

**The Bill Blackwood
Law Enforcement Management Institute of Texas**

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Global Positioning Systems and Law Enforcement

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**An Administrative Research Paper
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ABSTRACT

The purpose of this research was to discover some of the uses for GPS in law enforcement and whether it is a legitimate consideration for law enforcement agencies to implement the technology. Research showed there are numerous uses for law enforcement and many law enforcement agencies are using the technology today. Data from twenty-five various law enforcement agencies across Texas, some currently using GPS and some not, was analyzed. The areas surveyed included the effect on officer morale, the misuse of the technology by micro-managers, and whether it would increase officer accountability. The results of the research supported the author's belief that installing GPS in patrol units is worth the costs and would be accepted by supervisors managing the street officers. In addition, the study indicated a great increase for officer safety and accountability. As GPS technology becomes more and more affordable, it is believed that it will become more widely used by law enforcement agencies around the world.

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INTRODUCTION

Global Positioning Systems (GPS), is new technology to law enforcement and its benefits have yet to be determined. Global Positioning Systems technology allows a satellite in outer space to communicate with a transmitter on earth which offers numerous benefits to law enforcement agencies. This technology allows the satellite to send information to the receiver and back to the transmitter, allowing the position of the receiver to be determined by deciphering the communication between the two. It is currently being used in commercial vehicles, private vehicles, and watercraft. It has many uses in everyday life. Therefore, it is only logical to explore the possibilities related to law enforcement and ask the question, "What are the benefits of GPS to law enforcement". This research will attempt to determine the possible benefits and decide whether or not it is worth the expenditures to install the equipment and service into existing and newly purchased patrol units. The author believes the benefits of implementing GPS systems in patrol units will justify the costs.

To conduct an accurate analysis, a study will be performed regarding some of the current police departments that utilize GPS systems in their patrol units. The study will seek answers to questions regarding response times, equipment maintenance savings, and most importantly officer safety. Research gathered and evaluated will be compared to prior GPS installation and post installation of current agencies. The study will attempt to support any information received about GPS whether the effects were negative or positive. In addition to evaluating the survey, officers that have actually experienced GPS in their patrol units or other situations will be interviewed and their opinions considered in the final outcome of the research. GPS is not believed to be just a navigation tool for patrol units; it is also a locator for officers traveling by watercraft, bicycle, and foot.

From a management perspective, it is believed that GPS will assist in creating a sense of accountability among the officers, however it is not intended to micro-manage them. The author believes that if the patrol officers think that it will be used for that purpose, it will not be received positively as it should be. Instead, the safety and response time benefits should be emphasized as the most important perspectives. If in the conclusion of the research it is determined that GPS is cost-worthy, examples of how officers will benefit, as well as the community and department, should be presented to the officers utilizing the GPS. However, if there is a question as to the activity of officers, it could be used as a tracking tool allowing accountability on the officer's part.

REVIEW OF LITERATURE

There are various types of GPS systems that are available in today's market. There are systems solely used for tracking purposes such as the "LoJack" systems, currently being utilized by many police departments to locate and track reported stolen vehicles. Statistics show that a vehicle is stolen every twenty-five seconds in the United States. In 2004, over 1.2 million vehicles were stolen across the country ([www."LoJack".com](http://www.LoJack.com)). "LoJack" is a private security system that assists law enforcement by locating stolen vehicles. If an owner has a "LoJack" unit installed in their vehicle and the car is reported stolen, the VIN (Vehicle Identification Number) is entered into the Washington State Patrol database. This turns the "LoJack" unit on in the stolen vehicle, which activates a signal which can be picked up by special tracking equipment installed in police patrol cars. The Seattle Police Department currently has five patrol cars with these tracking units at each precinct. They have found the program to be effective in recovering stolen vehicles. They want to raise public awareness that this security system is available and that they have the equipment to support its technology (www.cityofseattle.net). It has been

reported more than ninety percent of stolen vehicles equipped with “LoJack” were recovered. Many were recovered within hours of being reported and in some cases; the thief was still in the vehicle. Clearly, this use of global positioning systems could prove to be a tremendous asset to other police departments as well.

The Montgomery County Department of Police in Maryland suggests another type of GPS antitheft system that has aided them in locating and recovering stolen vehicles. When a civilian purchases the system, a standard cellular telephone mount and headset are installed. When the owner starts the car he/she must enter a 4 digit code into the cellular telephone within three minutes. If that code is not entered, the central monitoring center (much like a home alarm) will place a call to the vehicle and verify who is driving the car. If the proper password or code is not given to the monitoring center, the central monitoring center may stop the engine, lock the doors, sound the horn, cause the lights to flash and notify the police. The engine can be stopped at a speed of 10 mph, or less and the police are notified as to the exact location of the vehicle for further investigation (www.montgomerycountymd.gov). It has reduced the time and manpower required to recover stolen vehicles and decreases the possibility of a high speed pursuit.

There are also the Computer Automated Dispatch systems integrated with GPS. The CAD system is typically used to assist officers in mapping the fastest or shortest routes to certain locations. Both systems can be used to track whoever is equipped with the appropriate transmitters. The CAD systems integrated with GPS are the more expensive and intricate systems. However, the CAD systems with integrated GPS are also the most useful systems for the law enforcement community. The 290 police officers in Garland, Texas agree. Their 80 squad cars are equipped with CAD systems that give them access to vital information and allow them to do their reports and other paperwork in their car. One officer in the department stated

that it means more time on the streets for them to ensure the safety of their 221,000 residents because they can complete more of their reports and other paperwork in the car and out of the station (www.tmcnet.com).

There are many benefits to installing and utilizing the CAD/GPS systems. One of the most important benefits is the safety aspect. An example of how CAD/GPS systems could come into play would be as follows. Patrol unit is involved in a pursuit and the suspect bails out of their vehicle and flees into a wooded area. If an officer were to continue on a foot pursuit, he/she could get into the woods and get lost and need assistance. If the handheld radio is equipped with GPS, the dispatcher can immediately locate the officer in need and navigate additional officers to the exact location. There are several police departments across the USA, already utilizing this very system. The police department in the West Patterson borough of New Jersey is one such department. The borough's police officers will be able to file reports from their cars that the chief can compile daily with just a few keystrokes. The police chief of the department stressed it promotes accountability and that every police department should have and needs. The goal of using the system is to save the department time and money - especially in overtime costs - and to make officers' jobs safer. The system can aid officers during emergencies by providing them on-the-scene information, such as how many people live in a particular house, how many stairwells a business has or whether anyone in a dwelling has a firearm (www.bergen.com). Another benefit of CAD/GPS is obviously the liability issue. As technology becomes more and more available to police, they are expected to be using it to assist in management issues. Lowering liability is definitely a management issue. Having patrol units equipped with CAD/GPS will assist in lowering the liability. If the department knows of such technology and understands it can assist in eliminating various kinds of misconduct, they are expected, by the public, to utilize

that very technology. It is virtually impossible for a department to keep track of all of its employees, but by installing and utilizing CAD/GPS they can show that they are making the effort to manage its employees. By taking this extra step it can lower the overall liability.

Anyone who has ever worked patrol and responded to calls for service can attest to the fact it is easy to get lost and/or turned around. Being lost or turned around can cause a slow response time in important situations. The computer automated dispatch systems that are integrated with GPS can greatly lower the odds of this happening and at the same time it can decrease response time. There are CAD/GPS systems being utilized by some departments that are undoubtedly decreasing their response times. Some of the systems available today not only show the shortest and fastest routes, but they are programmed with the mobile data terminals in patrol cars and are capable of giving verbal direction to the officer. The verbal directions technology allows the officer to keep his eyes on the road, which makes this option double as a time saver and a safety feature.

The increasing demand to do more with less has become a fact budget managers and upper management cannot deny is affecting the way departments are managing their personnel. If a department takes advantage of the options available to them today, they can more efficiently manage their personnel. To effectively manage a large number of personnel, or a smaller number of personnel, in a large area is an obstacle for police departments. With such situations existing, the need to employ more first line supervisors becomes a must and this necessity costs more money. By using cutting edge technology, such as CAD/GPS, departments can supervise more personnel which decreases the need for additional supervisors. Another positive aspect of using this technology, is the fact that it enhances the accountability of the street officers. This is another innate feature that assists in managing more personnel, by creating a self-managing

atmosphere for the officers. The reason this is true is because if the officers know they can be tracked and observed at any time, they have an internal thought process that causes them to police their own actions.

One of the most time consuming tasks a police department faces, is conducting internal investigations. Frequently, citizens complain about an officer's actions and the investigation begins. If all of the patrol units were equipped with GPS, it could alleviate a tedious search for the identification of an officer involved. However, having such technology available can assist in clearing certain officers just as easily. An example of an incident that GPS could assist in could be if an officer in a patrol unit accidentally struck a parked vehicle and did not stop and complete a report. If the vehicle had GPS information stored in a database, the department could access the information and easily determine who was driving that unit on that specific date and time. This is just another example of how useful of a tool GPS could be if installed in all marked patrol units.

Even though GPS has proven to be a cutting edge technological advancement with numerous pros, there are several negatives that come with installing such equipment. One of the most obvious problems is the cost of the initial purchase of the equipment. In the case of the West Patterson borough of New Jersey, the software cost the borough \$52,865, which included the licensing fee and several training sessions. The borough had already spent \$10,000 for two new servers to support the system and it will purchase mobile data terminals for each of the department's seven patrol cars. Of course, the cost to departments will vary depending on its jurisdiction and needs (www.bergen.com). However, West Paterson will save more than \$30,000 a year in reporting capabilities. As one can see, it is not cheap to implement this new technology. This can be a serious obstacle for smaller departments or those who do not have extra funds to purchase the new equipment.

There are other problems that arise when considering implementing CAD/GPS. One of the most frequent issues that arise when officers are faced with the possibility of GPS being installed in their patrol units, is the fact that it could be used to micromanage them. There is definitely opportunity for supervisors to misuse the equipment by micromanaging their personnel to an extreme, which could cause the officers to feel as if their supervisors do not trust them. The lack of trust issue could contribute to the breakdown of officer morale and affect the officer-supervisor relationship.

METHODOLOGY

It seems obvious one cannot put a price on the safety of officers and the civilians they serve. However, the author believes that research will also show that the benefits of GPS for law enforcement agencies warrant the costs. In order to determine this concretely, research on agencies must be conducted. An anonymous survey has been constructed to determine the extent that GPS technology is currently in use. The survey will also attempt to ascertain the reasons why individual officers favor or disapprove of the installation of the technology in their patrol cars. Also, to be questioned are the possible effects on morale, effects on response time and accountability.

The survey consists of ten questions to be answered either “yes” or “no”. Following most questions is an opportunity for a brief explanation. The survey will be administered to twenty-five law enforcement officers from different agencies, attending the Bill Blackwood Law Enforcement Management Institute of Texas. Participants will include supervisors ranging from the ranks of sergeant all the way through police chief. All participants are employed by different agencies in Texas. All of the twenty-five surveys distributed were returned completed.

The surveys will be analyzed to determine the extent to which GPS is currently being used and varying opinions on its effectiveness and productivity.

FINDINGS

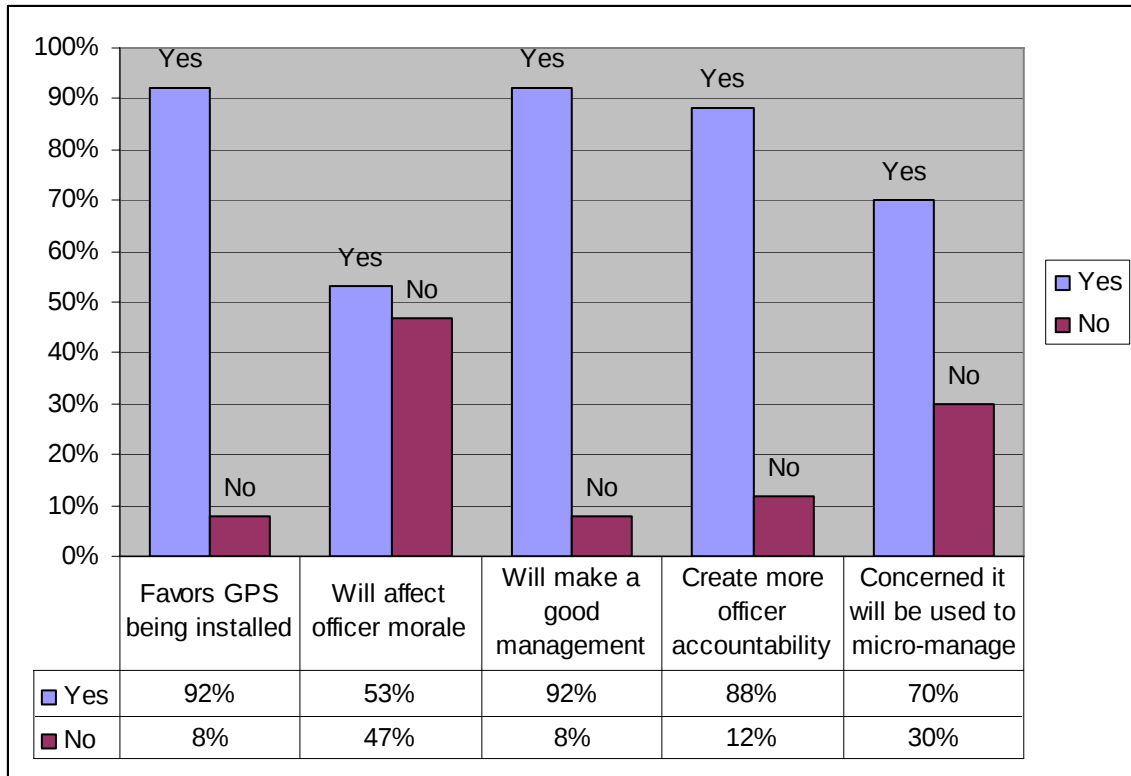
The author conducted a survey of twenty-five separate police agencies across the state of Texas. The survey found that only 24% of them are using GPS technology in their patrol units. Of the police departments that reported not having GPS, 47% of them said they have or are currently looking into having it installed and almost all of them said having it installed is a viable option. According to the survey, the most common reason police departments were not considering the installation of GPS, was the initial cost related to implementing such a program. However, 67% of the departments currently using the GPS technology to assist in computer automated dispatch said they have noticed a decrease in response times.

In the survey administered by the author, it was found that 92% of the officers surveyed said they like the idea of having GPS installed in their patrol units. The most common reason for the approval was the fact that officer safety would be increased. The second most common reason was the resource management issue. Eighty-eight percent of the officers surveyed said that they believed the installation of GPS in the patrol units would create a greater amount of accountability for the officer's time. This indicates a direct correlation with resource management. However, 92% of the respondents said they believed GPS would be a good management tool.

Even though there are is only 24% of the departments surveyed currently utilizing the GPS technology, 42% of them knew of actual incidents where GPS has greatly aided themselves or another officer. One of the officers surveyed said GPS was, "very useful for directing air rescue". Another one said, "Two deputies were chasing an armed suspect into a city and were not

able to give their location. Other deputies used the GPS tracking system to locate their vehicles and the deputies. The two deputies had radio communication but did not know what street they were on. Dispatch was able to use the same system and call the city PD with their location and got units started that way”. A few of the other officers responding to the survey advised they had experienced situations where they were able to locate officers that were not answering up on the radio, allowing them to locate them and verify their well being. This part of the survey obviously indicates a need for GPS technology in all patrol units if for no other reason than to increase officer safety.

The results of the survey appeared to favor the installation of GPS in patrol units. However, there was a considerable amount of officers concerned that the installation of such technology would affect officer’s morale. Even though this sounds like a minor problem, one of the most important responsibilities of a great leader and supervisor is to maintain morale among the personnel. The survey indicated that 53% of the officers being surveyed thought that it would affect morale in a negative way. One of the supervisors that responded said that their personnel did not like the idea of GPS being installed because they felt it was a way for “big brother” to keep track of them. This can be a serious issue when it affects the officer’s morale. Therefore, it is imperative to reiterate the fact that the primary reason GPS would be installed is for the officer’s safety and a tool to assist them in doing a more efficient job. It is clear that the positive aspects of installing GPS are far greater than the negative. For a breakdown of percentages regarding clarification of the attitude toward implementing the use of GPS, see the chart below.



CONCLUSION

Global Positioning Systems are being used by the general public to make everyday life safer, efficient, and more convenient. However, the research in this paper clearly indicates that it currently does and will continue to, benefit law enforcement officers and managers. The current use of the “LoJack” system being used by law enforcement for tracking purposes only, truly represents the effectiveness and success of GPS technology. Therefore, implementing greater technology such as GPS integrated into computer automated dispatch systems can and will continue to greatly aid police officers all around the world.

The research clearly shows that implementing GPS technology in the patrol cars will not be cheap but the author believes the benefits of GPS will far outweigh the overall costs. There is no possible way for one to place a dollar amount on the life of a law enforcement officer. Even

though the reality of officers making the ultimate sacrifice is an unfortunate given, reducing any unnecessary risks is well worth the costs. In addition to the added safety, installation of GPS could pay for itself over the years in other ways such as liability reduction, equipment abuse costs, investigative man hour costs, and maybe even medical costs by reducing the time in responding to an officer needs assistance call.

Notwithstanding the ideas of cost effectiveness, it has been proven that GPS is, and will continue to be, an effective tool to assist in managing multiple personnel. The ability to track and monitor employees from afar is unarguably a great asset. Even though it is impossible for a supervisor to stop all misconduct by the personnel assigned to him or her, the installation of GPS will create an internal policing system for all the officers operating equipment that has GPS installed. This will inevitably cause a greater accountability for the officers and will most likely deter them from trying to beat the system.

While gathering research, the author was somewhat limited in material because GPS is such new technology. However, it was easy to determine that the initial cost of installing GPS in all patrol cars would not be cheap but that the good outweighs the bad. There will be obstacles to overcome with the implementation of the GPS technology but the author feels that if managers and supervisors treat people with the respect they deserve, then the personnel will be able to overcome the “big brother” is watching stigma that will come with the capabilities. Once officers see the benefit of the tool and witness its effectiveness first hand, they will be more receptive to its use. Therefore, the author concludes that installing GPS in patrol cars would prove to be far more of a benefit than a detriment.

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Appendix

Hello. My name is John Nanny and I am a Sergeant with the Harris County Sheriff's Office. I am currently enrolled in the Law Enforcement Management Institute of Texas. The following survey was created to assist me in completing my Administrative Research Paper. Please take a few minutes of your time to complete the survey as accurately as possible and then return it to me.

1. Does your department currently have GPS in the patrol cars that act as a tracker and/or a tool for assisting officers in locating calls, or to locate officers in emergency situations?

Yes No (If you answered “yes”, please go to question #3)
 (If you answered “no”, please continue to question #2)

2. If your department does not have GPS in the patrol cars, have they considered having it installed?

Yes

a. If yes, have they researched it? Yes No

Is it a viable option? Yes No

No

b. If not, why? _____

3. If your department has GPS, do the officers like the technology?

Yes	Brief Reason
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No	Brief Reason
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Not Applicable

4. If your department does not have GPS but is considering installing it in the patrol units, are the officers concerned that it will be used to micromanage them?

Yes

No

Not Applicable

5. Can you recall any situations where you, your colleagues, or anyone you know was greatly aided by having GPS ?

Yes Brief Description_____

No

Not Applicable

6. If your department has CAD/GPS installed, has the technology improved the response time?
(You don't need to know the exact time comparison, but if you do please state)

Yes

No

Comments:_____

7. Do you like the idea of having GPS in patrol units?

Yes Brief Explanation_____

No Brief Explanation_____

8. Do you think having GPS installed in patrol units will affect the officer's morale?

Yes Brief Explanation_____

No Brief Explanation_____

9. Do you think GPS installed in patrol units will make a good management tool?

Yes Brief Explanation_____

No Brief Explanation_____

10. Do you think GPS in patrol units will create more accountability for officer's time?

Yes Brief Explanation_____

No Brief Explanation_____