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# The Efficacy of Detecting and Apprehending the Drunk Driver: An Evaluation of Petaluma Police Department's Enforcement Methods

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# An Evaluation of Petaluma Police Department's Enforcement Methods

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## Abstract

Since the early 1980s, the issue of DUI has come to the forefront of society's concerns. As a result, researchers have also focused on the issue of DUI. Even though there is a substantial amount of research on DUI, very little research has focused on the most efficient means of detecting and apprehending DUI drivers.

This paper will compare two different enforcement methods of detecting and apprehending DUI drivers. The two enforcement methods that will be evaluated are: a type of proactive patrol called saturation patrol, and sobriety checkpoints. The City of Petaluma, California, was observed over a three-month period to determine which of these methods require the least amount of officer hours per DUI arrest. The total DUI arrests made by each type of enforcement technique, and total officer hours involved in each technique, were analyzed to determine the most efficient means of detecting DUI drivers.

As a result, it was determined that sobriety checkpoints and saturation patrol are both equally effective when measured in terms of officer hours per arrest. Additionally, sobriety checkpoints were just as efficient, if not more efficient, than saturation patrol when measuring secondary duties such as non-DUI arrests, citations issue, and vehicles towed or impounded. Ultimately, this research paper provides an empirical method from which analysis and evaluation of DUI patrol techniques can be conducted, challenging some of the current assumptions about these techniques.

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The rise in drunken driving awareness in the United States has led to increased pressures on law enforcement agencies to conduct effective interventions. According to Lundman (1988),

> Public concern, social movement organization, and criminal justice laws regarding drunk driving have undergone significant changes in recent years. What was once viewed as a 'folk crime' (Ross 1960) that was technically illegal but not really criminal is now the subject of considerable public concern (Zimring 1988). (p. 527)

In California, drunk driving has been illegal since 1911 (Lundman, 1998), but was not truly criminalized until the early 1980s. Individuals such as Candy Lightner, who founded Mothers Against Drunk Driving (MADD) in 1980, changes in legislation, and grants from Congress, have helped to bring "drunk driving to the top of the social policy agenda" (Hedlund & McCartt, 2002, pp.7 & 8). Collisions involving impaired drivers "were no longer looked at as 'accidents,' the unintended consequences of normal everyday behavior" (p. 8).

As a result of this shift in social policy, enforcement efforts also changed. Police became better equipped, better trained, and implemented new enforcement techniques such as saturation patrol and sobriety checkpoints. A second result of the shift in social policy was extensive research on driving while under the influence, primarily funded by the National Highway Transportation Safety Administration (p.8). Much of this research has focused on general deterrence of the drunk driver, and what programs, or combination of programs, work best. General deterrence refers to "burden(ing) the prohibited act with sufficient negative consequences to constrain the potential delinquent from committing it" (Ross, 1992a, p. 7). The research has indicated that both traditional patrol techniques (Voas & Hause, 1987) and sobriety checkpoints are an effective general deterrent to drunk driving (Hedlund & McCartt, 2002; Lacey, Jones & Smith, 1999; Richardson & Houston, 2004; Ross, 1992a; Shults, Elder, Sleet, Nichols, Alao, Carande-Kulis, Zaza, Sosin, Thomson & the Task Force on Community Preventive Services, (2001); Voas, Holder & Gruenwalk, 1997; Voas, Rhodenizer, & Lynn,

1985), with sobriety checkpoints hypothetically having the greatest deterrent effect (Ross, 1992a; Stuster & Blowers, 1995; Wagenaar, Zobeck, Williams & Hingson, 1995; Zobeck & Williams, 1994).

Very little research, however, has been conducted on the most efficient means of detecting and apprehending the drunk driver. Specific deterrence typically refers to the incapacitation of someone in order to prevent him or her from committing a crime (Stuster & Blowers, 1995). While most conjure up visions of imprisonment, arrest of drunk drivers is a form of specific deterrence because it prevents the drunk driver from continuing to drive, and potentially causing a collision. Without specific deterrence, or in this case arrest, general deterrence becomes impotent. Unless the perception of negative consequences is actually reinforced, the perception will eventually give way to reality that the chances of being arrested for drunk driving are very slim (Jacobs, 1989; Lacey et al., 1999; Richardson & Houston, 2004; Ross, 1992a; Shults et al., 2001; Voas, 1997a; Voas et al., 1997; Voas & Hause, 1987; Voas et al., 1985). Stuster and Blowers explained the cyclical nature of general and specific deterrence well when they wrote:

> Regular, high-visibility drunk driving enforcement is critical to preventing dunk driving. Enforcement's goal is to deter drunk driving by convincing the public that drunk drivers are very likely to be detected, arrested, and sanctioned. This means that effective drunk driving enforcement involves both actual enforcement levels - police on the road looking for and being ready to arrest drunk drivers - and effective publicity for this enforcement. Enforcement without publicity does not deter other drivers who have not been detected and arrested. Publicity without enforcement to back it up quickly is seen as an empty threat. (pp. 54-55)

Secondly, specific deterrence, or in this case arrest, has made an impact on alcohol-related injury and fatal collisions. For instance, from 1992-2002, over two million drunken driving arrests were made by California law enforcement agencies (California Department of Motor Vehicles [DMV], 2004). There is no doubt that some of those arrests prevented collisions, as well as related injuries and fatalities.

Additionally, no matter how well general deterrent methods are enhanced, there will always be the drunk driver on the road who cannot be deterred and needs to be apprehended. Even after 20-plus years of education and enforcement efforts in California, 1,416 persons were killed in alcohol-related collisions in California in 2002. This is an 8.3% increase from the previous year, continuing a trend of a 32% increase in alcohol-related fatal collisions since 1998 (California Office of Traffic Safety [OTS], 2004, p.1; DMV, 2004, p. iii). Of the 4,078 traffic fatalities in California in 2002, 60% involved no blood alcohol content (BAC), 7% involved a BAC of 0.01 to 0.07%, and 32% involved a BAC of 0.08% or greater (National Center for Statistics and Analysis, 2003, p. 8). The National Highway Traffic Safety Administration (NHTSA) estimates that "alcohol-related crashes in California cost the public an estimated $12 billion in 1999, including $5.5 billion in monetary costs and almost $6.5 billion in quality of life losses" (NHTSA, n.d., Costs section.). The need for enforcement and apprehension still exists because "some still continue to drive drunk. In particular, many problems drinkers or drivers with a high BAC have not been deterred. These drivers undoubtedly belong to the substantial minority who believe that drunk driving is unlikely to result in arrest or conviction" (Hedlund & McCartt, 2002, p. 28).

Kingdon (1995) writes:

> Failure to solve or even address a problem, as well as success, may result in its demise as a prominent agenda item. It takes time, effort, mobilization of many actors, and the expenditure of political resources to keep an item prominent on the agenda....A subject gets attention when it is novel. When it is no longer novel, people's attention may turn away from the subject even though it may still be valid or important. (pp. 104-105)

Much of the above argument may apply directly to drunk driving enforcement. As addressed earlier, many of the gains from the 1980s and early 1990s were lost in the late 1990s with the reversal of drunk driving trends. Hence, it is imperative that researchers and police administrators constantly review and analyze existing programs and procedures to ensure

maximum efficiency and effectiveness. The reinforcing effect of actual drunk driving arrests on general deterrence, and the drunk driver who cannot be deterred and who needs to be stopped by arrest, is the basis for this research.

The research primarily seeks to answer the following question:

Which type of proactive drunk driving enforcement, saturation patrol or sobriety checkpoint, yields the most drunk driving arrests per officer hour in the City of Petaluma?

The research methodology was compromised of primary and secondary research methods. The secondary research method consisted of reviewing relevant literature. Due to the lack of secondary literature directly addressing arrest rates, primary research methods were employed. The primary research consisted of evaluating Petaluma Police Department's proactive drunk driving enforcement techniques for approximately 3 months, in order to observe saturation patrols and two sobriety checkpoints. Two forms were developed in order to track appropriate data during the saturation patrols and sobriety checkpoints.

## Literature Review

The research seeks to address the issue of the efficacy of detecting and apprehending the drunk driver. Given the serious nature of drunk driving, and the trend in increased drunk driving rates, the research attempts to address the efficacy of two popular enforcement techniques. The literature review has two primary purposes. First, it establishes a background of the general theories surrounding drunken driving enforcement. Secondly, it establishes that there is a gap in the literature regarding drunken driving arrest rates, and the reasons for that gap.

Specifically, the literature review focuses on the following three areas:

1. General Deterrence
2. Specific Deterrence
3. Drunk Driving Arrest Rate Studies

### *General Deterrence*

Laws affecting drunk driving were instituted shortly after the introduction of the automobile (Ross, 1992). However, the increase in alcohol consumption, coupled with the increase in automobile travel in the 1960s, created the need for increased traffic safety improvements (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 1999; Jacobs, 1989). In the late 1960s, the National Highway Safety Bureau, which ultimately became the National Highway Traffic Safety Administration, was formed in response to these needs. In the 1970s, Alcohol Safety Action Projects (ASAPs) were implemented with the goal of reducing drunk driving, and alcohol-related traffic collisions (Jacobs). "While the ASAPs failed to demonstrate a significant impact on drunk driving (Jacobs), they laid the foundation for subsequent progress" (Hedlund & McCartt, 2002, p.7). Part of this failure was that an increase in arrests without media publicity did not reduce drunk driving on a large scale (Jacobs, pp. 46 & 112). If large segments of the population could be deterred from drinking and driving by increasing the perception of detection

and apprehension, then alcohol-related collisions could have the potential to decrease – hence general deterrence (Jacobs, pp. 46 & 55; Ross, 1992a; Voas, 1997a).

The theory of general deterrence is one based on negative consequences outweighing positive outcomes, or at least perceptions of such. According to Ross (1992),

> The target population of all potential drunk drivers can in theory be affected by criminal punishment through the function of general deterrence. This refers to the broad threat of the criminal law to punish those who violate its standards. The threat is reinforced by punishing convicted offenders, but its effect is expected to be achieved mainly through its impact on those who are not punished. General deterrence is a theoretical principle that predicts suppression of behavior when subjected to a threat perceived as swift, certain, and severe. The principle is a psychological one, centering on perception. (p. 46)

Ross continues his argument by stating that even though sobriety checkpoints may not be very efficient at apprehending drunk drivers, its strength may lie in its ability to increase the perception of increased probability of arrest.

Gibbs (1975), however, offers a bit of caution with deterrence theory. He writes, "We never *observe* someone omitting an act because of the perceived risk and fear of punishment. Observations in a particular instance may suggest that conclusion, but it would be an inference, hence debatable. The importance of that consideration in contemplating purported evidence of deterrence (or lack of it) cannot be exaggerated" (p. 3). The studies that follow, however, do appear to support the theory of general deterrence when applied to proactive law enforcement techniques, but they must be tempered with Gibbs's caution.

Richardson and Houston (2004) in their evaluation of deterrents to drinking and driving, agree that "based on deterrence theory, these policies assume that undesirable behavior can be discouraged by increasing the certainty, severity, and celerity (or swiftness) with which punishment is meted out" (Deterrent-Based Anti-DWI Policies section, para. 4). This is true as long as the public knows about legal punishments for drinking and driving. (Richardson & Houston) In surveys by the above authors, respondents indicated that the sobriety checkpoint

was the only policy that increased perceptions of the certainty of detection and apprehension of drunk drivers, as compared to other legal tools such as .08% per se law and implied consent. Additionally, those who were exposed to a sobriety checkpoint expressed a 1.6 times greater perception of detection, as opposed to those not exposed to sobriety checkpoints (p. 7).

Shults et al. (2001) reviewed several drunk driving reduction techniques. One of the techniques involved is the sobriety checkpoint. The authors argue that while "[t]he rationale for the use of checkpoints may remove some drinking drivers from the road, their primary goal is to reduce driving after drinking by increasing the perceived risk of arrest" (p. 75). Fifteen sobriety checkpoint studies were reviewed, focusing primarily on larger-scale checkpoints with high media visibility. The results indicated a 20-26% decrease in alcohol-related fatal collisions, with an overall reduction of 13-27% in all alcohol-related collisions (Shults et al., 2001).

Lacey et al. (1999) reported on the effectiveness of sobriety checkpoints held from April of 1994 through March of 1995 in Tennessee. Accompanied by a large media presence, law enforcement agencies completed 882 checkpoints over five weekends in all 95 counties of Tennessee. The checkpoints resulted in 145,000 vehicles driving through the checkpoints and 773 DUI arrests. In surveys, the researchers found relatively little change in the perceived risk of arrest for DUI, but did note a decrease in self-reported drinking and driving episodes. Most importantly, however, was a 20% reduction from the projected number of alcohol-related fatal collisions in Tennessee as a result of the checkpoints. The five control states surrounding Tennessee, however, showed a slight increase in alcohol-related fatal collisions during this same time (Lacey et al., 1999).

Stuster and Blowers (1995) authored a seminal study, comparing the results of several sobriety checkpoints and roving patrol within California. A total of six similar cities in California were studied. Modesto, Visalia, Santa Rosa, and Ventura all implemented sobriety

checkpoints, with varying levels of staffing and mobility, over a nine-month period. Ontario, California implemented a two-officer roving DUI enforcement program for nine months, and Santa Barbara, California was designated the control city with no proactive enforcement. The sobriety checkpoint cities received extensive media coverage, while the roving patrol city only received some attention at the beginning of the study. As a result, public awareness of the sobriety checkpoints was raised 18%, with ultimately 80% of respondents having knowledge of the program, many of them actually observing the checkpoints. Although public awareness for roving patrol peaked at 40% at the beginning of the program, ultimately, perceptions were only raised 14%, with 30% having knowledge of the program at the end of the study period. There was no change in public awareness of DUI enforcement in the control city.

Interestingly, as a result of the study, alcohol-related injury and fatal collisions were reduced in all six of the test cities. On average, the sobriety checkpoint cities and the control city had similar reductions of 22% as compared to the previous year, but the roving-patrol city had no reduction, even though the roving-patrol city had at least twice as many DUI arrests as compared to any of the sobriety-checkpoint cities. During that same period, the average California city saw a 15% reduction in alcohol-related injury and fatal collisions. As a function of all collisions, alcohol-related injury and fatal collisions were reduced by an average of 28% for the sobriety checkpoint cities, as compared to a 17% reduction for the comparison city, a 5% reduction for the roving-patrol city, and an 8% reduction statewide.

Even though most deterrent research has focused on sobriety checkpoints, one study did address the general deterrent effect of roving patrol. In this case, roving patrol is similar to saturation patrol, in that one officer was assigned to a patrol car, with the sole function of seeking out DUI drivers. Saturation patrol can use one-officer or two-officer units, but multiple units are set out on patrol at the same time, as compared to roving patrol, which typically utilizes

only one patrol car. During a 3 ½ year period from 1976 to 1979 in Stockton, California, Voas and Hause (1987) measured the results of increased enforcement. Stockton utilized 10 patrol officers, each in one-officer patrol cars on Friday and Saturday nights, solely dedicated to drunk driving enforcement. Three similar California cities were used for comparison. As a result, arrests in Stockton increased 200% as compared to the 1975 base year, and weekend nighttime collisions were reduced by15%, as opposed to an 8% reduction in one of the comparison cities, and increases in the others. Additionally, average blood alcohol contents (BAC), as measured in voluntary roadside surveys, was reduced from 8% of those tested being legally intoxicated (.10% BAC or greater), to 5% of those tested being legally intoxicated. Finally, the authors noted that the greatest reduction in nighttime weekend crashes was achieved at the beginning of the program when media exposure was highest.

The issue of DUI media coverage accompanied by sobriety checkpoints was addressed by Voas, Holder and Gruenewald (1997). From the fall of 1993 through the fall of 1995, the researchers studied two California cities as well as one South Carolina city, with three corresponding comparison cities. The experimental cities received increased media advocacy training, Breathalyzer equipment, and additional officer hours to implement sobriety checkpoints. The authors found a reduction in alcohol-related collisions by measuring the number of single-vehicle nighttime collisions, which are typically associated with alcohol-related collisions. As a result of the research, the authors found:

> This is the first published demonstration of a full causal model for the development of deterrence through the enforcement and news coverage of DUI deterrence...The current study validates the hypothesized relationship of perceived risk of arrest to reported drinking and driving across six communities with different levels of DUI enforcement and enforcement publicity. It supports the generally accepted hypothesis (Gibbs, 1975; Ross, 1984) that it is the perception of risk rather than the actual risk of arrest, which affects drinking driving behavior. (p. S232)

The above studies tend to support the hypothesis that increasing the perception of detection

and apprehension can be achieved via enforcement methods coupled with media advocacy. Additionally, the studies generally support the belief that sobriety checkpoints have the potential to be a greater deterrent as compared to traditional patrol techniques. Ross (1992) argued this point well when he wrote:

> Numerous arrests may be one means to this end, but they are certainly not the only means, and increasing arrests may even be a relatively inefficient way to enhance risk perception....Checkpoints are designed to multiply contacts between police and the public. Scores of drivers can be checked per hour. Moreover, checkpoint contacts are magnified by word of mouth-drivers who tell others of the experience-as well as by incidental viewing such as among passengers in the check car, drivers and passengers of vehicles passing through the checkpoint but not selected in a systematic sample of those traveling either in the opposite lane or on a nearby cross street. Those who experience or view the checkpoint contact can surmise that intoxicated drivers run a significant risk of apprehension. (p. 58)

*Specific Deterrence*

Specific deterrence deals with effects on the individual, and is also sometimes known as special deterrence. (Ross, 1992a) Additionally, definitions surrounding specific deterrence range from the effects of punishment on individuals and their likelihood of recidivism, to the effects of incapacitation (Gibbs, 1975; Ross, 1992a; Stuster & Blowers, 1995). Since this research project focuses on the incapacitation factor of physical arrest, not punishment, specific deterrence will be defined as follows: "In specific deterrence a specific individual is prevented from committing deviant acts by removing all opportunity for choosing to engage in the prohibited behavior; specific deterrence can be accomplished by execution or incarceration, but other means are available as well" (Stuster & Blowers, p.2). In this particular forum, arrest could be considered a form of incapacitation because the offender is physically prohibited from continuing to drive until sober.

Although the literature tends not to support the theory that increased arrest rates alone will increase general deterrence, specific deterrence still plays a significant part in the theory of general deterrence. Ross (1992a) argues, "In punishing the apprehended criminal, the justice

system is helping to communicate and render credible its more general threat. If the threat is broadly perceived and serves to restrain the threatened activity, general deterrence has been accomplished" (p.55). Ultimately, punishment of the criminal and rendering credible a general threat cannot be accomplished unless the criminal is apprehended in the first place. Ross (1992) writes:

> The Achilles' heel of deterrent policies aimed at drunk driving, in America and many other countries, is the law violator's low probability of apprehension and therefore of experiencing any punishment at all. In an elaboration of deterrence theory, Tittle and Rowe (1974), after studying data on crime rates and the certainty of arrest, hypothesized that certainty of punishment must reach a critical threshold level before a deterrent threat can be effective in reducing the crime rate. (pp. 67-68)

As a result of reviewing driver surveys, Ross found that the perception of being stopped and arrested for drunk driving was higher than the actual chances of being detected and apprehended, even though both probabilities are relatively low. Ross argues that the best way to increase the perception of detection and apprehension is to increase the objective rates, i.e., arrest rates. "The most direct route to this goal is to increase the quantity and quality of law enforcement" (Ross, 1992, p. 69).

Further supporting this hypothesis is the British Road Safety Act of 1967. The Act permitted police to evaluate drivers for sobriety levels, and was widely publicized. As a result of this act, traffic collisions were reduced. But as police enforcement was reduced, and the public realized that increased risk of detection and apprehension were over exaggerated, accident rates began to climb, though not to their pretest levels (Voas 1997a; Sykes, 1984; Ross, 1982).

Furthering this belief of specific deterrence supporting general deterrence is the research of Voas and Hause (1987) in the late 1970s in Stockton, California. This study, which was previously mentioned in the "General Deterrence" section, implemented a saturation patrol technique in Stockton for 3-½ years. Upon initiation of the program, coupled with heavy media presence, nighttime collision rates dropped dramatically. After the media coverage subsided, but

the enforcement patrols continued, the nighttime collisions rates climbed to pretest levels for a short time, then remained below pretest levels until completion of the experiment. This is in comparison to the control cities, which experienced increases in nighttime collisions. Stockton's nighttime crash level did not begin climbing back to pretest levels until after the enforcement portion of the experiment was completed at the end of the 3-½ year experiment. This tends to support the hypothesis that specific deterrence did help to support the perceptions created by general deterrence at the beginning of the experiment. Voas (1997a) refers to this phase where the public begins to question and test their perceptions of actual detection and apprehension as "reality testing" (p. S202).

Homel (1988) in his study of sobriety checkpoints in Australia also found a correlation between general deterrence and specific deterrence, or what Homel terms "objective and perceived certainty of arrest" (p. 80). Homel argues:

> (Deterrence is) a continuous process whereby motorists are deterred by exposure and undeterred by lack of exposure....Deterrence should be seen as a dynamic process, maintained not necessarily in a single individual but in the whole target population through constant enforcement of the law. Without such constant enforcement, it seems likely that behaviors adopted as a response to the threat of punishment will eventually disappear. (p. 246)

The second aspect of the specific deterrence is its role in detecting and apprehending those who cannot be deterred via general deterrence, often referred to as the hard-core drinker. It is argued that general deterrence works best on those who are easiest to deter - "socially responsible light and moderate drinkers" (Bierness, Simpson & Mayhew, 1998, p.556). Those who use and abuse alcohol on a regular basis are typically the ones that are hardest to deter, even when told of increased chances of apprehension or fines (Jacobs, p. 109). Richardson and Houston (2004) argue, "Individuals who frequently drive after drinking alcohol perceive the costs imposed by government sanctions to be higher than do individuals who never drink-and-drive. The implication is that sanctions do not deter frequent drink-drivers" (p. 4). Specific

deterrence also plays its part on the occasional drinker who cannot be deterred because he or she is unable to think in a rational manner. This may be especially true when "the immediate decision to drive drunk is made when the driver is drunk and not thinking clearly about risks and probabilities. A drunken person may not be able to (1) appreciate the extent of his alcoholic impairment, (2) evaluate his capacity to drive, or (3) reflect on the probability of arrest or expected punishment" (Jacobs, p. 109).

Even though specific deterrence of drunk driving is not as thoroughly addressed by the literature as general deterrence, specific deterrence is still an important part in reducing drunk driving. First, it aids in increased perceptions of detection and arrest of drunk drivers by increasing the "interaction between public information and personal experience of drivers" (Voas, 1997a, p. S202). Secondly, there are those who cannot be deterred by increasing their perception of apprehension, ultimately leaving no alternative but incapacitation to prevent them from driving after drinking.

*Drunken Driving Arrest Rate Studies*

*Anecdotal evidence.*

A search of relevant literature found relatively few articles directly addressing the issue of the efficiency of detecting and arresting DUI drivers. This is in spite of the fact that the issue is important enough to have been evaluated by the United States Supreme Court in *Michigan Department of State Police v. Sitz* (1990). The United States Supreme Court and lower courts delved into the issue of arrests per officer hour, which included expert testimony. Even though specific arrest rates were not produced, the experts who testified in court generally agreed that sobriety checkpoints produced less arrests per officer hour as opposed to other types of enforcement. (Voas, n.d.) Ultimately, the deterrent effect of sobriety checkpoints, not arrest rates, was one of the reasons the United States Supreme Court upheld the validity of sobriety

checkpoints. (*Michigan Department of State Police v. Sitz*, 1990).

Voas (n.d.) on the other hand, disagrees with the findings of those who provided expert testimony for these cases. Voas, however, primarily produces only anecdotal evidence of the superior arrest rates of sobriety checkpoints. The only empirical evidence Voas presents is an evaluation conducted in Charlottesville, Virginia in the 1980s. This particular case will be discussed separately in the literature section.

Fell, Ferguson, Williams and Fields (2002), and Ross (1992), address some of the issues surrounding support and dissent for sobriety checkpoints and proactive patrol techniques. The issues range from "checkpoints requiring more resources [equipment and personnel]...; that the checkpoint task is boring...; that checkpoints inconvenience innocent motorists;...and that there is little political support for checkpoints" (Fell et al., 2002, p 898). Both authors, ultimately, address these deficiencies, leaving the reader with a better understanding of how the deficiencies are untrue, or ways to overcome them. The primary thrust of both articles, however, is the efficient use of personnel. According to Ross (1992), "The standard criterion of police performance is arrests. By this measure, checkpoints appear to be an inefficient use of police resources" (p. 58). Ross continues the article with anecdotal evidence of sobriety checkpoint failures, and can only argue that the true measure of success is the deterrent effect, not arrest rates. (p.58) What is most notable about these articles, however, is that they set the tone for why police departments tend to prefer proactive patrol to sobriety checkpoints.

Green (2003), a lieutenant with the Ohio State Highway Patrol, echoes the sentiments of the above authors. The author argues that sobriety checkpoints are a tool to educate, as opposed to a tool to make arrests (p.3). He also reports that saturation patrol may be the most effective tool for arrests. Green identified several midwestern states that had employed sobriety checkpoints, and the total arrests as a result of these checkpoints. He writes:

> Basically, Missouri averaged above five DUI arrests per checkpoint, Ohio averaged less than seven DUI arrests per checkpoint, and Tennessee's aggressive checkpoint program averaged less than one DUI arrest per checkpoint....Overall, measured in arrests per hour, a dedicated saturation patrol is the most effective method of apprehending offenders. (p.4)

Unfortunately, Green does not address issues such as, officers assigned to each type of enforcement, hours of operation, or total officer hours. Nor does he address whether saturation patrol arrests include drivers arrested as the result of traffic collisions or a routine patrol officer initiating the original enforcement stop. Ultimately, Green, like other authors and researchers, fails to provide empirical evidence of arrest rates, relying what essentially comes down to anecdotal evidence.

Stuster and Blowers (1995), in their research of sobriety checkpoints and roving patrol in California formed the following opinion about the differences between the two proactive patrol techniques. They argue that the two techniques are "analogous to the difference between trapping and hunting strategies among commercial fisherman (Stuster, 1976)" (p.76). Ultimately, the authors argue that the only way to increase the amount of arrests made by sobriety checkpoints is to increase the amount of checkpoints conducted, much like a hunter having to deploy more traps in order to increase yield. Conversely, roving patrol, which is akin to the "hunter" can improve yield by becoming a better hunter and increasing efficiency. Interestingly enough, the authors don't even consider the actual efficiency of either technique before making this comparison.

During the above research, Stuster and Blowers also found that there was a belief among the roving patrol officers that hard-core drinkers were more likely to be aware of, and avoid, sobriety checkpoints. Thus, actively searching for the impaired, hard-core drunk driver, is the only way to detect and apprehend these types of offenders. Conversely, Levitt and Porter (2001) found that repeat offenders who do drive on the roadway are potentially more cautious drivers. This would have the effect of making it more difficult to detect the drunk driver via the roving patrol

or saturation patrol method. Ultimately, both arguments may apply to some portions of the hard-core drunk driving population.

*Reasons for lack of literature.*

The amount of existing criminological studies addressing drunk driving appears to be lacking. A search of a prominent criminal justice journal, *Criminal Justice Review*, yielded only two articles related to drunk driving. Ross (1982) and Jacobs (1989) also note that there is a lack of interest by criminologists. Even though there is a large pool of available data from which to draw upon, most researchers come from backgrounds other than criminology, such as traffic safety and drug addiction (Ross, 1982). Jacobs speculates that the lack of interest from criminologists may be because "criminologists are uncertain about drunk driving's status as a 'real crime.' After all, the offense is usually found in the vehicle and traffic code, not in the criminal code" (p. xx). Jacobs also argues that drunk driving can be difficult to measure, as most crime statistics are driven by victim reports to police, which is not true for your average drunk driving episode. Additionally, it can be difficult to measure the impact of initiatives aimed at reducing drunk driving when they are implemented simultaneously. Although most criminologists are interested in arrest and clearance rates of other types of crimes such as murder, robbery, and burglary, drunk driving may be uninteresting for study by criminologists because it does not fit into the stereotype of other types of crimes, predominantly committed by minorities and the socioeconomically deprived (Jacobs). Zobeck and Williams (1994) in their study, *Evaluation Synthesis of the Impacts of DWI Laws and Enforcement Methods,* explain why arrest rates were not measured, "Other outcome measures, such as arrest data, were not included because they do not provide an accurate measure of the impact of the laws or enforcement methods" (p. 1-15). While the authors may be correct in their statement, it also describes the general attitude of most drunk driving researchers, one that focuses on deterrence as opposed to

arrest rates.

*Analysis of existing secondary data.*

Although there are no articles that directly address the efficiency of sobriety checkpoints versus saturation patrol techniques, there are two articles that do address some of the issues surrounding DUI enforcement techniques. One study is titled *Evaluation of Charlottesville Checkpoint Operations* (Voas, Rhodenizer and Lynn, 1985). This article, like many others, focuses primarily with the deterrent effects of sobriety checkpoints.

In the area of detection and apprehension efficiency, the study did briefly compare roving patrol to sobriety checkpoints in officer hours per DUI arrest. In this case, roving patrol is similar to saturation patrol, in that two officers were assigned to a patrol car, and their sole function was to seek out DUI drivers. With saturation patrol, multiple units are set out on patrol at the same time, and two-officer units may be used, as compared to roving patrol, which typically utilizes only one patrol car. The results of this study indicated that it took 7.9 hours per DUI arrest with roving patrol, and 6.5 hours per DUI arrest with sobriety checkpoints. (p.8)

Even though roving patrol is similar to saturation patrol, and may give a general indication of what may occur in a study with saturation patrol, there are still several factors that limit the generalization of this study. First, the roving patrol arrests were made in 1983, and the checkpoint program arrests were made in 1984. Additionally, this study was conducted approximately 20 years ago. Attitudes toward drinking and driving have changed, as well as the number of intoxicated drivers on the road since that time (Voas, Wells, Lestina, Williams & Greene, 1998). Checkpoint techniques have changed, as well as techniques and equipment in determining whether someone is under the influence. The fact that the current legal limit for drunk driving is .08% blood alcohol content (BAC), as opposed to .10% BAC when this study

was conducted, is another factor to be considered. Just the lowering of the BAC level could effect the results because "it is to be expected that the average BACs of those arrested at the checkpoint will be lower than the BACs of individuals arrested by regular patrol" (Voas et. al., 1985, p. 15). If this statement is to be believed, the result of a lower legal limit will result in an increase in the amount of arrests at checkpoints. Additionally, during a portion of the study, officers were able to use a passive sensor device at the sobriety checkpoints. Essentially, each driver that was screened was passively tested for alcohol by this sensor without them even knowing it. This had the effect of increasing the amount of drivers arrested for drunk driving because it helped to eliminate the human error of officers who would occasionally not detect the odor of alcohol from a driver being screened in the checkpoint.

The study does not mention if the DUI arrests made during roving patrol were a direct result of the roving patrol method. If the arrests were the result of a routine patrol officer initially stopping the potential drunk driver and having the roving patrol officers handle the DUI investigation and arrest, or if on the other hand, the DUI arrest was the result of a driver involved in a DUI collision, then the results would be skewed. Because history may have affected the population, and changes in instrumentation, test-retest reliability is not accurate because "the phenomenon being measured is likely to have changed between the test and retest" (O'Sullivan, Rassel and Berner, 2003, p.115).

A second study, which was previously discussed in the "General Deterrence" section, *Experimental Evaluation of Sobriety Checkpoint Programs*, authored by Stuster and Blowers (1995), is primarily a report on the deterrent effect of sobriety checkpoints. In this study, the authors looked at six California cities with similar populations. Four of the cities implemented sobriety checkpoints with varying levels of staffing and mobility. They were compared to one city that implemented a two-officer roving patrol team, three nights per week. Lastly, one

control city was used where there were no proactive techniques in place. Although the primary focus of the study was deterrence, the researchers also gathered data regarding DUI arrests and hours dedicated to each type of enforcement technique.

During the nine months of this study, the roving patrol officers, who worked in a southern California city, made 96 DUI arrests over 648 hours of patrol, for an arrest rate of one DUI for every 6.75 hours of patrol (pp. 48& 53). In this study, however, the total DUI arrests included DUI drivers that were initially stopped by routine patrol officers or had been involved in a collision. So there is no way to determine the actual amount of DUI drivers arrested as a direct result of the actions of the roving patrol officers.

The DUI arrest rates for the sobriety checkpoints, on the other hand, ranged from 15.4 hours per DUI arrest to 31.6 hours per DUI arrest. The two checkpoint cities that were most similar to the roving patrol city, in total hours and personnel assigned to the checkpoints, included one city from northern California and one from southern California. The mean of personnel assigned and mean total hours, just happens to be 6 officers and 648 hours, essentially the same as the roving patrol. The arrest rate for the two checkpoints had a mean of 18.8 hours per DUI arrest, a significantly different rate as compared to the Charlottesville study of 6.5 hours per DUI arrest (pp. 18, 48 & 53).

An interesting result of this study was that it indicated that sobriety checkpoints with low staffing (four to five officers) had the same effect as high-staffing checkpoints (seven to twelve officers), in terms of total arrests made, and the deterrent factor of reductions in alcohol-related injury and fatal collisions. Additionally, it appears that the smaller checkpoints were more efficient than the larger checkpoints when measured in terms of officer hours per DUI arrest. The low-staffing checkpoints averaged one DUI arrest for every 14.95 officer hours, and high-staffing checkpoints averaged one arrest per 27.6 officer hours. Again, like the Charlottesville

study, this study consists of secondary data, the data are 10 years old, history and maturation have potentially affected the population, and it is difficult to generalize DUI rates when comparing different cities with potentially different variables affecting drunk-driving arrests and drunk-driving rates.

The above cases yield interesting background information on the potential effectiveness of different enforcement techniques, and confounding variables. The primary downfall of these two sobriety checkpoint studies, however, is that the distance between those studies and current detection and apprehension rates may render these studies as outdated. Additionally, both studies focused on roving patrol, whereas this project proposes to study saturation patrol. As a result of the gap in literature addressing drunk driving arrest rates, the issue of the efficacy of detecting and apprehending the drunk driver was chosen as a research project in Petaluma, California.

## Methodology

### *Overview of Methodology*

The operational hypothesis for this research paper states that deployment of saturation patrol will produce an increased amount of DUI arrests per officer hour than the sobriety checkpoint method in the City of Petaluma. The independent variable is deployment of saturation patrol, with the dependent variable being DUI arrests per officer hour.

The research was initiated with a review of relevant literature, but found it lacking in respect to drunk driving arrest rates. As a result, it was believed that secondary data would be necessary to complete the research. An initial review of potential sources, such as the California Office of Traffic Safety and local police agencies, yielded no results due to insufficient data, or the manner in which the data was coded. Specifically, one of the primary faults was that arrests resulting from saturation patrol were not well defined. It was determined that some saturation patrol arrests may have been made, not as the result of a traffic stop initiated by the saturation patrol unit, but as the result of the driver being involved in a collision or being stopped by another patrol unit. This has the potential to contaminate the arrest rate results because it is impossible to determine the true efficiency and efficacy of saturation patrol units if some of the arrests were not the direct result of saturation patrol.

Ultimately, it was determined that a case study of both saturation patrol and sobriety checkpoints within one city would have to be initiated. A review of the California Office of Traffic Safety web site (www.ots.ca.gov), yielded several cities with a population less than 100,000 that had received grants for both saturation patrol and sobriety checkpoints. The smallest cities were preferred because it was possible that large cities would implement sobriety checkpoint and saturation patrols in different parts of the respective cities, potentially affecting arrest rates because of differing rates of drunk drivers on the roadways in the different sections of

the cities. As a result, several smaller agencies were contacted, but were not interested in participating in this research. Ultimately, the City of Petaluma, with a population of 56,000, agreed to participate in the research.

For consistency purposes, several key terms are defined, and assumptions listed.

- *Drunk Driver or DUI (Driving Under the Influence)*: Defined as any driver arrested, where the officer has probable cause to believe the driver is under the influence of alcohol (whether the person is above .08% blood alcohol content or not) and/or where the officer has probable cause to believe the driver is under the influence of drugs. Additionally, only DUI drivers arrested as a direct result of the enforcement actions of either saturation patrol or sobriety checkpoints will be counted toward the efficiency rate. Any DUI arrest resulting from a driver involved in a traffic collision, or a routine enforcement stop made by a patrol officer, where the ultimate arrest is made by a saturation patrol unit, will not be counted as a DUI arrest for the efficiency rate of this study. The hours spent arresting these other types of DUIs, however, will be counted toward total hours of saturation patrol. The primary reason for this is that these types of DUI arrests, as well as other duties, such as assisting other officers at calls for service, issuing citations, towing vehicles are a normal part of saturation patrol, and contribute to the reduction in efficiency of this type of enforcement technique.
- *Field Sobriety Test or FST*: A series of physical tests completed by a driver suspected of being under the influence of drugs and/or alcohol. The tests are designed to evaluate a driver's balance, coordination, and divided attention span (i.e., the ability to do two things at once).
- *Saturation Patrol*: Saturation patrol does not have a specific definition, but generally describes a version of traditional proactive patrol where officers patrol communities

looking for criminal activity. For this research project, saturation patrol consists of multiple, two-officer patrol units assigned to a geographic area to specifically detect and apprehend drunk drivers. Again, only DUI drivers arrested as a direct result of the enforcement actions of saturation patrol will be counted toward the efficiency rate. Any DUI arrests that are the result of a driver involved in a collision, or whom a routine patrol officer stopped, but was arrested by a saturation patrol unit, will not be counted as a DUI arrest for the efficiency rate of this study. In this research project, there will be two officers per patrol unit, though some agencies use one officer per unit.

- *Sobriety Checkpoint*: Sobriety checkpoints were first introduced in Scandinavia in the 1930s (Elder et al., 2002), but were not introduced in the United States until 1983 in Arizona (Ross, 1992). The legality of sobriety checkpoints, and the potential infringement on Fourth Amendment rights (which protects citizens from unreasonable search and seizure by government entities), was addressed by the United States Supreme Court in 1990 in *Michigan Department of State Police v. Sitz* (1990). Ultimately, the Court affirmed the legality of sobriety checkpoints, allowing for their use, unless specifically restricted by individual state law. Sobriety checkpoint is defined as a roadway where traffic is funneled into one lane, and stopped. Every car is stopped, or a skip interval is initiated, depending on traffic and staffing levels. Officers contact drivers of vehicles to explain the reason for the stop. While speaking with the driver, the officer attempts to discern the odor of an alcoholic beverage, and looks for other signs of intoxication such as, slurred speech, and red and watery eyes. If it appears that the driver may be under the influence of alcohol or drugs, then the vehicle is pulled aside and the driver subsequently evaluated. If the officer believes there is probable cause for an arrest, the driver is then arrested. In Petaluma, passive alcohol sensors are not used at sobriety checkpoints.

- *Total Drivers Screened:* This refers to the drivers of those vehicles who have entered an active checkpoint and are stopped by police to be interviewed. The officer speaks with the driver for a few seconds, while looking for signs of intoxication. If any are observed, the driver is asked to pull over; otherwise the driver is allowed to exit out of the checkpoint.
- *Total Vehicles Passing Through Checkpoint*: This refers to the total number of vehicles that pass through the checkpoint during hours of operation, which includes vehicles that are not stopped.

Additionally, several assumptions are described for this particular research project.

- Drunk drivers are present on the highways within the City of Petaluma.
- All Petaluma Police Officers assigned to either saturation patrol or sobriety checkpoints have met the minimum California Peace Officer Standards and Training (P.O.S.T.) qualifications for drunk driving detection.
- All Petaluma Police Officers assigned to either saturation patrol or sobriety checkpoints will have the ability and motivation to arrest drunk drivers.

*Limitations of the Research*

Ideally, to test internal and external validity, it would have been best to implement this observation study on several cities at the same time, with several sobriety checkpoints and saturation patrols implemented over several months or years. Due to time and feasibility issues, and due to a lack of interest by other police agencies, only one city was chosen for this study.

An additional limitation was that the researcher had no control over dates, total officers, and total officer hours for each of the sobriety checkpoints or saturation patrols implemented. Each of these issues was decided strictly by the Petaluma Police Department. As a result, issues affecting internal validity, such as increased drunk driving rates on holiday weekends, could only be addressed by eliminating data the researcher believed to have been contaminated.

The possible issue of a history threat affecting external validity was considered when Petaluma was chosen. Given the fact that in the year 2003, half the counties in California, and the California Highway Patrol, received grants from the California Office of Traffic Safety for DUI enforcement, and due to over 20 years of sobriety checkpoints nationwide, it would be difficult to find and eliminate cities that are more or less affected by the issue of history (OTS, 2004, pp. 10-11).

One of the final limitations is based on the experience of the researcher. For unknown reasons, some nights are unexplainably more productive than others for detecting and apprehending the drunk driver. At the same time, some nights, such as hot summer nights, which would seem prime for an increased amount of drunk driving, produce very few arrests. Ultimately, any findings and conclusions must be tempered with these limitations, and the possible effects on the generalization of the findings.

*Characteristics of the Research Sample*

The City of Petaluma consists of a population of approximately 56,000, with a total land area of 13 square miles. The population is predominantly white, with a median age of 37.1. The median household income was approximately $61,000 in 2000, and the city has a crime index of 168, well below the U.S. median of 330 (United States Census Bureau, 2000; City-Data.Com, n.d.). Additionally, Petaluma Police Department has 69 sworn officers. In 2001, Petaluma Police Officers arrested 213 drunk drivers, 330 in 2002, 342 in 2003, and they are on track to arrest approximately 365 drunk drivers for 2004 (Tim Lyons, personal communication, September 23, 2004). All sobriety checkpoints and saturation patrols were held on Friday and Saturday nights, when most alcohol-related collisions occur. Additionally, the research took place over a 3-month period from late June through late September 2004, in order to maintain consistency with the level of potential drunk drivers on the roadways. Additionally, the City of Petaluma is not

directly bordered by any other cities, with several miles of countryside between the next incorporated cities. While this probably impacts the research project minimally, it does help minimize any potential influences from surrounding cities and police agencies.

*Data Collection*

Standardized forms were created for collection of arrest data, officer hours, and data related to associated duties (see Appendix B & C). One form was created for the sobriety checkpoints and another for saturation patrols. To avoid contamination, the supervisor(s) completed one sobriety form for each sobriety checkpoint operation and one saturation patrol form for each night that saturation patrol was deployed. A total of five sobriety checkpoint forms were completed, as well as two saturation patrol forms.

*Summary of Research Process*

The two forms were designed to collect two basic types of data. The first group of data was used to determine efficiency of DUI arrests – officer and sergeant hours versus total DUI arrests. The second data collected were secondary or associated duties of officers assigned to saturation patrol or sobriety checkpoints, and were comprised of data such as, citations issued, other arrests (non-DUI arrests), and total vehicles towed or impounded. The purpose of these data was to determine if there is an impact on DUI arrest rates.

The different arrest categories are designed to be mutually exclusive. Additionally, only DUI drivers arrested as a direct result of the enforcement actions of either saturation patrol or sobriety checkpoints will be counted toward the efficiency rate. Any DUI arrests that are the result of a driver involved in a collision, or whom a routine patrol officer stopped, but was arrested by a saturation patrol unit, will not be counted as a DUI arrest for the efficiency rate of this study.

The saturation form (see Appendix B) consists of the following questions: Question 1 asks for total officer and sergeant hours, excluding the lunch hour and two hours for each officer on

September 18, 2004, for time spent serving DUI warrants. Questions 2 and 3 are collected in order to compare sobriety checkpoint and saturation patrol activities. These questions ask for the total vehicles stopped by the saturation patrol units, and the total number of individuals who performed field sobriety tests. Question 3 could also be used as a gauge to determine the number of drivers stopped who had been drinking alcohol, whether they were ultimately deemed to be under the influence of alcohol/drugs or not. Question 4 asks for the total number of DUI arrests made as the direct result of the saturation patrol officers' efforts. DUI arrests that resulted from a driver who had been involved in a traffic collision, or had been stopped by another patrol unit, were not counted under question 4. Question 5 requests total number of DUI arrests that were not the direct result of saturation patrol officers' efforts. These arrests would have been the result of the driver being involved in a collision or originally stopped by another patrol unit. The hours spent arresting these types of DUIs, however, will be counted toward total hours of saturation patrol. The primary reason for this is that these types of DUI arrests, as well as other duties, such as assisting other officers at calls for service, are a normal part of saturation patrol, and contribute to the reduction in efficiency of this type of enforcement technique.

Question 6 deals with total physical arrests (non-DUI) made by saturation patrol units. These are typically associated with drugs, weapons, warrant or suspended driver license violations. Anyone arrested for both a DUI and additionally a non-DUI violation (such as weapons, drugs, etc.) was listed as a DUI arrest only. California law gives officers discretion to either arrest or issue a citation to a violator for certain crimes (driving with a suspended license is one example). As a result, question 6 specifically requires that only persons taken into physical custody and booked into jail would be listed as a non-DUI arrest. Those non-DUI arrestees who were issued a citation, as opposed to being taken physically into custody, were counted as a citation issued. Question 7 requests total citations issued, which includes persons issued citations for arrestable

offenses, and question 8 asks for total number of vehicles towed or impounded. Additionally, the total number of officers and sergeants, the date of operation, and hours of operation are requested.

The sobriety checkpoint form (see Appendix C) consists of the following questions: Questions 1 through 3 records the number of officers and sergeants assigned to the checkpoint, as well as total hours expended during the checkpoint. Questions 4 through 6 request the total number of vehicles passing through the checkpoint, total vehicles screened, and total number of drivers submitting to field sobriety tests. These three questions were collected primarily as a comparison tool to saturation patrol. Question 7 deals directly with the total number of DUI arrests. Since it is not possible for sobriety checkpoint officers to arrest drunk drivers as the result of a collision or as the result of a routine patrol stop, the secondary question of total DUI arrests not the direct result of the sobriety checkpoint is not requested on this form. Question 8 requests the total number of non-DUI arrests. Question 9 records total citations issued, including offenders who were issued a citation in lieu of being taken into custody. Question 10 records total vehicles towed or impounded. Additionally, the date of operation and shift operation hours were requested.

The issue of privacy was also addressed, especially in this era of increased infringement upon these rights. In order to ensure the privacy of those arrested, the officers and sergeants who collected the data did not record names, addresses or license plate numbers of anyone arrested. At the end of the shift, a tally of the total number of arrests, citations, etc. was documented on the form. If for some unforeseen reason an individual's identity had been released, their privacy rights would not necessarily have been violated. To ensure that we do not live in a secret police state, the legislature, through the California Public Records Act (1968), has found that it is proper to make public the actions of the police, and the people they arrest. This information

would include the names of those arrested, their addresses, where they were arrested, and why they were arrested.

Data were first collected during January of 2004, when Petaluma Police Department conducted two sobriety checkpoints. As a result of reviewing the completed forms from these checkpoints, it was determined that one of the questions was confusing. Question 8 recorded non-DUI arrests. For some violations, the officer has the discretion of physically arresting the person or issuing a citation to appear in court. During the first two checkpoints, any person who was either cited or arrested for an offense, where the officer has discretion to make an arrest, was listed as an arrest. A common example is driving on a suspended driver license. Even though this is an arrestable offense, common practice is to issue a citation to appear in court instead of making a physical arrest. This led to the impression that the sobriety checkpoints were producing a large number of physical arrests, when in fact the majority of these people were issued citations in lieu of being arrested. It also led to the appearance that very few citations were being issued. As a result, the form was reworded to eliminate any confusion. Any non-DUI arrestable offense that resulted in a physical arrest would be listed as a non-DUI arrest. Anyone issued a citation to appear in court for an arrestable offense would be listed as a citation.

*Researcher Qualifications*

The author of this proposal has been an officer with the California Highway Patrol for nine years, and has been involved with issues of DUI and enforcement techniques. During his tenure, he has been involved in hundreds of drunk driving investigations, and has participated in routine patrol, roving patrol, saturation patrol, and sobriety checkpoints.

## Findings

The operational hypothesis for this research paper states that deployment of saturation patrol will produce an increased amount of DUI arrests per officer hour than the sobriety checkpoint method in the City of Petaluma. The research was initiated with a review of relevant literature, which led to a background on the theories of general deterrence and specific deterrence. Additionally, anecdotal evidence in the literature supports the hypothesis that saturation patrol produces an increased amount of DUI arrests per officer hour, when compared to sobriety checkpoints. Ultimately, the literature was found lacking in respect to empirical evidence of drunk driving arrest rates. As a result, it was believed that secondary data would be necessary to complete the research.

Petaluma Police Department agreed to collect data for upcoming saturation patrols and sobriety checkpoints. Two forms, one for saturation patrol and one for sobriety checkpoints, (see Appendix B& C) were created for collection and retention of the data. The results of which were quantified, and ultimately analyzed to determine the efficiency rates of saturation patrol and sobriety checkpoints in the City of Petaluma.

Upon collection of all the data, Microsoft Excel was utilized in order to view the data in a spreadsheet format. Additionally, graphs were created in order to understand the analyses of the data.

## Sobriety Checkpoints

| Date | Officers | Supervisors | Combined Officer and Sergeant Hours | Total Vehicles Passing Through Checkpoint | Total Drivers Screened in Checkpoint | Total Drivers Administered FSTs | Total DUI Arrests | All Other Arrests | Total Citations Issued | Total Vehicles Towed or Impounded | Hours of Operation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/2/2004 | 9 | 1 | 90 | 1629 | 1629 | 22 | 2 | 2 | 24 | 24 | 1600-0200 |
| 1/3/2004 | 8 | 1 | 81 | 1426 | 1426 | 36 | 1 | 0 | 11 | 7 | 1600-0200 |
| 6/26/2004 | 7 | 1 | 72 | 1526 | 1526 | 40 | 5 | 10 | 43 | 22 | 1700-0300 |
| 7/9/2004 | 5 | 1 | 66 | 1918 | 1918 | 24 | 3 | 3 | 30 | 16 | 1600-0400 |
| 9/10/2004 | 11 | 2 | 104 | 2049 | 1391 | 32 | 5 | 2 | 21 | 25 | 1700-0200 |
| Totals | | | 413 | 8548 | 7890 | 154 | 16 | 17 | 129 | 94 | |

## Saturation Patrols

| Date | Total Officers | Total Sergeants | Combined Officer and Sergeant Hours | Total Vehicles Stopped | Total Drivers Administered FSTs | Total DUI Arrests | DUI Turnover Arrests | All Other Arrests | Total Citations Issued | Total Vehicles Towed or Impounded | Hours of Operation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/2/2004 | 2 | 2 | 38 | 60 | 10 | 2 | 0 | 0 | 6 | 3 | 1600-0200 |
| 9/18/2004 | 4 | 2 | 42 | 52 | 8 | 2 | 0 | 1 | 25 | 3 | 1630-0230 |
| Totals | | | 80 | 112 | 18 | 4 | 0 | 1 | 31 | 6 | |

The data in the above section, give an overall picture of the enforcement efforts of the Petaluma Police Department. The ultimate goal is to take the above raw data and analyze it in such a fashion as to determine the most efficient means of detecting and apprehending the drunk driver, specifically to determine if saturation patrol is more efficient than sobriety checkpoints. The purpose of this analyses is not a tool to justify increases in resources for more arrests, but to

use existing resources more efficiently. This research would allow police administrators to best utilize their limited resources if their primary goal is the detection and apprehension of DUI drivers, especially for the drunk driver that cannot be deterred.

In order to conduct this analysis, a determination had to be made that the data collected had not been compromised in any way by a confounding variable. As a result, the researcher found a problem with data from two of the sobriety checkpoints. Due to a history threat, the first two sobriety checkpoint forms were eliminated from the analyses. Since these first two checkpoints produced results quite different from the latter sobriety checkpoints, the researcher decided to eliminate the data from the analysis. The decision was based on the fact that the sobriety checkpoints were implemented after New Year's Day, when a sharp decrease in drunk driving would be expected, and because there tend to be fewer drunk drivers in the winter months as opposed to spring and summer months (Mercer, 1985). As a result, only the following data were used for sobriety checkpoints:

## Sobriety Checkpoints

| Date | Officers | Supervisors | Combined Officer and Sergeant Hours | Total Vehicles Passing Through Checkpoint | Total Drivers Screened in Checkpoint | Total Drivers Administered FSTs | Total DUI Arrests | All Other Arrests | Total Citations Issued | Total Vehicles Towed or Impounded | Hours of Operation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/26/2004 | 7 | 1 | 72 | 1526 | 1526 | 40 | 5 | 10 | 43 | 22 | 1700-0300 |
| 7/9/2004 | 5 | 1 | 66 | 1918 | 1918 | 24 | 3 | 3 | 30 | 16 | 1600-0400 |
| 9/10/2004 | 11 | 2 | 104 | 2049 | 1391 | 32 | 5 | 2 | 21 | 25 | 1700-0200 |
| Totals | | | 242 | 5493 | 4835 | 96 | 13 | 15 | 94 | 63 | |

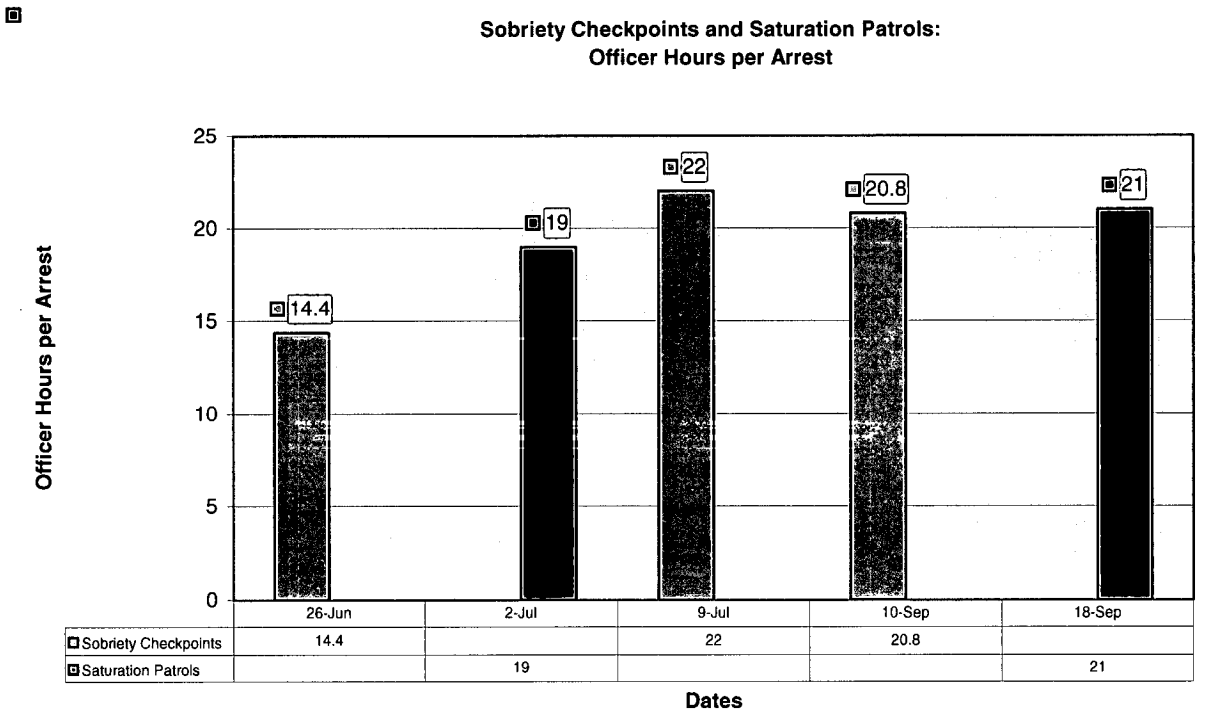
## Saturation Patrols

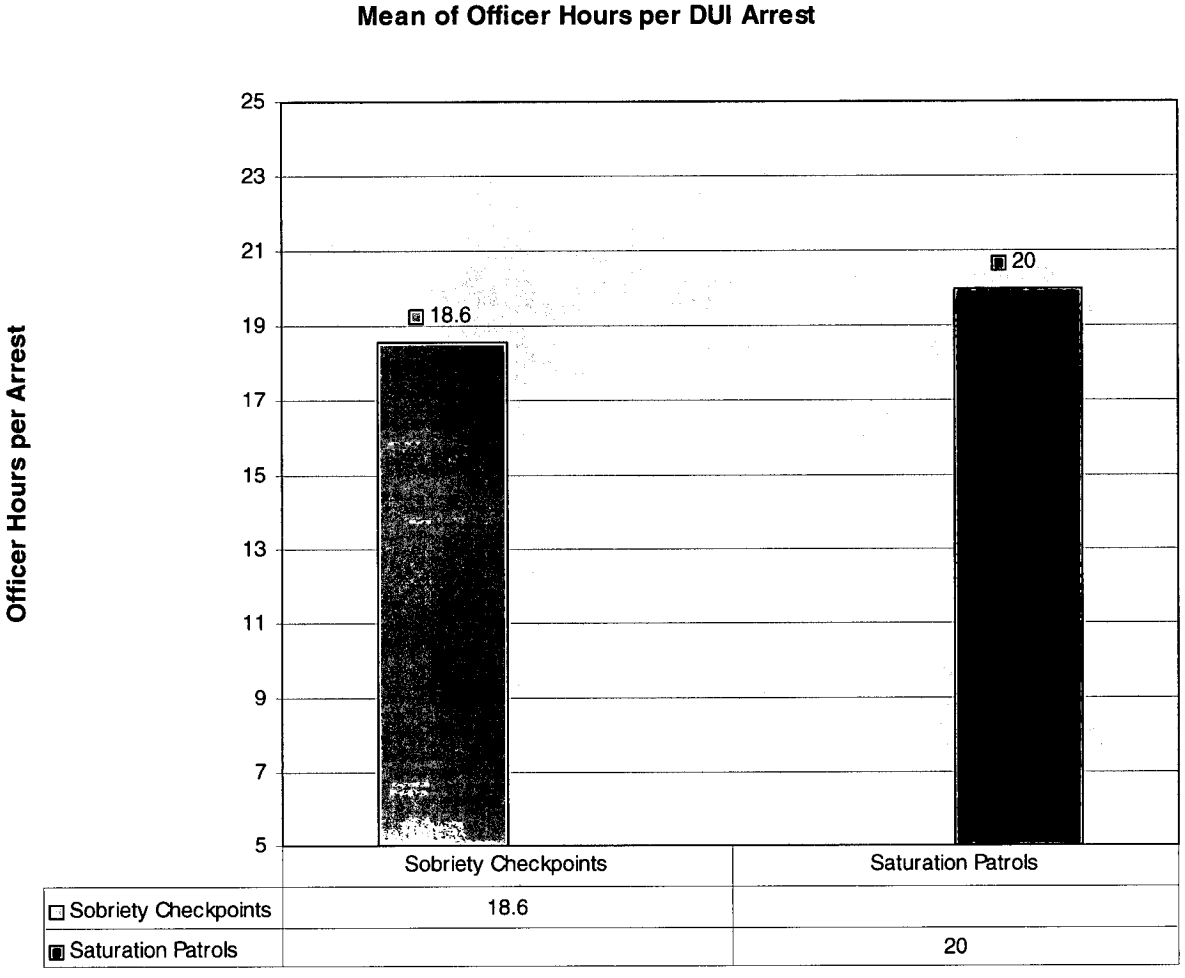
| Date | Total Officers | Total Sergeants | Combined Officer and Sergeant Hours | Total Vehicles Stopped | Total Drivers Administered FSTs | Total DUI Arrests | DUI Turnover Arrests | All Other Arrests | Total Citations Issued | Total Vehicles Towed or Impounded | Hours of Operation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/2/2004 | 2 | 2 | 38 | 60 | 10 | 2 | 0 | 0 | 6 | 3 | 1600-0200 |
| 9/18/2004 | 4 | 2 | 42 | 52 | 8 | 2 | 0 | 1 | 25 | 3 | 1630-0230 |
| Totals | | | 80 | 112 | 18 | 4 | 0 | 1 | 31 | 6 | |

A simple mathematical process of dividing total officer hours by the other data collected, such as DUI arrests, citations issued, vehicles towed or impounded, etc., or in a few cases, dividing the data collected by officer hours, forms the basis for this analysis. Based on the updated data, the analysis showed the following: The officers conducting sobriety checkpoints contacted almost 20 cars per officer hour, as compared to 1.4 vehicles per officer hour for saturation patrol, which is not unexpected given the nature of the two types of proactive enforcement. As for drivers administered field sobriety tests, the average interval between field sobriety tests being

administered in sobriety checkpoints was 2.50 officer hours, as compared to an average of 4.44 officer hours between field sobriety tests being administered for saturation patrol. As for associated duties such as non-DUI arrests, citations issued, and vehicles towed or impounded, the data showed the following: Sobriety checkpoints produced one non-DUI arrest for every 16 officer hours, as compared to one non-DUI arrest for every 80 officer hours with saturation patrol. Citations issued in sobriety checkpoints amounted to one citation issued for every 2.57 officer hours, which compares to 2.58 officer hours for saturation patrol –essentially equal activity. Sobriety checkpoints also produced one vehicle towed or impounded for every 3.84 officer hours expended, as compared to 13.30 officer hours per vehicle towed or impounded for saturation patrol.

Finally, sobriety checkpoints produced one DUI arrest for every 18.61 officer hours expended. This compares to one DUI arrest for every 20 officer hours for saturation patrol.






*Summary of Key Findings*

As a result, and contrary to much of the literature, which paints sobriety checkpoints as an educational tool, and saturation patrol as an arrest tool, it appears that both types of enforcement are equally efficient at detecting and apprehending the drunk driver. Hence, the null hypothesis must be accepted. While this must be taken within the context of one study, in one city over a short period of time, this study provides some empirical evidence that disputes the anecdotal evidence that has been presented to date. Additionally, an interesting similarity has arisen between the City of Petaluma and research conducted 20 years ago. In *Evaluation of Charlottesville Checkpoint Operations,* (Voas et al., 1985) detailed earlier in the literature

review, the researchers found that it took 7.9 hours per DUI arrest with roving patrol, and 6.5 hours per DUI arrest with sobriety checkpoints. Even though the officer hours per arrest are significantly different from Petaluma's arrest rate, the interesting component is the spread between the two techniques, which is minimal for both. While there are numerous variables that make it difficult to draw a direct correlation between the rates of the two cities, it is still interesting that when comparisons of officer hours per arrest between sobriety checkpoints and traditional-type patrol are conducted in the same city, the rates are very similar between the two enforcement techniques.

Thirdly, as stated earlier, the average interval between field sobriety tests being administered was 2.50 officer hours for sobriety checkpoints, as compared to an average of 4.44 officer hours between field sobriety tests being administered for saturation patrol. This is consistent with research by Voas et al., (1985) in Charlottesville, Virginia, were it was argued that officers in sobriety checkpoints tend to contact drivers with lower BAC levels, as compared to roving (or in this case saturation) patrol. In essence, saturation patrol officers are likely to only stop and administer field sobriety tests to those drivers who are exhibiting poor driving skills, and are more likely to be intoxicated. The sobriety checkpoint officers, however, are more likely to administer field sobriety tests to anyone who exhibits symptoms of alcohol consumption, not just alcohol intoxication. Hence, it is not surprising that more field sobriety tests were administered in the sobriety checkpoints than the saturation patrols, even though the arrest rates were similar. This is also another clue that helps substantiate that the data recorded for DUI arrest rates is accurate data. If the field sobriety test data had been reversed, then there would be reason to question the subsequent DUI arrest rates.

Fourthly, prior research by Stuster and Blowers indicates that sobriety checkpoints with lower staffing levels (four to five officers) can be as effective as sobriety checkpoints with higher

staffing (10 to 12 officers). The data collected in this research project tends to substantiate that small and large sobriety checkpoints have similar arrest rates, while medium size checkpoints (seven to nine officers) were even more efficient than larger checkpoints.

Finally, in reviewing the above data with Tim Lyons, supervisor for Petaluma Police Department's Traffic Unit, he expressed the following opinions about the data. He believes that the data and arrest rates for the sobriety checkpoints are consistent with past arrest rates in Petaluma. Lyons, however, was concerned with the arrest rates from the saturation patrols. In his experience, he believes that the saturation patrol units should have averaged more than one arrest per patrol unit. The only problem is that Petaluma Police Department has not conducted saturation patrols in the last few years, so there is no baseline data from which to compare. Ultimately, Lyons did not know if the saturation patrol arrest rate is representative, or if it should be higher (personal communication, September 30, 2004). The researcher also conducted an interview with John Gray, a California Highway Patrol sergeant in charge of overseeing grant overtime for sobriety checkpoints and saturation patrols in Sonoma County. The California Highway Patrol is tasked with traffic enforcement in the unincorporated portions of Sonoma County, and all freeways in Sonoma County. This jurisdiction includes the freeway that passes through Petaluma, and all of the unincorporated roadways surrounding Petaluma. In his experience, the data collected from Petaluma Police Department regarding sobriety checkpoint arrest rates is consistent with sobriety checkpoints conducted by the California Highway Patrol in Sonoma County. Gray also related that, in his experience, saturation patrols conducted by the California Highway Patrol on average produce less than one arrest for every two-officer saturation patrol unit. As a result, the data collected from Petaluma regarding saturation patrol is not inconsistent with saturation patrol activities by the California Highway Patrol (personal communication, September 30, 2004).

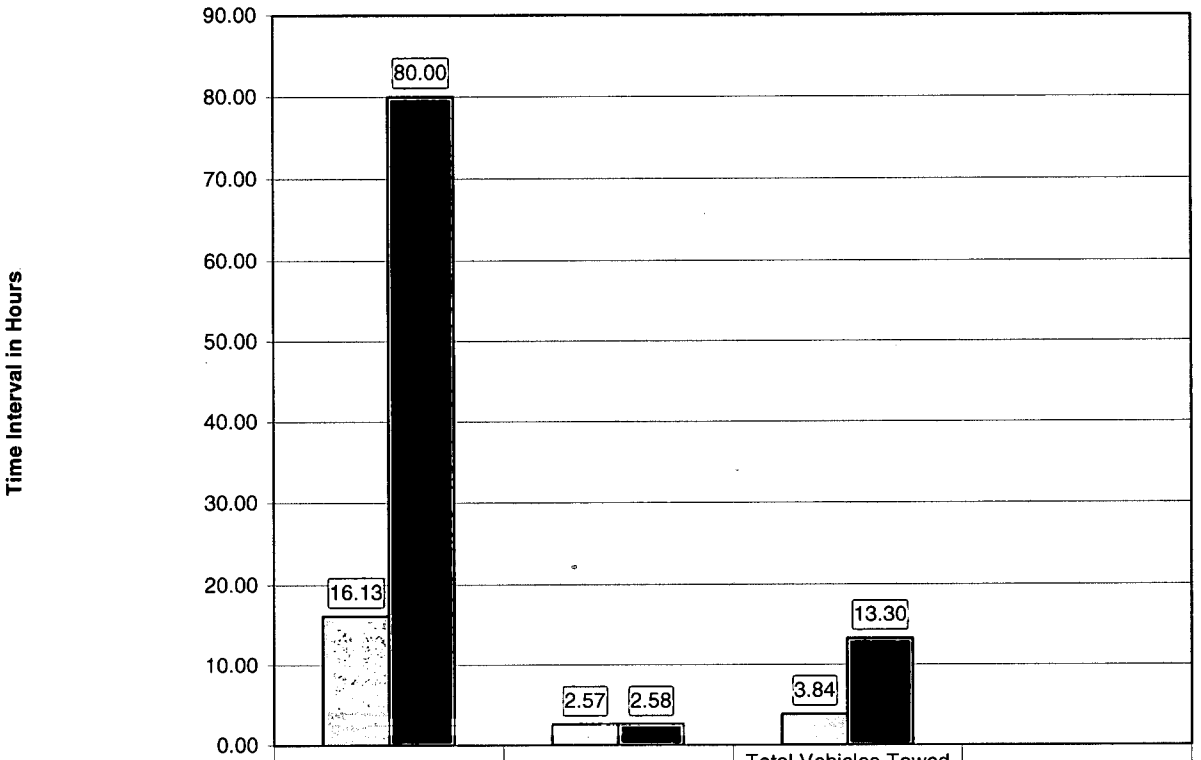
Again, while this is a small research project, the implications for administrators are potentially large. As argued by Ross (1992), most agencies prefer patrol techniques that produce tangible outputs – arrests. For most agencies, this has meant implementing saturation patrol because it is believed that it is a superior technique for detecting and apprehending the drunk driver. Prior research, however, has failed to support this claim with empirical evidence, meaning that administrators have been blindly spending their limited resources. While some agencies have implemented sobriety checkpoints because of its general deterrent effect, others have been reluctant to implement sobriety checkpoints. The reasons for this range from: the impact of sobriety checkpoints – prevention of drunk driving - can be difficult to measure, to the belief that it is an inferior method of detecting and apprehending drunk drivers. Those administrators who do implement sobriety checkpoints may now feel more comfortable knowing that not only are they potentially preventing drunk driving incidents, but they are also maximizing their resources when measured in terms of arrests per officer hour.

The secondary data that were collected were expected to be marginally significant at best. The purpose of the data collected was to determine if officers were spending a large proportion of time on other activities, especially for saturation patrol. This is because when saturation patrol is engaged in a secondary duty, the two officers are not able to conduct any other type of enforcement in that area until they complete the task at hand. This is compared to sobriety checkpoints, which operates in a different fashion. If a sobriety checkpoint officer is busy with a secondary duty such as towing a vehicle, the checkpoint continues to operate at or near peak efficiency, because there will still be numerous other officers to screen vehicles. As evidenced by the data from Petaluma, the majority of cars entering the sobriety checkpoints were screened, minimizing the likelihood that a drunk driver would slip through the checkpoint. In comparison to saturation patrol, it was very possible that a drunk driver drove in the area of the officers while

they were towing a vehicle or issuing a citation, leaving no one to actively look for or be available to stop the potential drunk driver. If the data bore this situation out, then administrators would need to implement new policies and procedures to minimize the time officers spend on these activities. The potential goal of these new policies would be to maximize the amount of time the DUI enforcement officer is available to detect and apprehend the DUI driver.

The data showed a different conclusion however. In fact, it was determined that saturation patrol officers performed very few secondary enforcement activities, with large intervals between those activities. It was found that sobriety checkpoint officers conducted either an equal or greater amount of secondary enforcement actions per officer hour, as evidenced in the chart below, while maintaining a slightly more efficient DUI arrest rate as compared to saturation patrol. Ultimately, this means that not only are sobriety checkpoints an efficient tool for detecting and apprehending the drunk driver, but the secondary enforcement rate is greater than that of saturation patrol, while not compromising the DUI arrest rate.

**Associated Duties: Time Intervals Between Enforcement Actions**




| | All Other Arrests | Total Citations | Total Vehicles Towed or Impounded | |
|---|---|---|---|---|
| Sobriety Checkpoints | 16.13 | 2.57 | 3.84 | |
| Saturation Patrols | 80.00 | 2.58 | 13.30 | |

## Conclusions

Based on previous research on the general deterrent effect of sobriety checkpoints and the results of this research, administrators can deploy officers in such a fashion as to achieve maximum deterrence, while at the same time achieving maximum detection and apprehension of drunk drivers. Hedlund and McCartt summarize this argument well when they stated: "Instead of working harder, work smarter. Working smarter uses law enforcement time more effectively" (2003, p. 55). They also argue that saturation patrol and sobriety checkpoints "should not be thought of as different strategies directed at different populations but as components of the overall deterrence system" (p. 33). While true measurement may be difficult, it is hypothesized that a combination of general deterrence and specific deterrence will have the greatest effect on drunk driving rates.

The implications for the Petaluma Police Department are as follows:

- Based on existing research on the general deterrent effect of sobriety checkpoints coupled with media publicity, clearly Petaluma Police Department should continue with the use of sobriety checkpoints as a primary tool to educate the public. As a result of this research study, it appears that expanded use of the sobriety checkpoint is justified. It appears that the outputs that drive many police agencies, i.e., arrest rates, will not be compromised with the reduction of saturation patrol, while possibly increasing the general deterrent effect on potential drunk drivers. Meanwhile, administrators can rest assured that resources are being utilized to the maximum potential, given limited resources.
- Saturation patrol should not be eliminated, because it does allow for a change of pace for patrol officers. Additionally, change in specific deterrent techniques could be argued as a tool for keeping potential offenders guessing, thereby increasing general deterrence. And, as illustrated by Stuster and Blowers, some hard-core drinkers are constantly

vigilant for sobriety checkpoints, hence leaving saturation patrol as a tool for apprehension.

- The use of sobriety checkpoints with small to medium staffing levels may be superior to that of larger sobriety checkpoints. While the smaller sobriety checkpoints may not produce more DUI arrests per officer hour, they allow for the ability to implement more sobriety checkpoints given a limited amount of resources. While this will not necessarily produce more arrests overall, it potentially impacts the general deterrent effect by allowing more sobriety checkpoint operation days. By having more days per year where sobriety checkpoints are implemented, the chance that the general population will see or drive through a sobriety checkpoint is increased.
- It appears that other types of enforcement actions are increased by the use of sobriety checkpoints. This benefit is two-fold: First it increases the chances of apprehending other types of offenders. Secondly, those offenders who are cited or arrested for non-DUI offenses will always remember that they were cited or arrested in a sobriety checkpoint, which is a great deterrent tool against the potential drunk driver.

*Areas for Future Research*

Given that this research study showed that sobriety checkpoints in Petaluma were just as efficient as saturation patrol in detecting and apprehending drunk drivers, future studies could be completed.

- It would be important to replicate this study in other cities to determine a trend or pattern in arrest rate efficiency of these enforcement techniques.
- Based upon the research of Stuster and Blowers (1995) on varying staffing levels of sobriety checkpoints, it is important to implement sobriety checkpoints with lower

staffing. The primary purpose of this research would be to fine-tune the relationship between staffing levels and DUI arrest rates.

- Varying staffing levels for saturation patrol, and the resulting effectiveness in terms of officer hours per DUI arrest, are just as important, and should be evaluated.
- Research as to effectiveness, in terms of both general deterrence and specific deterrence, with agencies that utilize sobriety checkpoints as their primary enforcement tool should be completed. This research would be in comparison to agencies that utilize a mix of both techniques, in order to fine-tune the most efficient combination of enforcement techniques to maximize general and specific deterrence.

This research project began with a focused evaluation of two types of proactive DUI enforcement in one city. Since it is difficult to measure the exact impact of drunk driving enforcement, a comprehensive evaluation must take into consideration the enforcement's overall impact on society. Drunk driving enforcement on its face may appear to be one tactic, but implicitly it is part of a larger whole affecting society. Ross argues, "Deterrence thus cannot be the whole of drunk driving policy. It should be conceived as one element in an arsenal of countermeasures, along with other measures based on valid understandings of the social causes of the problem" (p. 76). Overall, drunk driving enforcement is part of an attempt to change societal norms and values about alcohol consumption. Policies such as: minimum age requirements to purchase alcohol, regulations controlling how and where alcohol can be advertised, taxing of alcohol, and limits of where and when alcohol can be sold are all part of an overall approach to alcohol issues.

Based on this broader view of alcohol policy, and drunk driving enforcement specifically, broader conclusions can be drawn about the overall effectiveness of these policies and techniques. As a result, the National Center for Statistics & Analysis (2003) estimates 20,600

lives were saved in 2002 because of the reduction in alcohol-related traffic collisions. Additionally, alcohol plays a huge role in other social problems including suicide, homicide, liver cirrhosis, cancers, drowning, and crimes of violence (Ross, 1992a, p. 78). Given a risk benefit assessment, is society willing to give up the gains made through changes in social norms and values? As stated earlier in this research project, constant reevaluation of programs and polices must be addressed, even in the face of budgetary constraints, to ensure that these gains are not lost.

Probably the most important aspect of this study is that it challenges current thinking about saturation patrol and sobriety checkpoints, as well as providing a different method of evaluation. This research shows that current beliefs and anecdotal evidence regarding the efficiency of DUI patrol techniques may be wrong, pointing to the fact that more research must be conducted on the issue. Given the ongoing lack of police resources, the importance of fiscal responsibility to taxpayers, as well as being effective in tackling the problem of drunk driving, administrators cannot, any longer, take for granted assumptions about the productivity rates of DUI patrol techniques.

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Appendix A

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Appendix B

## Saturation Patrol Activity Form

This form is to be completed by one officer or sergeant per patrol unit for the activity of both officers/sergeant.

1. Total combined hours worked by officers/sergeant in your patrol unit_____

2. Total vehicles stopped by your patrol unit....._____

3. Amount of drivers who were administered field sobriety tests..... _____

4. Total DUI arrests [23152(a) or (b) VC] you or your partner made as the result of a traffic stop initiated by a saturation patrol unit (either you, another saturation patrol unit or a saturation patrol supervisor)..... _____

5. Total DUI arrests made by you or your partner as the result of a turnover (Stop was initiated by routine patrol, or driver was involved in a collision, but arrest was made by you or your partner)..... _____

6. Total arrests, other than DUI, made by you or your partner (warrant arrests, suspended license, weapons, etc. If, for instance, the subject was arrested for DUI and weapons charges, count the arrest as a DUI arrest only)..... _____

7. Total citations issued by you or your partner (do not include cite and release DUI arrests)..... _____

8. Total vehicles stored or impounded by you or your partner (including vehicles towed as the result of arrest)..... _____

Date:..... _____

Shift Hours (Begin and End time)..... _____

Number of officers/sergeants in your patrol unit
(e.g. one officer and one sergeant, two officers, one sergeant)_____

**Submit this form to your supervisor at the end of your shift.**

Appendix C

**Sobriety Checkpoint Activity Form**

This form is to be completed by the sobriety checkpoint supervisor.

1. Total officers assigned to checkpoint..... _____
2. Total supervisors assigned to checkpoint..... _____
3. Total combined officer and sergeant officer hours ..... _____
4. Total vehicles passing through checkpoint..... _____
5. Total drivers screened in checkpoint..... _____
6. Total drivers administered field sobriety tests..... _____
7. Total DUI arrests [23152(a) & (b)VC]..... _____
8. All other arrests (warrant arrests, suspended license, weapons, etc. If, for instance, the subject was arrested for DUI and weapons charges, count the arrest as a DUI arrest only)..... _____
9. Total citations issued (do not include cite and release DUI arrests)..... _____
10. Total vehicles stored or impounded (including vehicles towed as the result of arrest)..... _____

Date:..... _____

Shift Hours: (Begin and end time)..... _____