RESEARCH

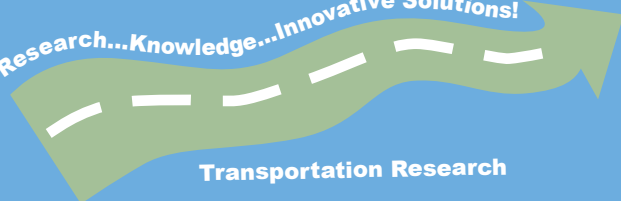## Evaluation of Minnesota's Operation NightCAP Program

NIGHT CAP

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Technical Report Documentation Page

1. Report No. MN/RC 2007-29	2.	3. Recipients Accession No.
4. Title and Subtitle Evaluation of Minnesota's Operation NightCAP Program		5. Report Date August 2007
		6.
7. Author(s) Janet I. Creaser, William Aflleje, Flavia Nardi		8. Performing Organization Report No.
9. Performing Organization Name and Address HumanFIRST Program ITS Institute - University of Minnesota 111 Church St. SE. Minneapolis, MN 55455		10. Project/Task/Work Unit No.
		11. Contract (C) or Grant (G) No. (c) 81655 (wo) 203
12. Sponsoring Organization Name and Address Minnesota Department of Transportation 395 John Ireland Boulevard Mail Stop 330 St. Paul, Minnesota 55155		13. Type of Report and Period Covered Final Report
		14. Sponsoring Agency Code
15. Supplementary Notes http://www.lrrb.org/PDF/200729.pdf		

16. Abstract (Limit: 200 words)

This project evaluated Minnesota Department of Public Safety's (Mn/DPS) Operation NightCAP (Concentrated Alcohol Patrol) Program. This overtime enforcement program uses saturation patrols to identify impaired drivers. The project consisted of 3 tasks: a crash data analysis, a driver survey and an officer survey. The crash analysis indicated that saturation patrols have a marginally statistically significant effect on the decrease in fatal and severe-injury alcohol-related crashes rates in Minnesota. The effect of a single saturation is small (~0.1%), indicating that many patrols would be needed to see significant decreases in alcohol-related crash rates. A survey of 5000 Minnesota drivers in 6 counties resulted in 838 completed surveys. Approximately 19% of Minnesota drivers are aware of the Program. Drivers' beliefs about impaired driving influenced their perception of alcohol-enforcement programs and their choices to drive after drinking. Fourteen Program Coordinators and 86 law enforcement officers from the Program also responded to a survey and shared their perceptions about the Program's effectiveness. Main conclusions drawn from the surveys were that saturation patrols are not highly visible to the public and the current Program advertising is not very effective in communities where it is active. Main recommendations are to improve patrol visibility and associated advertising.

17. Document Analysis/Descriptors Impaired driving, driver surveys, Poisson models, alcohol-related crashes, police enforcement		18. Availability Statement No restrictions. Document available from: National Technical Information Services, Springfield, Virginia 22161	
19. Security Class (this report) Unclassified	20. Security Class (this page) Unclassified	21. No. of Pages 118	22. Price

Evaluation of Minnesota's Operation NightCAP Program

Final Report

Prepared by:
Janet Creaser
William Aflleje
Flavia Nardi

HumanFIRST Program
ITS Institute
University of Minnesota

August 2007

Acknowledgements

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Executive Summary

This report describes an evaluation of the Operation NightCAP (Concentrated Alcohol Patrol) Program that is operated by the Minnesota Department of Public Safety (Mn/DPS). Operation NightCAP is an overtime enforcement program that uses saturation patrols as a means to identify impaired drivers. Currently, the Program is funding only the 13 Deadliest Impaired Driving Counties in Minnesota and has been following this pattern of funding since 2003. These 13 counties account for more than 50% of the alcohol-related fatal and severe-injury crashes in the state. Previous iterations of the Program (1998-2002) provided funding to as many or all counties as possible, which resulted in few saturations being conducted in most counties. This report contains information and results associated with three separate tasks. The first task examined the potential effect of Operation NightCAP activities on crashes in Minnesota from 1991-2005. The second task evaluated Minnesota drivers' knowledge of the Operation NightCAP Program and its effect on their drinking and driving behaviors and attitudes. The third task evaluated operational issues from the perspective of the law enforcement officers who participate in the program.

Task 1

Analyses were conducted to understand the potential effectiveness of Operation NightCAP saturation patrols on alcohol-related crash and arrest rates. Poisson models were developed to identify how crash rates have changed over time for the entire state. Longitudinal models were developed to examine differences between counties with and without NightCAP operations. For both analyses, the number of licensed drivers provides an exposure measure for the number of crashes and Driving While Impaired (DWI) incidents on record. Overall, the fatal crash data was likely to provide the most accurate results as it was considered to be the most complete data by Mn/DPS. Severe-injury crash data is also considered to be reasonably complete. Therefore, the models analyzed alcohol-related fatal and severe-injury crash rates only.

For the analysis of crash rates for the state, a Poisson regression model was used to determine the effects of NightCAP saturation patrols over time on alcohol-related crashes (Agrestie, 2002; Stokes, Davis & Koch, 2001) for 1991-2005.

The county level analysis directly tested the effect of NightCAP by comparing counties that have NightCAP present to those that do not have NightCAP for the pre-NightCAP and post-NightCAP periods. A longitudinal data analysis (Weiss, 2005) was used to assess the alcohol-related crash rates per county from before the implementation of Operation NightCAP (1995-1997) to the initial implementation of Operation NightCAP (1998-2002) and to the current implantation of funding the 13 Deadliest Impaired Driving Counties (2003-2005). A longitudinal model was also applied to the rate of DWI incidents for 1995-2005.

Poisson Model Results

- Increasing the number of saturations conducted in a given year resulted in a marginally statistically significant decrease in the overall alcohol-related fatal crash rate.

- Overall, the effect of a single saturation was very small (~0.1%), indicating that a large number of saturations are probably required to see significant decreases in the fatal alcohol-related crash rate. The increase in number of saturations conducted on the alcohol-related fatal crash rate is small, but evident in this analysis.

- In 2002, the 99 saturations conducted accounted for 12.1% of the total decrease in the alcohol-related fatal crash rate when compared to years that had no saturations.

- In 2005, the 261 saturations conducted accounted for 28.7% of the total decrease in the alcohol-related fatal crash rate when compared to years that had no saturations.

- Overall, the large increase in saturation events in 2004 and 2005 accounted for approximately 18% of the total change in the fatal alcohol-related crash rate in Minnesota.

- Increasing the number of saturations conducted in a given year resulted in a marginally statistically significant decrease in the total alcohol-related severe injury crash rate.

- Decreases in the alcohol-related severe injury crash rate over time was statistically significantly accounted for by the trend variable, suggesting that general road safety measures and other factors that change over time influence the rate of these crashes. Additionally, the unemployment rate had a statistically significant effect on the alcohol-related severe injury crash rate.

Longitudinal Model Results

- Overall, from 1995-2005, counties that had more saturations had, on average, lower alcohol-related fatal crash rates than counties that had fewer or no saturations.

- From 1998-2002, counties that had more saturations had, on average, higher crash rates than counties with fewer or no saturations. This effect is most likely due to the small number of saturations conducted in counties and the limited range in the number conducted (e.g., often fewer than 5) during this time period.

- From 1998-2002, counties funded by Operation NightCAP had, on average, lower alcohol-related fatal crash rates than counties that were not funded by Operation NightCAP. These are average alcohol-related fatal crash rates for all counties that had at least one NightCAP saturation compared to all counties that had no saturations.

- Overall, from 1995-2005, counties that had more saturations had, on average, lower alcohol-related severe injury crash rates than counties that had no saturations.

- Overall, from 1995-2005, counties that had more saturations had, on average, lower rates of DWI incidents on record than counties that had fewer or no saturations.

- From 1998-2002, counties that had Operation NightCAP had, on average, higher rates of DWI incidents than counties that had fewer or no saturations.

- In 2003-2005, the rate of DWI incidents increased across all counties and was not found to be statistically significantly related to the number of saturations conducted during this time period.

Recommendations:

- Because increasing the number of saturations conducted within specific counties appears to have an affect on the overall decrease in the fatal alcohol-related crash rates, it is recommended that the current level of patrolling be kept and, if possible, increased in these counties.

- Currently, targeting the 13 Deadliest Impaired Driving Counties in Minnesota appears to be providing the best coverage of high-risk areas. It is recommended that the program continue in this manner until more data can be collected to identify its effectiveness at targeting impaired driving in Minnesota.

- Because some counties near the bottom of the 13 Deadliest list tend to drop off after only a year or two, it is critical to continue to observe the crash rates in these counties. These counties should be examined carefully over time to determine whether any negative effects exist from removal of the program.

- Counties that experience increases in the number of saturation patrols conducted over time should also be examined to determine the effect of this increase on crash rates.

- A further evaluation of the Operation NightCAP Program should be conducted in 2-3 years when more data are available for the current implementation of the Program (13 Deadliest Impaired Driving Counties) to determine its effectiveness. Current analyses of this program are limited by having only 3 years of data. Future analyses could also examine the progression of this Program within specific counties and compare results to a matched non-Program county.

Task 2

Five thousand surveys were sent to drivers in six Minnesota counties. Four counties (Hennepin, Anoka, Cass, Olmsted) receive Operation NightCAP funding and conduct saturation patrols on a regular basis. Two counties do not receive Operation NightCAP funding and were included for comparison (Brown, Polk). Overall, 838 drivers responded to the survey.

- Approximately 19% of drivers surveyed said they were aware of the Operation NightCAP Program.

- Overall, awareness of Operation NightCAP was statistically significantly higher in NightCAP Counties when compared to the control counties.

- Overall, significantly more males (25%) than females (16%) were aware of the Operation NightCAP Program.

- Most respondents (46.9%) had heard or seen about Operation NightCAP from television.

- Only 6.7% of respondents had heard of or seen the BAT (Blood Alcohol Testing) Mobile. Of these respondents, the majority (50%) had seen it on the road.

- A factor analysis revealed that driver behaviors and perceptions about impaired driving and impaired driving enforcement were influenced by the following factors:
  - A belief in a high likelihood of being caught driving after drinking on weekends and holidays
  - A belief in a low likelihood of being caught driving after drinking on weekends and holidays

- A belief that drinking and driving is not a problem in Minnesota
- Overall, knowing about Operation NightCAP does not necessarily change drinking and driving behavior when other beliefs about impaired driving are held, such as:
  - A belief that impaired driving is not a problem,
  - A belief that the risk of being caught is low, or
  - That impaired driving laws are not strictly enforced.

Recommendations based on Data Analysis

- Increase visibility of patrols during non-holiday events. Currently, perceptions of being caught are closely linked to holiday enforcement and not necessarily to other high-alcohol times, such as weekends. Increased visibility of enforcement could result in increased perceptions of being caught and deter drivers from driving while impaired. Methods used to advertise holiday campaigns should be employed during regular weekends when patrols are operating. Overall, patrols are out frequently on regular weekends (i.e., once a month), but are not being seen by drivers.

- Concentrate enforcement on high-volume and high alcohol-related crash corridors to increase visibility of patrols. For example, assign a couple of patrol cars to patrol a highly visible roadway earlier in the shift.

- Use recognizable tools such as the BAT Mobile in high crash areas (e.g., Hennepin County) on a regular basis.

- Draw specific attention to the full range and extent of NightCAP activities in advertising (e.g., NightCAP Junior, special events, weekend patrols) to increase expectations that enforcement occurs regularly and not just on "special occasions" like holidays.

- Advertise the success of NightCAP patrols when possible to increase the perception that laws are enforced strictly among those who know about the program. Also, advertise the specific aim of an event and whether it was successful (e.g., did a Junior event catch underage impaired drivers?)

- Define "NightCAP" in advertising to increase awareness that it is an alcohol enforcement program. This may help drivers associate the program with patrols they see on the road.

- Future research should address whether it is necessary to advertise the 13 Deadliest Impaired Driving Counties to the general public. Overall, very few respondents knew about the 13 Deadliest counties. Advertising showing that the NightCAP Program only operates in the 13 Deadliest Counties could lead to drivers outside these counties believing enforcement is not sufficient within their counties, thus possibly encouraging riskier driving behaviors when alcohol is involved. However, answering this question was outside the scope of this survey.

Task 3

Nineteen current and past NightCAP Coordinators were surveyed about issues related to organizing and participating in the Operation NightCAP events. Additionally, 81 state patrol members, 112 officers from 19 local law enforcement agencies, and 7 members of county law

enforcement agencies from the 13 Deadliest Counties were surveyed about their participation in Operation NightCAP.

Coordinator Survey

- Fourteen current and previous coordinators responded to the survey.

- Overall, the process for planning, reporting, etc, is considered reasonable, but there are problems with:
    o Getting reports from officers/agencies after events
    o Funding
    o Scheduling

- Scheduling was considered the biggest problem by most of the coordinators due to the following factors:
    o Drug Recognition Experts (DRE) were considered hard to schedule
    o Problems with motivating officers or finding motivated officers were reported
    o Problems scheduling during busy holiday times and summer or when other overtime events are operating (e.g., HEAT campaign)

Recommendations Based on Coordinator Survey:

- Provide better explanations for funding only the 13 Deadliest Counties due to funding limitations (e.g., targeting due to limited funding is a necessary compromise).

- Encourage coordinators to use existing guidelines to motivate officers during pre-event briefings and during the events (e.g., work together on tactics for a portion of the shift before everyone goes out on patrol).

- Work with NightCAP organizers to develop ways to increase the visibility of patrols, particularly on non-holiday weekends. For example, it may be necessary for one or more vehicles to patrol a high-visibility roadway during a shift to increase the visibility of enforcement even if it means some DWI offenders may not be caught.

- Results of both the Driver Survey and the Coordinator Survey indicated that advertising could be more effective for non-holiday events. Developing appropriate ways to convey the results and goals of the Program after non-holiday events should be investigated. However, educating the media to reporting needs outside of holiday events could be challenging.

Officer Survey

- Overall, 86 officers responded to the officer survey (33 state patrol, 47 local law enforcement, 7 county law enforcement).

- Overall, response patterns were similar for all branches of law enforcement (state patrol, local, county).

- Few respondents had experience with the BAT (Blood Alcohol Testing) Mobile or NightCAP Junior.

- Officers said they are motivated to participate, but the survey does not clarify whether motivation is intrinsic (want to help) or extrinsic (want the overtime pay).

- Pre-event briefings received mixed reviews; State Patrol respondents reported that they did not like feel briefings were useful while local law enforcement did.

- Paperwork and certain requirements were considered cumbersome while patrolling—officers felt they were not able to maximize time catching impaired drivers

- Agency leads reported similar scheduling issues as coordinators, such as for holidays and during summer.

- About one-quarter of officers reported that processing times for detained drivers were a problem.

Recommendations Based on Officer Survey

- Reduce paperwork, if possible. Even small changes could improve motivation to participate for the right reasons (i.e., to catch DWI offenders).

- Develop new ways to improve appropriate motivation among officers, such as incorporating some of the activities recommended in the guidelines into the briefings and patrols.

- Develop or continue to develop relationships or processes to speed up processing of detained drivers in saturation areas (e.g., use of BAT Mobile).

Chapter 1
Introduction

In 2005, Minnesota arrested 36,870 drivers for driving while impaired (DWI) and approximately 35% (197) of traffic fatalities were known to be alcohol-related (MN DPS, 2006). Operation NightCAP (Concentrated Alcohol Patrol) is an overtime enforcement program that uses saturation patrols as a means to identify impaired drivers. Alcohol saturation patrols are an enforcement strategy that can be employed in states where it is not legal to conduct sobriety checkpoints. The goal of this program is to reduce the number of alcohol-related crashes on Minnesota's roadways. The use of publicized saturation patrols to enforce drinking and driving laws may result in a decrease in alcohol-related fatalities and severe injuries through deterrence. Although identifying and apprehending drinking drivers may result in a decrease in crashes because drivers are removed from the road, the main goal of saturation patrols is to deter future instances of drinking and driving both by drivers who have been apprehended and by those who are made aware of the enforcement efforts through publicity or visibility of the patrols.

Operation NightCAP

Minnesota's Operation NightCAP Program began in 1998. Its initial focus was primarily on increasing the level of enforcement and awareness of drunk driving at community events that involved the serving of alcohol (e.g., concerts, sporting events). The Program expanded over the first few years to provide funding to counties to conduct saturation patrols during specific events and for regular evening and weekend patrols. In general, patrols aim to operate when drivers are mostly likely to have been drinking, such as at nighttime and during weekends and holidays. Officers who participate in Operation NightCAP are required to have Standardized Field Sobriety Training (SFST). In 2001, the Program added NightCAP Junior, which targeted college/university towns and focused on underage drinking and driving. In 2003, the Program changed its focus to the 13 Deadliest Impaired Driving Counties. These counties account for over 50% of the alcohol-related fatal and severe-injury crashes in the state. The new NightCAP approach is in line with Minnesota's Toward Zero Deaths program, which has as its goal the task of reducing driving-related fatalities.

Operation NightCAP Saturation Patrols

A typical Operation NightCAP saturation event begins with a briefing given by the district NightCAP coordinator at one of the participating municipal or county agencies. There is one coordinator for each of the 11 State Patrol districts in Minnesota. The size of the event varies depending on the amount of funding the county has for conducting patrols. For example, Hennepin County receives the most NightCAP funding and commonly has 10-15 officers participate in an event. Officers from the State Patrol and municipal police departments as well as county deputies participate in NightCAP events. In Greater Minnesota, there is typically more participation by the county deputies and less by municipal police agencies because these agencies tend to be smaller than in the Metro area. In contrast, the Metro areas will have more involvement of the municipal police and less from the county.

The main goals of the pre-event briefing are:

- To make the event special by motivating the officers about why they are participating in the NightCAP saturation patrol and how important it is to remove the impaired driver from the road to reduce deaths.

- To let the officers know who they are working with and how many officers will be participating so they know who to contact for back up if they need it during the operation.

- To lay out the parameters of the event, such as which areas officers will be patrolling and who is covering those areas.

- To pass out the forms necessary for officers to list their stops and the results of the stops.

- To provide information on when and how the officer can return the completed forms to the NightCAP coordinator.

- To encourage officers to note any unique or newsworthy events (e.g., 5 DWI arrests)

- To notify officers whether the BAT (Blood Alcohol Testing) Mobile or a Drug Recognition Expert is participating in the event.

The BAT Mobile is a Recreation Vehicle (RV) that has been converted to handle the testing and processing of offenders. It is typically used more frequently in the Greater Minnesota area than in the Metro Area. This is because most counties have only one testing unit. Therefore, the BAT Mobile provides a second testing unit. Individuals who have been arrested are brought to the BAT mobile and are read the implied consent advisory. A phone is available in the BAT Mobile if the individual chooses to contact a lawyer before choosing to consent to testing. Once an individual consents to testing the BAT Mobile is equipped to test the individual and the individual can also be videotaped while inside. Additionally, there is an area in which to conduct a drug recognition evaluation and the individual can be processed there. Typically, a county officer will stand by with transport to take the offender to jail so the patrol officer is freed to get back on the road.

Funding

Funding for the Program is provided by the National Highway Traffic Safety Administration's (NHTSA) 410 Alcohol Incentive Funds, which must be applied to impaired driving enforcement. In 2003, additional funding was added to the program from NHTSA's 164 Funds. Table 1.1 shows the annual funding for Operation NightCAP since 1998. There has been a steady increase in funding for the program over the past seven years.

Funding for saturation patrols may influence the effectiveness of the program simply because more funding means more patrols can be conducted. If more patrols are conducted, more drivers will potentially be arrested and removed from the roadway. An increased enforcement presence may also be more visible to the community, thus resulting in deterrence of drinking and driving. Funding for Operation NightCAP was similar from 1998-2003. In 2003, the Program also began

receiving additional funding (164 Funds) and changed the scope of NightCAP to focus the program funding on the 13 Deadliest Impaired Driving Counties (see Table 1.2). This increased the number of saturations that occurred in these high-risk counties. A few NightCAP saturations each year are funded in counties outside the 13 Deadliest to address alcohol-related crash risks associated with special events or locations (e.g., music festivals, university campuses).

Table 1.1. Operation NightCAP funding expenditures 1998-2005.

Year	Funding
1998	$90,322.59
1999	$191,106.71
2000	$279,861.82
2001	$339,308.40
2002	$363,549.64
2003	$417,812.90
2004	$571,779.58
2005	$683,313.86

Table 1.2. 13 Deadliest Impaired Driving Counties, 2003-2006.

	2003	2004	2005	2006
1	Hennepin	Hennepin	Hennepin	Hennepin
2	Ramsey	Ramsey	Ramsey	Ramsey
3	Anoka	Anoka	St Louis	Anoka
4	St Louis	St Louis	Anoka	St Louis
5	Dakota	Dakota	Dakota	Dakota
6	Otter Tail	Cass	Cass	Stearns
7	Cass	Otter Tail	Scott	Cass
8	Stearns	Rice	Otter Tail	Scott
9	Olmsted	Scott	Stearns	Washington
10	Washington	Stearns	Rice	Wright
11	Crow Wing	Crow Wing	Washington	Kandiyohi
12	Rice	Washington	Carver	Olmstead
13	Scott	Carver	Olmstead	Sherburne
14*			Sherburne	

Note: In 2005, 14 counties were funded rather than 13.

Publicity

Publicity campaigns can be effective in increasing deterrence alone and in combination with an enforcement program (Tay, 2005a; Voas, Holder, & Gruenewald, 1997). Operation NightCAP uses event-specific publicity to inform the public of alcohol-related enforcement efforts. At the beginning of each fiscal year, a kick-off event is held to announce the 13 Deadliest Counties that will be targeted. The event is supplemented by additional advertising across the Metro area that highlights impaired driving statistics and upcoming planned enforcement. This event is usually reported by local newspapers and TV stations.

In addition to the publicity materials that are available year-round about the NightCAP Program, DPS also issues a news release stating the results of the saturation event to the media within a targeted area (e.g., within a specific county). News releases are typically issued on the Monday following a saturation event and are only issued if the saturation is successful in making impaired driving arrests. This news reaches only the recently targeted area through local media outlets.

The main impaired driving advertising that occurs throughout the state on TV, radio and print ads is branded using a general impairment message to prevent confusion between the NightCAP Program and other impaired driving enforcement programs in the state, such as Safe and Sober. This advertising's most recent implementation is branded as "Drunk Driving. Over the Limit. Under Arrest" and is advertised across the state, including NightCAP counties. Therefore, most NightCAP advertising is limited to the local publication of an event after it occurs in a specific county or location.

Program Evaluation

A number of operational variables can affect the success of any alcohol enforcement program, whether a state uses sobriety checkpoints or saturation patrols. For example, funding for overtime patrols and the equipment necessary to conduct patrols, the availability of officers to conduct patrols, and the training of officers in identifying impaired drivers may all affect the outcomes of an enforcement program. The purpose of this research project was to examine the effectiveness of Operation NightCAP. First, the potential effect of the Program on reducing alcohol-related crashes was examined statistically for the time period 1991-2005. This analysis examined how the presence of NightCAP may have affected crash trends over this time period. Second, a sample of Minnesota drivers was surveyed about their knowledge of NightCAP, their perceptions of alcohol-enforcement and their own drinking and driving behaviors. This information will help determine how effective the publicity efforts for the Program have been, how visible alcohol-enforcement saturations are to the public, and whether they affect driver behavior. Finally, officers involved in NightCAP efforts were surveyed about the program. The purpose of this survey was to understand potential barriers that exist in conducting NightCAP operations. The information from this survey may help DPS and participating agencies better implement the NightCAP Program.

Chapter 2
Crash & DWI Data Analysis

Methods

Analyses were conducted to understand the potential effectiveness of Operation NightCAP saturation patrols on alcohol-related crashes and arrests. Models were developed to identify how crash rates have changed over time for the state and between counties with and without NightCAP operating. Alcohol-related crash data were collected for the years 1991-2005, along with the corresponding number of licensed drivers per year across the state and within each county. Alcohol-related means any crash involving a driver, pedestrian or bicyclist with a BAC of 0.01 or higher. The number of licensed drivers provides an exposure measure for the number of crashes and impaired driving incidents on record. Using a rate rather than the raw number allows a better comparison across counties with different populations of licensed drivers and accounts for changes in the population across time.

Overall, the fatal crash data is likely to provide the most accurate results. An effort is frequently made to determine whether impairment was a factor in fatal crashes through the use of objective testing (blood or breath tests). More than 85% of fatally injured drivers were tested for the presence of alcohol each year from 1995-2004 (MN DPS, 2005). Severe injury data is also considered to be more accurate and complete than moderate/minor injury or non-injury alcohol-related crash data. Alcohol-related moderate/minor injury and non-injury crashes may be underestimated and the exact level of underestimation is not known. This is because enforcement officers may be more cautious in determining impairment if there is not an obvious reason to do so. For non-injury crashes, drivers are often responsible for submitting their own police reports and are unlikely to report they "had been drinking", which also results in underestimation of alcohol-related crashes. For these analyses, data was analyzed for alcohol-related fatal and severe injury crash rates to determine the overall trends in the data.

The saturation data was taken from Operation NightCAP reports that indicate the date and location of saturation patrols. However, some data is missing due to some reports not indicating the location where a saturation event occurred. Additionally, a few saturations occurred in areas that spanned a county border. In these cases, the main participating enforcement agency was considered in determining the location of the saturation. The data presented in this report was calculated for a calendar year (January-December).

Statewide Analyses of Alcohol-Related Crash Rates: Poisson Regression Models

For the analysis of crash rates for the state, a Poisson regression model was used to determine the effects of NightCAP saturation patrols over time on alcohol-related crashes (Agrestie, 2002; Stokes, Davis & Koch, 2001). A Poisson regression is used because the crash data is count data that has the number of events distributed over a fixed time interval. Regular linear regression models are not appropriate for count data because the predictors may produce negative predicted values and count data do not include negative values (Gardner, Mulvey & Shaw, 1995). Poisson regression models are commonly used in crash data analyses and have been used in previous

research examining the influence of enforcement campaigns on alcohol-related crashes as well as for other traffic safety analyses (e.g., Morris, 2006; Tay, 2005a; Tay, 2005b; Tay, 2006).

A common concern for Poisson models is the overdispersion of data, which will be tested using the deviance statistic (deviance/degrees of freedom). Outcomes closer to "1" are considered to be a good fit. Outcomes farther from "1" reflect over or underdispersion of the data and suggest that the variance in the dependent variable has not been fully captured by the model. If the data shows significant overdispersion, the negative binomial distribution can be used to account for the overdispersion.

The independent variable in the model was the number of saturations conducted per year as a measure of the Operation NightCAP enforcement activities.

The unemployment rate is also included in the model as a predictor of fatal alcohol-related crashes. Unemployment rates have been shown to be significantly inversely correlated with fatal traffic crashes (see Wilde, 1994 for a review; p.67-73) and with single-vehicle crashes during alcohol peak hours (Tay, 2005a; 2005b) in a number of countries (e.g., US, UK, Canada, Netherlands, Australia). It was expected that the unemployment rate would show an effect for the fatal crash analysis. The association of unemployment rates to fatal traffic crashes is possibly related to the amount of disposable income available during periods of low unemployment and high economic growth. As the unemployment rate decreases, individuals may engage in more discretionary driving and in more recreational drinking away from home, such as in bars or restaurants, because they have more disposable income than when the economy is depressed (Tay, 2005a). This would result in increased exposure and, therefore, increased fatalities.

Finally, a trend variable (Time = 1991-2005) is included in the models to identify any trends in crash rates that may be attributable to various road safety interventions or other factors that may result in decreases in crash rates over time. A negative and significant downward trend in crash rates for the time variable would indicate the presence of other effects on road safety. Table 2.1 shows the number of fatal and non-fatal crashes separated for alcohol-related and non-alcohol-related crashes. The number of saturations and the unemployment rate per year are also shown.

Table 2.1. Crashes, saturations and unemployment rate for 1991-2005.

	All Crashes		Severe Injury Crashes		Fatal Crashes		Saturations	MN Unemployment Rate[a]
	Alcohol	No Alcohol	Alcohol	No Alcohol	Alcohol	No Alcohol		
1991	7038	93905	722	2634	186	283	N/A	5.2%
1992	7107	89620	769	2618	187	307	N/A	5.1%
1993	6593	94187	661	2545	175	302	N/A	4.9%
1994	6422	93185	598	2574	198	352	N/A	4.1%
1995	6280	89457	631	2336	207	308	N/A	3.7%
1996	6463	98809	565	2395	182	321	N/A	3.9%
1997	5901	92650	551	2304	163	365	N/A	3.3%
1998	5792	97134	560	2142	234	341	54	2.7%
1999	5723	91090	539	2138	177	390	81	2.8%
2000	5750	97840	479	1992	217	340	86	3.2%
2001	5384	93600	432	1842	181	327	102	3.9%
2002	5652	89317	477	1749	211	379	99	4.6%
2003[b]	N/A	N/A	N/A	N/A	228	355	130	4.9%
2004	4840	86421	382	1555	164	356	247	4.7%
2005	5055	82757	354	1306	181	319	260	4.0%

a) MN Unemployment rates obtained from http://www.deed.state.mn.us/ (Jan. 2005 and Oct. 2006).
b) Non-fatal 2003 data are not considered to be accurate due to reporting problems that year so values for 2003 "all crashes" and "severe injury crashes" are not included.

Two Poisson regression models were tested. First, alcohol-related fatal crash rates were examined as the dependent variable for 1991-2005. Second, alcohol-related severe injury crash rates were examined for 1991-2005. In this model, the severe injury crash data for 2003 is coded as a missing value because these data are considered incomplete by DPS due to reporting problems in 2003. These analyses were conducted because the rate of alcohol-related fatal and severe injury crashes is of the most concern for DPS. Therefore, these models will attempt to capture the effect of the number of saturations on alcohol-related fatal and severe injury crash rates. The expected result that increasing the number of saturations conducted should result in a decrease in the state's alcohol-related fatal and severe injury crash rates.

A Poisson regression model as shown below will be used, incorporating the intercept, the trend variable, the unemployment rate and saturations with the crash rates as the dependent variables. The unemployment rate has a quadratic function for the time period investigated; therefore both forms of the variable appear in the model.

$$p(y) = \frac{e^{-\lambda} \mu^{-\lambda}}{y!}, \quad y = 0, 1, 2, \ldots N \tag{1}$$

$$\ln(\frac{\mu F}{V}) = \beta_0 + \beta_1 Trend + \beta_2 Urate + \beta_3 Urate^2 + \beta_4 Saturations \tag{2}$$

Where ln () denotes the natural log function, μ is the expected annual alcohol-related crashes (or severe injury alcohol-related crashes) and V is the annual number of drivers' licenses.

Results: Poisson Regression Models

Alcohol-Related Fatal Crash Rates

The fatal crash analysis indicated overdispersion of the model, therefore the data was analyzed using the negative binomial model to account for the overdispersion and to avoid over-estimating the effects of the model covariates. The fit for the negative binomial model was adequate (1.49). Overall, there was a marginally statistically significant effect of saturations on the alcohol-related fatal crash rate (p=0.08; see Table 1; Appendix B for the effect coefficients, standard errors and p-values associated with this analysis). This effect showed that as the number of saturations increased in a given year, the rate of alcohol-related fatal crashes declined. However, the estimate is very small and represents the effect of one saturation on the crash rate (~0.1%), indicating that a large number of saturations would be necessary to see a significant effect on the crash rate. The unemployment rate also had a marginally statistically significant effect on the rate of alcohol-related fatal crashes. The effect for the linear variable showed that as the unemployment rate went down, the alcohol-related fatal crash rate went up.

If we examine the effect of saturations in specific years, the 99 saturations conducted in 2002 accounted for 12.1% of the total decrease in the alcohol-related fatal crash rate between years without saturations when compared to 2002. This means that approximately 88% of the total decrease in the fatal alcohol-related crash between years without NightCAP and 2002 was due to factors other than the number of NightCAP saturations. However, increasing the number of

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saturations per year appeared to result in a larger contribution to the overall decline in the alcohol-related fatal crash rate. For example, the 247 saturations in 2004 accounted for 27.5% of the total decrease in the total alcohol-related fatal crash rate when this year is compared to years that had no saturations. When 2004 is compared to 2002, the additional 148 saturations conducted in 2004 accounted for a 17.5% change in the overall alcohol-related fatal crash rate between these two years. In 2005, the 260 saturations conducted accounted for a 28.7% change in the total decrease in the alcohol-related fatal crash rate when compared to years without NightCAP saturations. And finally, when 2005 is compared to 2002, the additional 161 saturations conducted in 2005 accounted for a 19% change in the overall alcohol-related fatal crash rate between these two years.

The variance in crash rates over time may explain why saturations only had a marginally statistically significant effect on the alcohol-related fatal crash rate. For example, there was a large jump in the alcohol-related fatal crash rate from 4.68 fatal crashes per 100,000 licensed drivers in 1997 to 6.7 fatal crashes per 100,000 drivers in 1998. Subsequently, the alcohol-related fatal crash rate continued to rise and fall until 2003. The alcohol-related fatal crash rate also declined from 1991-1993, rose in 1994 and 1995, and then declined again in 1996 and 1997. The similar pattern of rising and falling rates that occurs both before and after the introduction of Operation NightCAP suggests that the periods of decline were less likely to be due to the presence of saturations and, instead, due to some other factor or factors. Figure 2.1 shows the alcohol-related and non-alcohol-related fatal crash rates, and the number of saturations (indicated at each time point) conducted each year.

Overall, the marginal statistical effect may be due to the drop in the alcohol-related fatal crash rate in 2004 and a similar rate in 2005 when significantly more saturation events were conducted. Overall, 2004 had the lowest alcohol-related fatal crash rate during the 15-year time period and 2005 had the second lowest.
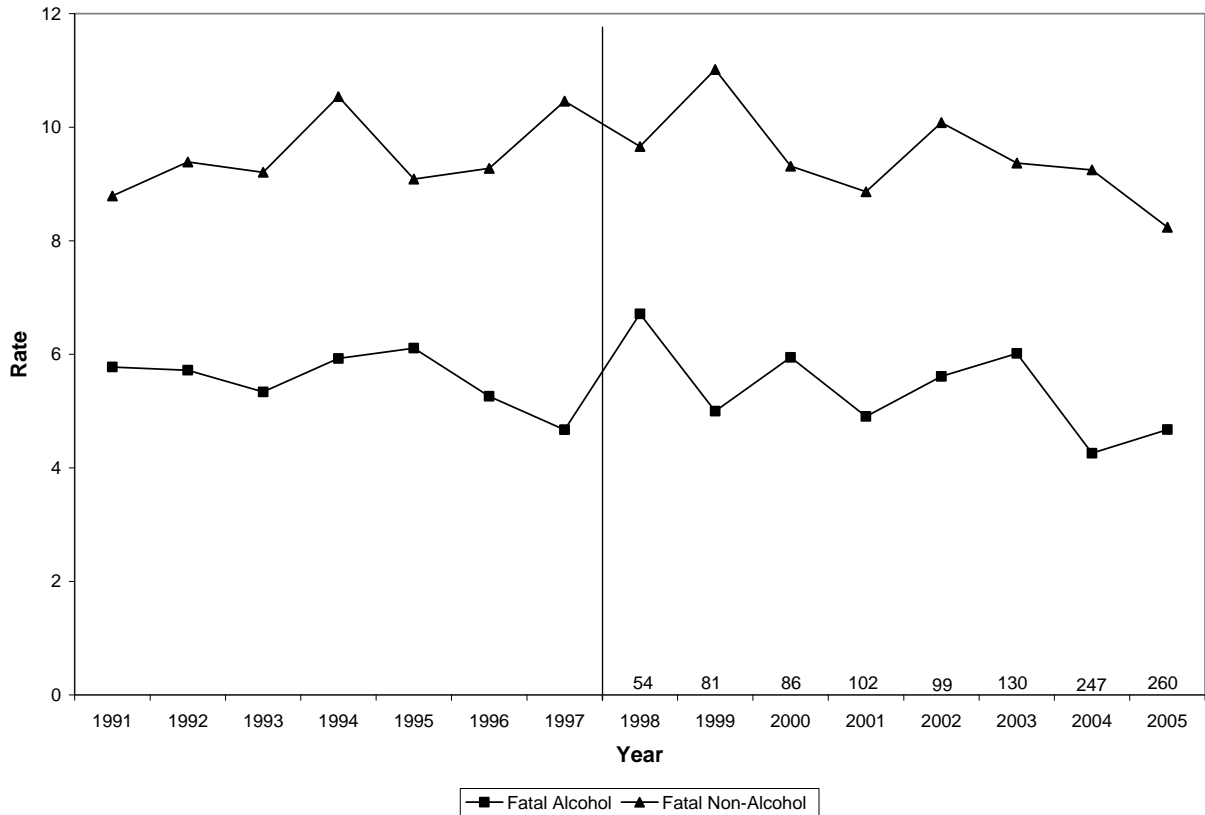
Figure 2.1. Fatal crash rates per 100,000 licensed drivers from 1991-2005.

Note: The number of saturations conducted each year is noted above the year label. Fatal non-alcohol crash rates are included for comparison purposes.

Alcohol-Related Severe Injury Crash Rates

The Poisson regression analysis of the severe injury alcohol-related crash data did not indicate overdispersion. Therefore, the Poisson regression model estimates are presented here rather than the negative binomial model estimates. Overall, the model fit was adequate (1.2). The effect of saturations was statistically significant (p=0.05; see Table 2, Appendix B). The effect showed that as the number of saturations conducted over time went up, the rate of alcohol-related severe injury crashes went down. Again, the effect of a single saturation was very small (~0.1%). However, the trend variable was statistically significant and examination of the data indicates an overall downward trend in the alcohol-related severe injury crash rate from 1991-2005, including the period prior to implementation of the Operation NightCAP Program. This results suggests that decreases in the alcohol-related severe injury crash rate are more likely due to factors other than the presence of saturations.

If we examine the effect of saturations in specific years, the 99 saturations conducted in 2002 accounted for 9% of the total decrease in the alcohol-related severe injury crash rate when

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compared to years that had no NightCAP saturations. The 247 saturations in 2004 accounted for 19.4% of the total decrease in the alcohol-related severe injury crash rate when this year is compared to years that had no saturations. This suggests that an increase in saturations may affect the overall decrease in alcohol-related severe injury crash rates. When 2004 is compared to 2002, the additional 148 saturations conducted in 2004 accounted for a 12% change in the alcohol-related severe injury crash rate. In 2005, the 260 saturations conducted accounted for 20.3% of the total decrease in the severe-injury alcohol-related crash rate. When 2005 is compared to 2002, the additional 161 saturations conducted in 2005 accounted for a 13% change in the alcohol-related severe injury crash rate.
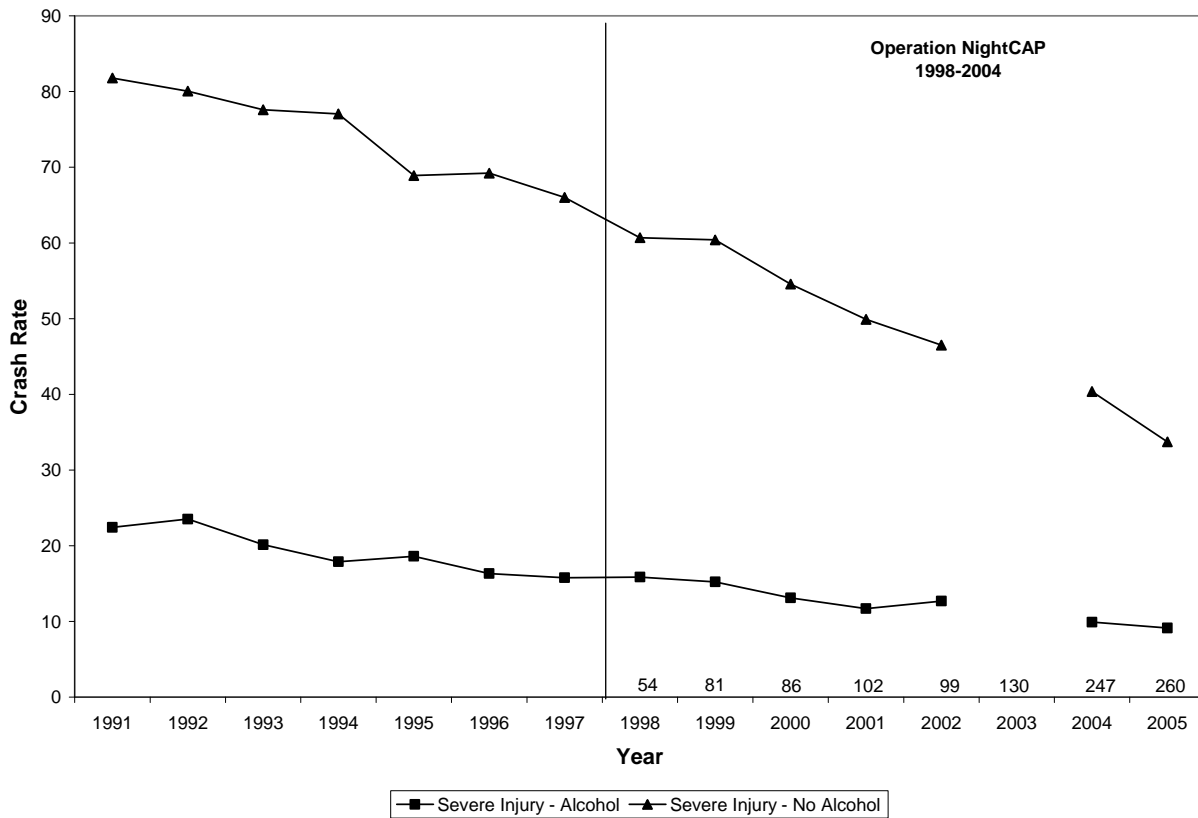
Figure 2.2. Severe injury crash rates per 100,000 licensed drivers from 1991-2005.

Note: The number of saturations conducted each year is noted next to the alcohol-related crash data points. The severe injury non-alcohol related crash rate is shown for comparison. Data for 2003 are excluded.

Section Summary: Poisson Regression Model

Alcohol-Related Fatal Crash Rates

- Increasing the number of saturations conducted in a given year resulted in a marginally statistically significant decrease in the overall alcohol-related fatal crash rate.

- Overall, the effect of a single saturation was very small (~0.1%), indicating that a large number of saturations are probably required to see significant decreases in the fatal

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alcohol-related crash rate. The increase in number of saturations conducted on the alcohol-related fatal crash rate is small, but evident in this analysis.

- In 2002, the 99 saturations conducted accounted for 12.1% of the total decrease in the alcohol-related fatal crash rate when compared to years that had no saturations.

- In 2004, the 247 saturations conducted accounted for 27.5% of the total decrease in the alcohol-related fatal crash rate when compared to years that had no saturations.

- In 2005, the 261 saturations conducted accounted for 28.7% of the total decrease in the alcohol-related fatal crash rate when compared to years that had no saturations.

- Overall, the large increase in saturation events in 2004 and 2005 accounted for approximately 18% of the total change in the alcohol-related fatal crash rate in Minnesota.

- Although 2005's alcohol-related fatal crash rate was slightly higher than 2004, the significant decrease from 2003 was maintained.

Alcohol-Related Severe-Injury Crash Rates

- Increasing the number of saturations conducted in a given year resulted in a statistically significant decrease in the overall severe injury alcohol-related crash rate.

- Overall, the effect of a single saturation was very small, indicating that a large number of saturations are probably required to see significant decreases in the alcohol-related severe injury crash rate.

- In 2002, the 99 saturations conducted accounted for 9.0% of the total decrease in the alcohol-related severe injury crash when compared to years that had no saturations.

- In 2004, the 247 saturations conducted accounted for 19.4% of the total decrease in the alcohol-related severe injury crash rate when compared to years that had no saturations.

- In 2005, the 261 saturations conducted accounted for 20.3% of the total decrease in the alcohol-related severe injury crash rate when compared to years that had no saturations.

- Decreases in the severe injury alcohol-related crash rate over time was statistically significantly accounted for by the trend variable, suggesting that general road safety measures and other factors that change over time influence the rate of these crashes. Additionally, the unemployment rate had a statistically significant effect on the alcohol-related severe injury crash rate.

County Level Analyses of Alcohol-Related Crash Rates: Longitudinal Models

This analysis directly tests the effect of NightCAP by comparing counties that have NightCAP present to those that do not have NightCAP for the pre-NightCAP and post-NightCAP periods. A longitudinal data analysis (Weiss, 2005) was used to assess the alcohol-related crash rates per county from before the implementation of Operation NightCAP (1995-1997) to the initial Operation NightCAP period (1998-2002) and the period that encompasses funding of the 13 Deadliest Impaired Driving Counties (2003-2005).

Longitudinal regression modeling is useful when the data consists of independent subjects with repeated measurements. In this case, the independent subjects are the counties and the repeated measurements are the alcohol-related crashes for each year. In normal linear regression, it is assumed that the regression model will have an independent correlation structure. The important construct for longitudinal data is that measurements closer in time are likely to be more similar than measurements farther apart in time. Therefore, within a county, the rate of fatal crashes is expected to be more similar for adjacent years and less similar for measurements separated by more years. Before running the analysis, the covariance structure of the data must be analyzed to determine the correct variance function of the data. Residuals for a generalized linear model of the data conditioned on the time intervals were obtained and examined in scatter plots (see Appendix A) (Weiss, 2005). For the crash data examined in this report, the scatter plots for each time period are approximately similar, suggesting a compound symmetry correlation structure exists. Accounting for the correlation structure and analyzing the data accordingly is usually sufficient to account for any potential overdispersion problems in the data.

For the longitudinal analyses of the alcohol-related crash data, the data is split into three different time intervals to account for the pre-NightCAP time period (1995-1997), the period when NightCAP was applied across the state (1998-2002), and for the time period when NightCAP was applied to the 13 Deadliest Counties (2003-2005). Each county acts as its own control for the pre and post-NightCAP periods. Table 2.2 describes the independent and response variables included in the longitudinal models. The goal of the longitudinal model used here is to model a linear trend within each time period because the assumption is that the three time periods will differ from each other because they had different types of enforcement. This will help highlight the effects of each NightCAP treatment and the effects of saturations in these time intervals. It should be noted that longitudinal modeling focuses on assessing covariate effects whereas time series analysis, which is sometimes used in crash data analysis, is used in forecasting and predicting future effects. Because the focus of this project was to understand the effects NightCAP has already had on crash rates, the longitudinal model provides the best approach for understanding the application of NightCAP at the county level.

The first analysis examined the alcohol-related fatal crash rate from 1995-2005 and included the three time intervals (time, time2, time3). The second analysis examined the alcohol-related severe injury crash rate from 1995-2002 and only included the "time" and "time2" intervals. Data from 2003 through 2005 were excluded from the second model because the 2003 data are considered incomplete for non-fatal crashes, leaving only 2004 and 2005 to create the trend for the time3 interval. Three years of data was considered the minimum to create a trend line for this analysis.

The number of saturations conducted per county was used in the model to test whether increasing the number of saturations in counties resulted in a corresponding decrease in the crash rate. For the alcohol-related fatal crash rate analysis, three treatment effects were also coded categorically to examine the presence of NightCAP activities, independent of the number of saturations. These three effects correspond to before NightCAP (1995-1997), NightCAP (1998-2002) and implementation of the 13 Deadliest Impaired Driving Counties NightCAP (2003-2005). For the alcohol-related severe injury crash rate analysis, two categorical effects were coded for before NightCAP (1995-1997) and for NightCAP (1998-2002). Counties that had saturations in a given year were coded as Operation NightCAP counties. Counties that had no saturations were coded as non-NightCAP Counties.

Table 2.2. Variables used in the longitudinal regression models (between-county analysis).

Variable	Type	Summary
Alcohol Crashes (total, fatal, serious)	Response	Raw data supplied by DPS. A count of the number of crashes for a given year (1995-2005).
Arrests	Response	Raw data supplied by DPS. A count of the number or DWI arrests due to Operation NightCAP.
Time	Independent	This variable will account for the overall slope before the NightCAP program starts (1995-2005).
Time2	Independent	This variable will account for the slope during the time 1998-2002 (i.e., how it affects the overall slope).
Time3	Independent	This variable will account for the slope during the time 2003-2005 (i.e., how it affects the overall slope).
TRT2 (treatment 2)	Independent	This variable is coded as 0 or 1 depending on if the county received funding for saturations during 1998-2002. Tests the overall effect of NightCAP funding in this time period.
TRT3 (treatment 3)	Independent	This variable is coded as 0 or 1 depending on if the county received funding for saturations during 2003-2005. Tests the overall effect of NightCAP funding in this time period.
Saturations	Independent	Raw data supplied by DPS. A count of the number saturations conducted for a given year. Tests the effect of increasing saturations on the response.
TRT2 (NightCAP 1998-2002) *Time2	Independent	This interaction term adjusts the slope in this time period. In general, if NightCAP is effective in reducing alcohol-related crashes then the slope in this time interval should be decreasing.
TRT3 (NightCAP 2003-2005) *Time3	Independent	This interaction term adjusts the slope in this time period. In general, if NightCAP is effective in reducing alcohol-related crashes then the slope in this time interval should be decreasing.
Saturations*Time2	Independent	This interaction term adjusts the slope in this time period when a county has received saturations.
Saturations*Time3	Independent	This interaction term adjusts the slope in this time period when a county has received saturations.
Licensed Drivers	Offset	This variable will be used as an offset variable to model the rate of alcohol-related crashes or DWI arrests. This makes it feasible to compare counties against other counties.

Results for Alcohol-Related Crash Rates: Longitudinal Models

Alcohol-Related Fatal Crash Rates

Overall, the effect of saturations on the alcohol-related fatal crash rate in counties that had saturation events was statistically significant. This effect showed that counties that had more saturation events had, on average, lower crash rates than counties that had fewer or no saturations (-0.0733, p<0.001).

There was a statistically significant interaction for counties funded by Operation NightCAP within the 1998-2002 time period (-0.0896, p=0.03). This effect showed that counties coded as having NightCAP funding during this time period (regardless of the number of saturations actually conducted) had lower crash rates on average than counties that did not have funding for this time period.

There was also a statistically significant interaction of the number of saturations conducted within counties for the 1998-2002 time period (0.0115, p=0.0002). This effect showed that counties that had more saturations during this time period had, on average, higher crash rates than counties that had fewer or no saturations. This interaction considers only the effects of the number of saturations in a county from 1998-2002. It is expected that an increase in the number of saturations would result in a corresponding decrease in the fatal alcohol-related crash rate during this time period (1998-2002) within a county. However, the effect showed the opposite, where counties that had more saturations had, on average, higher crash rates. When the data are examined, we find that this is probably due to the fact that most counties had fewer than five saturations per year from 1998-2002, with many having only one or no saturations at all per year. Therefore, the effect is limited by the small number of saturations and small range in the number of saturations (1-5) conducted in counties during this time period. Overall, it suggests that conducting very few saturation events within an individual county does not have an appreciable effect on the alcohol-related fatal crash rate. When the overall result of the number of saturations on the county alcohol-related fatal crash rates from 1995-2005 is considered alongside this result for 1998-2002, it may be that the result for 1995-2005 is driven mostly by the large increases in saturations conducted that occurred in 2004-2005 and the corresponding drops in the alcohol-related fatal crash rate.

Alcohol-Related Severe Injury Crash Rates

Overall, for 1995-2005, there was a statistically significant effect of saturations on the alcohol-related severe injury crash rates within individual counties. This effect showed that the average rate of alcohol-related severe injury crashes was lower in counties where more saturations were conducted (-0.0386, p=0.0002; see Table 3, Appendix B). This result is similar to the overall effect of saturations from 1995-2005 seen for the alcohol-related fatal crash rate. There was no effect between counties that were coded as having Operation NightCAP compared with those that were not.

DWI Incidents: Longitudinal Model

A longitudinal model was also applied to the rate of DWI incidents for 1995-2005 to compare offences in counties with and without Operation NightCAP. As with the crash data, the variance

across counties indicated a compound symmetry correlation structure. The number of saturations served as the independent variable and the three treatment periods identified above were also included in the model. The number of DWI incidents on record for the state per year is shown in Table 2.3.

Table 2.3. Minnesota DWI Incidents on Record for 1995-2005.

	Impaired Driving Incidents on Record
1995	30395
1996	30920
1997	31374
1998	32418
1999	34573
2000	35031
2001	33531
2002	33165
2003	32329
2004	34199
2005	36870

Results for DWI Rates: Longitudinal Model

There was a statistically significant effect of the number of saturations on the overall rate of DWI incidents for counties that experienced saturations (-0.0133, p=0.0004; see Table 5, Appendix B) from 1995-2005. This effect indicates that, on average, counties that had more saturation events per year had average lower rates of DWI incidents than counties that had fewer or no saturations.

There was also a statistically significant effect of the presence of Operation NightCAP for 1998-2002. On average, counties that were coded as having received Operation NightCAP funding during this time period higher average rates of DWI incidents (see Figure 2.3). During this time period, there was also a statistically significant interaction of saturations and the 1998-2002 (0.0016, p=0.04) time period indicating that counties with more saturation events had, on average, higher rates of DWI incidents. Between 1998 and 2002 the overall rate of DWIs for the state was decreasing, yet the counties with NightCAP funding and more saturation patrols still had higher average rates of DWIs than counties without NightCAP. Because this effect accounts for all counties coded as having NightCAP, regardless of the number of saturation patrols

conducted, it may be that counties that received funding in these years already had higher DWI rates to begin with, and that the small number of saturations conducted would not significantly affect the DWI rates in these counties.

There was also a statistically significant effect for the time period 2003-2005. This effect showed that the rate of DWI incidents increased across all counties during this time period. However, the interaction of saturations with this time period was not significant, suggesting that the increase in saturations from year to year did not significantly impact the rate of DWI incidents within counties. Instead, other factors may have contributed to the significant rise in the rate of DWI incidents during this time period. For example, a general increase in funding for police enforcement across the state could result in a significant rise in the number of impaired drivers caught in general, in addition to those apprehended by the NightCAP Program. Discussions with members of Mn/DPS revealed that general police funding has increased over the last several years, in addition to the funding provided for Operation NightCAP.
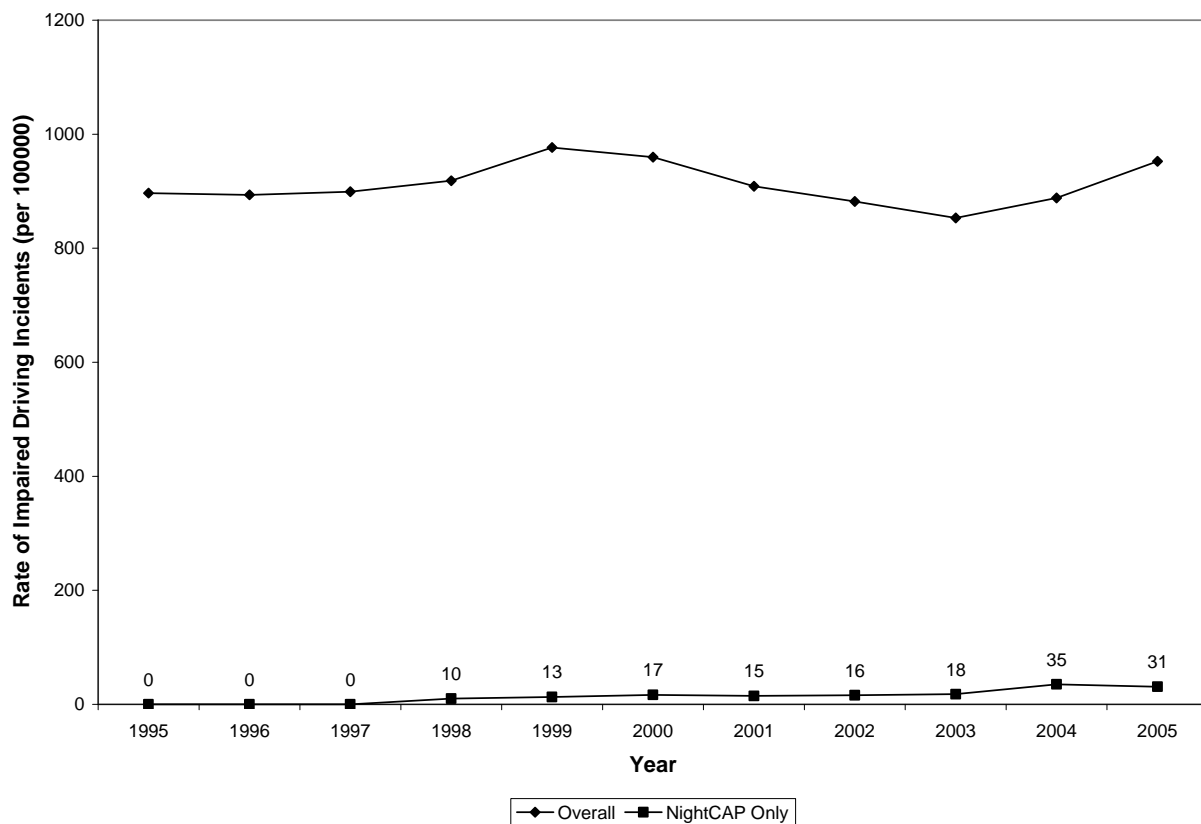
Figure 2.3. Rate of impaired driving incidents on record per 100,000 licensed drivers.

Note: The overall rate indicates all impaired driving incidents on record. The NightCAP only rate indicates the number of arrests made that year during saturations.

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Section Summary: Longitudinal Models

- Overall, from 1995-2005, counties that conducted more saturations had, on average, lower alcohol-related fatal crash rates than counties that had no saturations.

- From 1998-2002, counties that conducted more saturations had higher alcohol-related fatal crash rates than counties with fewer or no saturations. This effect is most likely due to the small number of saturations conducted in counties and the limited range in the number conducted (e.g., often fewer than 5) during this time period. The overall result seen for 1995-2005 showing lower alcohol-related fatal crash rates in counties that conducted more saturations is most likely driven by the significant increase in the number of saturations conducted in 2004-2005 and the larger corresponding decrease seen in the alcohol-related fatal crash rate compared to previous years.

- From 1998-2002, counties funded by Operation NightCAP had, on average, lower fatal alcohol-related crash rates than counties that were not funded by Operation NightCAP. These are average crash rates for all counties funded by Operation NightCAP, regardless of the number of saturations conducted.

- Overall, from 1995-2004, counties that had more saturations had, on average, lower alcohol-related severe injury crash rates than counties that had no saturations.

- Overall, from 1995-2005, counties that had more saturations had, on average, lower rates of DWI incidents on record than counties that had no saturations.

- From 1998-2002, counties that had Operation NightCAP had, on average, higher rates of impaired driving incidents on record than counties that had fewer or no saturations.

- In 2003-2005, the rate of DWI incidents increased across all counties period and was not found to be statistically significantly related to saturation events conducted during this time period.

Crash and DWI Data Conclusions

Overall, a variety of factors affect the state's crash rate from year to year. The state analyses indicate a marginally statistically significant effect of saturations on the alcohol-related fatal and severe injury crash rates in Minnesota from 1991-2005. The small estimates indicate that a large number of saturations would be required to see a significant change in the alcohol-related crash rates. However, in 2004 and 2005, saturations accounted for approximately one-quarter of the total decrease seen in the alcohol-related fatal crash rate, and about one-fifth of the total decrease seen in the alcohol-related severe-injury crash rate. When NightCAP counties were compared to other counties, saturations also showed a small effect on the crash rates for this pooled group of counties, which contributed to the overall effect for the state. However, from 1998-2002 the number of saturations conducted was not sufficient to result in a significant change in the crash rates at the county level. This is most likely due to the small number of saturations conducted within counties during this time period (i.e., typically fewer than 5 events).

The results of the analyses suggest that conducting more saturation events within an individual county will potentially result in a reduction in the alcohol-related fatal and severe injury crash rates. At this time, though, it is not possible to draw any specific conclusions about how many saturation events may be appropriate to see a decrease in a county's crash rate. However, the significant increase in the number of events held in 2004 (247) and 2005 (260) and the corresponding decreases in the alcohol-related crash rates indicate that the current number of events being conducted within these counties is having a marginally statistically signficant effect on the rate of alcohol-related fatal and severe injury crashes in the state.

One issue to consider when reviewing these analyses is that NightCAP's 13 Deadliest Impaired Driving Counties program targets the raw number of alcohol-related fatalities in a county rather than the crash rate. This means that Hennepin County is labeled the #1 Deadliest County but it actually experiences a smaller rate of alcohol-related fatal crashes than Cass County, which is #7. The number of alcohol-related fatal and severe injury crashes that occur in a county determines its NightCAP funding rather than the crash rate. It is difficult to analyze raw crash data because, as seen in the analyses of the crash rates, many factors affect crashes. For example, an increase in the driving population will result in more drivers exposed to the risk of a crash. The number of crashes might increase while the actual crash rate decreases, suggesting that some safety factor is present. In Minnesota, there exist Operation NightCAP Program years that show a larger raw number of crashes compared to non-NightCAP years, but the crash rate is lower. For example, in 1997 (non-NightCAP year), there were only 163 alcohol-related fatal crashes and the rate was 4.67 crashes per 100,000 licensed drivers. This is the lowest number of alcohol-related fatal crashes recorded from 1991-2004 and is the same rate recorded for 2005. However, there were almost the same number of fatal crashes in 2004 (164), but the rate was 4.26 per 100,000 licensed drivers. In 2005, there were 181 alcohol-related fatal crashes and the rate was the same as in 1997 even though there were 18 more crashes in 2005 than in 1997. If only the raw number of crashes was examined, it would appear that no change had occurred and there was no protective effect of Operation NightCAP. When the crash rate is examined, it is clear that some factor or factors have changed to affect traffic safety, one factor potentially being the implementation of a large number of saturations.

Because the 13 Deadliest Impaired Driving Counties program covers areas of the state that account for 50% or more of the alcohol-related fatal and severe injury crashes, it is likely that significantly decreasing the number of alcohol-related fatal and severe injury crashes compared to the pre-enforcement period would also result in a decrease in the alcohol-related crash rates of not just those counties, but for the state as well. However, more years of data on the 13 Deadliest Counties program will be needed before any trends or conclusions about the effectiveness of this type of targeting can be known. The preliminary results for 2004 and 2005 are promising.

Finally, it is not possible to conclude if a deterrent or enforcement effect is in place for the crash rate as both types of effect would result in a reduction in the crash rate.

Recommendations Based on Crash and DWI Analyses

- Because increasing the number of saturations within specific counties appears to have an affect on the overall decrease in the fatal alcohol-related crash rates, it is recommended that the current level of patrolling be kept and, if possible, increased in these counties.

- Currently, targeting the 13 Deadliest Impaired Driving Counties in Minnesota appears to be providing the best coverage of high-risk areas. It is recommended that this program continue in this manner until more data can be collected to identify that this is the best way to target impaired driving in Minnesota.

- Because some counties near the bottom of the 13 Deadliest list tend to drop off after only a year or two, it is critical to continue to observe the crash rates in these counties. These counties should be examined carefully over time to determine whether any negative effects exist from removal of the program.

- Counties that experience increases in the number of saturation patrols conducted over time should also be examined to determine the effect of this increase on crash rates.

- A further evaluation of the Operation NightCAP Program should be conducted in another 2-3 years when more data is available for this particular implementation of the Program (13 Deadliest Counties) to determine its overall effectiveness. Current analysis of this program is limited by having only 3 years of data.

Chapter 3
Driver Survey

Methods

A sample of Minnesota drivers was surveyed about their knowledge of Operation NightCAP and their perceptions of alcohol enforcement and impaired driving. The goal of this survey was to determine how effective the publicity efforts of the Program have been, how visible alcohol-enforcement saturations are to the public and whether enforcement affects driver behavior. Ultimately, it was expected that knowledge of the Operation NightCAP Program would be higher in counties with NightCAP versus counties without NightCAP. It was also expected that those who were aware of the enforcement program would report engaging in safer driving behaviors, such as avoiding drinking after driving.

Counties Surveyed

Six counties were chosen to be surveyed. Hennepin, Anoka, Cass and Olmsted Counties were chosen because of their participation in Operation NightCAP. Additionally, these counties represent a cross-section of the 13 Deadliest Counties that currently receive funding. Hennepin County and Anoka County represent the Metro area and are the first and third deadliest counties respectively. Cass County is the seventh deadliest county and represents rural, north-central Minnesota. Olmsted County is the twelfth deadliest county and represents both an urban and rural population.

Brown and Polk Counties were chosen as comparison counties because they do not participate in Operation NightCAP. The purpose of the comparison counties was to provide a benchmark for the analysis of the NightCAP Counties. Differences should exist between NightCAP and Non-NightCAP counties in awareness of the program. It is also possible that differences in perceptions of enforcement and attitudes towards impaired driving could be different between counties with and without NightCAP. The presence of another impaired driving program could influence drivers' knowledge of and perspectives on impaired driving and alcohol-related enforcement strategies. For example, Brown County, along with all four selected NightCAP counties, participates in the Safe and Sober Program, but Polk County does not participate in Safe and Sober or Operation NightCAP. Awareness of enforcement in general may be affected by the presence of additional impaired driving enforcement programs.

Five thousand drivers were randomly sampled from the six counties with the expectation of a 15% overall return rate (750 surveys). To ensure that return rates for each county would be substantial enough to draw conclusions about the whole county, proportional sampling methods were used to estimate how many surveys should be sent to each county based on the county's population of licensed drivers. The sample was also gender balanced, with half the surveys sent to female and half sent to male drivers. Additionally, 60% of the sample was aged 18-34. In Minnesota, young males are most often cited for impaired driving (MN DPS, 2005) thus it is important to know if this group is aware of impaired driving enforcement and whether it affects

their driving choices. Because previous survey research in Minnesota (Rakauskas & Ward, 2006) indicated that young drivers responded less frequently to surveys than older age groups, therefore, the number of surveys sent to young drivers was increased (see Table 3.1) to ensure the response rate was large enough to represent this age group.

Table 3.1. **Number of surveys sent to counties by age group.**

County	(18-34 years)	(35+ years)	Row Total
Anoka	585	315	**900**
Brown	390	210	**600**
Cass	390	210	**600**
Hennepin	975	525	**1500**
Olmsted	520	280	**800**
Polk	390	210	**600**
Column Total	**3250**	**1750**	**5000**

Results

The complete driver survey, with response percentages for each question, is located in Appendix C.

Sample Demographics

Overall, 1038 (20.5%) surveys were returned. Of those surveys, 838 (16.8%) contained usable data. Drivers who reported that they never drank alcohol were excluded from the study analyses because they are not the target audience of an impaired driving enforcement program. Drivers who reported that they drank alcohol at least occasionally and had a valid driver's license were included in the study analysis. Return rates for surveys with usable data are reported. Return rates for individual counties ranged from 12% (Anoka) to 22.5% (Brown) (see Table 3.2). Overall, females responded more frequently than males (63% vs. 37%) and the out-state counties (Cass, Olmsted, Brown, Polk) had a higher return rate than the Metro counties (Hennepin, Anoka) (18.7% vs. 14.7%). Younger drivers aged 18-34 (12.4%) had a very low return rate compared with the group aged 35 years and up (24.5%).

Table 3.2. **Survey return rates per county.**

County	Total Returned
Anoka	130 (12%)
Brown	135 (22.5%)
Cass	96 (13%)
Hennepin	223 (12.8%)
Olmsted	146 (18.3%)
Polk	108 (18%)
Total Return	**838 (16.8%)**

Of the usable sample, 48.1% (403) were aged 18-34 and 52.1% (429) were 35+ (6 respondents, or 0.7%, did not list their age). Of the younger group, 12.6% (N=51) were aged 18-20, or under the legal drinking age. Table 3.3 shows the mean age for each group, the mean number of years lived in the counties, annual mileage and annual income. Overall, both groups are closely matched on the annual mileage and annual income variables, with slightly more respondents in the older age group reporting incomes greater than $50,000/year.

Table 3.3. Sample Demographics

		18-34	35+
Mean Age		26.7 years	54.6 years
Mean Time in County		13.8 years	28.2 years
Annual Mileage			
	< 5000	14.1%	16.3%
	5001-15000	62.5%	63.4%
	>15001	23.1%	20.3%
Annual Income			
	<$50,000	48.4%	36.2%
	>$50,000	48.4%	57.6%

Awareness of Operation NightCAP

Awareness of Operation NightCAP was compared to awareness of other alcohol enforcement programs (local and national) to estimate how well the publicity for the program is working in comparison to other programs in operation. The following question was asked of participants:

- Have you ever heard of the following alcohol enforcement campaigns?
    - You Drink and Drive, You Lose
    - Operation NightCAP
    - Make a Pact, Make a Plan
    - Safe & Sober
    - Driver Hammered, Get Nailed (fictional program)
    - Last Call Program
    - 13 Deadliest Impaired Driving Counties

Participants could respond to more than one item in the question (see Figure 3.1). At the state level, statistical analyses were used to determine the overall differences in awareness of NightCAP between:

- NightCAP and non-NightCAP Counties
- Males and females
- Younger (18-34) drivers and older driver (35+)
- Metro Counties vs. Out-state Counties

The statistical methods and calculations used to compare results are documented in Appendix D.
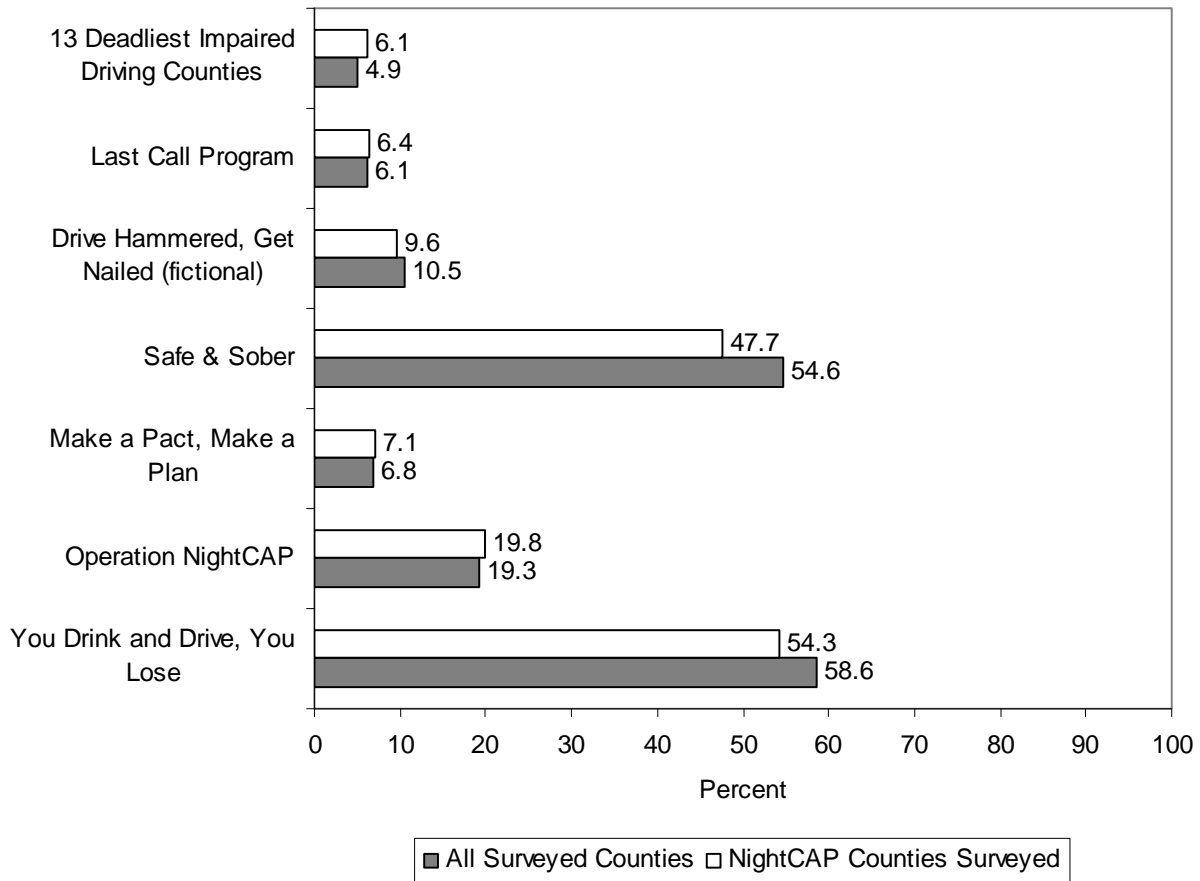
Figure 3.1. Comparison of awareness of national and local alcohol enforcement programs.

Awareness of Operation NightCAP was 19.8% within the NightCAP counties (N=118) and 19.3% for all six counties surveyed (N=163). This awareness was significantly lower than that of other programs that have been operating in Minnesota during the same time period, such as Safe and Sober and NHTSA's "You Drink and Drive, You Lose" Program.

- Overall, awareness of Operation NightCAP was statistically significantly higher in counties with Operation NightCAP than in counties without it. A stratified sampling for proportions indicated that the estimated range (95% confidence interval) for the percentage of awareness in non-NightCAP counties was 17.1-17.3% whereas the estimated range for the percentage of awareness in NightCAP counties was 21.2-21.3%. Because these two ranges do not overlap it indicates that there is a significantly higher awareness of NightCAP in the NightCAP counties (p<0.05).

- Overall, statistically significantly more males (25%) than females (16%) were aware of the Operation NightCAP Program (p=0.01).

- There was no difference in awareness between the younger age group (20.5%) and the older age group (19.1%) (p>0.05).

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- There was no difference in awareness between Metro counties (21%) and out-state counties (17%) (p>0.05).

Figure 3.2 shows a comparison of NightCAP awareness rates across the six surveyed counties. It also includes awareness of the "13 Deadliest Impaired Driving Counties" slogan for comparison, however, only differences in awareness of the NightCAP Program were compared statistically.
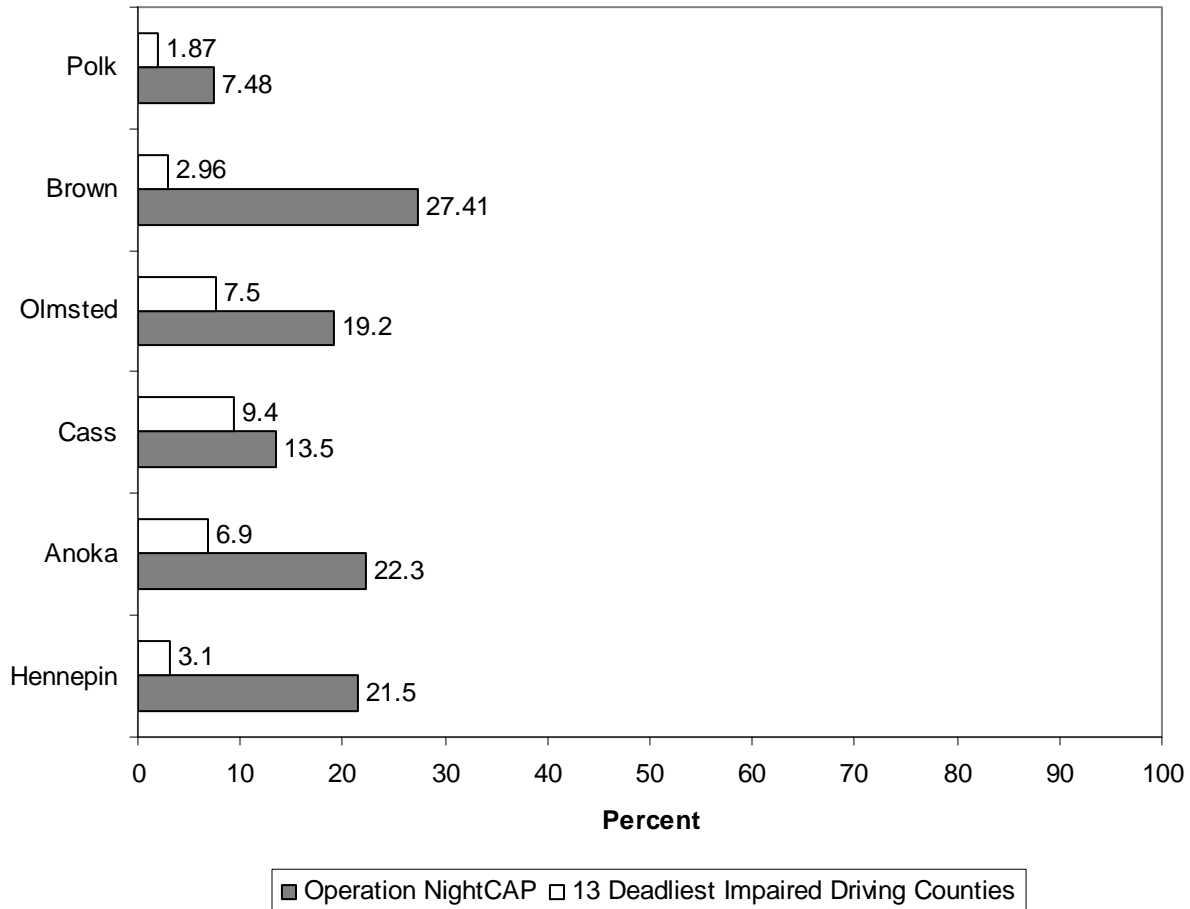
Figure 3.2. Awareness of Operation NightCap and the 13 Deadliest Impaired Driving Counties for the six surveyed counties.

Overall, the three NightCAP counties (Hennepin, Anoka, Olmsted) had significantly greater awareness of NightCAP than Polk County, which does not have NightCAP. However, Cass County's awareness of NightCAP was not any greater than that in Polk County. Additionally, Brown County had the greatest awareness of NightCAP compared to all counties, even though it does not currently participate in the NightCAP Program.

- Hennepin (21.5%), Anoka (22%) and Olmsted (19%) had significantly greater awareness than Polk (7.5%) (p's<0.01).

- Cass County (13.5%) did not have significantly greater awareness than Polk County (p>0.10).

- Brown County (27.4%) had the greatest awareness overall, and also had significantly greater awareness than Hennepin (p=0.02), Cass (p=0.01), and Polk (p<0.001).

How Do Drivers Hear About NightCAP?

Survey respondents who indicated that they knew of the Operation NightCAP Program were asked to identify how they heard about the program. Respondents could indicate more than one response for this question (see Figure 3.3). Television was the most commonly cited venue, followed by radio, then newspapers. The "Other" Category included 4 respondents who heard it at work, 12 who could not remember where they heard of it, 7 who heard about it through friends or "word of mouth", 1 who heard "sheriff's deputies talking about it", and 1 who said they saw it on a bus.
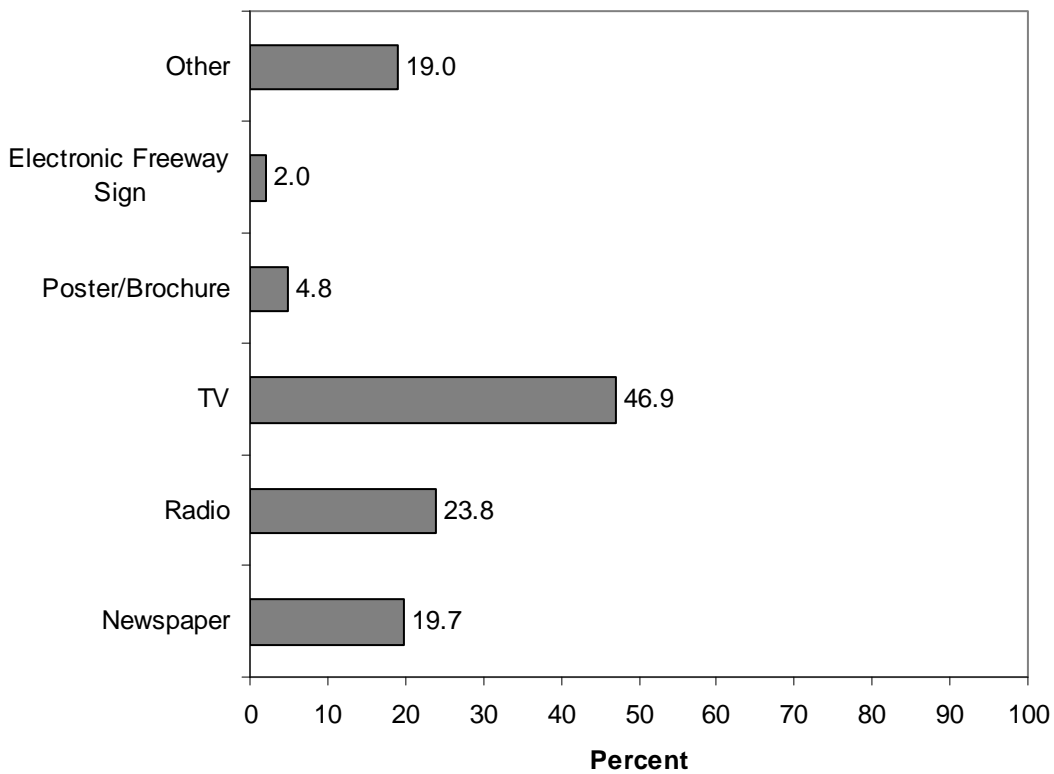
Figure 3.3. Survey responses for "How did you hear about Operation NightCAP?"

Note: Respondents could select more than one response so percentages will not add up to exactly 100%.

Have you ever heard of or seen the BAT (Blood Alcohol Testing) Mobile?

Overall, only 6.7% (N=56) of respondents had heard of or seen the BAT Mobile. These respondents were also asked to report how they had heard of it (see Figure 3.4). Of these respondents, 50% had actually seen the BAT Mobile on the road (driving or parked in their community) and an additional 22.2% had seen it on television. The Other category included 4 responses from law enforcement workers who saw it as part of their job, 1 respondent who does

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alcohol prevention research and 2 people who said they saw it at work (no context provided). Therefore, although only a small percentage of respondents have actually seen the BAT Mobile, it appears they tended to remember it when they saw it. However, a larger percentage of respondents have either never heard of or seen the BAT Mobile. This suggests that the BAT Mobile could be a useful tool for increasing the visibility of NightCAP saturation patrols.
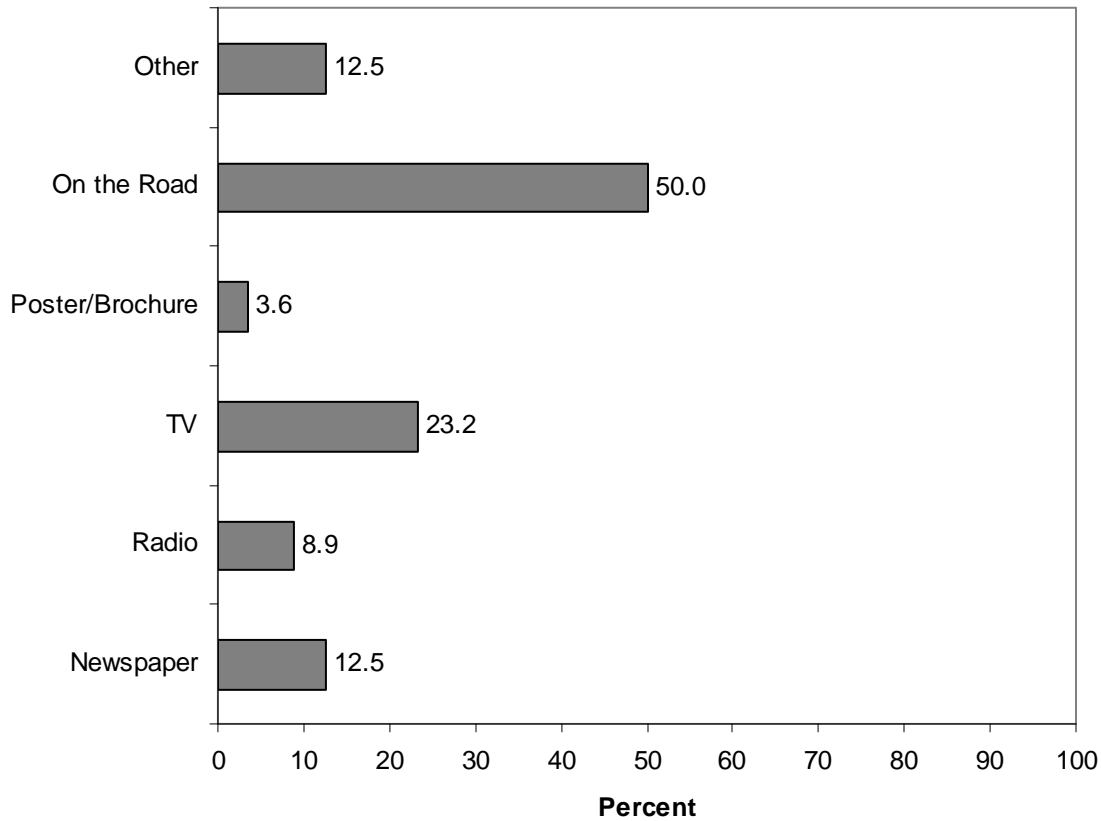
Figure 3.4. Response rates for "How did you hear of the BAT Mobile?" for participants who reported having heard of or seen the BAT Mobile.

Note: Respondents could select more than one response so percentages will not add up to exactly 100%.

Awareness of General Alcohol Enforcement

In addition to understanding whether drivers were aware of the NightCAP Program specifically, there was also an interest in gauging how drivers perceived impaired driving enforcement in general. In particular, it is possible that drivers are familiar with alcohol enforcement but may not necessarily know the names of the programs targeting impaired driving. Therefore, several questions were asked about general enforcement and the visibility of alcohol enforcement strategies on the road. For this section of the survey, respondents were provided with definitions of alcohol saturation patrols and regular police enforcement in order to ensure responses to the questions were more accurate (see Appendix C). For example, it is possible that drivers see saturation patrols in action but are not familiar with the term "saturation patrol".

Overall, 79% of respondents reported having read, seen or heard some type of advertising about alcohol impaired driving in the past 6 months. Additionally, 44% of respondents said they had seen, heard of or read about alcohol saturation patrols in the past 6 months. Follow-up questions indicate, however, that few have actually seen an alcohol saturation patrol while driving or have actually driven through an alcohol saturation patrol. In all four NightCAP counties surveyed, fewer than 10% of respondents reported having seen an alcohol saturation patrol in comparison to 15.6% in Brown County and 11.1% in Polk County (see Figure 3.5). However, in all six counties surveyed, fewer than 6% of respondents reported having driven through a saturation patrol before.
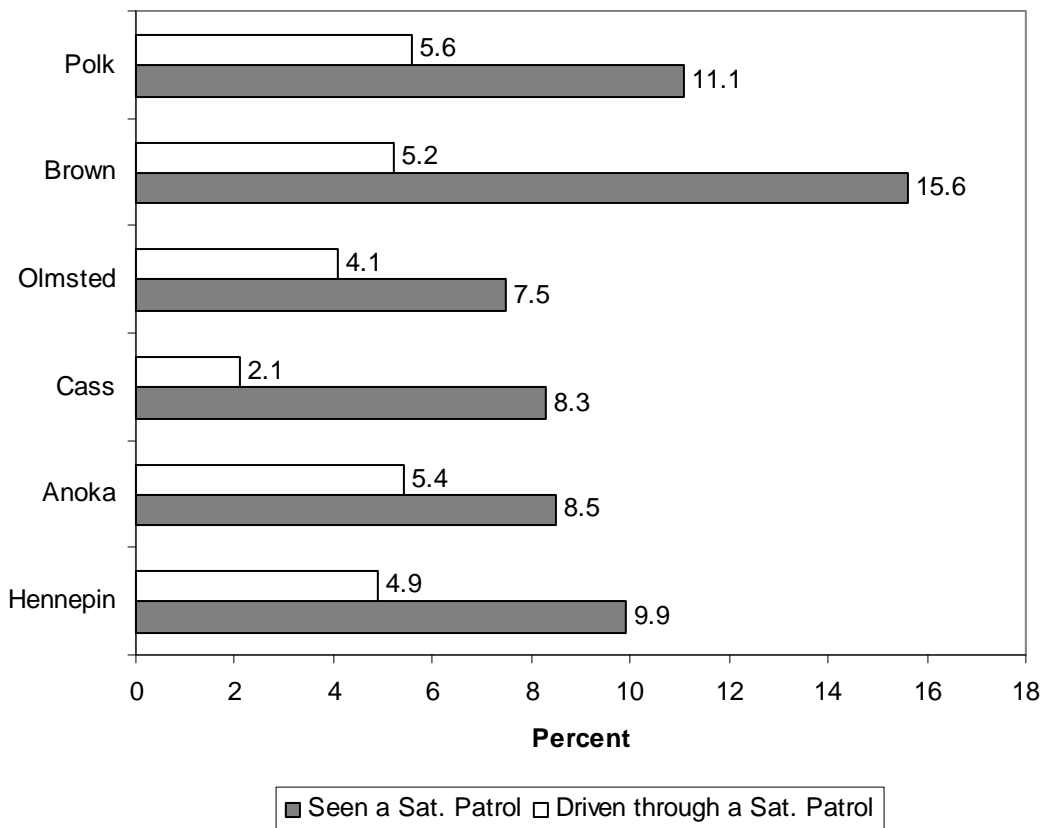
Figure 3.5. Response rates by county for "Have you seen an alcohol saturation patrol where police were looking for impaired drivers in the past 6 months?" and "Have you driven through an alcohol saturation patrol where police were looking for impaired drivers in the past 6 months?"

Awareness Summary

- Overall, current awareness of NightCAP (19%) is similar to the 22% rate reported in the 2002 Safe & Sober evaluation (BBC Research and Consulting, 2002).

- Awareness of the 13 Deadliest Impaired Driving Counties (implemented in 2003) is low (6.7%).

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- Despite a low awareness of Operation NightCAP in general, 44% of respondents said they had seen, heard of or read about alcohol saturation patrols in the past 6 months; however, few have actually seen an alcohol saturation patrol while driving.

- Additionally, 79% reported having read, seen or heard some type of advertising about alcohol-impaired driving in MN in the past 6 months

- Cass County has the lowest awareness of Operation NightCAP. It has a similar level of awareness to Polk County, which does not have the NightCAP Program:

    o Cass County has the lowest rate of having "driven through" a saturation patrol (2.1% compared with a 4.1%-5.6% for all other counties).

    o Cass County has the highest rate of driving frequently or very frequently while impaired (3.1% compared with 0.0-0.7% for all other counties).

    o Cass County respondents reported more frequently that drinking and driving was a problem in their community; 75% considered it a problem compared with 69.2-73.1% for the other counties surveyed.

Influence of Awareness on Driving Behaviors and Perceptions of Enforcement

A number of items on the survey asked about drinking and driving behaviors. Additionally, several items on the survey asked about drivers' perceptions with regard to impaired driving enforcement. A factor analysis was conducted on these items to determine the key attributes of drivers that may lead to risky drinking and driver behavior. Factor analysis is used to summarize patterns of correlations among the variables (in this case, the survey questions) and to help determine how they are related (Tabachnick & Fidell, 1998). Additionally, the factor analysis was used to determine whether knowledge of Operation NightCAP was associated with drivers' behaviors or perceptions of enforcement.

The factor analysis derived three main factors of behavior and perceptions related to the following beliefs about impaired driving:

1. Belief in a high likelihood of being caught on weekends and holidays,

2. Belief in a low likelihood of being caught on weekends and holidays, and

3. Belief that impaired driving *is not* a problem in one's community or in Minnesota.

Two questions were used to assess drivers' beliefs about being caught if people choose to drive after drinking. Figure 3.6 shows drivers' levels of agreement with the statement "It is very likely that if a person drove while impaired by alcohol on a weekend in my community they would be stopped by a police officer" while Figure 3.7 shows drivers' levels of agreement with the statement "It is very likely that if a person drove while impaired by alcohol on a holiday in my community they would be stopped by a police officer." There were no appreciable differences in levels of agreement between drivers who knew about the NightCAP Program and drivers who did not. For all drivers, 55.4% agreed or strongly agreed that is was very likely that that someone

would be caught if they drove after drinking on a holiday. However, only 29% agreed or strongly agreed that it is likely that someone would be caught if they drove after drinking on a regular weekend. This indicates that drivers associate alcohol enforcement with holidays, but not necessarily with other times of the year.
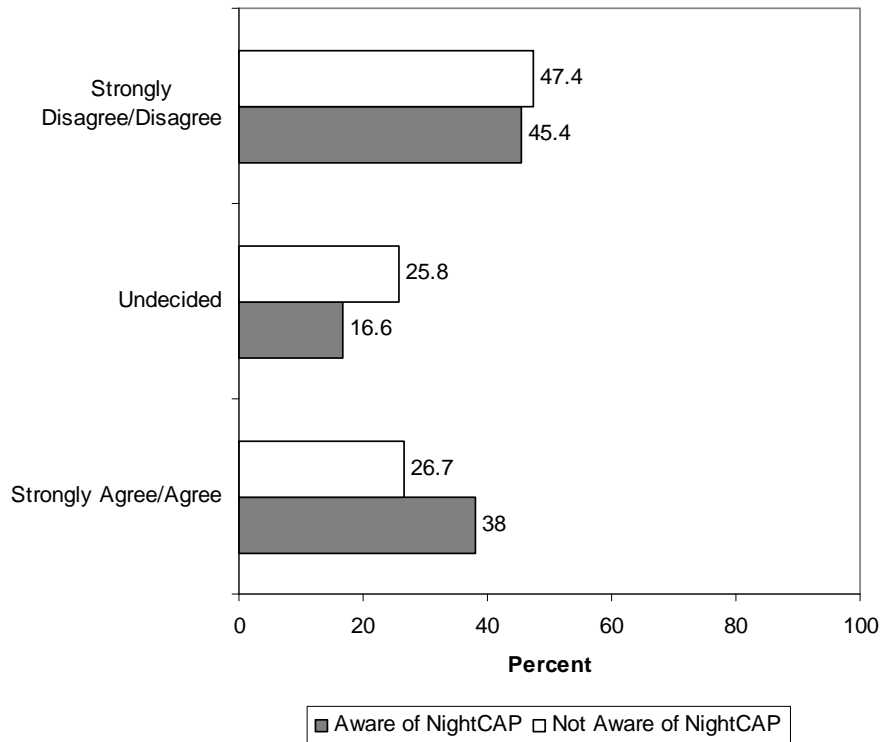
Figure 3.6. Respondents' levels of agreement with the statement "It is very likely that if a person drove while impaired by alcohol on a <u>weekend</u> in my community they would be stopped by a police officer".
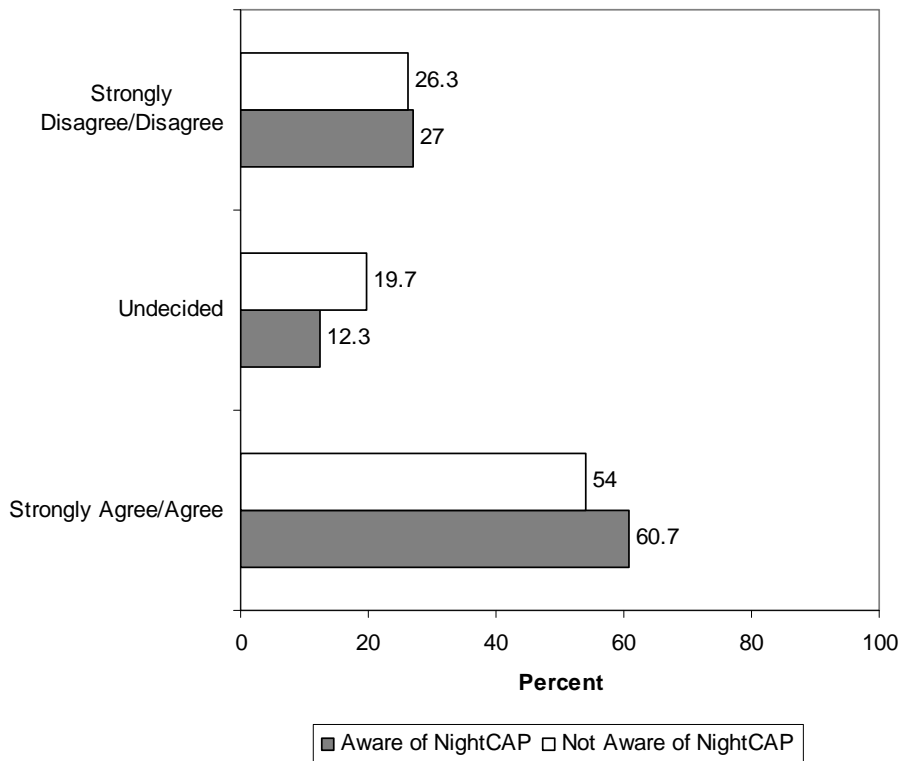
Figure 3.7. Respondents' levels of agreement with the statement "It is very likely that if a person drove while impaired by alcohol on a <u>holiday</u> in my community they would be stopped by a police officer".

The factor analysis indicated, for the whole sample, that drivers who more strongly agreed with the above statements (i.e., believe it is likely that someone will be caught), regardless of whether they knew about NightCAP, tended to also agree that the presence of police enforcement and advertising about impaired driving encouraged them and others not to drink and drive. Drivers who did not know about NightCAP and agreed more strongly with both statements tended to also agree that state and local police enforced impaired driving laws strictly. Drivers who know about NightCAP and agreed more strongly with both statements above tended to agree also that state and local police enforced impaired driving laws strictly, but to a lesser degree than those who were not aware of the NightCAP Program.

Drivers who were not aware of Operation NightCAP and who disagreed more strongly with the above statements (i.e., do not believe it is likely someone will be caught) tended to more frequently report driving a vehicle within two hours of drinking alcoholic beverages and driving while feeling impaired. In contrast, drivers who were aware of Operation NightCAP and who disagreed more strongly with the above statements tended to report driving a vehicle within two hours of drinking alcoholic beverages more frequently, but did not report driving more frequently while feeling impaired. The drivers who were aware of NightCAP and disagreed more strongly with the above statements also tended to more strongly believe that impaired driving laws were strictly enforced by state and local police. This suggests that driver behavior may be mitigated by beliefs drivers already hold about not driving while impaired, and are not necessarily influenced by the existence of impaired driving enforcement such as Operation NightCAP.

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The third factor derived from the analysis was related to drivers' beliefs about whether drinking and driving was a problem in their community and in Minnesota. Figures 3.8 and 3.9 show the levels to which drivers agreed or disagreed with the statements "I do not think drinking and driving is a problem in my community" and "I do not think drinking and driving is a problem in Minnesota". Overall, 11.4% agreed or strongly agreed that drinking and driving was not a problem in their community and 4.9% agreed or strongly agreed that drinking and driving was not a problem in Minnesota. Slightly more respondents who were not aware of NightCAP reported thinking that impaired driving was not a problem in their community or in Minnesota compared to those who were aware of the program.
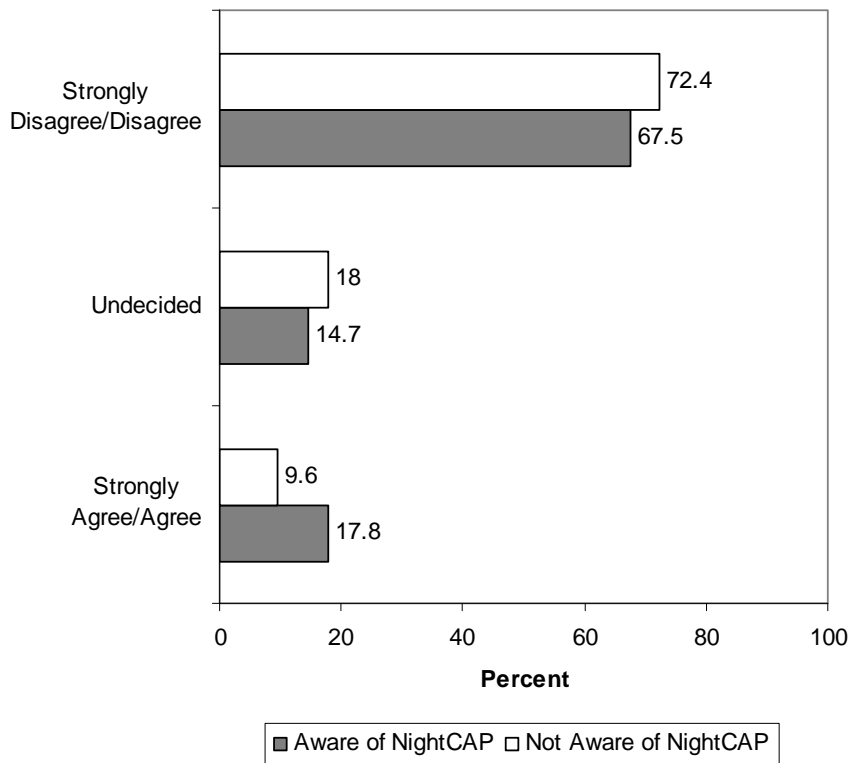
Figure 3.8. Respondents' levels of agreement with the statement "I do not think drinking and driving is a problem in my community".
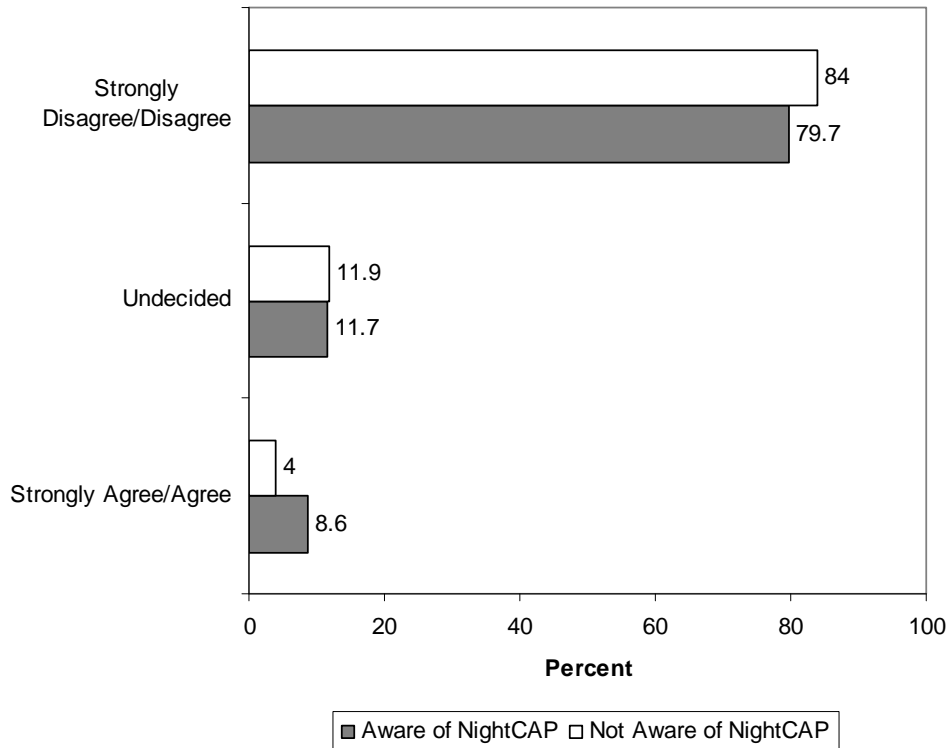
Figure 3.9. Respondents' levels of agreement with the statement "I do not think drinking and driving is a problem in Minnesota".

Drivers who were not aware of NightCAP and who agreed more strongly that drinking and driving was not a problem in their community or in Minnesota, also tended to agree that impaired driving laws were strictly enforced. Furthermore, they also tended to agree that police presence and advertising about enforcement encouraged them not to drive after drinking, but that it had no effect on other drivers. In contrast, drivers who were aware of NightCAP and who agreed more strongly that drinking and driving was not a problem in their community or in Minnesota, also tended to report more frequently that they drove within 2 hours after drinking or drove while impaired. It is not clear why there is a difference in behaviors and perceptions between the drivers who are not aware of NightCAP and those who are. It could be that those who are aware of NightCAP are not concerned with enforcement because they do not perceive themselves to be at risk of being caught (e.g., perhaps underestimate their level of impairment or law enforcement's ability to catch them). However, overall, this group of drivers who believe that impaired driving is not a problem in their community or in Minnesota is small and report more frequent engagement in these behaviors is small in this group of respondents.

Direct Changes in Risk Perception

One question on the survey attempted to directly quantify the effect of being pulled over by an enforcement patrol on drivers' perception of the risk of being caught. Overall, 9.8% (N=81) of the survey respondents reported having been pulled over by police during an alcohol enforcement campaign. Of these drivers, 70.3% (N=57) said it changed their perception of the risk of being caught driving after drinking or while impaired. Additionally, 18.5% (N=15) of

these drivers had been convicted of impaired driving. Of these 15 drivers, 13 (86.7%) said it changed their perception of the risk of being caught. This result suggests that experiencing a stop can directly affect one's perception of being caught driving after drinking or while impaired. Within the overall group (N=81), these drivers reported driving sometimes or frequently within 2 hours after drinking alcohol 30.8% of the time, while the rate for all respondents was 20.3%. When asked about driving while impaired, 3.7% of this group said they did it "sometimes" compared with 3.3% for the whole sample.

Driver Behavior and Perceptions of Enforcement Summary

- There were no differences in levels of agreement about perceptions of being caught while driving after drinking between drivers who knew about the NightCAP Program and drivers who did not.

- 55.4% agreed or strongly agreed it was very likely that that someone would be caught if they drove after drinking on a holiday

- Only 29% agreed or strongly agreed it is likely that someone would be caught if they drove after drinking on a regular weekend.

- 11.4% agreed or strongly agreed that drinking and driving was not a problem in their community

- 4.9% agreed or strongly agreed that drinking and driving was not a problem in Minnesota.

- More respondents who were aware of NightCAP reported thinking that impaired driving was not a problem in their community or in Minnesota compared to those who were not aware of the program.

- Three factors related to beliefs about being caught driving while impaired and whether impaired driving was a problem in one's community or in Minnesota explained drivers' perceptions of enforcement and their driving behavior.

Driver Survey Conclusions

Overall, the data indicate that drivers are aware of impaired driving enforcement in general, with approximately 79% a respondents reporting they saw or heard an impaired driving enforcement advertisement in the previous 6 months. However, the overall awareness of Operation NightCAP remains at approximately 19% in the counties surveyed. This result is similar to the 22% of awareness reported in a previous survey about impaired driving enforcement and the Safe and Sober Program in Minnesota in 2002 (BBC Research & Consulting, 2002). On a positive note, the percentage of young males, who are a target audience for drinking and driving campaigns, who knew about the program (25%) was higher than the overall awareness rate. These results indicate that advertising about impaired driving is reaching Minnesota drivers, but specific advertising associated with Operation NightCAP and its enforcement efforts is not. For example, very few respondents were aware of that Operation NightCAP targets the 13 Deadliest Impaired

Driving counties. Additionally, the fact that some counties, such as Cass County, have low awareness of the program even though they participate in the program, suggests that the advertising and visibility of patrols may not be sufficient in certain areas. Tools such as the BAT Mobile were also not well known in this sample of drivers, but the results indicated that highly visible tools such as the BAT Mobile may be memorable to drivers when they see it.

Drivers' beliefs about when someone is likely to be caught drinking and driving (weekends vs. holidays) suggests that drivers associate alcohol enforcement with holidays but not necessarily with other times of the year. Additionally, regardless of NightCAP awareness, drivers report changing their behavior when they also perceive the high likelihood of being caught on weekends and/or holidays. This suggests that NightCAP saturation patrols during high-alcohol times (weekends and holidays) and, more importantly, the expectation that patrols exist during these times are effective in changing behavior. However, knowing about Operation NightCAP appears to reduce the perception that impaired driving laws are strictly enforced. This belief could exist because drivers aware of the program do not feel it is effective. They may rarely see patrols (or never see patrols) or know of individuals who drive regularly while impaired who are never caught.

Finally, knowing about NightCAP's existence does not necessarily change drinking and driving behaviors when the following beliefs about impaired driving are held:
- A belief that impaired driving is not a problem,
- A belief that the risk of being caught is low, or
- That impaired driving laws are not strictly enforced.

The drivers who hold these beliefs may feel that drinking alcohol does not impair their ability to drive or may believe that enforcement programs are not effective. However, drivers who experienced a police stop during an alcohol enforcement campaign reported changing their perceptions of how easy it is to be caught when driving after drinking. This result indicates that having direct experience with the police conducting an enforcement campaign is significant in changing one's perceptions of their risk of being caught.

Recommendations Based on Driver Survey Results

- Increase visibility of patrols during non-holiday events. Currently, perceptions of being caught are closely linked to holiday enforcement and not necessarily to other high-alcohol times, such as weekends. Increased visibility of enforcement could result in increased perceptions of being caught and deter drivers from driving while impaired. Methods used to advertise holiday campaigns should be employed during regular weekends when patrols are operating. Overall, patrols are out frequently on regular weekends (i.e., once a month), but are not being seen by drivers.

- Concentrate enforcement on high-volume and high alcohol-related crash corridors to increase visibility of patrols. For example, assign a couple of patrol cars to patrol a highly visible roadway earlier in the shift.

- Use recognizable tools such as the BAT Mobile in high crash areas (e.g., Hennepin County) on a regular basis.

- Draw specific attention to the full range and extent of NightCAP activities in advertising (e.g., NightCAP Junior, special events, weekend patrols) to increase expectations that enforcement occurs regularly and not just on "special occasions" like holidays.

- Advertise the success of NightCAP patrols when possible to increase the perception that laws are enforced strictly among those who know about the program. Also, advertise the specific aim of an event and whether it was successful (e.g., did a Junior event catch underage impaired drivers?)

- Define "NightCAP" in advertising to increase awareness that it is an alcohol enforcement program. This may help drivers associate the program with patrols they see on the road.

- Future research should address whether it is necessary to advertise the 13 Deadliest Impaired Driving Counties to the general public. Overall, very few respondents knew about the 13 Deadliest counties. Advertising showing that the NightCAP Program only operates in the 13 Deadliest Counties could lead to drivers outside these counties believing enforcement is not sufficient within their counties, thus possibly encouraging riskier driving behaviors when alcohol is involved. However, answering this question was outside the scope of this survey.

Chapter 4
Officer Survey

Methods

The officer survey was conducted to understand the operational issues that affect planning and participating in Operation NightCAP events for NightCAP Coordinators and patrol officers. Two surveys were developed for this task. The first survey was specifically directed at NightCAP Coordinators (see Appendix E), who are responsible for planning the annual events in their districts and coordinating efforts between local agencies for individual events. NightCAP Coordinators are typically state patrol officers within a district. Nineteen current and/or former NightCAP Coordinators were sent this survey. The Coordinator survey attempted to identify any problems or issues associated with the organization and administration of NightCAP events.

Coordinators within a district or county are required to plan the annual saturation events for the NightCAP Program and conduct the administrative tasks associated with running the program. Coordinators who supervise districts with one of the 13 Deadliest Impaired Driving Counties in it must submit quarterly plans to the Federal Projects Coordinator outlining the specific dates, times and agencies they will be using while conducting operations. Overall, there are a number of criteria each event must meet and which must be organized by the Coordinator:

- Each event must have state patrol troopers, county deputies, and municipal officers scheduled.

- Counties are required to have a minimum of one saturation event per month, per county; may have more if funding permits.

- Each listed event should also have a lead officer or deputy named from each of the participating agencies, their telephone, e-mail address and FAX number. (Coordinators are required to explain any paperwork associated with participation to these agencies.)

- Coordinators (counties) are required to manage the budget and stay within budget. Use only 5% of budget for administration of the Program within the county or district.

- Coordinators (or agency leads) are required to complete saturation event reports and rosters of participating officers, and send in at the end of the event.

- A pre-event briefing is required to be conducted for saturation events that have more than 5 enforcement officers participating.

- Coordinators (or agency leads) are encouraged to schedule a Drug Recognition Expert (DRE) for each event.

The second survey was targeted at enforcement officers who participate in the saturation patrols (see Appendix F). Enforcement officers were randomly selected to participate in the survey based on a process of selection designed to obtain information from officers across the state.

First, 10-15 state patrol troopers were randomly selected from each district using the 2005 NightCAP roster, resulting in 81 state patrol members to be surveyed from all districts. Second, 19 local enforcement agencies were randomly selected from the 2005 NightCAP roster. Then, several officers from within each of these agencies were randomly selected to participate, resulting in 112 officers from the 19 agencies. Finally, 11 county enforcement officers were selected from the 2005 roster of county enforcement participants. The total number of surveys sent to enforcement officers was 204.

Coordinator Survey Results

Fourteen NightCAP Coordinators returned the survey. Thirteen were with the State Patrol and one was with a local law enforcement agency. Of the 14 who returned surveys, 8 had previously participated as an agency lead for the NightCAP Program and 13 had previously or currently participated in scheduled patrols. Results for this survey are related to Planning and Execution of Events, Scheduling Events and Reporting. Additionally, Coordinators were asked about media coverage in their counties/districts and to suggest changes to the program. Results and comments for all questions are located in Appendix E.

The counties reported by the Coordinators as the ones in which they participated in NightCAP saturation patrols in FY 2005 and FY 2006 did not always match the 13 Deadliest Counties. This may reflect the fact that some saturations are conducted outside the 13 Deadliest counties for special events (e.g,. festivals) or on college campuses (e.g., NightCAP Junior events). On average, Coordinators reported participating in 10 events per year (range: 0-36 events). The following counties were listed by the Coordinators as ones in which they participated in NightCAP events in FY 2005 and FY 2006 (FY 2006 13 Deadliest Impaired Driving Counties are in **bold**):

- **Anoka**
- Becker
- Blue Earth
- Brown
- Carver
- **Cass***
- Cottonwood*
- **Dakota**
- **Hennepin**
- Itasca
- **Kandiyohi****
- LeSueur**
- Lyon**

- Martin**
- Mcleod*
- Nicollet
- Nobles
- Otter Tail
- **Ramsey**
- **Scott**
- **Sherburne**
- Sibley
- **St. Louis**
- **Stearns**
- **Washington**
- **Wright**

* Reported only for FY 2005
**Reported only for FY 2006

Planning & Execution of Events

Planning includes annual event planning, individual event planning, and coordinating budgets. Coordinators reported spending an average of 8.35 hours (range: 1-30 hours) planning the annual event schedule for Operation NightCAP (e.g., quarterly schedules, budgeting, liaising with other agencies, etc). In addition, they reported spending an average of 2.69 hours (range: 1-10 hours) planning for each individual event (e.g., preparing briefings, etc) and 3.15 hours on post-event tasks (e.g., preparing saturation reports, etc). Overall, the Coordinators found the planning tasks relatively easy to complete, although some tasks were considered time consuming, such as transferring information from activity reports onto the NightCAP saturation report. Figures 4.1 and 4.2 show Coordinators' levels of agreement with various statements related to annual and individual planning of events. Figure 4.3 shows the number of Coordinators who experienced particular problems during the planning and execution of individual NightCAP events. "Difficulty finding officers to participate" was the most common problem cited, followed by budget constraints, and problems cooperating with or assisting participating agencies before or after events.
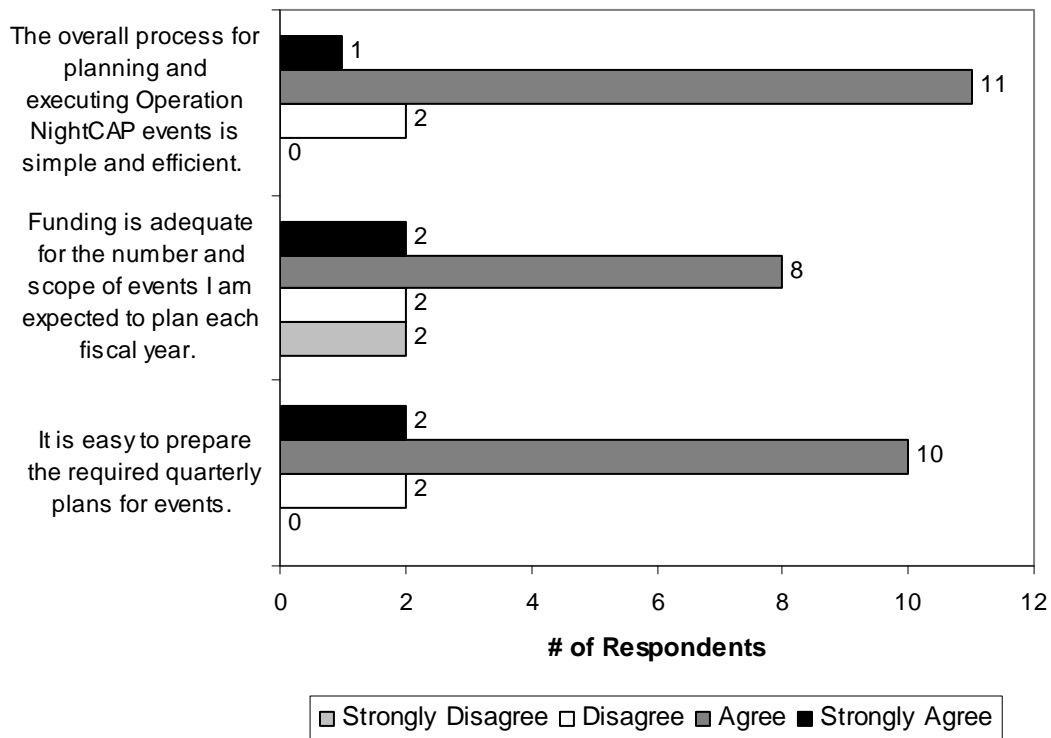
Figure 4.1. Number of Coordinators who agree or disagree with statements related to the annual planning of Operation NightCAP events.

Coordinators frequently commented on aspects of the planning process and about the Program. A common concern was a lack of funding and the feeling that not enough money was provided annually to meet Program obligations as they currently exist. For example, one Coordinator commented that there are *"more events and areas to work than have money for"*. Another common minor concern was the problem of interacting with other participating agencies.

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Interaction problems cited included comments about agencies that did not keep track of their invoices properly or who were confused by the process. Additionally, issues with agencies' motivations to participate (e.g., agencies not interested in participating in NightCAP patrols) was cited as a problem. Finally, one problem cited for a specific rural county (Cass) was geography. The Coordinator for this county found it difficult to coordinate the pre-event briefing because many of the participating agencies were 50-60 miles apart. It was not specified how many patrol cars participated in a single event in Cass County or how large an area was typically covered, but this comment suggests that patrols are far away from each other and that few vehicles may be tasked with patrolling large areas. If this is the case, this may explain why the visibility of NightCAP in Cass County is low and it may indicate a larger problem related to patrolling that is specific to rural counties.
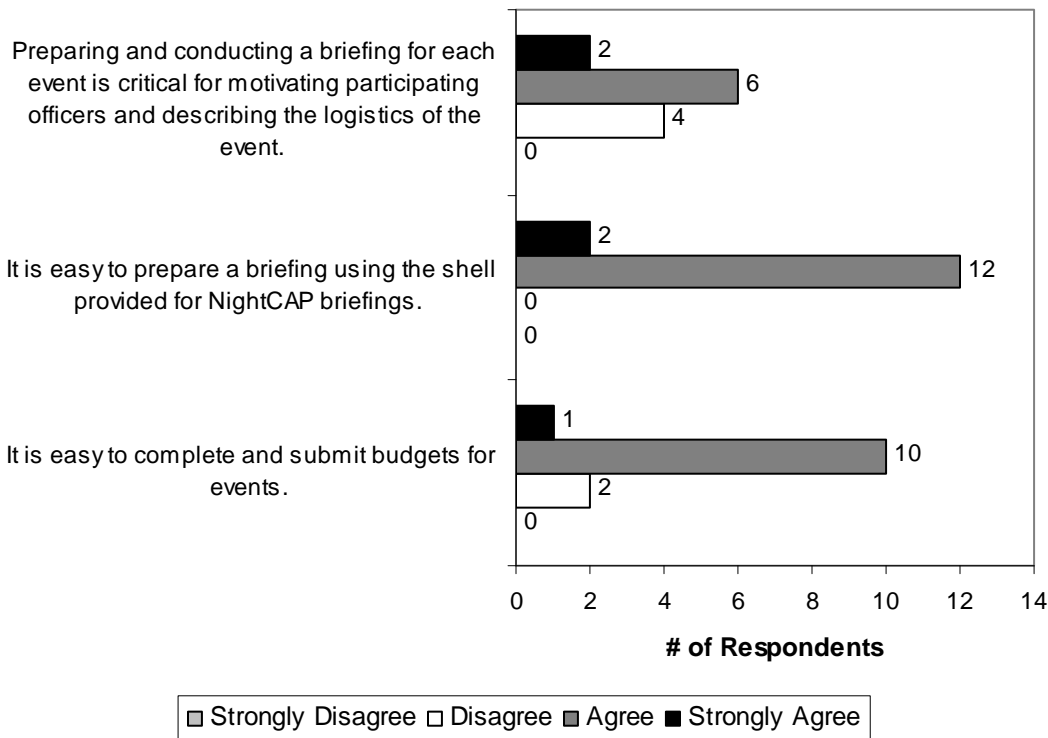
Figure 4.2. Number of Coordinators who agree or disagree with statements related to planning each individual NightCAP event.
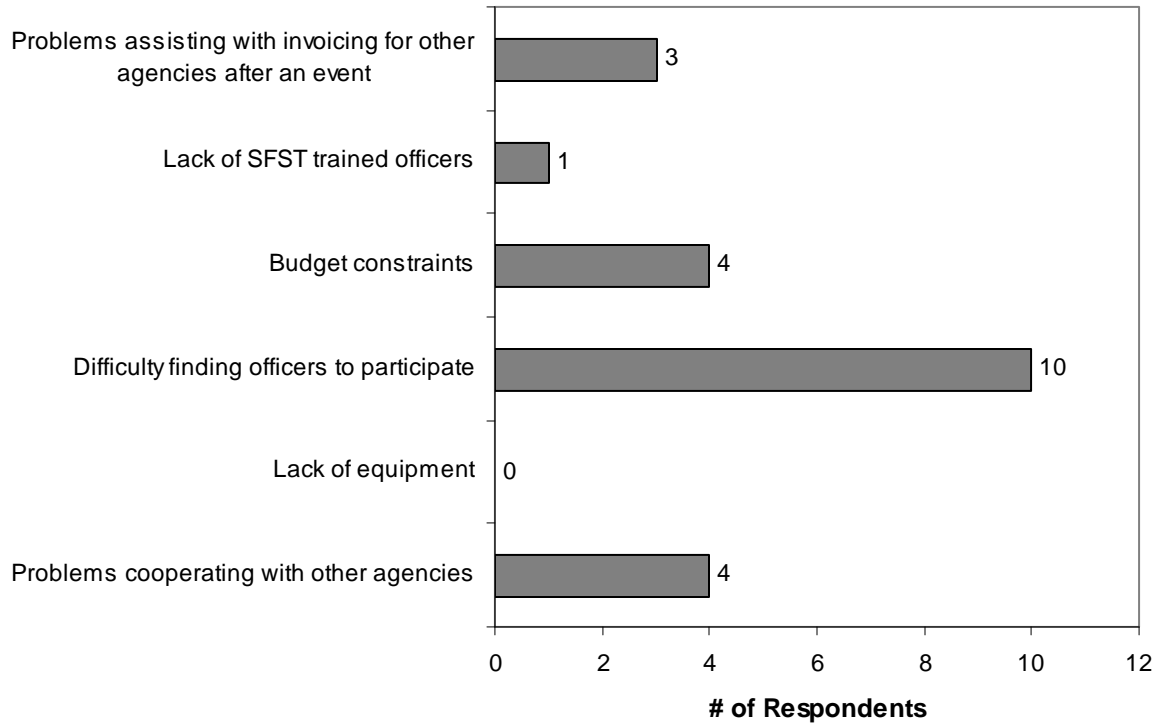
Figure 4.3. Number of Coordinators who experienced one or more problems while planning and executing individual NightCAP events.

Scheduling Events

Overall, most Coordinators reported that scheduling officers for events and selecting dates for events was easy (see Figure 4.4). However, 10 Coordinators reported difficulty scheduling a Drug Recognition Expert (DRE) for events and 5 reported that scheduling on holidays was difficult, particularly during the summer months. An additional concern was officer motivation. Several Coordinators reported that it was difficult to find officers who were motivated to participate in Operation NightCAP. Two Coordinators reported that officers were more motivated by overtime pay than by a desire to conduct DWI enforcement. One Coordinator commented on the overwhelming number of overtime details that exist (e.g., NightCAP, HEAT, Safe & Sober, and other contracted services) and felt that there were simply not enough officers to meet the demands of all the overtime programs ("*Troopers are 'burnt out'*"). The following comments are presented as examples:

- *"State Patrol Troopers are overwhelmed w/ overtime details i.e. NightCAP, Safe & Sober, HEAT, contracted services. Troopers I talk to are getting "Burnt Out" on overtime."*

- *"Some officers motivated more by overtime money than by actually wanting to conduct DUI enforcement"*
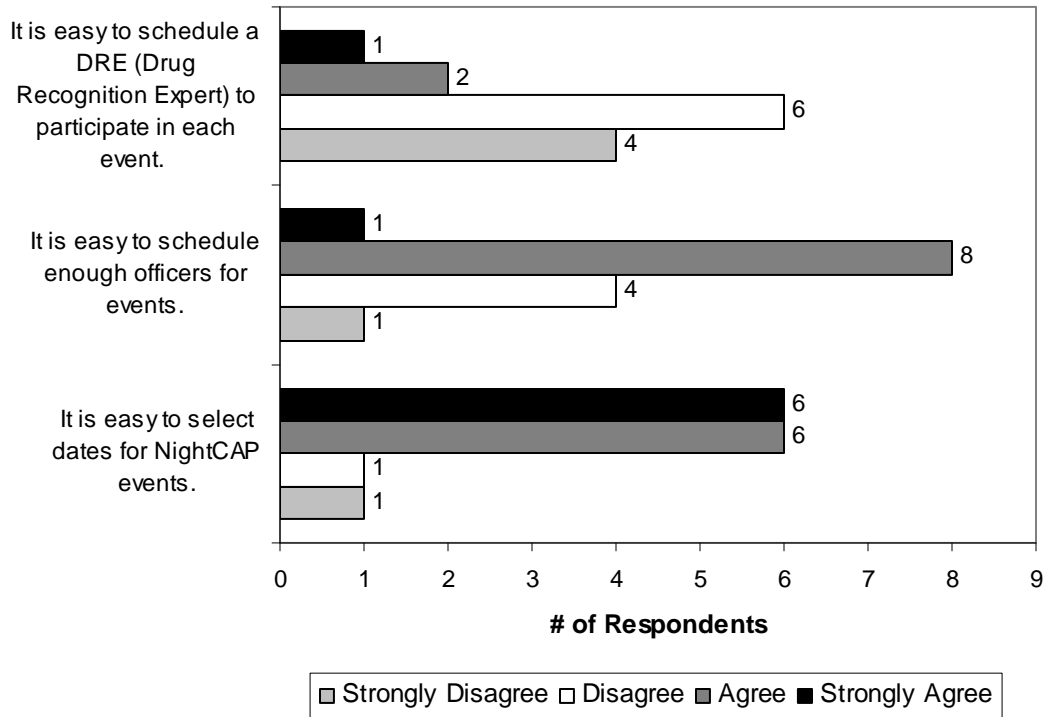
Figure 4.4. Number of Coordinators who agree or disaggre with statements related to scheduling officers for events and selecting dates for NightCAP events.

Reporting

Overall, Coordinators indicated that the reporting tasks they have to complete are reasonably simple (see Figure 4.5). However, problems were identified with getting shift activity sheets back from officers after events and with getting participating agencies to return invoices or required documents on time. Therefore, Coordinators found that the actual tasks they have to complete are easy only when all the necessary documentation is returned to them on time. Problems arise when they have to go to an officer or a participating agency and remind them to return documents. The following comments are presented as examples:

- *"Officers failing to fax/send in activity sheets at end of shift despite reminders"*

- *"Problems with participating agencies to send in report forms, too much follow up involved"*
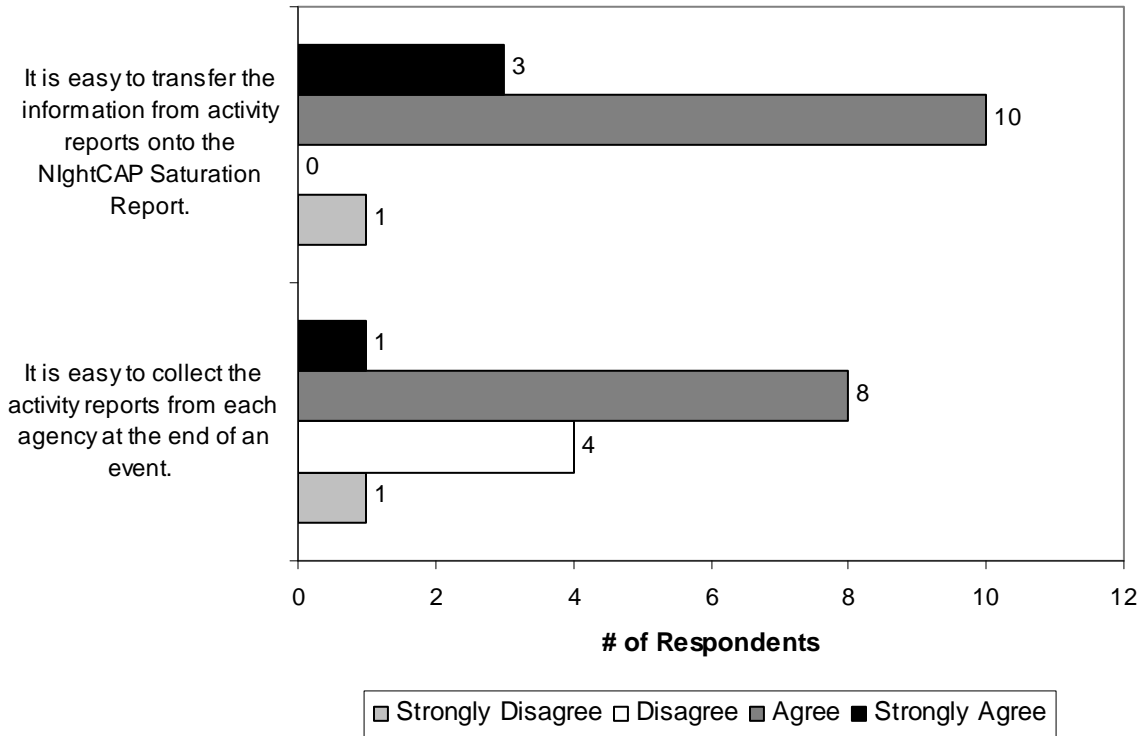
Figure 4.5. Coordinators' level of agreement with statements related to the reporting activities involved in NightCAP.

Media Coverage

Overall, 10 of 14 Coordinators felt that media coverage was adequate within the NightCAP counties they covered and 7 reported that they work independently with their local media to help advertise NightCAP events. However, there were some problems reported with media coverage. One Coordinator commented that the local media in Cass County was supportive of publicizing saturation statistics, but added that the saturations were small in number and the arrest statistics were not good. Another Coordinator felt that there was no media coverage at all in his area (Anoka, Hennepin & Scott Counties). Finally, one Coordinator commented that the people arrested during NightCAP saturations often said they were aware the Program was operating in the area.

Program Changes

In the past year, changes have been made to the Operation NgihtCAP Program to help facilitate better operation of the Program. The Coordinators were asked which of three recent changes that occurred were effective in reducing alcohol-related fatal and severe-injury crashes. Figure 4.6 shows that Coordinators' opinions were mixed for the following changes:

- Having a NightCAP Coordinator for each County versus one for the District when more than one county in a District gets funding

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- Funding only the 13 Deadliest Impaired Driving Counties versus diving funding across the 87 counties

- Targeted funding outside the 13 Deadliest Impaired Driving Counties for NightCAP Junior/Special events
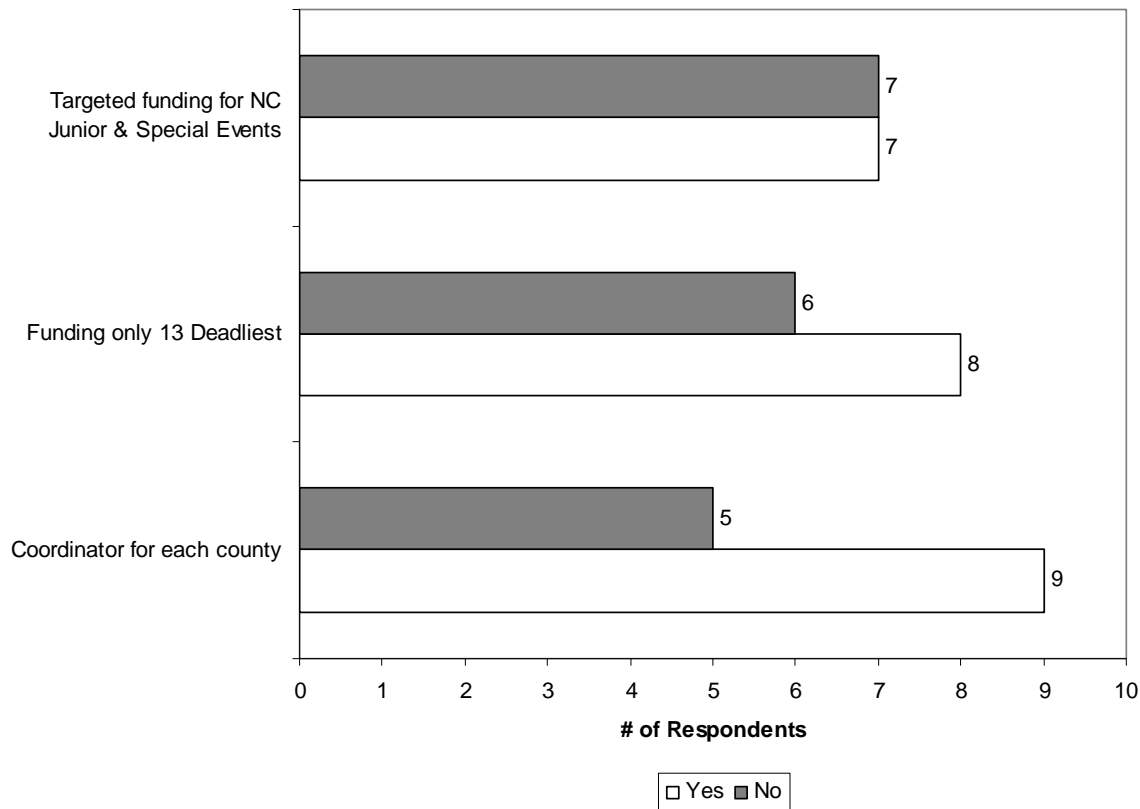
Figure 4.6. Coordinators' responses about the effectiveness of recent changes to the NightCAP Program.

Finally, Coordinators were asked to describe and explain any suggestions for changes to the program that they felt would improve their ability to plan and manage future NightCAP Operations and to make general comments about the Program. The comments received are listed below:

- *"Give the districts more leeway on how to use their budget. Do not make the requirement of one coordinator per county (folks at the district level handle tasks much more complicated than this. They resent others dictating how they accomplish a mission)"*

- *"More time to plan and more money to implement"*

- *"On duty operations have been very effective but supporting them with "equipment" that we can hand out is essential. I get more out of $50 worth of equipment for an On Duty officer than I do time and a half for 8 hours"*

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- *"Funding ability to conduct NightCAP operations in counties outside of the 13 deadliest"*

- *"It is a lot of work that takes time from my other responsibilities. It is very worthwhile, but it interferes with other duties. A consistent level of funding would at least allow me to plan and budget my time well in advance."*

- *"The reports need additional time to be sent in"*

Overall, the results from these questions reflect previous comments regarding funding for events and the problems associated with getting reports in a timely manner. Funding is cited as the main problem.

Coordinators Participating in Saturation Events

Coordinators were asked a subset of questions directly related to participating in NightCAP saturation patrol events. Overall, the majority (N=11) of Coordinators reported that they were motivated to participate in NightCAP saturation events and that they would be willing (N=12) to participate in more events if additional funding was available. Figure 4.7 shows the number of Coordinators who agreed or disagreed with statements directly related to participating in NightCAP events. In general, results were mixed for the questions related to DREs, the BAT Mobile and the pre-event briefings. For the DRE and BAT Mobile, the high number of neutral results may indicate a lack of experience with both. For example, Coordinators reported that DREs were hard to schedule, while the BAT Mobile is typically used in rural situations and not all the time. The neutral and negative responses to the pre-event briefing may reflect the fact that a Coordinator is typically giving the briefing and may not have a good understanding of how well the officers are motivated by the briefing.
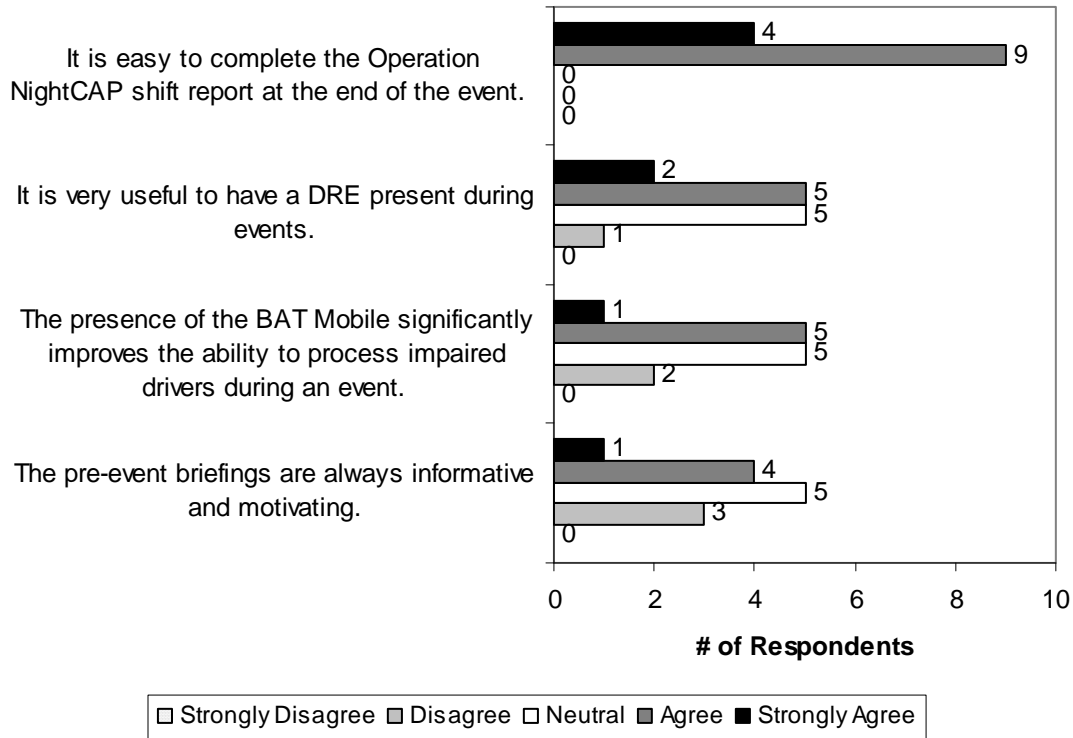
Figure 4.7. Number of Coordinators who agree or disagree with statements related to participation in NightCAP saturation events.

Coordinators were also asked to indicate whether they had experienced certain problems while participating in NightCAP saturation events. Six reported experiencing excessive processing times for detained drivers, two reported inadequate detention facilities, two reported a lack of cooperation from other agencies during events and one reported a lack of breath testing equipment as problems. Although it may not be possible to handle some of these problems within the scope of the NightCAP Program, they represent problems that could cause morale to suffer and or those that could compromise the effectiveness of the program if encountered frequently.

Coordinator Survey Summary

- Receiving reports in a timely manner from agencies or officers involved in a patrol was considered a problem by Coordinators.

- Some Coordinators reported too much time was required or not enough time was available given their other responsibilities to complete NightCAP tasks.

- Coordinators did not feel the Program funding provided matched the expected Program goals for the fiscal year.

- Coordinators reported problems with scheduling enough officers for NightCAP events during busy holiday times (e.g., summer) and because of other overtime program commitments (e.g., HEAT, Safe & Sober).

- Funding (or lack) was an issue and there was disappointment expressed by former Coordinators whose counties have been dropped from the top 13.

- DREs were considered hard to schedule.

- Some Coordinators reported problems motivating officers or finding motivated officers to participate in patrols.

- Excessive processing time was the most common problem experienced during a NightCAP event.

- Most Coordinators considered media coverage to be adequate; however, coverage was considered weak or non-existent in a few counties (e.g., Anoka, Hennepin).

Coordinator Survey Conclusions

Overall, Coordinators reported that the planning and reporting processes for NightCAP were straight-forward and easy to complete provided they received information from participating agencies in a timely manner. Some Coordinators reported that the time involved in planning Operation NightCAP's fiscal events and individual program events were time consuming when considered in conjunction with other job responsibilities. This may be a consequence of these individuals already having significant job responsibilities in their districts as well as being responsible for coordinating NightCAP activities (and possibly other overtime activities) throughout the year. Additionally, only 50% of the Coordinators felt that the recent changes to the program were beneficial in helping reduce alcohol-related fatalities and severe injuries in their counties. However, the crash data does show that the change to the 13 Deadliest Impaired Driving Counties program model may be beneficial in reducing these crash rates.

Although the Coordinators reported that media coverage was adequate, their comments indicate that it may not be sufficient for highlighting the efforts of the Operation NightCAP Program specifically. For example, comments indicated that media coverage for non-holiday events was not sufficient to make the driving public aware that alcohol enforcement takes place all year round. These comments by coordinators are in accordance with the findings of the Driver Survey that indicate drivers are more aware of enforcement on holidays, but not necessarily other times of the year. Operation NightCAP Coordinators currently plan a minimum of one saturation patrol event a month in targeted counties. It is likely that the perception that enforcement only occurs on holidays is due to the fact that the media advertises holiday impairment events more conspicuously than those that occur at other times of the year.

Additional issues with advertising were also reported. The Coordinator for Anoka, Hennepin and Scott counties felt that there was no media coverage at all in his area. This perception, if accurate, is problematic because Hennepin and Anoka are #1 and #3, respectively, of the 13 Deadliest Counties. A lack of publicity in these areas could be related to the low perceptions of

being caught found in the Driver Survey or the perception among those who know about NightCAP who feel impaired driving laws are not as strictly enforced as other drivers do. Finally, in one county, drivers appeared to be aware that the NightCAP Program was in their county, yet were still being pulled over and arrested for DWI. This suggests they may be among the problem group of drivers who are aware of NightCAP but still report driving after drinking, possibly because they do not believe they will be caught.

Scheduling was the largest problem identified by many of the coordinators. First, comments indicated that the overtime requirements of the NightCAP Program and additional programs (e.g., HEAT) made it difficult to fill schedules because officers were "burnt out" on overtime duties. Overtime pay alone may not be sufficient to motivate participation in this enforcement program when other overtime programs are also in operation. Second, Coordinators commented that some officers were solely motivated by the overtime pay and not as committed to the goals of the NightCAP Program. Because not all Coordinators considered the pre-event briefings to be useful, it may be that some Coordinators are not including appropriate motivational information during briefings or while recruiting for events that may help underscore the goals of the Program and its potential effectiveness. Alternatively, Coordinators may not be aware that the briefing is beneficial or motivating to the officers involved.

Recommendations Based on Coordinator Survey

- Provide better explanations for funding only the 13 Deadliest Counties due to funding limitations (e.g., targeting due to limited funding is a necessary compromise).

- Encourage coordinators to use existing guidelines to motivate officers during pre-event briefings and during the events (e.g., work together on tactics for a portion of the shift before everyone goes out on patrol).

- Work with NightCAP organizers to develop ways to increase the visibility of patrols, particularly on non-holiday weekends. For example, it may be necessary for one or more vehicles to patrol a high-visibility roadway during a shift to increase the visibility of enforcement even if it means some DWI offenders may not be caught.

- Results of both the Driver Survey and the Coordinator Survey indicated that advertising could be more effective for non-holiday events. Developing appropriate ways to convey the results and goals of the Program after non-holiday events should be investigated. However, educating the media to reporting needs outside of holiday events could be challenging.

Officer Survey Results

Forty-two percent of the officers returned their surveys. Of these returned surveys, 38% (N=33) were State Patrol, 55% (N=47) were local (municipal) law enforcement and 7% (N=6) were county law enforcement. Overall, 74% indicated they participated only in enforcement activities, 12% acted only as agency leads, and 14% participated in enforcement activities and as an agency lead. The questionnaire and results for all questions are located in Appendix F.

Officers were asked to indicate which county or counties they had worked in for Operation NightCAP in FY 2005 and FY 2006. Officers could list more than one county. For FY 2005, the 86 officers listed 129 instances of counties in which they worked. These 129 instances included 35 Minnesota counties, and 93 (72%) instances listed one of the 14 Deadliest Impaired Driving Counties for FY 2005. For FY 2006, there were 112 instances of counties listed which accounted for 31 Minnesota Counties, and 86 (77%) were instances of the 13 Deadliest Impaired Driving Counties for FY 2006. Figure 4.8 shows the number of respondents who listed each of the 13 Deadliest Impaired Driving Counties.
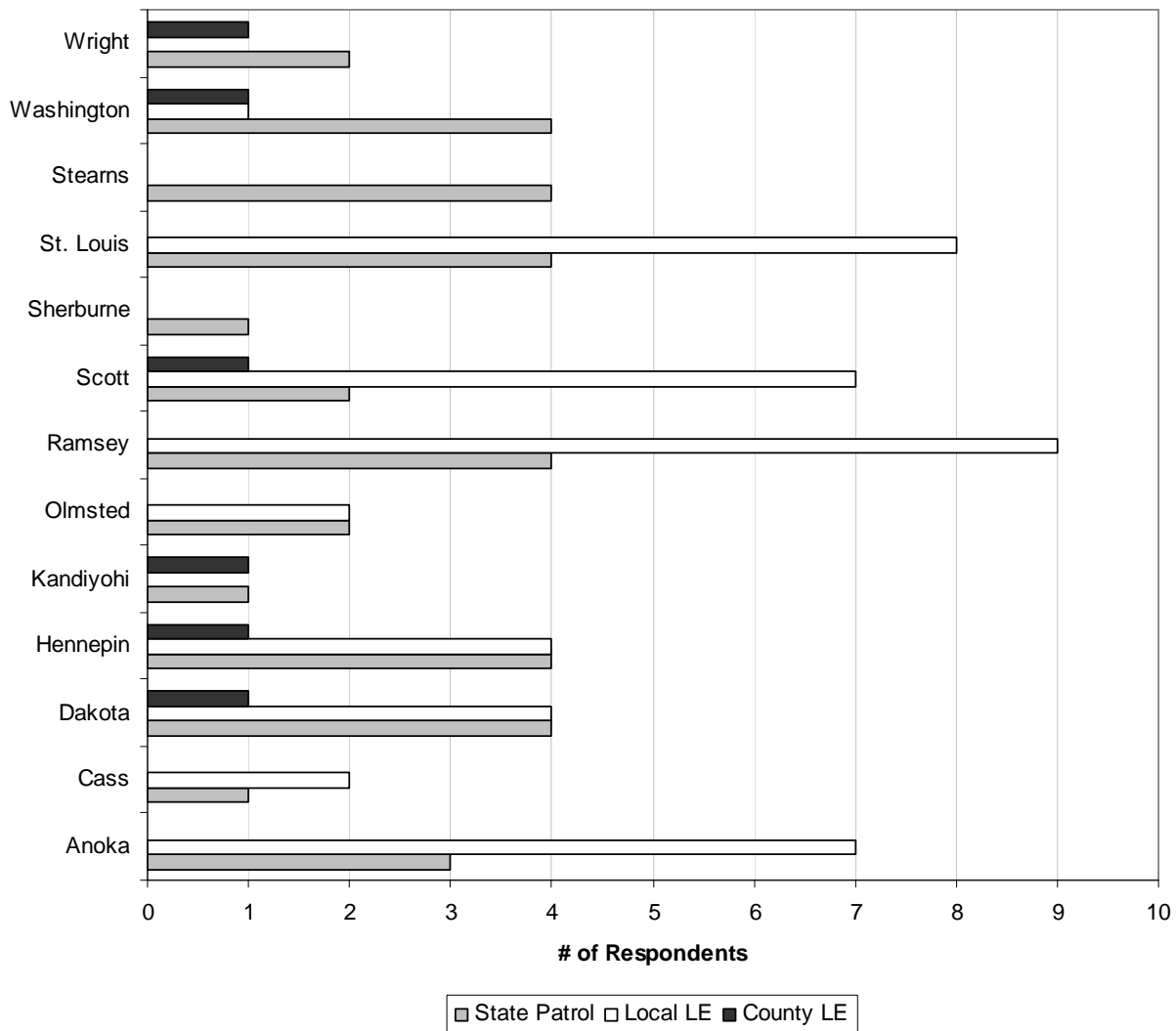
Figure 4.8. Number of officers who responded working in each county for the 13 Deadliest Impaired Driving Counties.

NightCAP Experiences

Officers were asked whether they had ever worked a patrol where the BAT Mobile was present, worked on an Operation NightCAP Junior event or completed a hat-trick (3 DWI arrests in one shift) during their experiences. Overall, 31.4% had worked an event where the BAT Mobile was

present, 30.2% had completed a hat trick, and 14% had worked a NightCAP Junior event. Several officers did not know what a hat trick was in relation to Operation NightCAP. Figure 4.9 shows the percentage of respondents for each branch of law enforcement who had these experiences.
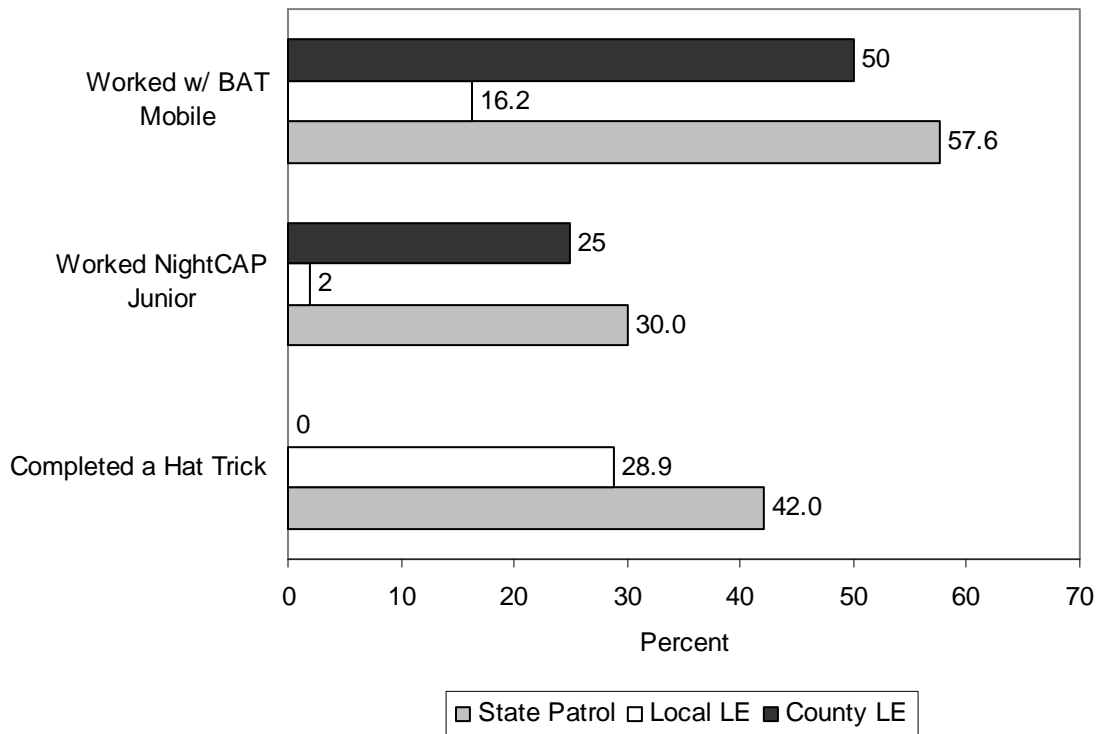
Figure 4.9. Percentage of officers for each branch of law enforcement who had experience with Bat Mobile, NightCAP Junior or had completed a Hat Trick.

Participation and Motivation

Like the Coordinators, officers responded to questions about their motivation to participate in NightCAP events and rated their perceptions about aspects of participating in NightCAP events. Overall, 84.9% said they would participate in more Operation NightCAP events if the funding was available, while 79.1% said they felt motivated to participate in Operation NightCAP events in general (see Figure 4.10). Slightly more respondents said they would participate in more events if funding was available, suggesting that motivation may be, in part, driven by the overtime pay. However, it is not clear from the survey what specifically motivates those who participate in NightCAP events. Overall, officers' perceptions of participating were mostly positive, however, there are two issues to note.

First, only 20.9% of respondents felt the BAT Mobile was an effective tool to process impaired drivers. Fifty percent rated their response as neutral while only 8.2% disagreed with its effectiveness as a tool to process impaired drivers. The large number of neutral responses may reflect the fact that almost 70% of responding officers had no experience working with the BAT Mobile.

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Second, when each question was examined by branch of law enforcement, the perceptions of the pre-event briefing were considerably different for local law enforcement versus state patrol respondents (see Figure 4.12). This is the only question that showed a divergence in opinion across the branches of law enforcement surveyed. Essentially, the state patrol respondents did not think the pre-event briefing was useful whereas the local law enforcement respondents did.
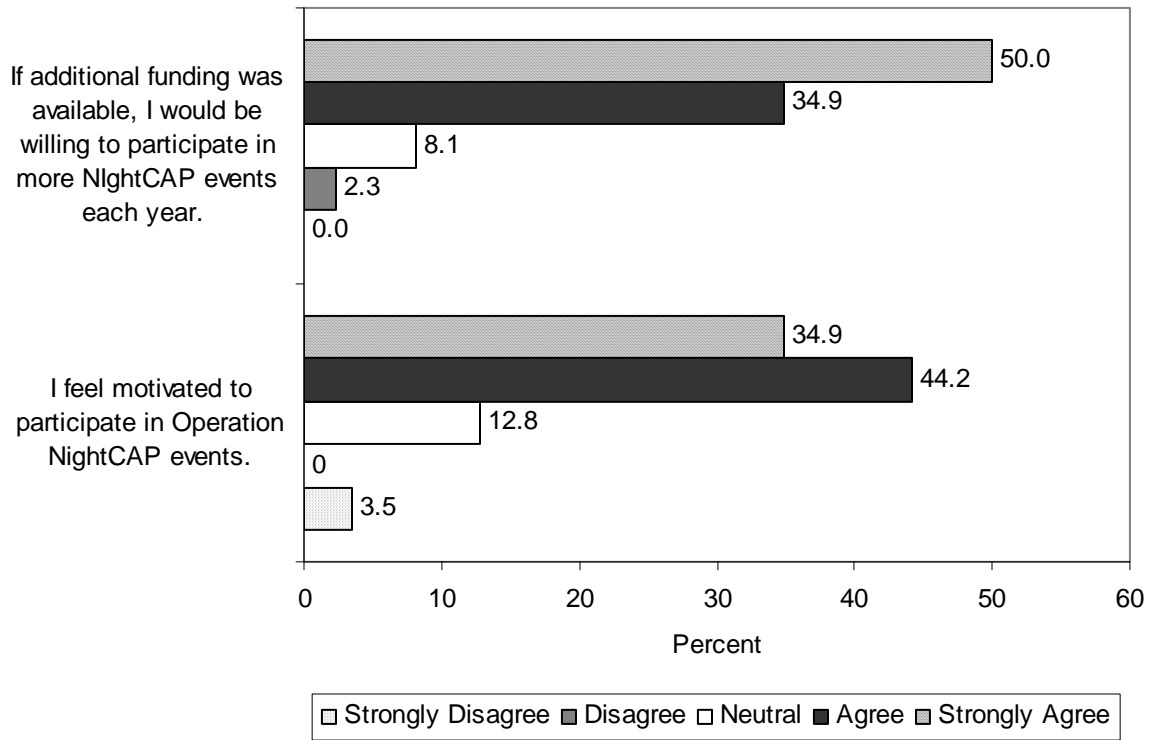
Figure 4.10. Percentage of respondents who agree or disagree with the motivation statements.
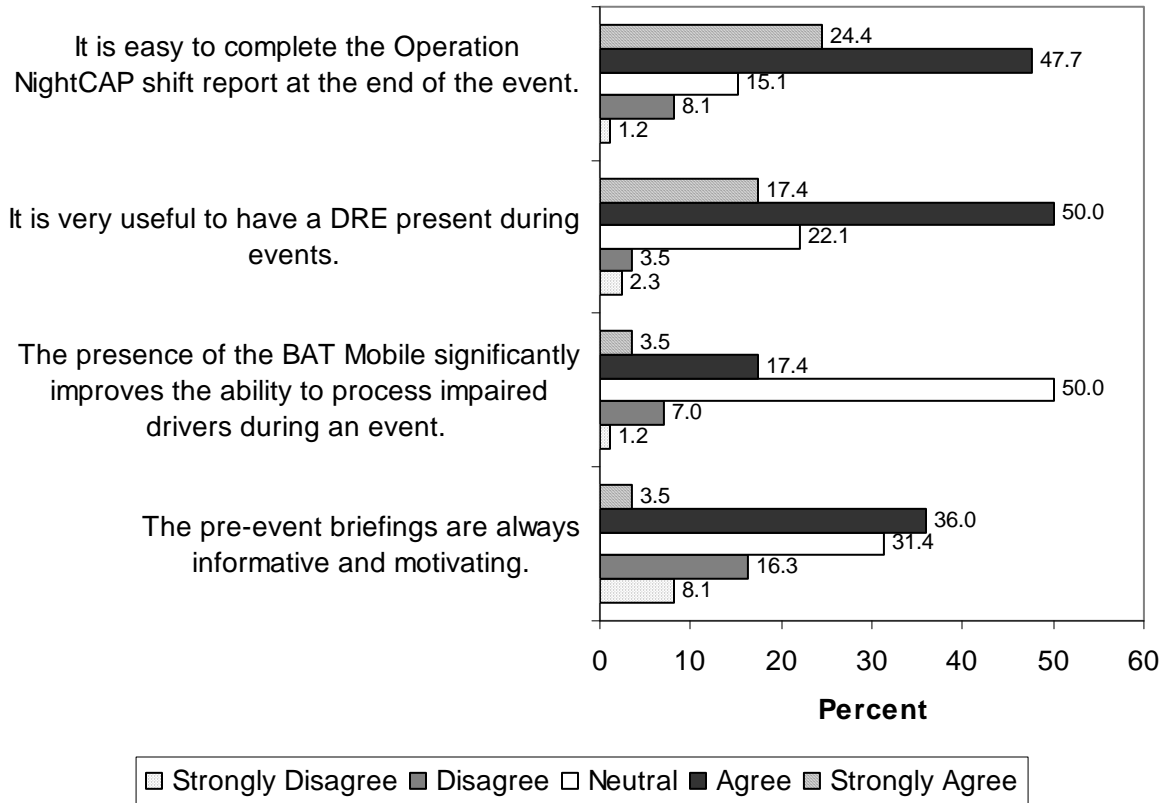
Figure 4.11. Percentage of respondents who agree or disagree with aspects of participating in NightCAP saturation events.
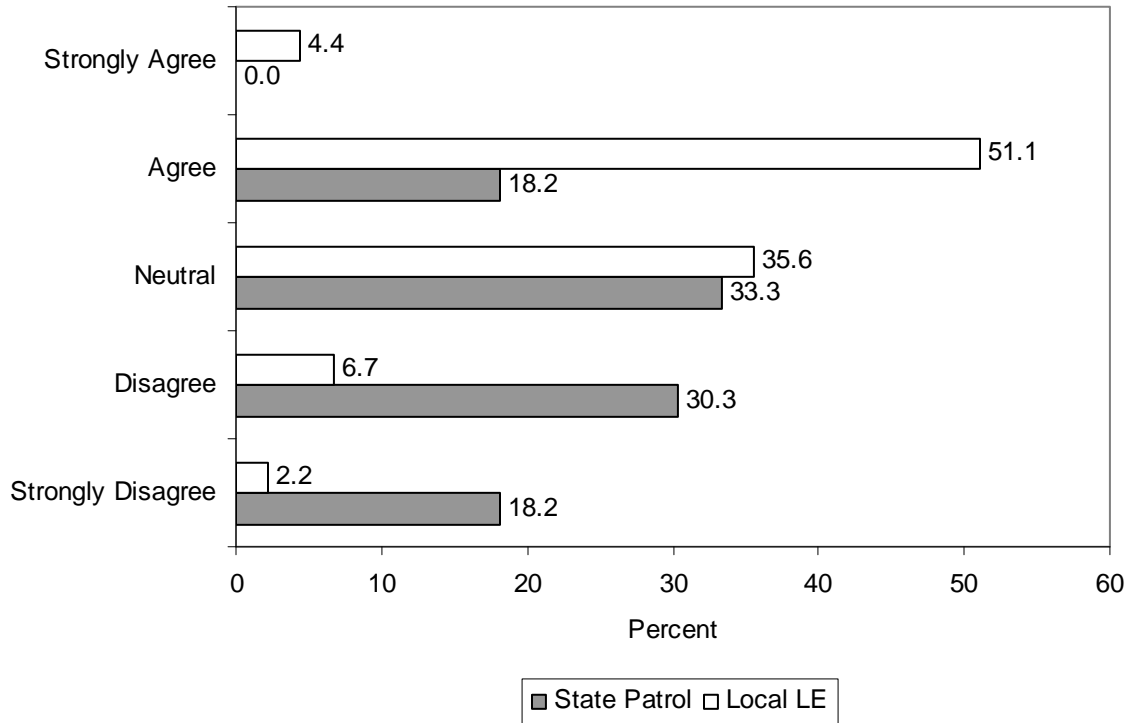
Figure 4.12. Percentage of State Patrol and local law enforcement respondents who agree or disagree with the statement "The pre-event briefings are always useful and motivating".

Problems while Participating

Officers were asked whether they experienced certain problems while participating in Operation NightCAP events. Overall, the percentage of officers experiencing problems was relatively small. Excessive processing times for detaining impaired drivers was the most common complaint with 25.6% saying they had experienced this problem during events (see Figure 4.13). The next most common problem was a lack of breath testing equipment (15.1%) followed by lack of cooperation from other agencies (4.7%) and inadequate detention facilities (3.5%).
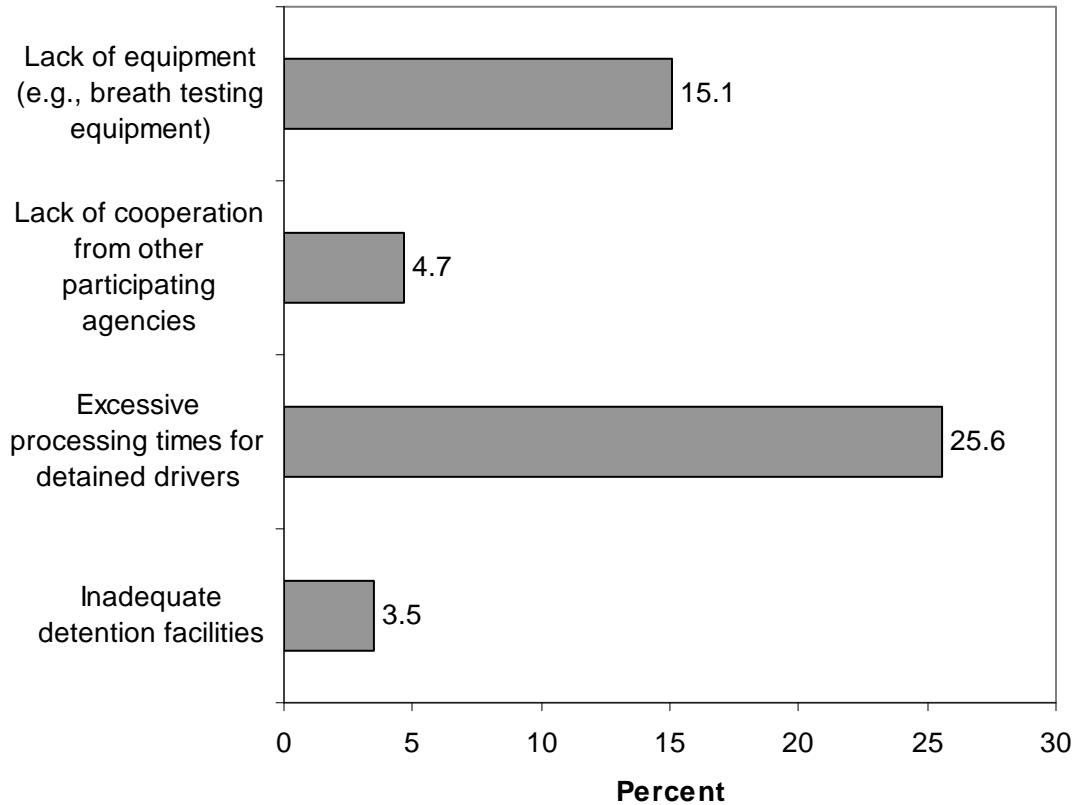
Figure 4.13. Percentage of respondents who reported experiencing these problems while participating in NightCAP events.

Examples of comments made by officers are listed below. Overall, most comments pertained to operational issues, such as paperwork.

- *"The coversheet for paperwork is fine, but doing the log is a waste of time. …if we have to do a log, just list the time and plate since we already have to fill out tickets and warnings."*

- *"…state patrol specifically requires a piece of paper be given to every driver whether it's a warning or citation. In years past I was able to stop significantly more drivers if I didn't have to go back to my squad and write a warning."*

- *"…Local LE knows where to focus traffic enforcement in their jurisdictions. Could be more unified rather than everyone going separate ways in target county following the briefing."*

- *"Always have a supervisor on duty for the city you are in to assist with their procedures and papers"*

- *"Cover a larger area, have person running intox tests, also transport car for arrestees"*

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- *"More reserve CSO officers working for transports"*

- *"Not requiring 2 stops an hour, I find it easier to find a drunk if not stopping minor violations'*

- *"Agreement with prosecutors to speed GM arrests. Currently Fri. night arrests need holds and reparts by Sat 1200"*

Agency Lead Responses

Of the officers who participated as agency leads, 100% agreed that the process involved in submitting invoices and paperwork for events was simple. Twenty-six percent identified scheduling officers for NightCAP events as a problem, especially during summer and holiday events. This is in line with what Coordinators reported for scheduling problems.

Officer Survey Summary

- Overall, response patterns were similar for all branches of law enforcement that participate in Operation NightCAP events (state patrol, local, county).

- Few respondents had experience with the BAT Mobile or NightCAP Junior.

- Officers said they are motivated to participate, but survey does not clarify whether that motivation is intrinsic (want to help) or extrinsic (want the overtime, as coordinators suggest).

- Pre-event briefings received mixed reviews; State Patrol respondents reported that they did not like feel briefings were useful while local law enforcement did.

- Paperwork and certain requirements (e.g,. having to give written warnings for all stops) are considered cumbersome while patrolling—officers feel they are not able to maximize time catching impaired drivers.

- Agency leads reported similar scheduling issues as coordinators, such as for holidays and in summer.

- About one-quarter of officers reported that processing times for detained drivers were a problem.

Officer Survey Conclusions

Overall, response patterns were similar for all branches of law enforcement that participate in NightCAP events. However, state patrol and local law enforcement agencies were split on their opinion about the pre-event briefing. In reviewing how these agencies operate on a day-to-day basis, it was discovered that many municipal law enforcement officers being each shift with a briefing, therefore, they are most likely used to briefings and may find them useful because of this. In contrast, state patrol officers typically start their shifts without a briefing, which may be

the reason why they are less accepting of the NightCAP pre-event briefings. However, as discussed in relation to the Coordinators, it is likely that the briefing is useful and could be made more useful by following current guidelines set out to foster participation and enthusiasm about an event (e.g., work together on tactics for a portion of the shift before everyone goes out on patrol). Another consideration is that state patrol troopers may be more frequently involved in saturation patrol activities, both related to NightCAP and other overtime events. Thus, they may not see a briefing as useful due to their experience with the Program.

Motivation was considered a problem by the Coordinators. However, the results of this survey indicate that officers do feel motivated to participate in Operation NightCAP events. In part, this motivation may stem from a desire to receive overtime pay, but comments made by officers in this survey indicate that many wish to complete a successful shift and stop as many DWI offenders as possible. Other considerations regarding potential problems with motivation may be related to the processes involved in detaining and processing offenders. For example, excessive processing times may remove the officer from the road for significant time periods thus reducing their perceptions of their effectiveness during the patrol because they are stopping fewer drivers.

Recommendations Based on Officer Survey

- Reduce paperwork, if possible. Even small changes could improve motivation to participate for the right reasons (i.e., to catch DWI offenders)

- Develop new ways to improve appropriate motivation among officers, such as incorporating some of the activities recommended in the guidelines into the briefings and patrols.

- Develop or continue to develop relationships or processes to speed up processing of detained drivers in saturation areas (e.g., use of BAT Mobile).

Law Enforcement's Perceived Effectiveness of the Program

The responses from Coordinators and officers were combined to assess their overall perceived effectiveness of the program. Overall, both officers and Coordinators agreed that the program is effective at reducing impaired driving (see Figure 4.14). Seventy-five percent agreed or strongly agreed that targeting the 13 Deadliest Impaired Driving Counties was an effective use of the NightCAP operating budget. Additionally, 83% agreed or strongly agreed that Operation NightCAP is an effective enforcement strategy for deterring impaired driving within the counties they worked in. However, only 25% agreed or strongly agreed that Operation NightCAP Junior events were effective at reducing underage drinking and driving.

When Coordinators and officers were surveyed about how well residents knew about Operation NightCAP in the counties in which they worked, only 40% agreed/strongly agreed that the Program was well-known by they county's residents (see Figure 4.15). When surveyed about support for the program by residents, 53% agreed/strongly agreed that the Operation NightCAP events were supported by the residents of their county. Additionally, 60% agreed/strongly agreed that Operation NightCAP events in their county were supported by local political agencies.

Finally, Coordinators and officers agreed that Operation NightCAP events were scheduled during appropriate days and times of the week (see Figure 4.16). However, over one-third felt that funding was not sufficient to run successful events with 22% responding neutrally to this question. Additionally, 82% felt that more funding in the future would improve the quality of Operation NightCAP events in their county.
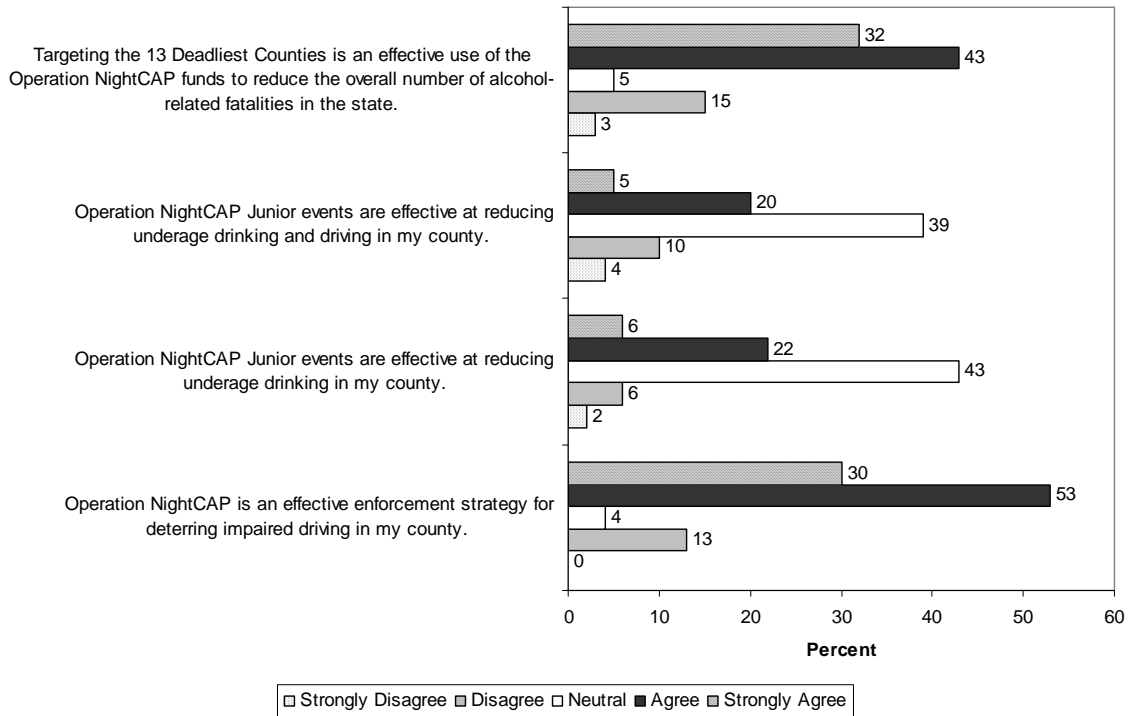
Figure 4.14. Percentage of respondents who agree or disagree with statements about the effectiveness of Operation NightCAP.
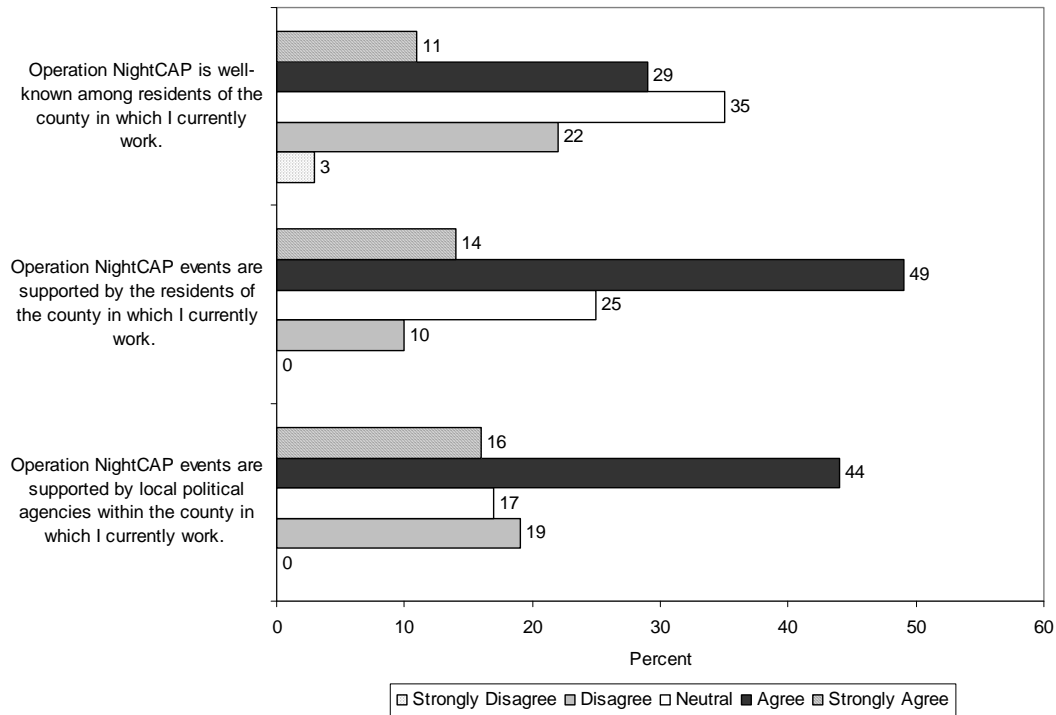
Figure 4.15. Percentage of respondents who agree or disagree with statements about how NightCAP is perceived in their community.
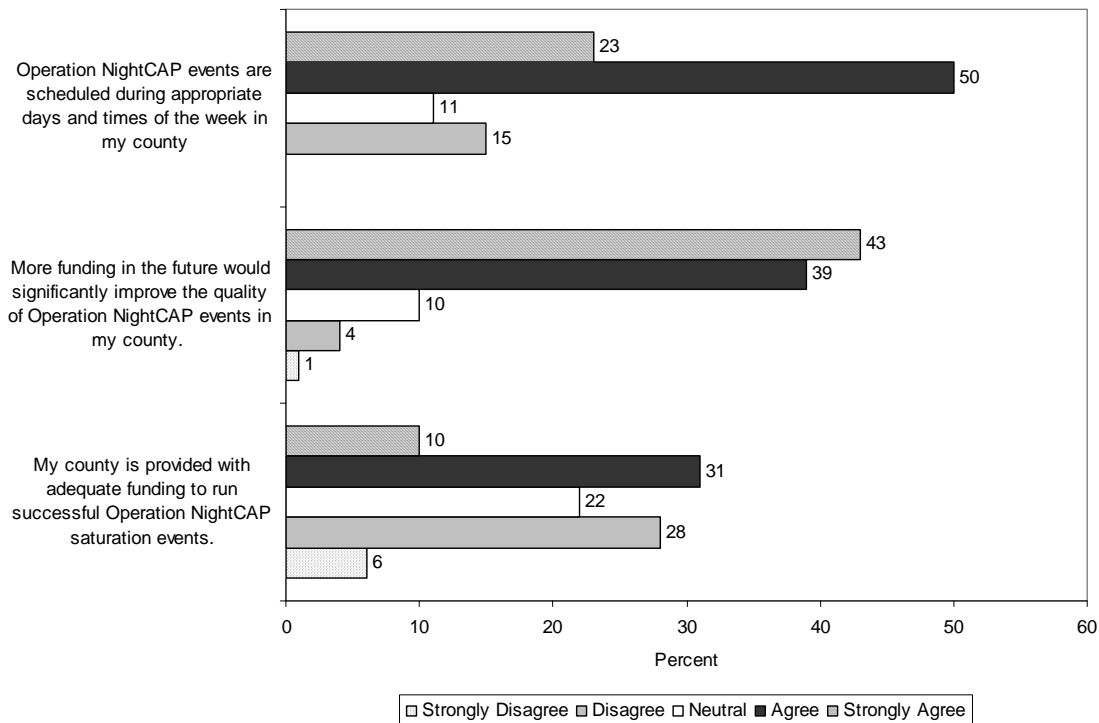
Figure 4.16. Percentage of respondents who agree or disagree with statements about NightCAP scheduling and funding.

Perceived Effectiveness Conclusions

Based on these responses, Coordinators and officers reported that the Operation NightCAP Program is effective at reducing impaired driving and reducing the overall number of alcohol-related fatalities in the state. There is less agreement about the effectiveness of NightCAP Junior events, but this is most likely due to many of the responding officers not having experience with this program. In fact, 39% of the respondents (Coordinators and officers) had a neutral response to this question.

The number of respondents who indicated that the program was well-known within their community is not quite in accordance with drivers' actual awareness of the Program. Although 40% of respondents indicated that the Program was well-known among residents in their county, most counties only have about a 19-20% awareness level of the Program among drivers. This does not indicate the Program is well-known within individual counties. However, 35% of Coordinators and officers provided a neutral response to this question, suggesting that they may not be able to adequately gauge how well the Program is known within their county.

Recommendations Based on Perceived Effectiveness

- The overall results of this study can be used to calibrate Coordinators' and officers' awareness of the Program's current and potential effectiveness and how well it is known within their community.

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Appendix A: Data Residuals

Scatterplot of the residuals for a generalized liner model of the fatal alcohol-related crash data for each time interval (1995-2004). The similar plots for each time period indicate that compound symmetry is present.

Night Cap

Appendix B: Coefficients, Standard Errors and p-values associated with the Poisson and Longitudinal models

Table 1. Negative binomial regression model estimation results for fatal alcohol-related crashes

Variables	Coefficient	Standard Error	p-value
Intercept	-8.7141	0.6886	<0.001
Time Trend (1991-2005)	0.0147	0.015	0.3250
Saturations	-0.0013	0.0007	0.0797
Unemployment	-0.5946	0.3689	0.1070
Unemployment^2	0.0750	0.0467	0.1082

Table 2. Poisson Regression model estimation results for severe injury alcohol-related crashes

Variables	Coefficient	Standard Error	p-value
Intercept	-7.3722	0.3195	<0.0001
Time Trend (1991-2004)	-0.0430	0.0094	<0.0001
Saturations	-0.0009	0.0004	0.046
Unemployment	-0.5575	0.1789	0.0018
Unemployment^2	0.0725	0.0232	0.0017

Table 3. Estimations for fatal alcohol-related crashes for longitudinal model.

Variables	Coefficient	Standard Error	p-value
Intercept	-9.8825	0.2089	<.0001
NightCAP 1998-2002	0.1616	0.1351	.2317
NightCAP 2003-2005	-0.2044	0.1680	.2238
Saturations	-0.0733	0.0147	<.0001*
Time (1995-2005)	0.0220	0.0480	.6469
Time2 (1998-2002)	0.0176	0.0697	0.8004
Time3 (2003-2005)	-0.2123	0.1132	0.0608
NightCAP 1998-2002 *Time2	-0.0896	0.0413	0.0302*
NightCAP 2003-2005 *Time3	-0.7075	0.1347	0.6006
Saturations*Time2	0.0115	0.0031	0.0002*
Saturations*Time3	-0.0037	0.0067	0.5784

Table 4. Estimations for alcohol-related severe injury crashes for longitudinal model.

Variables	Coefficient	Standard Error	p-value
Intercept	-8.6461	0.0662	<.0001
Time (1995-2002)	-0.0364	0.0251	0.1473
Time2 (1998-2002)	-0.0238	0.0441	0.5892
NightCAP 1998-2002	0.0597	0.0629	0.3424
Saturations	-0.0386	0.0105	0.0002*
Time2*NightCAP 1998-2002	0.0137	0.0354	0.6983
Time2*Saturations	0.0023	0.0034	0.5020

Table 5. Estimations for the analysis of impaired driving incidents on record.

Variables	Coefficient	Standard Error	p-value
Intercept	-4.790	0.0399	<.0001
NightCAP Present (1998-2002)	0.0786	0.0199	<.0001*
NightCAP Present (2003-2005)	-0.0268	0.0419	0.5222
Saturations	-0.0133	0.0038	0.0004*
Time (1991-2005)	0.0125	0.0083	0.1311
Time2 (1999-2002)	-0.0183	0.0115	0.1123
Time3 (2003-2005)	0.0518	0.0198	0.0088*
Operation NightCAP*Time2 (1998-2002)	-0.0132	0.0086	0.1244
Operation NightCAP*Time3 (2003-2005)	-0.0382	0.0388	0.3240
Saturations*Time2 (1998-2002)	0.0016	0.0008	0.0417*
Saturations*Time3 (2003-2005)	0.0071	0.0022	0.4444

* Result is statistically significant. A p-value of less than 0.05 means there was a less than 5% probability that the differences seen occurred by chance alone.

Appendix C: Driver Survey

OPERATION NIGHTCAP DRIVER SURVEY

Part 1. The first part of the survey asks questions about your attitudes and behaviors related to drinking and driving. Please complete each question by responding in the space provided or by marking (**X**) the appropriate box. Please answer the questions honestly based on your perceptions and experiences. Remember, your responses are anonymous.

1. Do you ever drink alcohol, even occasionally?
   ☐ **Yes**   ☐ **No** If **NO**, it is not necessary for you to continue with the survey.

Note: Only participants who answered "yes" to this question are included in the results.

2. I am familiar with Minnesota's drinking and driving laws.

3.5%	3.5%	6.5%	61.6%	25.0%
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

3. I do not think drinking and driving is a problem in Minnesota.

22.4%	48.9%	17.3%	9.8%	1.6%
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

4. I think penalties for driving while drunk are not strict enough in Minnesota.

3.0%	23.2%	26.4%	32.7%	14.8%
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

5. I do not think drinking and driving is a problem in my community.

30.9%	52.1%	11.9%	4.1%	0.8%
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

6. It is very likely that if a person drove while impaired by alcohol on a weekend in my community they would be stopped by a police officer.

7.0%	39.9%	24.0%	25.7%	3.3%
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

7. It is very likely that if a person drove while impaired by alcohol on a holiday (e.g., July 4th, New Year's) in my community they would be stopped by a police officer.

4.4%	22.0%	18.3%	45.7%	9.7%
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

8. Have you <u>ever</u> driven a vehicle within 2 hours after drinking an alcoholic beverage(s)?
   84.9% Yes   **15.1%** No

9. How frequently do you drive a vehicle within 2 hours after drinking an alcohol beverage(s)?

18.1%	60.8%	15.8%	4.5%	0.8%
Never	Rarely	Sometimes	Frequently	Very Frequently

10. How many drinks would you feel comfortable having within a 2-hour time period and still feel safe to drive a vehicle?

_____ **Drinks (consider a drink as either 1 beer, 1 glass of wine or 1 shot of liquor)**.

# of Drinks listed by respondents	Percent
0	7.53%
0.5	0.59%
1	36.47%
1.5	0.35%
2	33.65%
3	10.94%
4	7.18%
5	2%
6	0.94%
7	0.12%
8	0.24%

11. Have you <u>ever</u> driven a vehicle after drinking alcohol when you felt you might be impaired and unsafe to drive?

55.5% Yes   44.5% No

12. How frequently do you drive a vehicle after drinking alcohol when you feel you might be impaired and unsafe to drive?

57.1%	**38.8%**	**3.3%**	**0.5%**	**0.2%**
Never	**Rarely**	**Sometimes**	**Frequently**	**Very Frequently**

13. Have you ever been convicted for driving while impaired (DWI) by alcohol?

6.4% Yes   93.6% No

Part 2. This part of the survey asks questions about your awareness of police enforcement of impaired driving laws. The police in Minnesota conduct campaigns specifically targeted at alcohol-impaired drivers. One type of enforcement involves the focused patrolling of communities and counties by several police vehicles to specifically identify alcohol-impaired drivers. This is called an **ALCOHOL SATURATION PATROL**. Please complete each question by responding in the space provided or by marking (**X**) the appropriate box.

1. I think the Minnesota State Patrol enforces drinking and driving laws very strictly.

0.7%	**12.9%**	**31.7%**	**48.1%**	**6.6%**
Strongly Disagree	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**

2. I think the local or city police in my community enforce drinking and driving laws very strictly.

2.6%	**17.6%**	**30.0%**	**43.3%**	**6.5%**
Strongly Disagree	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**

3. Have you read, seen or heard about <u>alcohol saturation patrols</u> in the past 6 months?

44.5% Yes   55.5% No

If **YES**, Where did you see or hear about it? *(Mark all that apply.)*
☐ **Newspaper**
☐ **Radio**
☐ **TV**
☐ **Poster/Brochure**

☐ **Electronic Message Sign on Freeway**
☐ **Other, describe briefly:**_____

4. Have you read, seen or heard <u>any advertising or news item</u> about alcohol-impaired driving in Minnesota in the past 6 months?
   78.8% Yes   21.1% No

5. Have you ever heard about the following alcohol enforcement campaigns in Minnesota? *(Mark all that apply.)*
   58.6% You Drink & Drive, You Lose
   19.3% Operation NightCAP
   6.8% Make a Pact, Make a Plan
   54.6% Safe & Sober
   10.5% Drive Hammered, Get Nailed
   6.1% Last Call Program
   4.9% 13 Deadliest Impaired Driving Counties

6. Have you ever heard about <u>Operation NightCAP</u> *(logo shown below)*?
   17.6% Yes   82.4% No
   If **YES**, what is "NightCAP" short for? _____

   If **YES**, how did you hear about Operation NightCAP?
   19.7% Newspaper
   23.8% Radio
   46.9% TV
   4.8% Poster/Brochure
   2.0% Electronic Message Sign on Freeway
   19.0% Other, describe briefly:_____

7. In relation to alcohol enforcement campaigns in Minnesota, have you ever heard of or seen the <u>BAT (Blood Alcohol Testing) Mobile</u> *(see pictures below)*?
   6.7% Yes   93.3% No

   If **YES**, how did you hear about the BAT Mobile?
   12.5% Newspaper
   8.9% Radio
   23.2% TV
   3.6% Poster/Brochure
   50.0% Saw it on the road
   12.5% Other, describe briefly:_____

8. What is the legal limit for Blood Alcohol Concentration (BAC) in Minnesota? *(That is, a driver would be arrested for Driving While Impaired (DWI) at or above this BAC level.)*

_____ **BAC** or ☐ **Don't Know**

0.08 = 64.5%
Incorrect = 11.8%
0.1 = 3.6%
Don't Know = 20.0%

Part 3. This part of the survey asks about your experiences with alcohol enforcement, and particularly with alcohol saturation patrols. For reference, **OPERATION NIGHTCAP** is an enforcement campaign that uses alcohol saturation patrols to specifically enforce the impaired driving laws in Minnesota. **NORMAL POLICE ACTIVITY** is defined as the everyday presence of police patrols in your community conducting regular patrolling.

1. Have you <u>seen an alcohol saturation patrol</u> where police were looking for impaired drivers in the past 6 months?
   10.2% Yes   89.8% No

2. Have you <u>driven through an alcohol saturation patrol</u> where police were looking for impaired drivers in the past 6 months?
   4.7% Yes   85.3% No

3. The presence of normal police activity encourages <u>other drivers</u> to not drive after drinking alcohol.

2.0%	14.7%	20.5%	55.0%	7.8%
Strongly Disagree	**Disagree**	**Undecided/Don't know**	**Agree**	**Strongly Agree**

4. The presence of normal police activity encourages <u>me</u> to not drive after drinking alcohol.

1.4%	7.2%	6.7%	57.4%	27.3%
Strongly Disagree	**Disagree**	**Undecided/Don't know**	**Agree**	**Strongly Agree**

5. The presence of Operation NightCAP enforcement activities targeted at enforcing the impaired-driving laws in Minnesota encourages <u>other drivers</u> to not drive after drinking alcohol.

0.7%	3.5%	56.1%	34.0%	5.7%
Strongly Disagree	**Disagree**	**Undecided/Don't know**	**Agree**	**Strongly Agree**

6. The presence of Operation NightCAP enforcement activities targeted at enforcing the impaired-driving laws in Minnesota encourages <u>me</u> to not drive after drinking alcohol.

1.7%	5.4%	41.6%	35.2%	16.1%
Strongly Disagree	**Disagree**	**Undecided/Don't know**	**Agree**	**Strongly Agree**

7. Advertising about alcohol-impaired driving campaigns (such as Operation NightCAP) encourages <u>other drivers</u> to not drive after drinking alcohol.

0.8%	8.1%	42.7%	43.4%	5.0%
Strongly Disagree	**Disagree**	**Undecided/Don't know**	**Agree**	**Strongly Agree**

8. Advertising about alcohol-impaired driving campaigns (such as Operation NightCAP) encourages <u>me</u> to not drive after drinking alcohol.

2.0%	8.7%	22.0%	50.7%	16.5%
Strongly Disagree	**Disagree**	**Undecided/Don't know**	**Agree**	**Strongly Agree**

9. Have you ever been stopped by police in Minnesota as part of their effort to enforce alcohol-impaired driving laws (for example, Operation NightCAP or normal patrols)?
   9.7% Yes   90.3% No
   If **YES**: Did this experience change your perception of the risk of being caught driving after drinking alcohol or driving while impaired by alcohol?
   68.7% Yes   31.3% No

Part 4. The following items ask for some information about you and your driving history. Please complete each question by responding in the space provided or by marking (**X**) the appropriate box.

1. What County do you live in? **See Chapter 2: Driver Survey**

2. How long have you lived in this County? _____**Years** or _____**Months** *(if less than 1 year)*
    Mean = 21.2 years; Range = 0-84 years

3. How many years have you had a driver's license? _____**Years** or _____**Months** *(if less than 1 year)*
    Mean = 24.1 years; Range = 1-71 years

4. How old are you? _____**Years**
    Mean = 41.1 years; Range = 18-95 years

5. What is your gender? **63.0% Female   37.0% Male**

6. How much do you weigh? *(This will be used to estimate what your blood alcohol level would be based on the # of drinks you consume in a 2-hour time period as indicated in Part 2, Question 8.)*
    _____**pounds**
    Mean = 174.7 pounds; Range = 90-375 pounds

7. What type of vehicle do you drive? *(If you drive as part of your job, please answer this question based on your personal vehicle, not your work vehicle.)*
    53.5% Car
    10.4% Mini-van or Van
    16.8% Sport Utility Vehicle (SUV)
    9.7% Pick-up Truck
    0.1% Motorcycle
    9.4% Other, briefly describe:_____

8. How many miles do you drive per year?
    15.3% Less than 5000 miles
    28.9% 5001-10,000 miles
    34.2% 10,000-15,000 miles *(U.S. annual average)*
    13.0% 15,000-20,000 miles
    8.6% More than 20,000 miles

9. What is your annual household income?
    15.3% Less than $25,000
    28.9% $25,001-$50,000
    34.2% $50,001-$75,000
    13.0% $75,000-$100,000
    8.6% More than $100,000

Appendix D: Proportional Sampling Methods

Sampling theory was used to calculate the Confidence Intervals (CIs) for the proportions of responses by group; hypothesis testing (i.e., comparing one result to another) was conducing using the z-test for proportions.

Awareness of NightCAP: Comparing awareness in NightCAP counties to awareness in Non-NightCAP counties.

Equations for Stratified Sampling for Proportions:

$$N_1 + N_2 + \cdots + N_H = N$$

$$\hat{p}_{strata} = \sum_{h=1}^{H} \frac{N_h}{N} \hat{p}_h$$

$$\widehat{Var}\left(\hat{p}_{strata}\right) = \sum_{h=1}^{H}\left(1 - \frac{n_h}{N_h}\right)\left(\frac{n_h}{N_h}\right)^2 \frac{\hat{p}_h\left(1 - \hat{p}_h\right)}{n_h - 1}$$

Point Estimates

Type	$\hat{p}$	$\widehat{Var}\left(\hat{p}\right),$ $SE\left(\hat{p}\right)$	95% CI
NightCAP	$\hat{p}_{NightCAP} \approx 0.21264$	$\approx 1.61263e-7,$ $\approx 4.01577e-4$	$[0.21185, 0.21343]$
Non NightCAP	$\hat{p}_{Non-NightCAP} \approx 0.17192$	$\approx 7.4483e-8,$ $\approx 6.09590e-4$	$[0.17073, 0.17311]$

NightCAP County Comparison and Group Comparisons: Comparing NightCAP awareness between individual counties and between individual groups (i.e., younger vs. older, male vs. female, Metro vs. Out-state).

Sampling equations for proportions:

This equation is used to estimate the proportional response (point estimate) of each group that will be used in the statistical comparisons.

$$\hat{p}_i = \frac{x_i}{n}$$

$$\hat{Var}\left(\hat{p}_i\right) = \left(1 - \frac{n_i}{N_i}\right)\frac{\hat{p}_i\left(1 - \hat{p}_i\right)}{n_i - 1}$$

where x_i = Sample count of events

n_i = Sample Size

N_i = Population Size

Two sample Hypothesis Tests (z-tests):

- A common goal of statistical inference is to compare the responses in two groups.
- The responses could be
  o Continuous data: comparison of two means
  o Binary data: comparison of two proportions
- Requirements for all two sample hypothesis tests
  o Each sample is a simple random sample
  o The two samples are independent
    ▪ Not paired data: for example before / after data
    ▪ Not matched pairs data: for example data from pairs of twins or data from husband / wife pairs
- The sample sizes in the two groups need not be the same.

$H_O : p_1 = p_2$

$H_A : p_1 \neq p_2$

Test statistics is:

$$Z = \frac{\left(\hat{p}_1 - \hat{p}_2\right) - \left(\pi_1 - \pi_2\right)}{\sqrt{p\left(1 - p\right)\left[\frac{1}{n_1} + \frac{1}{n_2}\right]}}$$

where $p = \frac{x_1 + x_2}{n_1 + n_2}$, x_1 and x_2 is the sum of the events for count 1, and county 2

$\pi_1 - \pi_2 = 0$

Point Estimates and Confidence Intervals for each Group (CIs)

County	Sample count of events	n N	$\hat{p}$	$\widehat{Var}\left(\hat{p}\right),$ $SE\left(\hat{p}\right)$	95% CI
Hennepin	x = 48	n = 223 N=274815	$\hat{p} = \dfrac{43}{223}$ ≈ 0.21525	$\approx 7.60272e-4,$ ≈ 0.02757	$[0.16121, 0.26929]$
Anoka	x = 29	n = 130 N=88741	$\hat{p} = \dfrac{29}{130}$ ≈ 0.22308	$\approx 0.001342,$ ≈ 0.03663	$[0.15129, 0.29487]$
Cass	x = 13	n = 96 N=8730	$\hat{p} = \dfrac{13}{96}$ ≈ 0.13542	$\approx 0.00122,$ ≈ 0.03493	$[0.06696, 0.20388]$
Olmsted	x = 28	n = 146 N=46530	$\hat{p} = \dfrac{28}{146}$ ≈ 0.19178	$\approx 0.00107,$ ≈ 0.03271	$[0.12767, 0.25589]$
Brown	x = 37	n = 135 N=9475	$\hat{p} = \dfrac{37}{135}$ ≈ 0.27407	$\approx 0.00146,$ ≈ 0.03821	$[0.19918, 0.34896]$
Polk	x = 8	n = 107 N=9962	$\hat{p} = \dfrac{8}{107}$ ≈ 0.07477	$\approx 6.4563e-4,$ ≈ 0.02541	$[0.0.02497, 0.12457]$

Two Sample Comparison z-Tests using the proportions estimates.

Comparison	Pooled Proportion	S.E. Pooled Proportion	Z	P-Value	Conclusion
Hennepin vs. Anoka	$\hat{p}_{pooled} = \dfrac{48+29}{223+130}$ ≈ 0.21813	0.04557	$Z = \dfrac{0.21525-.22308}{0.04557}$ ≈ -0.17182	>0.10	No difference
Hennepin vs. Cass	$\hat{p}_{pooled} = \dfrac{48+13}{223+96}$ ≈ 0.19122	0.04800	$Z = \dfrac{0.21525-0.13542}{0.04800}$ ≈ 1.6631	≈ 0.09623	No difference

Hennepin vs. Olmsted	$\hat{p}_{pooled} = \dfrac{48+28}{223+146}$ ≈ 0.20596	0.04305	$Z = \dfrac{0.21525-0.19178}{0.04305}$ ≈ 0.5452	>0.10	No difference
Anoka vs. Cass	$\hat{p}_{pooled} = \dfrac{29+13}{130+96}$ ≈ 0.18584	0.05234	$Z = \dfrac{.22308-0.13542}{0.05234}$ ≈ 1.6748	≈ 0.094	No difference
Anoka vs. Olmsted	$\hat{p}_{pooled} = \dfrac{29+28}{130+146}$ ≈ 0.20652	0.04882	$Z = \dfrac{0.22308-0.19178}{0.04882}$ ≈ 0.64113	>0.10	No difference
Cass vs. Olmsted	$\hat{p}_{pooled} = \dfrac{13+28}{96+146}$ ≈ 0.16942	0.04929	$Z = \dfrac{0.13542-0.19178}{0.04929}$ ≈ -1.1434	>0.10	No difference
Hennepin vs. Polk	$\hat{p}_{pooled} = \dfrac{48+8}{223+107}$ ≈ 0.1697	0.044	$Z = \dfrac{0.21525-0.07477}{0.044}$ ≈ 3.193	< 0.01	Yes difference
Hennepin vs. Brown	$\hat{p}_{pooled} = \dfrac{48+37}{223+135}$ ≈ 0.2374	0.0259	$Z = \dfrac{0.21525-0.27407}{0.0259}$ ≈ -2.271	≈ 0.0231	Yes difference
Anoka vs. Polk	$\hat{p}_{pooled} = \dfrac{29+8}{130+107}$ ≈ 0.1561	0.0474	$Z = \dfrac{0.22308-0.07477}{0.0474}$ ≈ 3.129	<0.01	Yes difference
Anoka vs. Brown	$\hat{p}_{pooled} = \dfrac{29+37}{130+135}$ ≈ 0.2491	0.0531	$Z = \dfrac{0.22308-0.27407}{0.0531}$ ≈ -0.9603	>0.10	No difference
Cass vs. Polk	$\hat{p}_{pooled} = \dfrac{13+8}{96+107}$ ≈ 0.1034	0.0428	$Z = \dfrac{0.13542-0.07477}{0.0428}$ ≈ 1.4171	>0.10	No difference
Cass vs. Brown	$\hat{p}_{pooled} = \dfrac{13+37}{96+135}$ ≈ 0.2165	0.0550	$Z = \dfrac{0.13542-0.27407}{0.0550}$ ≈ -2.521	≈ 0.012	Yes difference
Polk vs. Brown	$\hat{p}_{pooled} = \dfrac{8+37}{107+135}$ ≈ 0.1860	0.0504	$Z = \dfrac{0.07477-0.27407}{0.0504}$ ≈ -3.9544	<0.001	Yes difference
Young vs. Old	$\hat{p}_{pooled} = \dfrac{118}{595}$ ≈ 0.19832	0.03271	$Z = \dfrac{0.2052-0.1910}{0.03271}$ ≈ 0.43412	>0.10	No difference

Male vs. Female	$\hat{p}_{pooled} = \dfrac{117}{593}$ ≈ 0.19730	0.03440	$Z = \dfrac{0.2549 - 0.1671}{0.03440}$ ≈ 2.5523	0.01070143	Yes, difference
Metro vs. Out-State	$\hat{p}_{pooled} = \dfrac{118}{595}$ ≈ 0.19832	0.03271	$Z = \dfrac{0.2181 - 0.1694}{0.03271}$ ≈ 1.4889	0.1365137	No, difference

Appendix E: Coordinator Survey

OPERATION NIGHTCAP SURVEY – NIGHTCAP COORDINATORS

This survey asks you to answer questions about your experiences working on Operation NightCAP events as a NightCAP Coordinator and about your perceptions of the Program's effectiveness. There are 5 sections to the survey. Please answer the questions to the best of your ability. If a question is not applicable to you and your work or you do not want to answer a question, please put an X through the question number. Your participation in this survey is voluntary and confidential. Results are only reported in summary form and all of your responses are anonymous.

Note: Response rates are listed by Number of Coordinators who responded, rather than percentage as there are only 14 coordinators who responded.

Section 1: The following questions ask you about your role in Operation NightCAP.
1. Do you work for:
   13 State Patrol
   1 Local law enforcement
   0 County law enforcement
   0 Tribal law enforcement

2. Have you participated in Operation NightCAP events as a (check all that apply):
   14 NightCAP Coordinator
   8 Agency Lead
   13 Enforcement Officer

3. How many Operation NightCAP events did you participate in during the last fiscal year (October 2004-September 2005)? _____**events**
   Mean = 10 events; Range = 0-36 events

4. Please list the county or counties in which you participated in Operation NightCAP events in the last fiscal year (October 2004-September 2005): _____

5. Please list the county or counties in which you are participating in Operation NightCAP events this fiscal year (October 2005-September 2006):
   ☐ Same as above
   ☐ Different than above, please list: _____
Note: Respondents are listed for each county by their survey ID number to show which counties an individual coordinates.

County	Respondent
Anoka	8,13
Becker	6
Blue Earth	1
Brown	1
Carver*	8
Cass*	9
Cottonwood*	3
Dakota	7,10
Hennepin	8,13

Itasca	5
Kandiyohi**	12,14
LeSueur**	1
Lyon**	3
Martin**	1
McLeod*	1
Nicollet	1
Nobles	3
Otter Tail	6
Ramsey	7,10
Scott	8,13
Sherburne	2,14
Sibley	1
St. Louis	4,5
Stearns	11,14
Washington	7,10
Wright	11

*FY 2005 only
**FY 2006 only

Section 2: This section relates to how much time you spend completing the planning and wrap-up phases of Operation NightCAP events. Please estimate the amount of time in hours you spend completing the following tasks. You may indicate times smaller than 1 hour, if necessary (e.g., ½ hour).

1. On average, how much time do you spend planning your County's annual Operation NightCAP events (e.g., coordinating with other agencies, creating schedules, budget planning, etc)? _____ **hours**
   Mean = 8.35 hours; Range = 1-30hours

2. On average, how much time do you spend preparing for each individual event (e.g., preparing briefings, etc)? _____ **hours**
   Mean = 3.15 hours, Range = 0.5-11 hours

3. On average, how much time do you spend completing post-event tasks (e.g., collecting & filing saturation reports, invoicing, etc)? _____ **hours**
   Mean = 2.69 hours; Range = 1-10 hours

Section 3: Please indicate your level of agreement with the following statements. These statements are related to the planning, budgeting and reporting aspects of the Operation NightCAP Program in which you may be involved.

1. It is easy to select dates for NightCAP events.

1	**1**	**6**	**6**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

2. It is easy to schedule enough officers for events.

1	**4**	**8**	**1**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

3. It is easy to prepare the required quarterly plans for events.

0	**2**	**10**	**2**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

4. It is easy to complete and submit budgets for events.

0	**2**	**10**	**1**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

5. It is easy to prepare a briefing using the shell provided for NightCAP briefings.

0	**0**	**12**	**2**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

6. Preparing and conducting a briefing for each event is critical for motivating participating officers and describing the logistics of the event.

0	**4**	**6**	**2**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

7. It is easy to schedule a DRE (Drug Recognition Expert) to participate in each event.

4	**6**	**2**	**1**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

8. It is easy to collect the activity reports from each agency at the end of an event.

1	**4**	**8**	**1**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

9. It is easy to transfer the information from activity reports onto the NightCAP Saturation Report.

1	**0**	**10**	**3**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

10. Funding is adequate for the number and scope of events I am expected to plan each fiscal year.

2	**2**	**8**	**2**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

11. The overall process for planning and executing Operation NightCAP events is simple and efficient.

0	**2**	**11**	**1**
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

Section 3 (continued): These questions are related to the planning, budgeting, reporting and media aspects of Operation NightCAP events.

12. Have you ever experienced any of the following problems while planning and executing Operation NightCAP events? (*check all that apply*)
    4 Problems cooperating with other agencies
    0 Lack of equipment, such as breath testing equipment
    10 Difficulty finding officers to participate
    4 Budget constraints
    1 Lack of SFST trained officers
    3 Problems assisting participating agencies with the completion of invoices for reimbursement after an event
    Comments or additional problems:

1	It may be a good think that it can be difficult to get officers at times. I expect those that show up will work hard - this some times results in only good dedicated officers showing up

2	
3	No problems
4	
5	Not enough officers during the summer months
6	I have more events and areas to work than I have money for. With more funding, it would be possible to mark an even bigger impact. Time--Not enough given m-y other current responsibilities
7	
8	During peak times in the summer it is occasionally hard to find officers because of vacation.
9	1. Officers lack luster performance 2. Briefings can be difficult to coordinate due to geographics - Participating departments often are 50-60 miles apart in Cass County
10	
11	1) State Patrol Troopers are overwhelmed w/ overtime details i.e. Nightcap, Safe & Sober, HEAT, contracted services. Troopers I talk to are getting "Burnt Out" on overtime. 2) Minor problems w/ local agencies keeping track of their hrs. They are somewhat confused when invoice shows up.
12	
13	
14	

13. Please describe and explain any additional problems you have experienced while planning and executing Operation NightCAP events.

1	Some agencies are not DUI proactive so they are not eager to participate - that's ok, don't want them any way. Most wish we could do more in their area. That lead to lack of funding for more events
2	Getting officers that are motivated to do the enforcement because of the goals of the program rather than just for the $
3	Getting officers/Deputies to Rpt their Enforcement activity upon the completion of their shift
4	Having event dates dictated by St. Paul when that weekend does not work as well for an out state NightCAP
5	
6	Occasionally getting enough officers to fill the shifts can be problematic due to other scheduling needs. Having to award shifts to officers with minimal DWI motivation
7	Some agencies are not able to fill their shifts. At times some officers fail to fax their activity sheets at end of shift. Despite several reminders.
8	
9	Problems with departments submitting their invoices in a timely manner
10	
11	No other problems
12	
13	problems with participating agencies to send in report forms, too much follow up involved
14	

14. Do you share the Saturation Report with other participating agencies after an event is complete?

0	**6**	**8**
Never	**Sometimes**	**Always**

If NEVER or SOMETIMES, please comment on why you do not always share event Saturation Reports with other agencies?

1	
2	oversight
3	Because some never ask for the document
4	
5	
6	Time - I have too much else to do that competes with some follow-up like sending the results out
7	We do it on the large events, but frankly didn't see it is necessary on the smaller events (would take more time to do so)
8	
9	
10	They seldom ask or want the info
11	
12	
13	simply forget to sent it sometimes
14	

If ALWAYS or SOMETIMES, what method(s) do you use to send NightCAP Saturation Reports to the other participating agencies if you choose to share the information? *(check all that apply)*

3 Mail
2 Fax
10 E-mail
1 Phone
2 Other (hand deliver/in person)

15. Do you think there is enough media coverage of Operation NightCAP events in your county?
    10 Yes
    4 No

16. Please comment on the effectiveness of the media coverage for Operation NightCAP events in your county.

1	Our local KEYC TV station is very good - local paper is getting better - Ganbato Free Press
2	I have seen nothing to show media effectiveness in the county
3	It works very well, drinkers find sober drivers in advance
4	It is hard to measure its effectiveness
5	
6	Very good--often times the people we arrest acknowledge they knew NightCAP was in the area
7	Media [coverage] is adequate, but frankly the media coverage reaches law abiding citizens and has no effect on problem drinkers
8	Unknown
9	Local media is always more than willing to publicize the stats from our saturations - the downside is that our saturations are small in numbers so our stats are not that great
10	Marginal media [coverage] for routine events. Generally "old news" as they have been going on for about 10 years
11	The coverage is effective. Some of the "Add Lib" quotes(?) I find put together for news releases I find inappropriate
12	Comments come back to me that the general public, who possibly violate the law, are very aware these programs exist and are nervous when they see a lot of red lights with a lot of officers stopping

	a lot of vehicles on a particular night
13	There is none
14	St. Cloud times next to never puts anything in their paper about operation NightCAP

17. Do you ever work independently with local media in your county to advertise events before or after they occur?

7 Yes

7 No

If YES, please explain or describe your involvement with local media in your county:

1	Either I or out Public Relations trooper will but out post event media releases
2	
3	Giving the media stats & why we focus on a specific community to enforce DWI laws
4	
5	Monthly radio show, local newspapers
6	Email - interviews, both pre and post event info sent out. If they are contacted - they will cover it
7	We give interviews several times per year on these events to major twin cities media outlets
8	
9	On air interviews - they will air PSA's or publish news releases
10	Used to fax info but they stopped putting anything on
11	
12	
13	
14	

18. Which of the following recent changes to the Operation NightCAP Program do you consider to be effective in reducing alcohol-related fatal and severe-injury crashes?

(check all that apply)

9 Having a NightCAP Coordinator for each County versus one for the District when more than one county in a District gets funding

8 Funding only the 13 Deadliest Counties versus dividing funding across the 87 counties

7 Targeted funding outside the 13 Deadliest Counties for NightCAP Junior/Special events

19. Please describe and explain any recent changes to the program that have created problems for you in **planning and managing** annual NightCAP events:

1	We are not in the "Top 13" counties so funding has been greatly cut, reducing the amount of saturations
2	
3	N/A
4	N/A
5	
6	When we fell out of the "top thirteen" out funding (and visibility) was dramatically cut.
7	Having one Nightcap coordinator per county. We have many tasks on our plate other than Nightcap. You should leave this decision to the district commanders
8	Not having the ability to see how much money remains in your budget at any given time. You just assume you have money.
9	The mandatory briefing. Generally I believe the briefing is effective. However, due to the geographics of the County it is not efficient use of time. On occasion I will just send participating officers a memo.

10	
11	N/A
12	none
13	
14	

20. Please describe and explain any suggestions for changes to the program you think would improve your ability to **plan or manage** future NightCAP Operations:

1	This may not seem huge but it is! On duty operations have been very effect but supporting them with "equipment" that we can hand out is essential. I get more out of $50 worth of equipment for an On Duty office than I do time and a half for 8 hours
2	
3	N/A
4	N/A
5	
6	More ? Time to plan and more money to implement
7	Give the districts more leeway on how to use their budget. Do not make the requirement of one coordinator per county (folks at the district level handle tasks much more complicated than this. They resent others dictating how they accomplish a mission)
8	
9	Funding ability to conduct NightCAP operations in counties outside of the 13 deadliest
10	
11	N/A
12	none
13	
14	

21. Do you have any additional comments about the Operation NightCAP Coordinator position?

1	A coordinator who communicate effectively with other agency administrators and road officers is essential!
2	
3	N/A
4	N/A
5	The reports need additional time to be sent in
6	It is a lot of work that takes time from my other responsibilities. It is very worthwhile, but ? To ? With other duties. A consistent level of funding would at least allow me to plan and budget my time well in advance.
7	
8	
9	
10	
11	N/A
12	It was a lot of fun coordinating the NightCAP shifts and I was honored when I was asked to do so.
13	
14	

Section 4: This section asks question related to your participation in Operation NightCAP events while patrolling.

1. Have you ever completed a hat-trick?
   6 Yes
   7 No

2. Have you participated in an Operation NightCAP Junior event?
   10 Yes
   3 No

3. Have you ever worked on an Operation NightCAP event where the BAT Mobile was present?
   10 Yes
   3 No

4. I feel motivated to participate in Operation NightCAP events.

1	**0**	**1**	**6**	**5**
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. The pre-event briefings are always informative and motivating.

0	**3**	**5**	**4**	**1**
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. The presence of the BAT Mobile significantly improves the ability to process impaired drivers during an event.

0	**2**	**5**	**5**	**1**
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. It is very useful to have a DRE present during events.

0	**1**	**5**	**5**	**2**
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. It is easy to complete the Operation NightCAP shift report at the end of the event.

1	**0**	**0**	**9**	**4**
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. If additional funding was available, I would be willing to participate in more NightCAP events each year.

0	**0**	**1**	**4**	**8**
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. Have you experienced any of the following problems while participating in Operation NightCAP events?
    2 Inadequate detention facilities
    6 Excessive processing times for detained drivers
    2 Lack of cooperation from other participating agencies
    1 Lack of equipment (e.g., breath testing equipment)

11. Do you have any suggestions for changes to make it easier to **conduct patrol activities** during an Operation NightCAP saturation event?

1	
2	
3	N/A

4	
5	
6	More time to plan actual patrol tactics such as a laser detail other multiple officer tactic.
7	Give more flexibility to districts as far as dates/times.
8	
9	The mandatory need to have the 3 segments of L.E. involved - County, local - State Patrol - sometimes it can't be accomplished
10	
11	N/A
12	No
13	
14	

Section 5: This section is related to your perspective about the general effectiveness of the Operation NightCAP Program. Please indicate your level of agreement with the following statements based on your opinions about the Operation NightCAP Program.

1. Operation NightCAP is an effective enforcement strategy for deterring impaired driving in my county.

0	**0**	**2**	**8**	**4**
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

2. Operation NightCAP Junior events are effective at reducing underage drinking in my county.

0	**1**	**4**	**2**	**5**
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

3. Operation NightCAP Junior events are effective at reducing underage drinking <u>and</u> driving in my county.

0	**1**	**3**	**5**	**3**
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

4. Targeting the 13 Deadliest Counties is an effective use of the Operation NightCAP funds to reduce the overall number of alcohol-related fatalities in the state.

1	**1**	**2**	**8**	**2**
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

5. My county is provided with adequate funding to run successful Operation NightCAP saturation events.

0	**6**	**0**	**8**	**0**
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

6. More funding in the future would significantly improve the quality of Operation NightCAP events in my county.

0	**1**	**3**	**4**	**6**
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

7. Operation NightCAP events are scheduled during appropriate days and times of the week in my county

0	**0**	**0**	**10**	**4**
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

8. Operation NightCAP events are supported by local political agencies within the county in which I currently work.

0	**0**	**1**	**11**	**1**
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

9. Operation NightCAP events are supported by the residents of the county in which I currently work.

0 Strongly Disagree	**1** Disagree	**3** Neutral	**7** Agree	**3** Strongly Agree

10. Operation NightCAP is well-known among residents of the county in which I currently work.

0 Strongly Disagree	**4** Disagree	**4** Neutral	**4** Agree	**2** Strongly Agree

Please use this section to describe any additional comments you may have about the Operation NightCAP Program:

Operation Night Cap Comments

Operation Night Cap is one of the most effective enforcement and prevention programs that I have ever been involved with. In one County that I administer (Otter Tail) we went from a summer 5 years ago where we had well over 20 Fatalities to one with less than 10. It has taken 5 years to educate the public and raise the awareness to the point where we are seeing actual and real differences in driver behavior and a *significant* reduction in the incidence of DWI violations. We actually did our jobs too well and have now fallen out of the "Top Thirteen". My fear is that we are going to loose the momentum that we have built up. These benefits have also had an effect on surrounding Counties such as Becker and Douglas. I would really like to see a more consistent level of funding that would allow an MSP District to continue with at least 1 saturation per month. Giving the District the flexibility to move the event around would allow for appropriate targeting of events and would allow the "momentum" to continue. Absent this ability, one can only wonder how long it will take the old habits to return. All of the STEP projects and studies I have seen tell the same story. Once the enhanced enforcement effort ends, it is only a matter of time before behavior begins to regress and the body count will again rise.

In the particular area I work (State Patrol District 2900—Detroit Lakes) tourism and transient traffic drive our traffic safety issues. As a destination area, our needs are also seasonal. Consistent funding and flexibility are what we need in a Night Cap Program. This is clearly demonstrated by our Night Cap Junior—Otter Tail River Project. Having this type of ability to put officers on the street when and where they will be most effective is the key to a successful operation. Building on this, the officers that are assigned these events, *must* be proactive and aggressive with a *demonstrated* DWI enforcement ability. Awarding an overtime shift to someone who makes 1 or 2 DWI arrest per year and/or is a senior officer is not a wise investment.

As an administrator, the program is a lot of work that tends to compete with my other supervisory responsibilities. But it is worth it! I would really like to have even more time to do some planning and coordination for the events, but cannot do that now given the program constraints and my other duties. I have seen first hand what can happen when the enforcement is consistent and long term; less deaths and injuries. The Night Cap Program has become an integral part of our annual Traffic Safety Plan and we rely on it to supplement our regular patrols and projects. It is a popular assignment with many Troopers, Officers, and Deputies and we all enjoy the chance to get together and work for a shift. With more and consistent funding, we can and will make an even more significant difference to roadway safety in our area of Minnesota.

Please feel free to contact me if I can be of any further assistance.

Lt. Mike Hanson
State Patrol District 2900
Detroit Lakes, Minnesota

Appendix F: Officer Survey

OPERATION NIGHTCAP OFFICER SURVEY

This survey asks you to answer questions about your experiences working on Operation NightCAP events and about your perceptions of the Program's effectiveness. There are 3 sections to the survey. Please answer the questions to the best of your ability. If a question is not applicable to you and your work or you do not want to answer a question, please put an X through the question number. Your participation in this survey is voluntary and confidential. Results are only reported in summary form and all of your responses are anonymous.

Note: Results are reported by percentage of respondents. Percentages may not equal 100% due to some respondents not completing questions.

Section 1: The following questions ask you about your role in Operation NightCAP.

1. Do you work for:
    38% State Patrol
    55% Local law enforcement
    7% County law enforcement
    0% Tribal law enforcement

2. Have you participated in Operation NightCAP events as an *(check all that apply)*:
    26% Agency Lead
    88% Enforcement Officer

3. If you have participated as an Agency Lead, do you find the process for completing and submitting invoices for reimbursement after an event complicated?
    0% Yes
    100% No
    Please explain your answer.

28	Time consuming
44	Very easy
46	Fairly straight forward
49	Not lead agency
51	The paperwork contracts are not difficult to handle. If there are any questions Kammy is very helpful.
53	Fax stats to agency
57	No issues with the p
72	Very simple

4. If you have participated as an Agency Lead, have you ever had problems recruiting officers to participate in Operation NightCAP events?
    28.6% Yes
    71.4% No
    Please explain your answer.

28	Overtime is rare
44	Officers have not signed up for overtime shift, three shifts weren't filled
51	I have offices requesting to work the next NightCAP. We'd work more if we could
57	We currently have overtime available on a nightly basis. We expect a higher productivity on a NightCAP, hours are not always a big sell
59	Holiday weekends
67	Busy vacation weekends in summer

72	Always a surplus of deputies wanting to work
73	Sometimes the event falls on a holiday that makes it tough to find someone

5. How many Operation NightCAP events did you participate in during the last fiscal year (October 2004-September 2005)? _____**events**
Mean: 5.21 events; Range: 1-20 events

6. Please list the county or counties in which you participated in Operation NightCAP events in the last fiscal year (October 2004-September 2005): _____

2005	Number of Officers who Said they Worked in These Counties			
	State Patrol	Local LE	County LE	Total
No Response	2	0	0	2
Anoka*	4	7	0	11
Becker	3	0	0	3
Beltrami	1	0	0	1
Blue Earth	1	0	0	1
Carlton	2	0	0	2
Carver*	3	0	0	3
Cass*	2	2	0	4
Cottonwood	1	0	0	1
Country Fest Beltram	1	0	0	1
Crow Wing	3	0	0	3
Dakota*	4	5	1	10
Detroit Lakes	1	0	0	1
Faribault	1	0	0	1
Hennepin*	5	4	1	10
Itasca	1	0	0	1
Kandiyohi	1	0	1	2
Lyon	2	0	0	2
Marshall	2	0	0	2
Martin	1	0	0	1
Nobles	3	0	0	3
Olmsted*	2	2	0	4
Otter Tail*	1	0	0	1
Pennington	2	0	0	2
Ramsey*	4	10	0	14
Red Lake	1	0	0	1
Rice*	1	0	0	1
Rock	1	0	0	1
Roseau	1	0	0	1
Scott*	3	7	1	11
Sherburne*	1	0	0	1
St. Louis*	4	9	0	13

Stearns*	4	0	0	4
Washington*	4	1	1	6
WE Fest	1	0	0	1
Wright	2	0	1	3

*FY 2005 Deadliest Impaired Driving Counties

7. Please list the county or counties in which you are participating in Operation NightCAP events this fiscal
   year (October 2005-September 2006):
   - ☐ Same as above
   - ☐ Different than above, please list: _____

2006	Number of Officers who Said they Worked in These Counties			
	State Patrol	Local LE	County LE	Total
No Response	2	1	0	3
Anoka*	3	7	0	10
Becker	1	0	0	1
Beltrami	1	0	0	1
Blue Earth	1	0	0	1
Carlton	2	0	0	2
Carver	1	0	0	1
Cass*	1	2	0	3
Country Fest Beltram	1	0	0	1
Crow Wing	2	0	0	2
Dakota*	4	4	1	9
Detroit Lakes	1	0	0	1
Douglas	1	0	0	1
Hennepin*	4	4	1	9
Itasca	1	0	0	1
Jackson	1	0	0	1
Kandiyohi*	1	0	1	2
Lyon	1	0	0	1
Nobles	1	0	0	1
None	2	2	0	4
Olmsted*	2	2	0	4
Ramsey*	4	9	0	13
Rice	1	0	0	1
Rock	1	0	0	1
Roseau	1	0	0	1
Scott*	2	7	1	10
Sherburne*	1	0	0	1
St. Louis*	4	8	0	12
Stearns*	4	0	0	4
Washington*	4	1	1	6

WE Fest	1	0	0	1
Wright*	2	0	1	3

*FY 2006 Deadliest Impaired Driving Counties

Section 2: This section asks question related to your participation in Operation NightCAP events while patrolling.

1. Have you ever completed a hat-trick?
   30.2% Yes
   62.8% No

2. Have you participated in an Operation NightCAP Junior event?
   14.0% Yes
   80.2% No

3. Have you ever worked on an Operation NightCAP event where the BAT Mobile was present?
   31.4% Yes
   61.6% No

4. I feel motivated to participate in Operation NightCAP events.

3.5%	0%	12.8%	44.2%	34.9%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

5. The pre-event briefings are always informative and motivating.

8.1%	16.3%	31.4%	36.0%	3.5%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

6. The presence of the BAT Mobile significantly improves the ability to process impaired drivers during an event.

1.2%	7.0%	50.0%	17.4%	3.5%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

7. It is very useful to have a DRE (Drug Recognition Expert) present during events.

2.3%	3.5%	22.1%	50.0%	17.4%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

8. It is easy to complete the Operation NightCAP shift report at the end of the event.

1.2%	8.1%	15.1%	47.7%	24.4%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

9. If additional funding was available, I would be willing to participate in more NightCAP events each year.

0%	2.3%	8.1%	34.9%	50.0%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

10. Have you experienced any of the following problems while participating in Operation NightCAP events?
    3.5% Inadequate detention facilities
    25.6% Excessive processing times for detained drivers
    4.7% Lack of cooperation from other participating agencies
    15.1% Lack of equipment (e.g., breath testing equipment)

11. Do you have any suggestions for changes to make it easier to **conduct patrol activities** during an Operation NightCAP saturation event?

1	None
2	Set up saturation for more events that fit the area
3	Lack of hard working officers. Officers should be hand picked, not just anyone who signs up
4	No
13	Not requiring 2 stops an hour, I find it easier to find a drunk if not stopping minor violations
14	Works well
15	Less paperwork - seem to spend a lot of time recording stops + driver info instead of just finding the drunk
16	For the state patrol specifically they require a piece of paper be given to every driver weather it's a warning or citation. In years past I was bale to stop significantly more drivers if I didn't have to go back to my squad and write a warning.
19	My regular schedule affects my options for working NightCAP. More funding gives more opportunity if more days are assigned to if there was some flexibility i.e. You are awarded 6 hours for NightCAP FRI or Sat from 2000 to 0600hours
20	Very good program, we do make a difference
23	The cover sheet for paperwork is fine but doing the log is a waste of time. Maybe if we have to do a log, just list the time and plate since we already have to fill out tickets and warnings. The briefing is ok if you are working ore for the very first time but after having attended many over the years it is a waste
27	Reduce paperwork involved
28	Promote multi agency patrol enforcement
33	Do not re-elect Alan Page
35	Work together better, when there is a festival in an area. Some officers leave and won't help
37	Always have a supervisor on duty for the city you are in to assist with their procedures and papers
41	More counties should model their programs after Anoka
45	Cover a larger area, have person running intox tests, also transport car for arrestees
47	Only if you can change state laws. Making it easier for us to process drunks i.e. eliminate intox test requirement PBTs accurate enough now, we should just pbt and book
53	Cooperative efforts by all agencies in saturation areas. Local LE knows where to focus traffic enforcement in their jurisdictions. Could be more unified rather than everyone going separate ways in target county following the briefing
54	More reserve CSO officers working for transports
56	Less tags, more DWI detection
60	Can't read handwrite
61	Radio channels are sometime a concern, but next year we will be moving to 800mhz and it should improve
65	Overall very good. Would be helpfull to have an intoxilyser 5000 at our PD
67	Agreement with prosecutors to speed GM arrests. Currently Fri, night arrests need holds and reparts by Sat 1200
76	Have more K-9s available would be nice to have more money to do more NightCAPs in other counties including 13 deadliest Drunk driving is a problem everywhere not just in those counties

Section 3: This section is related to your perspective about the general effectiveness of the Operation NightCAP Program. Please indicate your level of agreement with the following statements based on your opinions about the Operation NightCAP Program.

1. Operation NightCAP is an effective enforcement strategy for deterring impaired driving in my county.

02.3%	5.8%	2.3%	57.0%	34.9%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

2. Operation NightCAP Junior events are effective at reducing underage drinking in my county.

2.3%	4.7%	48.8%	20.9%	1.2%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

3. Operation NightCAP Junior events are effective at reducing underage drinking <u>and</u> driving in my county.

4.7%	5.8%	44.2%	19.8%	2.3%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

4. Targeting the 13 Deadliest Counties is an effective use of the Operation NightCAP funds to reduce the overall number of alcohol-related fatalities in the state.

3.5%	8.1%	4.7%	47.7%	34.9%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

5. My county is provided with adequate funding to run successful Operation NightCAP saturation events.

7.0%	23.3%	18.6%	36.0%	11.6%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

6. More funding in the future would significantly improve the quality of Operation NightCAP events in my county.

1.2%	0%	10.8%	43.4%	44.6%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

7. Operation NightCAP events are scheduled during appropriate days and times of the week in my county

0%	5.8%	8.1%	58.1%	26.7%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

8. Operation NightCAP events are supported by local political agencies within the county in which I currently work.

0%	9.3%	18.6%	50.0%	18.6%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

9. Operation NightCAP events are supported by the residents of the county in which I currently work.

3.5%	27.9%	53.5%	12.8%	97.7%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

10. Operation NightCAP is well-known among residents of the county in which I currently work.

3.5%	20.9%	36.0%	29.1%	10.5%
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

Please use this section to describe any additional comments you may have about the Operation NightCAP Program:

3	I arrest over 100 impaired drivers a year and Itasca County does not get much money. State Patrol District 3100. I think the metro has a large amount of impaired drivers but so does the rest of the state.
	It would be nice to see the BAT MOBILE out more. People see it and they know we are out.
	DRE's should be selected of nightcaps because of the increased training to remove the impaired.
4	It is nice to be able to come out to work NightCAP and not worry about calls. Flashlight and hats are quite benefit. NightCAP is a great way to enjoy enforcement while making extra pay. Thanks Mike Engury (sp?)
6	When we stopped giving away small items, such as hats and T-shirts, to officers that were working the saturations, I believe we lost some officers.
	Although the items are not of much value, the officers liked getting them.
8	Maybe one month, make time available any weekend, so multiple officers can work, instead of one target weekend – not everyone wishing to work is available.
9	Usually they are scheduled when an "event" is occurring such as fairs, races, full festivals, etc. I think more random and sporadic Nightcaps would be more successful in NW MN as the big events have people cautious and taking more steps to get designated drivers but they go back to driving drunk later.
	I dislike any newspaper articles announcing Nightcap coming up and alerting citizens – I think they should be announced and just have the results published.
	I dislike some of the areas selected and possibly just having them in an officers normal patrol area on their day off would work as we know our areas well and often know where to look for the drunks.
10	Don't think Deadliest Counties is the answer – can be used in every county. I had (2) DWI arrests yesterday, working day shift in my home county. Which is not considered one of the Deadliest.
13	Most nightcap events are scheduled for Fridays in the Duluth district. In my patrol station we are scheduled to work every Friday making it rare for me to participate, though I would like to participate.
14	I think we need more officers in this state and/or more saturations.
	Works well otherwise!! ☺
15	The pre-event meetings are a huge waste of time. They are always the same and, once you've attended one, are pointless and a waste of time/money/patrol time.
	Not many citizens know what Nightcap is…but of the ones that do that I have contract with strongly support it and thank me when I inform them I'm looking for impaired drivers. The "informed citizens", I think, genuinely and wholly support and appreciate it.
	Seems to be mostly stat patrol working Nitecap shifts…would be nice to have more interaction with outside agencies (w/o taking from out overtime).
	Have road troops/officers submit for Nitecap products (i.e. hats, flashlights, etc.) so they can reward the hardest workers. The Nitecap items now seem to go to whoever the "boss" wants…not on hard work or merit. I.E. I had the "Hat trick" last month but a Nitecap flashlight went to a "supervisor" that worked that night and didn't have ANY! Fairly petty, but just another small thing that should be looked at.
16	Excellent program for removing impaired drivers. As stated before I just wish I could have contact with more drivers by eliminating the need for a written warning (patrol policy).

19	One traffic stop can take 20-30 minutes depending on citation or warnings. There are many duplications of information on our end. Example: a person's name is written or typed 3-5 times per stop. I doubt there is any way to avoid this but any time you add amore administrative stuff time is increased and stop numbers are lowered. Pre-meetings although informative the first time are mostly a waste of gas, time, and resources. Although we do get the forms at this meeting. As for motivation, I do Nightcap for personal satisfaction only. Someone is going home because I stopped an impaired driver. Work does not motivate me to do this in fact the paperwork sucks.
20	Operation Nightcap is a great program. I believe strongly in the program and participate whenever I can. Every impaired driver taken off the road is a potential life saved. I would like to see more media coverage on the costs of impaired driving to our society. I would also like to see coverage on the cost of the DWI to the impaired driver. Thanks!!
23	There is a lot of pressure to catch a drunk on these shifts but that probably is a good thing. If we could get rid of doing the logs, that would improve the paperwork aspect. Local officers should probably still attend briefings but troopers who have received the paperwork ahead of time like we sometimes do and who have attended a briefing before (or if it is our home county) we should be able to skip briefing. I think the gifts for officers/deputies/troopers as incentives are nice.
27	I see Nightcap as an effective tool to detect impaired driving. However, the paperwork involved reduces the amount of vehicle contacts that can be conducted. Also, making the Batmobile available at these events helps in processing arrests, but is rarely used at the ones I have participated in. Additional funding to carry out more Nightcap events may educate the community more than what I have noticed.
28	I believe the general public and occasional drinkers are aware of the enforcement and programs. However I do not believe, unfortunately, that the hard core problem drinkers are not effected. They are going to drink and drive no matter what. DARE program in schools are not doing what was hoped to be accomplished when the concept was first introduced. I am not blaming the programs. It is the general society that does not allow it to work. .08 bac I do not believe was the answer either. I see the young officers of this day and age stopping vehicles for the smallest petty violation and automatically turn it to alcohol violation. Thus many BAC are coming .06, .07 maybe .08. I am afraid that this is going to ruin an officers credibility and confidence. Too many under legal limit test and the relationship of the public and police could deteriorate. Officers need to make good, sound judgments when using these laws.
35	Agencies need to work with smaller local departments in saturating that area. Longer departments seem geared or unwilling to leave their city, even though mutual aid is asked for. We used to have pre-meeting before nightcap saying we want officers to target a certain area. Now officers stay in their own city or do what they want.
36	It is worth funding these enforcement activities.
37	I think the Night Cap is a good thing to keep drunk drivers off the road and good opportunity for officers to work other areas in our county. Gives our officers a chance to get some overtime. Please keep this funded.
39	I think that by far this is the most successful event I have participated in. When events are conducted in my area, I often receive many positive comments from citizens who observe the presence and enforcement.
41	Since the courts in the state of Minnesota have decided that sobriety check points violate the state constitution, I feel this is the most effective way to enforce DWI legislation. Having said that, I

	believe it is essential that every officer working these details takes the time to educate and inform every motorist stopped about safe and sober and why the program works. I find that a majority of my stops are an opportunity to inform drivers about safe driving behaviors versus simply citing for a violation and being on my way.
43	The program is a source of lowering the levels of impaired drivers. Program seems to be needed more often in cities inside the inner ring of the Twin Cities. I feel the need to have more organized saturation during early hours of night cap. For example, have officers involved converge on one area and stop numerous vehicles for traffic violation (lazer speed area).
44	
45	Overall a very effective program. Just wish program could be expanded. Also impaired driving increases during the summer months, so DWI enforcement should be increased then. I would also like to see more training for officers involved in DWI enforcement. The DRE program should also be expanded, maybe by offering training more often and shortening the program. This year the Public Service Announcements have been good.
49	Great program- However us as a Leech Lake (sp?) Tribal Police Dept would like to see more prizes such as hats, pins, PBTis (sp?), pullovers etc., flashlight to keep guys interested. Also incentives.
51	Our officers look forward to working a NightCap event. They like the fact that 2 or 3 other officers are working the same detail.
53	There are more safe drivers than dangerous drivers. Any extra enforcement to target dangerous drivers benefits everyone in my area and other targeted areas.
54	Very good program and fun to work as an extra detail.
56	Operation NightCAP is considered on of the least desirable forms of OT for my agency. It is attractive for the Traffic Officers; however, there are just as lucrative and less cumbersome types of OT available for officers. There needs to be some increased form of incentives to make this OT stand out.
57	This summer we had operations every Friday and Saturday night. This was a big success. The majority of the DWI arrests probably would not have occurred without the program. Our call load during the summer is very high and many of the arrests would not have been made due to the lack of the additional traffic officers.
59	Not publicized enough
60	More pamphlets, stickers to handout for sober drivers and others as a positive contact.
61	I think it is a great opportunity for agencies to work and coordinate their efforts.
62	I would like the leader or person in charge of the NightCap to assign officers/troopers to work together in an area such as a freeway or "main drag". This would help to get a high volume of cars stopped to have the greater chance of stopping impaired drivers. As it is now, officers/troopers go on their own and stop cars as they would on a regular shift.
65	Operation NightCap has been very successful in the city and county that I work. Throughout the years of Nightcap more and more citizens have become aware of the additional funding and increasing enforcement which provides for less intoxicated drivers. I feel it is an important program and should be continuing and funding should only increase for more enforcement gates.
69	Officers are pushed to ignore everything but speed, seatbelt, or DWI.
71	More funding to the Agencies is very vital for the continuing support and effectiveness of this program. To work toward the zero deaths, we must continue the "Hard Press" on the Drunk Driving.

73	NightCAP is an excellent compliment to what we are doing in Dakota County. It gives us an additional day of enforcement in some of our higher population areas.
75	Any program allowing officers to complete traffic enforcement with no other call load is going to be effective in DWI enforcement.
76	The 3 counties I work (Marshall, Pemington, Red Lake) don't receive much if any funding to run NightCap. We mostly only do Safe and Sober shifts. Red Lake county would be a very good place to do a NightCap Junior. There is a big problem with underage drinking near the town of Red Lake Falls, now (sp?) because of a river "tubing" place. I/we work write many underage consumptions, open bottles, drug tickets, and several other kinds of paperwork is generated from this area. Please get more funding to this area to help save lives and get the word out to kids that it's not OK to drink and driver and that we are out there enforcing drinking/drug laws.
78	Incentive trinkets, like flashlights, T-shirts, hats, etc…may be good incentives to some lesser motivated offices or depts.
80	I think it's a good program and could be made better with better publicity and simplification of the paperwork. Good overall.
81	NightCAP is an effective tool if used properly. You could ask many St. Louis County residents and they would have no clue what it is. I'm sure that most would support it if they only knew about it. As far as political support, I'm sure they are willing to support it as long as they are not in our backseat being arrested!! Our particular agency lead usually says he's got X amount of hours, who wants to work…There is no formal meeting before or after. It's understood that we work where we want and are highly expected to get a drunk driver off of the road…which happens 95% I believe that St. Louis County (primarily the Iron Range) could use more attention as far as NightCAP is concerned. They are getting the message but are slow learners!
82	More news and radio coverage on NightCap operations through the year putting a more constant reminder in peoples minds that the police are out looking for DWIs.
83	The patrol expects 2 stops/hour (documented). I don't believe in just making a stop, Results in detecting a drunk. We all know what we are supposed to be doing, and that is to remove an impaired driver from the road. I have often heard troops say that they don't have their "stops in". They then rush and make "minor" stops which takes time. If you look at a Night beat or Dog watch troop's activity—they make fewer stops when the sun falls but they arrest a lot of drunks. Personally, I like to shop for that perfect stop that I know the person is impaired and will be going to jail. I don't like to be rushed so management gets their stats! Some people totally disagree with me and believe in "high volume stops" will result in an arrest. Unlike the county – we create an event on our computer and issue a written warning for every stop – this takes time. The other comment I will make is this – when I started working Nightcap events, we used to get nice items such as flashlights, key chains, knives etc. – lately we have got nothing. 10 hours of O.T. plus a $100 flashlight is a nice "thanks".
84	I believe the state needs to provide more funding for this program. Too many people are being killed or injured due to alcohol and without adequate enforcement, it's going to continue.
85	I understand the motivation behind only running NightCAP shifts in the 13 deadliest counties. I feel it is important though to have shifts assigned to other areas. If we want to decrease drunk driving statewide, we need to focus on other areas of the state also. Hennepin / Ramsey counties will always have a high number of alcohol related incidents because of the population density in

those areas. I feel it would be more beneficial to target some out state areas that don't get a whole lot of attention. Word gets around in small communities if their friends are getting picked up for DWI.