H_1 – There is a significant difference between officers involved in use of force incidents and the number of years they have been employed at the department.

Using research and theories elucidated by a routine activities approach (Cohen & Felson, 1979), the study also proposes a research question related to the time of day and incidents of police use of force.

- 5) H_a - Does the time of day play a role in incidents of police use of force?

H_0 – There is no difference between the time of day and incidents of use of force by police.

H_1 – There is a significant difference between incidents of use of force and the time of day.

H_b - Are there spatial patterns related to the time of day and incidents of police use of force?

H_0 – No spatial pattern exists between the time of day and incidents of police use of force.

H_1 – A spatial pattern does exist between the time of day and incidents of police use of force.

Chapter IV

Methods

The current study analyses all use of force incident reports (N = 134) for the year 2013 of a mid-sized city's urban police department in the western United States. The data were graciously prepared and given to us by the department to aid in analysis and proper procedure. Data were coded with the help of university student interns working within the department, and include a plethora of details pertaining to each report of use of force by officers. Data coded were originally recorded by the officers who were involved in a particular use of force incident, meaning information recorded is bias toward an officer's interpretation.

The coding process required reading through use of force reports identified and provided by the department to code relevant information. This information was based on the literature review and factors that were identified as salient in use of force incidents, but also what themes and categories that developed when reading through the reports. The codebook kept for the study was constantly modified and updated common themes, which provided a means to document inconsistencies that were later discussed by coders for inter-rater reliability.

Information coded includes demographics of both the suspects who experienced use of force, as well as officers who administered use of force. Characteristics of each event were also coded including: time of day, incident location, number of officers and bystanders, and officer shift, among many others. A list of complete variables considered is available in appendix A. Certain demographics of the department and officers were

also requested and obtained including department size, education and Police Officers' Standards and Training (POST) certifications, and length of time at the department.

Categories considered for the study often had multiple possible answers, in which case coders coded the most serious or highest level within the category. Reading through reports, for example, suspects often resisted both verbally and physically, but only physical resistance would have been coded. To determine the seriousness of a particular category, coders also discussed and agreed upon referencing it to the influence it would have on instigating a use of force event. Thus, when rating the seriousness of why an officer used force, coders considered fleeing more conducive to generating a use of force report than ignoring an officer's orders or being uncooperative, and thus more serious. This is based upon the realization that police *must* use force to apprehend a fleeing suspect, where other possibilities may be available to control a situation when a suspect is uncooperative. If use of force reports did not have any definitive information on categories the study was interested in coders would leave cells blank to improve reliability with the information that was gathered.

Once information was coded and raw data were obtained, efforts were made to update and clean the data for analysis. This was done by imputing the data into SPSS, recoding missing information as missing, and combining similar classifications within variables to obtain a more meaningful range for analysis. For example, raw data included classifications for "drug sales" and "drug offenses," thus the study combined the two frequencies into "drug offenses." Likewise, within the same variable, there were classifications for "disturbance of the peace" and "disturbing the peace," which were recoded into "disturbing the peace." Documentation of such changes can be found in the

Syntax for the data and is available in appendix B. Text data were also transformed into numerical data for appropriate quantitative analysis, and some variables were recoded in progressive order to create interval level scales from which means could be calculated. These changes are represented in the syntax as well.

For accurate analysis, data were also split into two separate files. Cases in the raw data were individual police officers involved in a use of force incident. Often there were multiple officers per incident which overinflated representation of incidents. To conduct proper analysis, duplicate incidents were identified and deleted to create an “incident” file in which individual incidents were cases (N = 134). The original file contained important information regarding all officers involved in cases of use of force, and was saved into a “police officer” file (N = 215). This allowed separate analysis that would not overinflate or underinflate cases the study was interested in.

After recoding was complete, descriptive statistics were computed to become familiar with the data. Descriptive statistics were also used in comparison with demographic information of the geographical area, and the department, in an effort to consider salience of certain variables involved with incidents of police use of force. These analyses were used to help answer the study’s research questions.

Once data were cleaned and recoded, both the “incident” dataset and the “police officer” dataset were entered into ArcGIS software to conduct spatial pattern analysis, and to answer hypotheses B of the research questions. Most incidents were geocoded based on street address information given in the original data. Some cases, however, were not geocoded due to missing address information or an inability of the software to recognize the address imputed. Investigating these cases revealed no systematic pattern or

reason why location data were missing or unable to be recognized. Geocoding was possible on 121 cases (90.3%) from the “incident” file, and 190 (88.4%) from the “police officer” file. After geocoding, an Optimized Hot Spot Analysis in ArcGIS was conducted to identify cases where use of force incidents clustered. By interrogating data imputed The Optimized Hot Spot Analysis computes optimized polygons representative of the data, and checks for frequency and density of cases represented within each polygon to determine hot and cold spots. This was done with both datasets, and information is disseminated in the results section. Due to the geography of the region and odd shape of the city layout, some cases were excluded from the Optimized Hot Spot Analysis to provide a more practical model. This was done by visually identifying clusters and drawing a polygon outlining cases that would incorporate most incidents recorded, but also be representative of the region as well. One hot spot was identified around the downtown area for both data sets. Percentages and means of variables were then compared between cases identified within hot spots to those identified outside, to determine any differences. Chi-Square tests using the Pearson Statistic and t-tests were also performed to conclude if these differences were significant. Findings are presented in the results section.

Using ArcGIS, the study also conducted Nearest Neighbor Index (NNI) analyses to determine if cases clustered around geographical locations to a significant degree based on different variables identified in the data. The analysis computes distances from each case to all other cases, determines a mean difference, then compares it to the original data to determine the significance of clustering. The statistical test works best when at least 30 cases can be analyzed and may limit some of the study’s findings. To

answer the research questions proposed, variables considered for Nearest Neighbor Index analysis were: (a) race of the officer and suspect, (b) the sex of the suspect, (c) officer's intermediate and advanced POST certifications, (d) officer's formal higher education, (d) number of years an officer has worked at the department, (f) Officer's shift, (g) the age of the suspect, and (h) suspect intoxication. Nearest Neighbor Index analyses were also performed on other variables the study had information on.

To address the research questions, descriptives were compared between the cases that involved police use of force for 2013 and general demographic information of the entire department in 2014. The study was unable to obtain all pertinent information for the entire department for 2013, and limits more thorough analysis. This was because of limited access to official police records and restraints on time and resources to code continued reports. Some relative information, however, was allocated to us by the department. Information obtained representative of the entire department for the year 2014 included: (a) officer's academic education, (b) officer's continued POST certifications, (c) department racial composition, and (d) total booking and citation data. Relevant data about the area's demographics were also obtained from the 2010 US Census Bureau and compared to the data collected on use of force incidents by the police. Details of these comparisons are in the results section.

Chi-square tests were also conducted in SPSS for the variables of officer education and continued post certifications, as well as officer race. Because the study was able to obtain department wide statistics on these variables, expected values were manually entered into Chi-square tests, and provide a stronger statistical analysis, but may still be limited to sample size.

Chapter V

RESULTS

Descriptive Analysis

Descriptive statistics computed were often comparable to other studies conducted on police use of force and presented in the literature review. Because total police incident data were not available for the year of 2013, use of force incidents for that year were compared to total figures of 2014, which were obtained. Assuming similar reporting of incidents, this comparison shows use of force events occurring in one percent of cases. Tables found at the end of this document outline other important descriptives of elements analyzed and report valid cases, ignoring any missing data.

Table one outlines data unique to a use of force incident. There were a total of 134 cases in the “incident file” used for analysis. The study revealed use of force cases involved mostly (36%) no bystanders, diminishing to 27.6 percent when one bystander was present, and diminishing further when two bystanders were present (13%). The data show 39 percent of cases occurred on the weekend, while the other days of the week show lower and more even frequencies. When a citizen was injured (85.8% of cases), it was overwhelmingly a minor injury, defined as a minor abrasion, cut, scrape, or sore limb. Perhaps of more concern, 22.8 percent of cases resulted in an intermediate injury of the citizen, defined as bruises, minor sprains, open wounds, loss of consciousness, or use of a taser. Only two cases (1.8%) resulted in serious injury to the citizen, or serious but non-life threatening injuries such as broken bones or deep wounds. No cases involved lethal injury resulting in life threatening injuries or death.

56 percent of use of force cases occurred in lowlight or darkness. Likewise, the majority of use of force cases (43.2%) occurred during the department's swing shift, or between two p.m. and midnight. Another 30 percent occurred on the graveyard shift, from nine p.m. to seven a.m., and only 27.3 percent took place during the day shift, or from six a.m. to five p.m.

Table two depicts important information related to citizens involved in use of force incidents. The average age of the citizen involved was 35 ($N = 130$, $SD = 6.4$) and ranged from 15 to 72. The citizen was male in 88 percent of cases. Citizens were mostly white (61.9%) followed by Hispanic (17.9%) and Black (16.4%). Other races analyzed were restricted to very few cases and not meaningful for analysis. Locals were mainly the recipients of use of force by police (86.5%) with only 13.5 percent identified as living outside of the geographical region. Percentages are close, but citizens were intoxicated, as identified by the officer, on some form of substance (alcohol, drugs, or unknown) in a minority of cases (42.1%). Of the 134 cases analyzed, 133 (99.3%) involved a citizen resisting an officer in some way. Broken down further, the vast majority of cases involved physical resistance (74.6%) followed by resistance via ignoring an officer's orders (11.2%) and fleeing the scene (10.4%).

Chi-square tests performed on citizen sex reveal significant differences than that of the population in the area ($\chi^2 = 74.43$, $p < .0005$). The race of the citizen involved in use of force incidents was also shown to be significantly different than their make up in the community ($\chi^2 = 126.3$, $p < .0005$).

Table three describes information about officers involved in use of force cases as well as the department as a whole. Descriptives for the "police file" ($N = 215$), reveal the

majority of officers involved in use of force cases were white (86.5%), then Hispanic (5.8%). There were very few use of force cases that involved officers who were Asian (1.9%), American Indian/Alaskan Native (1.9%), or Black (1.4%), presumably due to their low representation in the department as a whole. The average age of officers involved in use of force incidents was also 35, identical to the citizens average age, but with a higher frequency, and a slightly higher standard deviation ($N = 204$, $SD = 6.5$). Officer age ranged from 24 to 57.

Of all officers involved in use of force incidents, the majority of them (53%) had the minimum educational requirement of a High School Diploma or a General Educational Development certificate (GED). Officers who have obtained a Bachelor's Degree were the next highest reported category (29.8%), followed by officers with an Associate's Degree (14.9%). There were five officers who were involved in a use of force incident who had a Master's Degree (2.3%). Furthermore, all officers had obtained the Basic POST certification necessary to become an officer. However, of the 215 officers involved in use of force cases, 40.5 percent had also obtained an Intermediate POST certification, and 27.9 percent continued on even further, and had obtained an Advanced POST certification. Analysis of the final exam score for POST education revealed the average score of all officers involved in use of force incidents was 84.2 on a scale from 1 to 100. The range for the exam was 71 to 96.

There were some differences between officers involved in use of force incidents and all sworn officers at the department. Chi-square tests reveal significant differences for officers who had obtained an Intermediate POST certification ($p < .0005$) as well as officers who had obtained an Advanced POST certification ($p < .0005$), with both being

underrepresented in use of force cases compared to the department as a whole. Analysis also shows interesting statistics with regard to formal education of officers. A Chi-square test revealed a difference approaching significance ($p < .091$) for formal education of officers, with, again, officers having an Associate's Degree or higher being underrepresented in use of force incidents. Chi-square tests performed on officer race revealed no significant findings. Using Census information from 2010, Chi-Square tests were also computed for citizen ethnicity represented in use of force cases and was found to be significantly different than the population of the region ($p < .0005$).

Spatial Pattern Analysis

Of cases in the "incident" file, 121 (90.3%) were matched by the ArcGIS software and geocoded to create a map of incidents (see Figure 1). 13 cases (9.7%) were unmatched due to missing information or an inability by ArcGIS to recognize the address. Likewise, with the "police officer" file, 190 cases (88.4%) matched and were geocoded, 25 (11.6%) were not. Locations of the "incident" file and "police officer" file are identical except for the frequencies. This is due to multiple officers who were sometimes involved in a particular incident.

After geocoding, Optimized Hot spot Analysis identified cases concentrated around hot spots in the region. One hot spot was identified and was located in the downtown area (see Figure 2). The study then analyses and compares use of force cases identified within hot spots to that of cases outside. From the "incident" file, 36 cases were located within the identified hot spot. The "police officer" file identified 52 cases within the hot spot. Frequencies, percentages, and changes in percent from all use of force cases to hot spot cases are presented in Table four.

As an exploratory approach to answering the proposed research questions, Chi-square tests were performed on many of the variables presented in Table four to test for significant differences. Results, however are limited due to low frequencies once data has been qualified.

Chi-square tests comparing all use of force cases and hot spot cases show a significant difference when no bystander was present ($\chi^2 = 6.11$, $p < .013$) with percentages increasing within hot spots. Lower reports of within hot spots were shown to be significantly different for citizens who were injured during a use of force event ($\chi^2 = 141.22$, $p < .0005$). Intoxicated citizens involved in use of force events were also shown to be significantly different within hot spots ($\chi^2 = 7.01$, $p < .008$) with lower percentages reported. Most variables, however, were not significantly different when compared to cases within hot spots to all cases of use of force.

Nearest Neighbor Index Analysis show significant clustering for both the “police officer” dataset and the “incident” dataset, as well as with most variables tested. 11 variables were not shown to cluster and were likely due to small sample sizes. Table six presents the results from the Nearest Neighbor Index Analysis. Reading down the table as the NNRatio approaches one, the pattern becomes less clustered. At one, the pattern is said to not be clustered, but a random occurrence.

Maps describing these variables clustering were also constructed to obtain a visual representation, and give insight into where they cluster and what neighborhood contexts may help explain them. Relevant maps, identified as figures, which separate similar variables and show how they cluster can be found at the end of this document. Clustering occurred almost exclusively in the downtown area of the region.

Chapter VI

Conclusions

Discussion

Regarding research question one, the study was able to reject the null hypothesis and found suspect ethnicity plays a role in use of force cases and that there are differences between suspect ethnicity and use of force events. Likewise, spatial analysis shows the ethnicity of the suspect involved in a use of force case clusters to a significant degree in the region, and the study was able to reject the null hypothesis that no spatial pattern existed. What is problematic, is that they tend to cluster around the same area limiting interpretation of why clustering is occurring (see Figure 3). However, this may be suggestive of the norms and climate of the downtown area. This finding also gives support to Terrill and Reisig's (2003) suggestion that police activity is patterned territorially, in this case around downtown. There was one exception with Hispanic citizens involved in use of force clustering outside of the downtown hot spot, and in different areas of the city.

Results were consistent with literature in that males were more involved in use of force incidents than were females, and the study rejects hypothesis A of research question two, proposed by the study. As for the spatial analysis of citizen sex, it was found that males indeed do cluster ($NNR_{ratio} = 0.65$) to a significant degree but females did not. Referencing Figure 4, one can see males involved in use of force cluster around the downtown hot spot. Females may not have clustered due to their low representation in use of force events and only accounted for 16 of the 134 use of force cases. This provides evidence in support of the research hypothesis and thus the study rejects the null

hypothesis and acknowledges there is a difference between who is involved in a use of force event and their sex. However, no significant differences were found when the sex of a suspect was compared between all use of force cases and those cases falling within the identified hot spot.

With regards to research question three, it was found officers who were involved in incidents of use of force were overrepresented in the high school diploma category while underrepresented in the categories indicating higher levels of education when compared to all officers at the department. It is possible these findings relate to the importance of educational understanding and achievement when police deal with the public. It seems likely that formal education may add something that help officers interact with the public and reduce incidents of police use of force such as was posited by Paoline & Terrill (2007). Investigating further, Chi-square tests using exact population values indicate a significant difference between officers who use force and all sworn officers at the department, but only at the $p < .1$ level. Additionally, when POST certifications were compared, it was discovered officers with intermediate or advanced certificates were significantly less likely to be involved in a use of force incident ($p < .0005$). Importantly, one of the requirements in order to obtain an advanced POST certification is a four year degree in higher education, and again suggestive of the influence education holds over police behavior and their decision to use force.

In addition, the study found significant clustering of officers involved in use of force events and if they had an intermediate (NNRatio = 0.494) or advanced (NNRatio = 0.721) POST certification. However, looking at the visual maps, they cluster in the same area and is hard to interpret any differences (see Figure 6). Likewise, the study also found

clustering for officers who had only the basic POST certification, and it should be mentioned to a stronger degree (NNRatio = 0.383). The study also found clustering for officers who scored above the mean of 85 for the final POST exam score (NNRatio = .046), as well as officers who scored below (NNRatio = .0484). Again looking at the visual map, the cluster seems to be in the same downtown area and is difficult to separate interpretations that may explain why these clusters occur (see Figure 7).

In answering research question four, the study was able to find significance into the number of years worked playing a role in use of force incidents, but only in spatial patterning. Again, clustering grouped in the downtown area, as can be seen in Figure 8. Information was not obtained on all sworn officers at the department regarding the number of years worked, and thus could not be compared. When t-test analysis comparing all use of force incidents to that of hot spot cases were performed, no significant differences by the number of years an officer has worked at the department was found ($p < .336$), directing the study to accept the null hypotheses for H_a of research question four.

The study was also unable to support hypothesis A proposed by research question five. Comparing hot spot cases to all use of force cases for 2013 no significant difference was found between the two, concerning officer shift ($\chi^2 = 2.58$, $p < .276$), indicating roughly time of day. However, significant clustering of use of force events did occur around officer shifts. Swing shift incidents were significantly the most clustered (NNRatio = 0.624), followed by day shift incidents (NNRatio = 0.693) and graveyard shift incidents (NNRatio = 0.843) visual representation again show cases clustering in the

downtown area (see Figure 9). These results provide evidence in support of hypotheses B of research question five.

Implications and Limitations

Spatial pattern analyses from this study hold some interesting findings regarding police-citizen encounters and clustering of events. However, analysis was limited to a small sample sizes because use of force events were so rare. Analysis becomes even harder when you take the limited number of use of force incidents and break them down further into categorical classifications such as the time of day, or the race of the suspect or officer. This restricted the NNI analysis and the power of the statistics calculated. To address this limitation, future research should consider ways to increase the sample size for use of force cases by not restricting data to small time frames, and trying to incorporate information from multiple agencies in a way they can be compared to each other. Building relationships between researchers and practitioners is crucial toward this goal in order to guide proper data collection and coding methodologies. Regarding observational research, it may be advantageous to look into other research fields and circumstances where rare, but consequentially serious, events are recorded and analyzed. Research highlighting effective methods of studying rare events such as volcanic eruptions or nuclear melt downs may provide operational methodologies that can be applied toward understanding police use of force and increase the power of analyses.

Data in this study were also limited to only incidents which involved a use of force event and presents limitations toward establishing causality. The failure of the study to obtain department wide information on most demographics and characteristics of all police-citizen interactions prevented further inferential analysis, and use of force cases

could not be compared to other police behaviors that did not involve the use of force. This means, that although the study reported citizen resistance in 99.3 percent of the cases, assuming resistance is unique to use of force events is spurious. It may be suspect resistance is also highly associated with additional police-citizen encounters, and representative of other extraneous factors not considered or controlled for in this study. Strength in statistical analyses can be improved, and inferential statistics can be computed, if data were not limited to only use of force reports.

Only partial means were available to determine if officers involved in use of force events are different than all officers at the department. Chi-square tests that were performed show there are differences, but provide only limited knowledge into those differences.

The study found significant spatial clustering occurred on most of the variables tested and were concentrated in the downtown hot spot. Similar to findings by Terrill and Reisig (2003), this provides clues that police activity and behavior may be patterned territorially and influenced by situational contexts inherent in a given community. While most studies on police use of force have focused on individual characteristics to explain why such incidents occur, findings from this study suggest a more complex interaction and suggest looking into differences in communities, and what role they play in use of force events.

Most clustering that occurred in this study was located downtown. While it could be the number of citizens that can be found downtown, it may also be the climate the downtown area embraces, and the attitudes of both police and citizens when in that area. Discussion should also consider Cohen and Felson's (1979) Routine Activities Theory.

The region studied is largely influenced by gambling and casino culture increasing both crime attractors and capable guardians. Events and promotions by casinos lure people to the downtown area, and the acceptance of alcohol consumption may increase motivation to engage in criminal activity and deter cooperation with a police officer. Also, bars and breweries litter the region, and are not limited to the downtown area. This may provide insight into why the hot spot identified downtown had a lower percentage of intoxicated suspects involved in a use of force incident when compared to all use of force cases. More concrete conclusions about the influences neighborhood contexts have on use of force events can be drawn if factors such as these are accounted for and provide an avenue for future research that is limited in the literature.

Importantly, the city also holds events around the year that cater to certain demographics of people and may be important in interpreting how and why clusters formed around the downtown area. Future analysis might consider temporal clustering that accounts for when these events take place and how it influences use of force rates and characteristics.

Another limitation of this study is it did not fully investigate possible reasons or explanations that might shed light on the results obtained. The study found the average age of the officer was 35. Although this is an important finding that describes the study, it may not tell the full story. It could be older officers are not out on the streets and don't patrol as much as younger officers, affecting the mean. Likewise, spurious conclusions about the number of officers involved in use of force events may be present. Often, as crimes become more serious, the number of officers responding also increases. While this

may be the case, the current study only had limited data and did not control for these factors.

The study also found important results with regard to continued training and furthered education of police officers. Chi-square results report significant differences for continued POST certifications and results approaching significance for formal education between officers involved in use of force and all officers at the department. Looking further, it is discovered officers with continued POST certifications and officers with Associate's degrees or higher in formal education occurred less frequently in the use of force cases studied. These findings are representative of results by Paoline and Terrill (2007) and highlight the impact education and continued training can have on influencing policing practices like the use of force. One caution should be noted however. While the study did control for different types of degrees, it did not assess where the degrees were attained and may incorporate less rigorous degrees not obtained at a four year university. Still, any measurement of further education suggests at least some degree of commitment and continued considerations that may influence an officer's decision to use force.

Another consideration perhaps often overlooked related to training is the notion that behaviors are easier to modify than are attitudes. Sexual harassment and racial discrimination training and regulations are effective at reducing instances of differential treatment, but may have little impact on the attitudes people hold. If the concern is to reduce use of force events, then training that guides proper behaviors and sanctions for breeches in that behavior may be an effective means to reduce such frequencies. Department leadership can be an effective and important agent in bringing about these practices.

While methodological issues limit statistical power and hinder more meaningful analyses, the current study still provides a wealth of information concerning incidents of police use of force. Using both qualitative and quantitative methods it highlights the difficulty indicative of this area of research. The study provides insightful exploratory findings toward understating use of force, with results suggesting complicated interactions of individual and situational characteristics, but also possible neighborhood contextual influences present during use of force events. Future research should heed limitations and suggestions presented above and investigate further the concepts brought up in the discussion.

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Tables

Table 1.

Table 1		
<u>Incident Descriptives</u>	N = 134	% of Use of Force Cases
Monday	16	11.9
Tuesday	15	11.2
Wednesday	18	13.4
Thursday	17	12.7
Friday	16	11.9
Weekend	52	38.8
Saturday	22	16.4
Sunday	30	22.4
No Bystanders	48	35.8
1 Bystander	37	27.6
2 Bystanders	18	13.4
3-5 Bystanders	12	9
6 or More Bystanders	19	14.2
Lowlight/Darkness	74	56.1
Citizen was Injured	115	85.8
Minor Injury to the Citizen	86	75.4
Intermediate Injury to the Citizen	26	22.8
Serious Injury to the Citizen	2	1.8
Day Shift	36	27.3
Swing Shift	57	43.2
Graveyard	39	29.5

Note. N = Sample Size, % = Percentages

Table 2.

Table 2		
<u>Citizen Descriptives</u>	N = 134	% of Use of Force Cases
White	83	61.9
Hispanic	24	17.9
Black	22	16.4
Pacific Islander	2	1.5
American Indian / Alaska Native	1	0.7
Asian	1	0.7
Male	118	88.1
Female	16	11.9
Injured	115	85.8
Intoxicated	56	42.1
Tourist	18	13.5
Citizen Resisted	133	99.3
Verbal Resistance	4	3
Physical Resistance	100	74.6
Immobile	1	0.7
Ignoring Officer's Orders	15	11.2
Flight	14	10.4

Note. N=Sample Size, %=Percentages

Table 3.

Table 3					
<u>Officer Descriptives</u>		<u>Officers involved in Use of Force</u>		<u>All Officers at the Department</u>	
		N = 215	%	N = 290	%
Formal Education	HS Diploma/GED	114	53	138	47.6
	Associate's Degree	32	14.9	47	16.2
	Bachelor's Degree	64	29.8	95	32.8
	Master's Degree	5	2.3	10	3.4
POST Certifications	Basic	215	100	290	100
	Intermediate	87	40.5	157	54.1
	Advanced	60	27.9	132	45.5
Ethnicity	White	179	88.6	253	87.2
	Hispanic	12	5.9	22	7.6
	Black	3	1.5	3	1
	Asian	4	2	8	2.8
	American Indian / Alaskan Native	4	2	4	1.4

Note. Use of Force data is from 2013, Information for all officers is from 2014, N=Sample Size, %=Percentages

Table 4.

Table 4 – Comparing All Use of Force Cases to Hot Spot Cases					
<u>Incident Information</u>	<u>All Use of Force Cases</u>		<u>Hot Spot Cases</u>		<u>%</u>
	N = 134	%	N = 36	%	Change
Monday	16	11.9	3	8.3	-3.6
Tuesday	15	11.2	5	13.9	2.7
Wednesday	18	13.4	7	19.4	6
Thursday	17	12.7	6	16.7	4
Friday	16	11.9	5	13.9	2
Weekend	52	38.8	10	27.8	-11
Saturday	22	16.4	5	13.9	-2.5
Sunday	30	22.4	5	13.9	-8.5
No Bystanders	48	35.8	20	55.6	19.8
1 Bystander	37	27.6	9	25	-2.6
2 Bystanders	18	13.4	1	2.8	-10.6
3-5 Bystanders	12	9	4	11.1	2.1
6 or More Bystanders	19	14.2	2	5.6	-8.6
Lowlight/Darkness	74	56.1	18	51.4	-4.7
Injured Citizen	115	85.8	30	83.3	-2.5
Minor Injury	86	75.4	25	83.3	7.9
Intermediate Injury	26	22.8	5	16.7	-6.1
Serious Injury	2	1.8	0	0	-1.8
Day Shift	36	27.3	9	25	-2.3
Swing Shift	57	43.2	20	55.6	12.4
Graveyard	39	29.5	7	19.4	-10.1
Minimal Contact	5	3.7	2	5.6	1.9
Physical Contact w/o a Weapon	88	65.7	26	72.2	6.5
Physical Contact w/ Intermediate Weapon	41	30.6	8	22.2	-8.4
<u>Citizen Information</u>	N = 134	%	N = 36	%	
White Citizen	83	61.9	22	61.1	-0.8
Hispanic Citizen	24	17.9	3	8.3	-9.6
Black Citizen	22	16.4	11	30.6	14.2
Male Citizen	118	88.1	32	88.9	0.8
Female Citizen	16	11.9	4	11.1	-0.8
Intoxicated Citizen	56	42.1	13	36.1	-6
Citizen Resisted	133	99.3	36	100	0.7
Verbal Resistance	4	3	2	5.6	2.6
Immobile	1	0.7	0	0	-0.7
Ignoring Officer's Orders	15	11.2	6	16.7	5.5

Flight	14	10.4	5	13.9	3.5
Physical Resistance	100	74.6	23	63.9	-10.7
<u>Officer Information</u>	N = 215	%	N = 52	%	
HS Diploma/GED	114	53	31	59.6	6.6
Associate's Degree	32	14.9	3	5.8	-9.1
Bachelor's Degree	64	29.8	18	34.6	4.8
Master's Degree	5	2.3	0	0	-2.3
POST Basic	215	100	52	100	0
POST Intermediate	87	40.5	21	40.4	-0.1
POST Advanced	60	27.9	16	30.8	2.9
White Officer	179	88.6	42	80.8	-7.8
Hispanic Officer	12	5.9	7	13.5	7.6
Black Officer	3	1.5	0	0	-1.5

Note. N=Sample size, %=percentages

Table 5.

Table 5						
<u>Means Table for Officer and Citizen Information</u>	<u>All Use of Force Cases</u>			<u>Hot Spot Cases</u>		
	N	M	SD	N	M	SD
# of Officers	134	1.63	0.76	36	1.47	0.7
Officer Exam	197	84.2	5.4	47	83.98	5
Officer Age	204	35.3	6.5	50	35.92	6.95
# of Years at Department	205	7.79	4.27	52	7.15	4
Suspect Age	130	34.9	6.4	36	35.19	13.5
Suspect Weight	133	177	34.9	36	175	34.3

Note. N=sample size, M=Mean, SD=Standard Deviation

Table 6.

<u>Nearest Neighbor Index</u>				P-
	N	NNRatio	NNZScore	Value
Police Officer File	190	0.237	-20.131	0
All Incidents	121	0.627	-7.859	0
Officer does NOT have POST Advanced Certification	140	0.292	-16.035	0
White Officer	160	0.307	-16.759	0
Officer is 31 Years of Age or Older	124	0.327	-14.338	0
Officer does NOT have POST Intermediate Certification	117	0.383	-12.766	0
Officer with 0-5 Years at the Department	51	0.435	-7.717	0
Officer Exam Score is 85 or Above	89	0.46	-9.745	0
Officer with 6-10 Years at the Department	101	0.472	-10.151	0
Officer Exam Score is 84 or Below	101	0.484	-9.913	0
Officer has POST Intermediate Certification	73	0.494	-8.263	0
Officer is 30 Years of Age or Younger	66	0.579	-6.54	0
1 Officer Involved	67	0.58	-6.574	0
No Drugs Found on Suspect	89	0.584	-7.509	0
Suspect is 31 Years of Age or Older	64	0.614	-5.906	0
Citizen was NOT Intoxicated (Alcohol/Drugs/Unknown)	69	0.623	-5.987	0
Resisted Suspect	120	0.624	-7.874	0
Swing Shift Incidents	53	0.624	-5.239	0
Uncooperative Suspect	116	0.634	-7.545	0
Male Suspect	106	0.65	-6.889	0
Citizen Intoxicated (Alcohol/Drugs/Unknown)	52	0.658	-4.723	0
Non-Tourist Suspect	105	0.662	-6.621	0
Officer with 11+ Years at the Department	38	0.667	-3.933	0
Citizen Minor Injury	78	0.675	-5.497	0
Physical Resistance	88	0.681	-5.726	0
Day Shift Incidences	32	0.693	-3.324	0.001
Drugs Found on Suspect	23	0.702	-2.732	0.006
Suspect is 24 Years of Age or Younger	34	0.712	-3.228	0.001
Officer is 40 Years of Age or Older	41	0.716	-3.476	0.001
Officer has POST Advanced Certification	50	0.721	-3.777	0.0002
White Suspects	78	0.725	-4.639	0
Hot Spot Cases	36	0.76	-2.756	0.006

Suspect is 30 Years of Age or Younger	57	0.772	-3.292	0.0001
Graveyard Shift Incidences	35	0.843	-1.773	0.076
Citizen Intermediate Injury	23	0.872	-1.17	0.242
2 Officers Involved	40	0.873	-1.541	0.123
Suspect Resisted by Ignoring Officer's Orders	15	0.961	-0.288	0.773
Hispanic Suspect	20	0.976	-0.203	0.839
Black Suspect	19	0.988	-0.098	0.922
Tourist Suspect	15	0.99	-0.072	0.942
Female Suspect	15	1.181	1.344	0.179
Hispanic Officer	12	1.238	1.575	0.115
Fleeing Resistance	14	1.277	1.984	0.047
3 or 4 Officers Involved	14	1.351	2.515	0.012
2+ Officers	3	3.554	8.463	0
American Indian/Alaskan Native Officer	3	3.786	9.231	0
Verbally Resisted Suspect	3	5.154	13.764	0
Asian Officer	3	5.201	13.921	0
Neutral Suspect	3	8.931	26.279	0
Cooperative Suspect	2	149.008	400.435	0
Black Officer	2	158.523	426.174	0
Citizen Serious Injury	2	382.291	1031.579	0
Non-Resisted Suspect	1	-	-	-
Immobile Resistance of Suspect	1	-	-	-

Note. N=sample size, NNRatio=Nearest Neighbor Ratio, NNZScore= Nearest Neighbor z-score, p-value=significance level

Figures

Figure 1

Use of Force Incidents for 2013/All Incidents

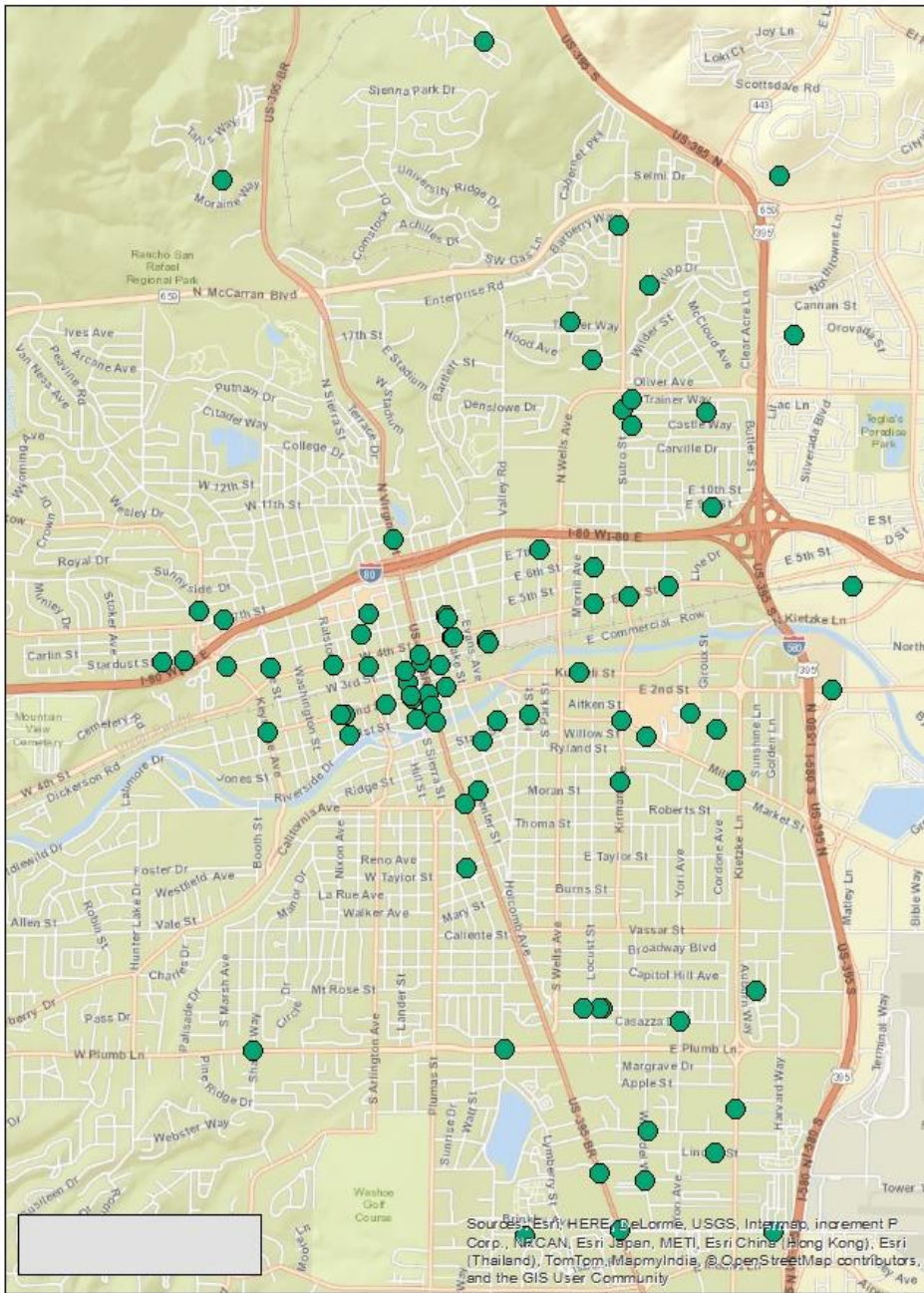


Figure 2

Use of Force Incidents for 2013/All Incidents-HotSpot

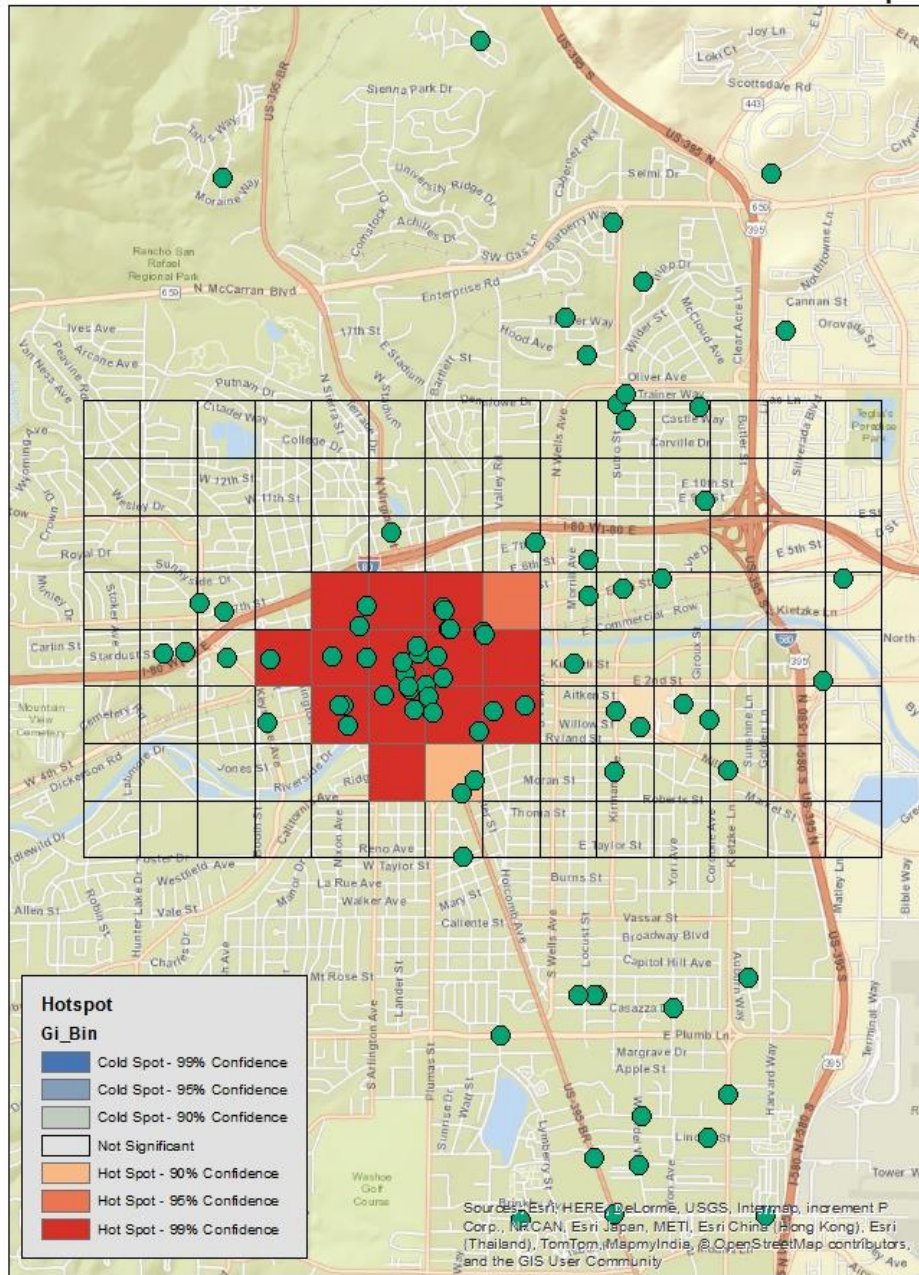


Figure 3

Use of Force Incidents for 2013/Suspect Ethnicity

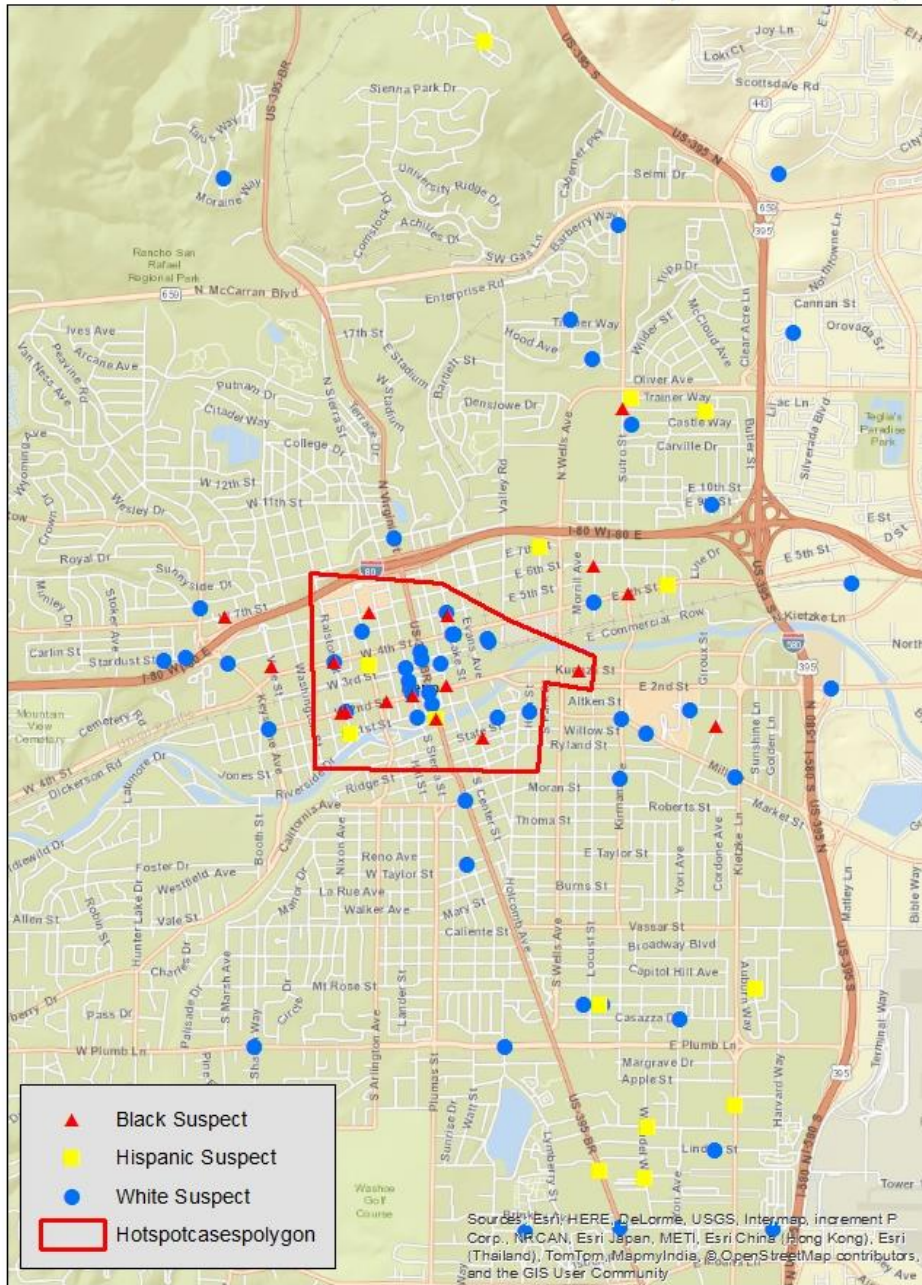


Figure 4

Use of Force Incidents for 2013/Suspect Sex

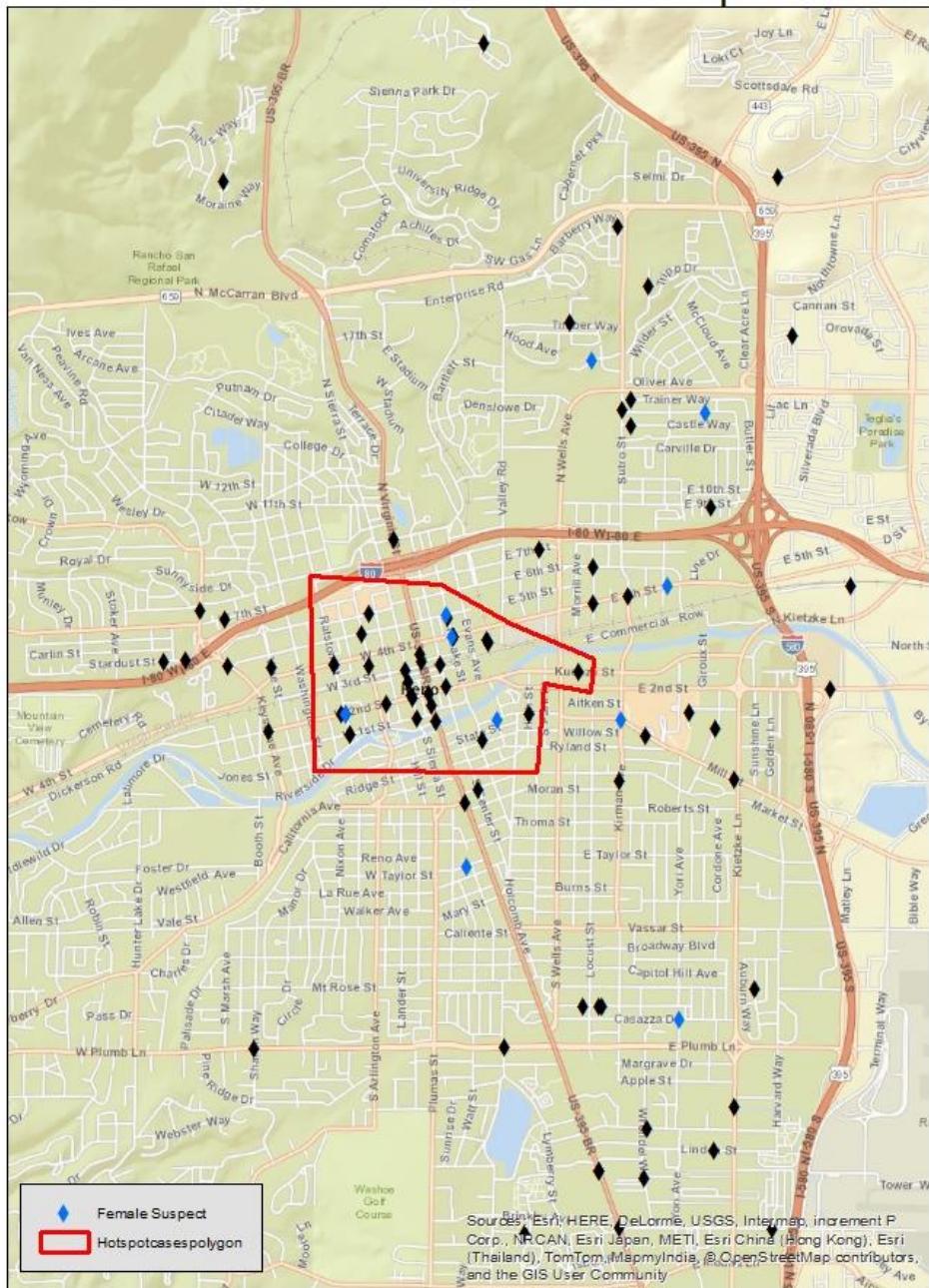


Figure 5

Use of Force Incidents for 2013/POST Certifications

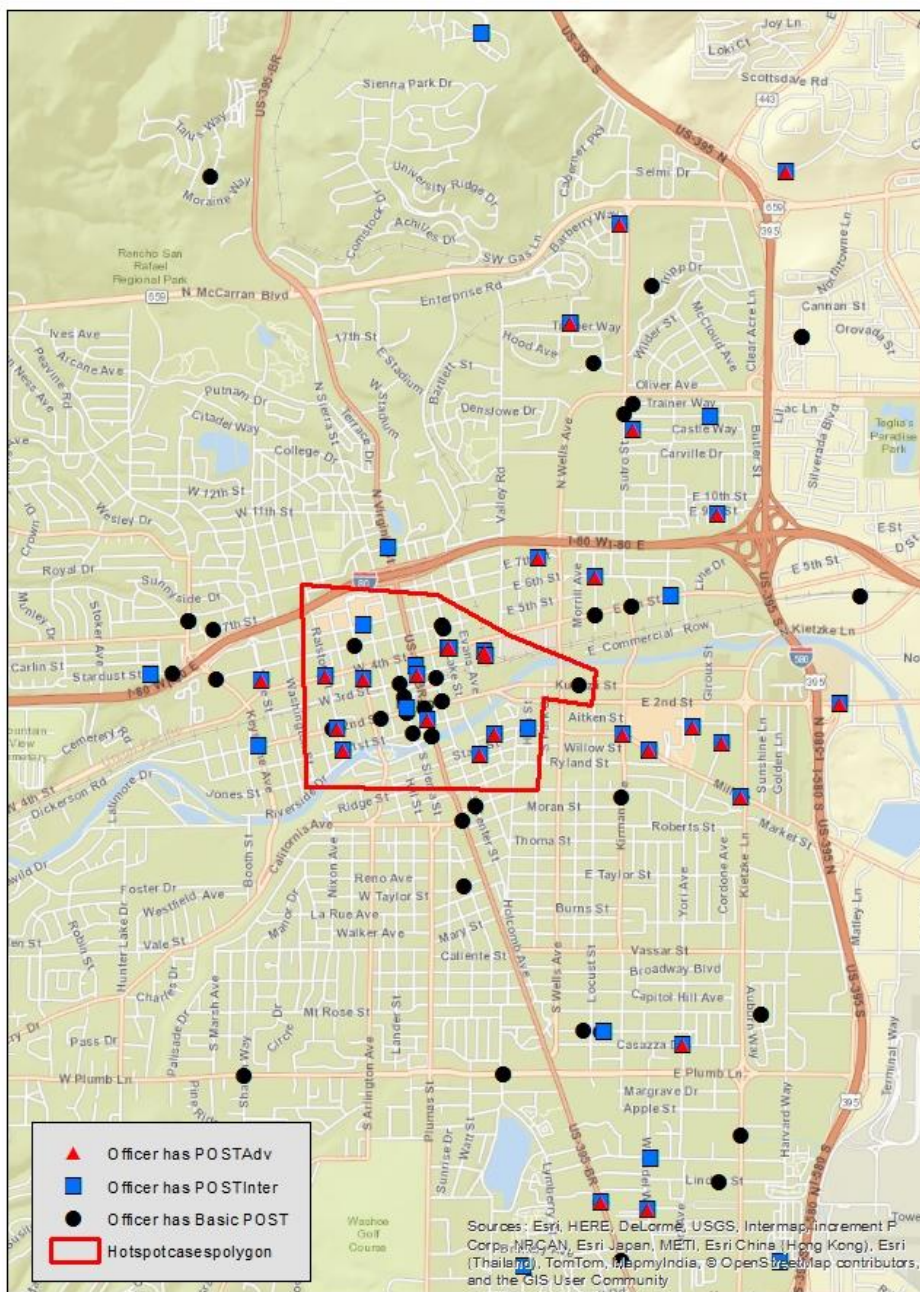


Figure 6

Use of Force Incidents for 2013/Formal Education

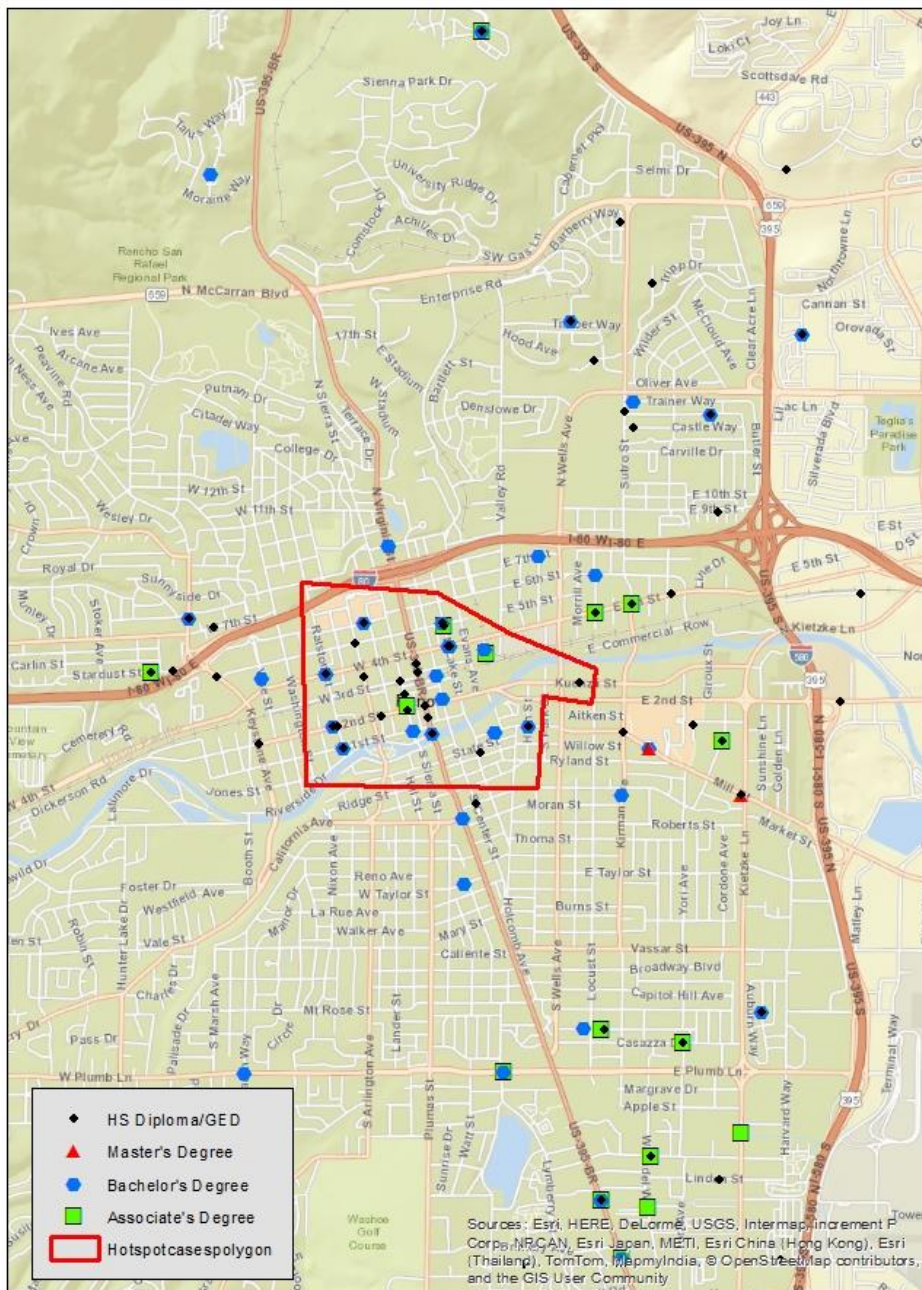


Figure 7

Use of Force Incidents for 2013/Exam Score

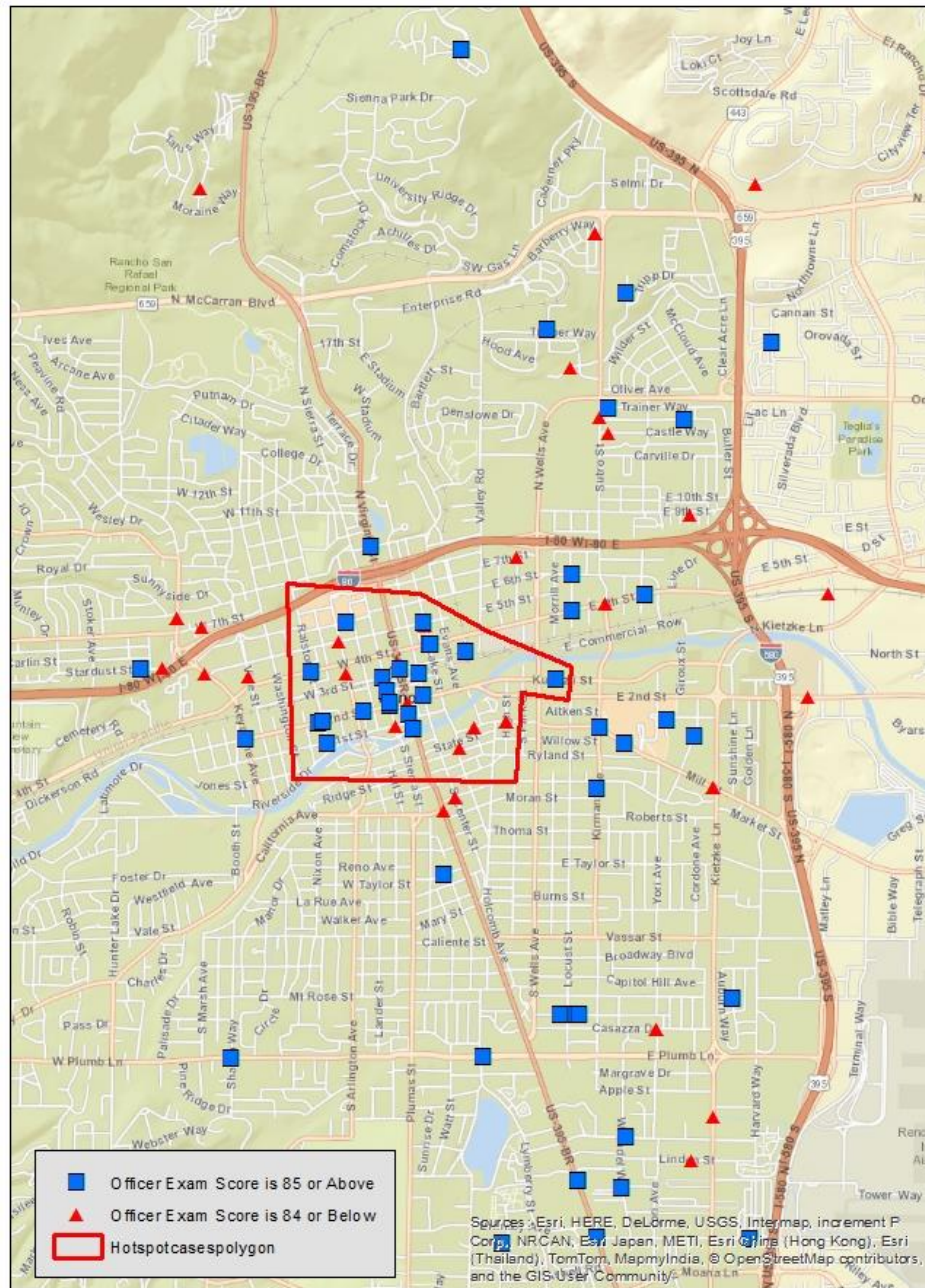


Figure 8

Use of Force Incidents for 2013/Number of Years at Department

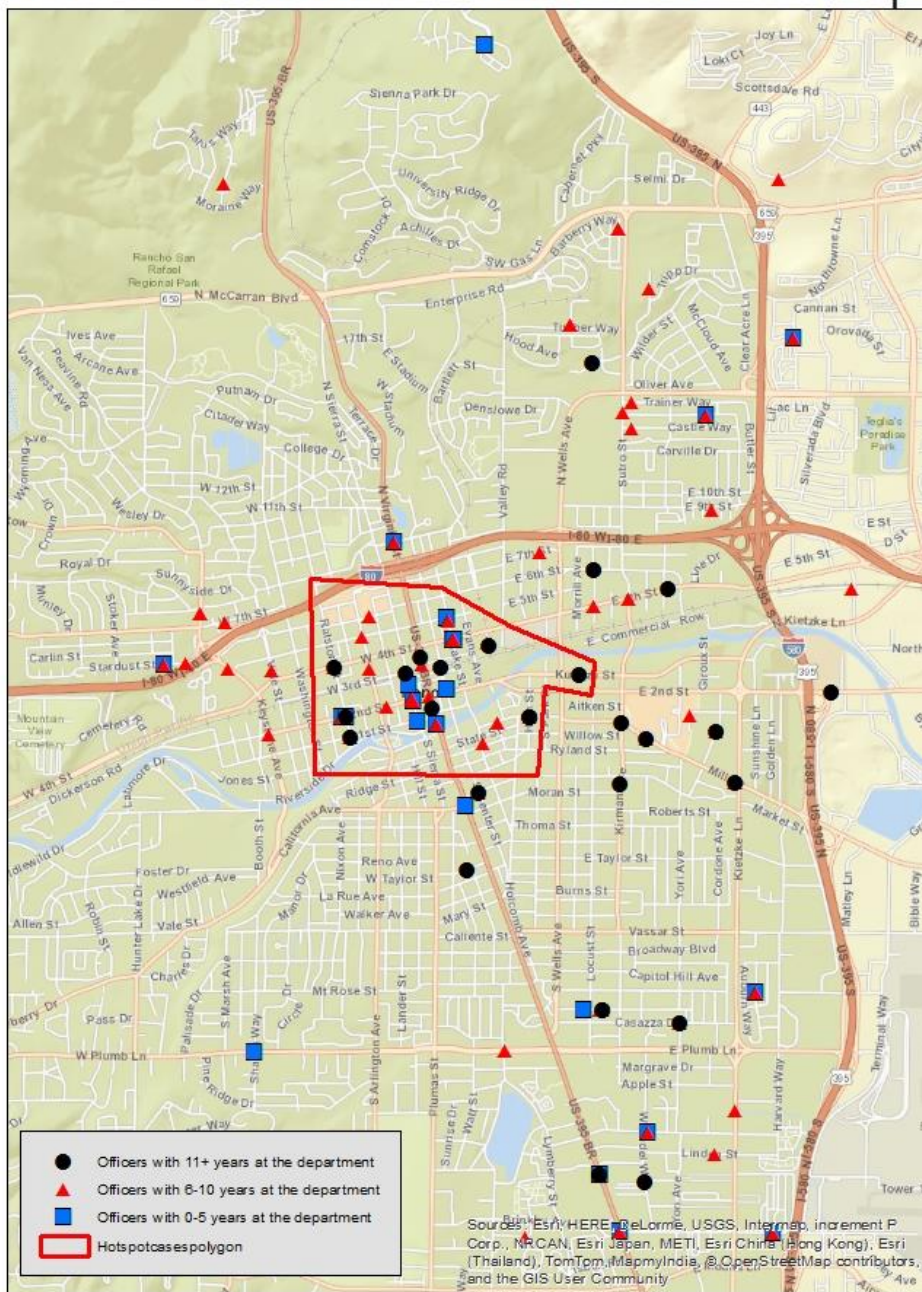
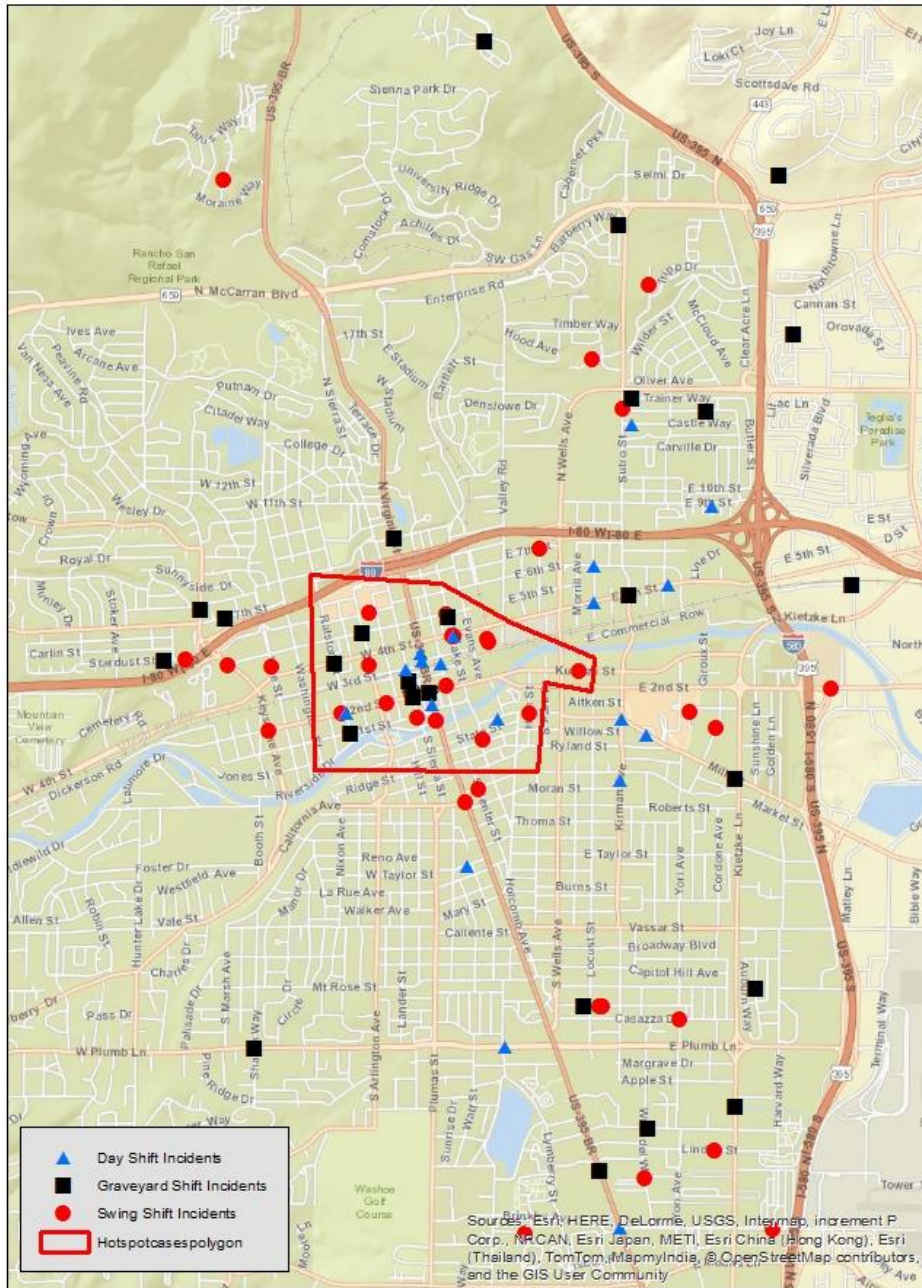


Figure 9

Use of Force Incidents for 2013/Officer Shift



Appendices

Appendix A.

Number of Officers
Citizen Age
Citizen DOB
Citizen Race
Citizen Gender
Tourist
Employed Citizen
Citizen Height
Citizen Weight
Citizen has a tattoo
Repeat Offender
Citizen Language
Citizen first Action
Nature of Call
Citizen Demeanor
Citizen Cooperation
Citizen Resistance
Type of Resistance
Citizen Injured
Type of Injury
Citizen hospitalized
Citizen Complained
Citizen was Intoxicated
Type of intoxication
Drugs found on Citizen
Type of drugs found
Citizen was arrested
Date of Incident
Time of Incident
Lighting during event
Weather during event
Day of the week of event
Incident location
Officer Race
Officer Age
Number of years at department
Exam score
Post certifications
Formal Education
Officer Shift
Force used

Reason for force used
Officer Hospitalized

Appendix B.

Syntax of variables recoded and cleaned for analysis.

*****Clean Up of

Data*****

STRING FirstActCitizenR (A40).

RECODE FirstActCitizen ('In a vehicle'='In a Vehicle') ('Causing a
Disturbance'='Causing a '+

'Disturbance') ('Already Drunk'='Drinking') (ELSE=Copy) INTO FirstActCitizenR.
EXECUTE.

STRING NatureCallR (A20).

RECODE NatureCall ('Drug sales'='Drug Offenses') ('Disturbance of the
Peace'='Disturbing the '+

'Peace') (ELSE=Copy) INTO NatureCallR.
EXECUTE.

STRING DemeanorCitizenR (A20).

RECODE DemeanorCitizen ('Aggressive+Agitated'='Aggressive')
('Aggitated'='Agitated') ('Calm+Docile'='Calm') (ELSE=Copy)

INTO DemeanorCitizenR.
EXECUTE.

STRING TypeResistCitizenR (A20).

RECODE TypeResistCitizen (' Flight'='Flight') (ELSE=Copy) INTO
TypeResistCitizenR.

EXECUTE.

STRING OffensesR (A80).

RECODE Offenses ('Possession and Sales of Drugs or Drug Paraphernalia'='Possession,
Use, and/or '+

'Sale of drugs or Drug Paraphernalia') ('Possession of Drugs or Drug '+

'Paraphernalia'='Possession, Use, and/or Sale of drugs or Drug Paraphernalia')

('Possession, Use, and Sale of drugs or Drug Paraphernalia'='Possession, Use, and/or Sale
of drugs or Drug Paraphernalia') ('Dometic '+

'Battery'='Domestic Battery') ('DUI (felony Third)'='DUI') ('Possession of a Dangerous
'+

'Weapon'='Possession of a Weapon') ('Possession of a Stolen Weapon'='Possession of a
Weapon')

(ELSE=Copy) INTO OffensesR.

EXECUTE.

STRING RaceOfficerR (A35).

```

RECODE RaceOfficer ('Two + Races'='Two+Races') ('Nat American'='American
Indian/Alaskan Native')
  (ELSE=Copy) INTO RaceOfficerR.
EXECUTE.

```

```

STRING AcademyR (A20).
RECODE Academy (' NNLEA Tier 1'='NNLEA Tier 1') (' NNLEA Tier 2 '='NNLEA
Tier 2') (ELSE=Copy) INTO
  AcademyR.
EXECUTE.

```

```

STRING AssessmentOfficerR (A40).
RECODE AssessmentOfficer ('Alcohol and unknown drugs'='Alcohol and drugs')
('Unknown'='None '+
  'detected') (ELSE=Copy) INTO AssessmentOfficerR.
EXECUTE.

```

```

STRING NatureofInjuryOfficerR (A40).
RECODE NatureofInjuryOfficer ('Minor injury-minor abrasions'='Minor Injury')
(ELSE=Copy) INTO
  NatureofInjuryOfficerR.
VARIABLE LABELS NatureofInjuryOfficerR 'NatureofInjuryOfficerR'.
EXECUTE.

```

```

STRING FirstActOfficerR (A40).
RECODE FirstActOfficer ('immediate pursuit'='Immediate Pursuit') ('Immediate '+
  'Restraint'='Immediate Restraint') (ELSE=Copy) INTO FirstActOfficerR.
EXECUTE.

```

```

*****AUTO
RECODING*****
*****Changes in the CodeBook as
necessary*****

```

```

AUTORECODE VARIABLES=RaceCitizen GenderCitizen EmployedCitizen Tourist
/INTO RaceCitizen2 GenderCitizen2 EmployedCitizen2 Tourist2
/DESCENDING /PRINT.

```

```

AUTORECODE VARIABLES=TattooCitizen RptOffender LanguageCitizen
FirstActCitizenR NatureCallR
/INTO TattooCitizen2 RptOffender2 LanguageCitizen2 FirstActCitizen2 NatureCall2
/DESCENDING
/PRINT.

```

```

AUTORECODE VARIABLES=DemeanorCitizenR CoopCitizen ResistCitizen
TypeResistCitizenR InjuredCitizen
  NatureofInjuryCitizen HospitalCitizen ComplaintCitizen IntoxCitizen TypeIntox
/INTO DemeanorCitizen2 CoopCitizen2 ResistCitizen2 TypeResistCitizen2
InjuredCitizen2
  NatureofInjuryCitizen2 HospitalCitizen2 ComplaintCitizen2 IntoxCitizen2 TypeIntox2
/DESCENDING
/PRINT.

```

```

AUTORECODE VARIABLES=Drugs DrugClass DrugType ArrestCitizen OffensesR
/INTO Drugs2 DrugClass2 DrugType2 ArrestCitizen2 Offenses2
/DESCENDING
/PRINT.

```

```

AUTORECODE VARIABLES=IncidentType Light Weather Area
/INTO IncidentType2 Light2 Weather2 Location2 Area2 Beat2
/DESCENDING
/PRINT.

```

```

AUTORECODE VARIABLES=Interpreter RaceOfficerR AcademyR Education
/INTO Interpreter2 RaceOfficer2 Academy2 Education2
/DESCENDING
/PRINT.

```

```

AUTORECODE VARIABLES=Shift AssessmentOfficerR ForceUsedOfficer
ForceTypeOfficer
/INTO Shift2 AssessmentOfficer2 ForceUsedOfficer2 ForceTypeOfficer2
/DESCENDING
/PRINT.

```

```

AUTORECODE VARIABLES=ForceReason ServRend InjuredOfficer
NatureofInjuryOfficerR HospitalOfficer
  FirstActOfficerR
/INTO ForceReason2 ServRend2 InjuredOfficer2 NatureofInjuryOfficer2
HospitalOfficer2
  FirstActOfficer2
/DESCENDING
/PRINT.

```

```

RECODE GenderCitizen2 (1=0) (2=1) INTO Female.
EXECUTE.

```

```

RECODE Shift2 (1=1) (ELSE=0) INTO Swing.
EXECUTE.
RECODE Shift2 (2=1) (ELSE=0) INTO Graveyard.

```

EXECUTE.
 RECODE Shift2 (3=1) (ELSE=0) INTO Day.
 EXECUTE.

RECODE NrBystanders (0=0) (1=1) (2=2) (3=3) (4=4) (5=4) (6=4) (7=4) (30=4)
 (SYSMIS=SYSMIS) INTO NrBystanders2.
 VARIABLE LABELS NyBystanders2 '4 = 4 or more bystanders'.
 EXECUTE.

*****Recoding Incident Date to be in order*****

RECODE dateofincident ('JAN 13'=1) ('FEB 13'=2) ('MAR13'=3) ('APR 13'=4) ('MAY
 13'=5) ('JUN 13'=6)
 ('JUL 13'=7) ('AUG 13'=8) ('SEP 13'=9) ('OCT 13'=10) ('NOV 13'=11) ('DEC 13'=12)
 INTO
 DateofIncidentFix.
 EXECUTE.

RECODE yearhired ('JUL 89'=1) ('JAN 90'=2) ('SEP 90'=3) ('JAN 95'=4) ('AUG 95'=5)
 ('AUG 97'=6)
 ('JAN 98'=7) ('MAY 98'=8) ('AUG 98'=9) ('NOV 99'=10) ('MAR 00'=11) ('AUG
 00'=12) ('SEP 01'=13)
 ('NOV 01'=14) ('JAN 02'=15) ('JUL 02'=16) ('AUG 02'=17) ('NOV 02'=18) ('MAR
 03'=19) ('JUN '+
 '03'=20) ('SEP 03'=21) ('OCT 03'=22) ('MAR 04'=23) ('AUG 04'=24) ('OCT 04'=25)
 ('JAN 05'=26)
 ('FEB 05'=27) ('JUL 05'=28) ('AUG 05'=29) ('SEP 05'=30) ('FEB 06'=31) ('MAR
 06'=32) ('JUN '+
 '06'=33) ('OCT 06'=34) ('FEB 07'=35) ('OCT 07'=36) ('NOV 07'=37) ('FEB 08'=38)
 ('OCT 08'=39)
 ('JAN 09'=40) ('NOV 09'=41) ('MAY 12'=42) ('OCT 12'=43) ('JUL 13'=44) ('OCT
 13'=45) INTO
 YearHiredFix.
 EXECUTE.

*****Recoding DoBCit to be in
 order*****

RECODE dateofbithcit ('NOV 40'=1) ('JUL 43'=2) ('FEB 44'=3) ('JAN 45'=4) ('OCT
 47'=5) ('JUN 47'=6)
 ('DEC 48'=7) ('JUL 52'=8) ('APR 57'=9) ('JAN 58'=10) ('AUG 58'=11) ('JUN 60'=12)
 ('NOV 60'=13)

('DEC 60'=14) ('FEB 61'=15) ('SEP 61'=16) ('OCT 61'=17) ('NOV 61'=18) ('SEP
 62'=19) ('MAY '+
 '63'=20) ('FEB 64'=21) ('NOV 64'=22) ('JAN 65'=23) ('JUN 65'=24) ('JUL 65'=25)
 ('NOV 65'=26)
 ('MAR 66'=27) ('APR 67'=28) ('JUL 67'=29) ('DEC 67'=30) ('AUG 68'=31) ('NOV
 68'=32) ('APR '+
 '69'=33) ('MAY 69'=34) ('DEC 71'=35) ('APR 72'=36) ('MAY 72'=37) ('JUL 72'=38)
 ('MAR 73'=39)
 ('MAR 75'=40) ('JUN 76'=41) ('JUL 76'=42) ('SEP 76'=43) ('JUL 77'=44) ('JAN 78'=45)
 ('FEB '+
 '78'=46) ('MAY 78'=47) ('JUN 78'=48) ('JUL 78'=49) ('FEB 79'=50) ('MAR 79'=51)
 ('JUN 79'=52)
 ('JUL 79'=53) ('AUG 79'=54) ('SEP 79'=55) ('NOV 79'=56) ('JAN 80'=57) ('JUL
 80'=58) ('DEC '+
 '81'=59) ('FEB 82'=60) ('JUN 83'=61) ('JUL 83'=62) ('MAY 84'=63) ('AUG 84'=64)
 ('OCT 84'=65)
 ('JUL 85'=66) ('AUG 85'=67) ('SEP 85'=68) ('OCT 85'=69) ('JAN 86'=70) ('APR
 86'=71) ('MAY '+
 '86'=72) ('AUG 86'=73) ('DEC 86'=74) ('FEB 87'=75) ('MAR 87'=76) ('MAY 87'=77)
 ('AUG 87'=78)
 ('NOV 87'=79) ('JAN 88'=80) ('FEB 88'=81) ('MAR 88'=82) ('NOV 88'=83) ('DEC
 88'=84) ('JAN '+
 '89'=85) ('JUL 89'=86) ('SEP 89'=87) ('NOV 89'=88) ('JUL 90'=89) ('OCT 90'=90)
 ('NOV 90'=91)
 ('MAR 91'=92) ('JUL 91'=93) ('AUG 91'=94) ('FEB 92'=95) ('MAR 92'=96) ('APR
 92'=97) ('JUN '+
 '92'=98) ('JUL 92'=99) ('NOV 92'=100) ('JAN 93'=101) ('JUN 93'=102) ('AUG 93'=103)
 ('JAN '+
 '94'=104) ('NOV 94'=105) ('DEC 94'=106) ('NOV 95'=107) ('JAN 96'=108) ('MAY
 96'=109) ('JUL '+
 '96'=110) ('AUG 96'=111) ('DEC 97'=112) ('APR 98'=113) ('NOV 98'=114) INTO
 DoBCitYrFix.
 EXECUTE.

*****Recoding autocoding missing data as missing instead of a
 number*****

RECODE RaceCitizen2 (8=SYSMIS).
 EXECUTE.

RECODE GenderCitizen2 (3=SYSMIS).
 EXECUTE.

RECODE EmployedCitizen2 (3=SYSMIS).
 EXECUTE.

RECODE Tourist2 (3=SYSMIS).
EXECUTE.

RECODE TattooCitizen2 RptOffender2 (3=SYSMIS).
EXECUTE.

RECODE LanguageCitizen2 (2=SYSMIS).
EXECUTE.

RECODE FirstActCitizen2 (19=SYSMIS).
EXECUTE.

RECODE NatureCall2 (31=SYSMIS).
EXECUTE.

RECODE DemeanorCitizen2 (11=SYSMIS).
EXECUTE.
RECODE CoopCitizen2 (4=SYSMIS).
EXECUTE.

RECODE ResistCitizen2 (3=SYSMIS).
EXECUTE.

RECODE TypeResistCitizen2 (6=SYSMIS).
EXECUTE.

RECODE InjuredCitizen2 (3=SYSMIS).
EXECUTE.

RECODE NatureofInjuryCitizen2 (4=SYSMIS).
EXECUTE.

RECODE HospitalCitizen2 (3=SYSMIS).
EXECUTE.

RECODE ComplaintCitizen2 IntoxCitizen2 (3=SYSMIS).
EXECUTE.

RECODE TypeIntox2 (8=SYSMIS).
EXECUTE.

RECODE Drugs2 (3=SYSMIS).
EXECUTE.

RECODE DrugClass2 (5=SYSMIS).
EXECUTE.

RECODE DrugType2 (8=SYSMIS).
EXECUTE.

RECODE ArrestCitizen2 (3=SYSMIS).
EXECUTE.

RECODE Offenses2 (23=SYSMIS).
EXECUTE.

RECODE Interpreter2 (2=SYSMIS).
EXECUTE.

RECODE RaceOfficer2 (7=SYSMIS).
EXECUTE.

RECODE Academy2 (7=SYSMIS).
EXECUTE.

RECODE Education2 (4=SYSMIS).
EXECUTE.

RECODE Shift2 (4=SYSMIS).
EXECUTE.

RECODE AssessmentOfficer2 (6=SYSMIS).
EXECUTE.

RECODE ForceUsedOfficer2 (4=SYSMIS).
EXECUTE.

RECODE ForceTypeOfficer2 (3=SYSMIS).
EXECUTE.

RECODE ForceReason2 (12=SYSMIS).
EXECUTE.

RECODE ServRend2 (14=SYSMIS).
EXECUTE.

RECODE InjuredOfficer2 HospitalOfficer2 (3=SYSMIS).
EXECUTE.

RECODE NatureofInjuryOfficer2 (4=SYSMIS).
EXECUTE.

RECODE FirstActOfficer2 (7=SYSMIS).
EXECUTE.

*****Recoded RaceOfficer2 that had 2+Races into missing
data*****

RECODE RaceOfficer2 (1=1) (3=3) (4=4) (5=5) (6=6) (2=SYSMIS) INTO
RaceOfficer2missing.
VARIABLE LABELS RaceOfficer2missing 'Recode 2 or more officers to missing'.
EXECUTE.

Value labels RaceOfficer2Missing

- 1 "White"
- 3 "Hispanic"
- 4 "Black"
- 5 "Asian"
- 6 "American Indian/Alaskan Native".

Value labels dateofincidentfix

- 1 "JAN 13"
- 2 "FEB 13"
- 3 "MAR 13"
- 4 "APR 13"
- 5 "MAY 13"
- 6 "JUN 13"
- 7 "JUL 13"
- 8 "AUG 13"
- 9 "SEP 13"
- 10 "OCT 13"
- 11 "NOV 13"
- 12 "DEC 13".

Value labels YearHiredFix

- 1 "JUL 89"
- 2 "JAN 90"
- 3 "SEP 90"
- 4 "JAN 95"
- 5 "AUG 95"
- 6 "AUG 97"
- 7 "JAN 98"
- 8 "MAY 98"
- 9 "AUG 98"
- 10 "NOV 99"

11 "MAR 00"
12 "AUG 00"
13 "SEP 01"
14 "NOV 01"
15 "JAN 02"
16 "JUL 02"
17 "AUG 02"
18 "NOV 02"
19 "MAR 03"
20 "JUN 03"
21 "SEP 03"
22 "OCT 03"
23 "MAR 04"
24 "AUG 04"
25 "OCT 04"
26 "JAN 05"
27 "FEB 05"
28 "JUL 05"
29 "AUG 05"
30 "SEP 05"
31 "FEB 06"
32 "MAR 06"
33 "JUN 06"
34 "OCT 06"
35 "FEB 07"
36 "OCT 07"
37 "NOV 07"
38 "FEB 08"
39 "OCT 08"
40 "JAN 09"
41 "NOV 09"
42 "MAY 12"
43 "OCT 12"
44 "JUL 13"
45 "OCT 13".

*****Recoding to put into ranking order, Only some variables are recoded like
this*****

```
RECODE DemeanorCitizen2 (1=7) (2=4) (3=3) (4=5) (5=2) (6=1) (7=9) (8=8) (9=10)
(10=6) INTO
  DemeanorCitizenRanked.
EXECUTE.
```

Value labels DemeanorCitizenRanked

- 1 "Calm"
- 2 "Docile"
- 3 "Neutral"
- 4 "Startled"
- 5 "Nervous"
- 6 "Afraid"
- 7 "Agitated"
- 8 "Upset"
- 9 "Angry"
- 10 "Aggressive".

RECODE CoopCitizen2 (1=3) (2=2) (3=1) INTO CoopCitizenRanked.
EXECUTE.

Value labels CoopCitizenRanked

- 1 "Cooperative"
- 2 "Neutral"
- 3 "Uncooperative".

RECODE ForceUsedOfficer2 (1=2) (2=3) (3=1) INTO ForceUsedOfficerRanked.
EXECUTE.

Value labels ForceUsedOfficerRanked

- 1 "Minimal Contact"
- 2 "Physical Force Used w/o Weapon"
- 3 "Physical Force Used with Intermediate Weapon".

RECODE ForceTypeOfficer2 (1=2) (2=1) INTO ForceTypeOfficerRanked.
EXECUTE.

Value labels ForceTypeOfficerRanked

- 1 "Defensive Force"
- 2 "Offensive Force".

RECODE ForceReason2 (1=6) (2=2) (3=3) (4=4) (5=7) (6=9) (7=1) (8=5) (9=8) (10=11)
(11=10) INTO
ForceReasonRanked.
EXECUTE.

Value labels ForceReasonRanked

- 1 "Other"
- 2 "Uncooperative"

- 3 "Threats/Gestures"
- 4 "Threatening to Fight"
- 5 "Flight"
- 6 "Flight + Uncooperative"
- 7 "Suicidal Subject"
- 8 "Barricaded Subject"
- 9 "Physical Resistance"
- 10 "Armed with Deadly Weapon"
- 11 "Attack on an Officer".

RECODE TypeResistCitizen2 (1=1) (2=5) (3=2) (4=3) (5=4) INTO
TypeResistCitizenRanked.
EXECUTE.

Value labels TypeResistCitizenRanked

- 1 "Verbal Resistance"
- 2 "Immobile"
- 3 "Ignoring Officers Orders"
- 4 "Flight"
- 5 "Physical Resistance".

RECODE NatureofInjuryCitizen2 (1=3) (2=1) (3=2) INTO
NatureofInjuryCitizenRanked.
EXECUTE.

Value labels NatureofinjuryCitizenRanked

- 1 "Minor Injury"
- 2 "Intermediate Injury"
- 3 "Serious Injury".

RECODE Education2 (MISSING=1) (1=4) (2=3) (3=2) INTO EducationRanked.
EXECUTE.

Value labels EducationRanked

- 1 "HS Diploma/GED"
- 2 "Associates Degree"
- 3 "Bachelors Degree"
- 4 "Masters Degree".

RECODE AssessmentOfficer2 (1=4) (2=1) (3=5) (4=3) (5=2) INTO
AssessmentOfficerRanked.
EXECUTE.

Value labels AssessmentOfficerRanked

- 1 "None Detected"

- 2 "Alcohol"
- 3 "Alcohol & Drugs"
- 4 "Unknown Drugs"
- 5 "Menatally Unstable".

*****Createing some Dummy Variables*****

```
RECODE RaceCitizen2 (1=1) (ELSE=0) INTO WhiteCitizen.  
EXECUTE.
```

```
RECODE RaceCitizen2 (5=1) (ELSE=0) INTO HispanicCitizen.  
EXECUTE.
```

```
RECODE RaceCitizen2 (6=1) (ELSE=0) INTO BlackCitizen.  
EXECUTE.
```

```
RECODE RaceOfficer2 (1=1) (ELSE=0) INTO WhiteOfficer.  
EXECUTE.
```

```
RECODE RaceOfficer2 (3=1) (ELSE=0) INTO HispanicOfficer.  
EXECUTE.
```

```
RECODE nrbystande (0=1) (ELSE=0) INTO NoBystanders.  
EXECUTE.
```

```
RECODE nrbystande (1=1) (ELSE=0) INTO ONEBystander.  
EXECUTE.
```