

**The Bill Blackwood  
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**Installing Rear Visibility Cameras in Police Vehicles to Reduce Fleet  
Accidents**

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**A Leadership White Paper  
Submitted in Partial Fulfillment  
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**By  
John P. Garner**

**Harris County Sheriff's Office  
Houston, Texas  
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## **ABSTRACT**

The purpose of this study was to examine the available research associated with the reduction of fleet accidents by installing rear visibility/back-up cameras in law enforcement as fleet vehicles. Police automobile accidents, commonly referred to as fleet accidents, are a significant concern for police agencies across the country today. The research identified fleet accidents can be greatly reduced by providing agencies with funding to install rear visibility/back-up cameras in existing police fleet vehicles.

A comprehensive literature review was conducted to examine the factors that contribute to and/or aid in the deterrence of vehicular accidents. The study focuses on the following areas: Preventable accidents, cost of installing and maintaining the rear visibility/back-up camera systems, liability and costs associated with fleet accidents, examining various camera options, an examination of identifiable key factors which help motivate funding for rear visibility/back-up cameras, and legislation enacted requiring rear visibility/back-up cameras in newer fleet vehicles. Through a comprehensive examination, one can determine the full value of installing the camera systems and the beneficial effect to the law enforcement agencies, the police officers, as well as the communities in which they serve.

Lastly, recommendations were made to assist law enforcement leaders and police officers using these endorsed rear visibility/back-up camera systems. The focus of these recommendations were primarily to encourage the use of rear visibility/back-up cameras to prevent back-up and back over accidents and reduce costs associated with these accidents.

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## INTRODUCTION

Revolutionary progress in the world of technology has provided 21st century leaders in law enforcement with the ability of utilizing technological alternatives in order to address concerns within their agencies. The prevention of police automobile accidents has always been a particular concern for police agencies across the United States. Police automobile accidents, known commonly in the law enforcement milieu as “fleet accidents,” present a unique challenge for law enforcement. Fleet accidents transcend the common problems police agencies face in that their repercussions are often extensive and multileveled. For example, in addition to personal injuries of the parties involved, fleet accidents also expose both the officer and the agency involved to major financial liability through civil lawsuits.

Empirical research has demonstrated most backing accidents are preventable (Cooper, 2009, p. 2). Rear visibility technology has the potential of protecting agencies from monetary hardships over time. In 2013, the Ford Motor Company made available different types of rear visibility/back-up cameras that have been installed in police vehicles to reduce the possibilities of having fleet accidents (“Ford offers,” 2013). Police officers have given credit to the technology of the rear visibility/back-up cameras installed by Ford and stated they greatly contributed to the avoidance of being involved in a fleet accident where someone could have been seriously injured. Additionally, Ford identified several instances involving police officers giving credit to the installed cameras which alerted them to citizens approaching their patrol vehicles from behind without their knowledge, which is of great concern for officer safety (“Ford offers,” 2013).

In Texas, during 2013 and 2014, there were 8,210 fleet accidents reported to the Department of Public Safety (2015) from law enforcement agencies across the state. Of these 8,210 reported fleet accidents, 709 were accidents involving backing (Texas Department of Public Safety, 2015). This number may actually be much higher, due to many agencies not reporting fleet accidents to the Texas Department of Public Safety when those accidents do not meet the submission criteria of being on public roadways and/or involving reported injuries. The Texas Department of Public Safety (2006) has several distinguishing characteristics that have to be met. The one of which is significant in this context is, the accident “results in property damage to the apparent extent of \$1,000 or more” (Texas Department of Public Safety, 2006, p. 21). If the investigating agency cannot determine at the time of the accident investigation, that the estimated damage is \$1,000 or over, the accident may not be reported to the Texas Department of Public Safety. Consequently, during this same time frame, the Harris County Sheriff’s Office operated and maintained 1,250 marked law enforcement vehicles (Harris County Vehicle Maintenance Center, 2015). During 2013 and 2014, the Harris County Sheriff’s Office investigated 769 fleet accidents (Harris County, 2015a). In addition to the investigated fleet accidents, the Harris County Sheriff’s Office investigated 145 “damage to county property” claims which were the result of police vehicle backing accidents that did not meet the characteristics for reporting to the crash to the Texas Department of Public Safety. This was due chiefly to the fact that the drivers backed into objects or other vehicles on private property and the accidents did not involve injuries, or significant apparent damage (Harris County, 2015a).

Many studies lead to the conclusion that most vehicle backing accidents are preventable. The California Department of Transportation defines accidents as “preventable when the driver could have averted the collision” (Cooper, 2009, p. 2). Jeff Knox, an instructor with the Kentucky Department of Criminal Justice Training Vehicle Operations Section, was quoted as saying, “For us as police officers, 65% of all police incidents are in the backing position” (Darst, 2014). In many cases, vehicle backing accidents are low impact and cause minor damage to vehicles and private property, but the costs associated with the accidents are still significant. In 2009, General Motors received a poor rating in crash tests that revealed their mid-size sedans, which many law enforcement agencies have adopted as fleet vehicles, were costly in bumper repair, averaging approximately 2,300 dollars to repair per bumper (“Crash tests show,” 2009, p. 18).

The National Highway Traffic Safety Administration (NHTSA) is the organization paving the way for motor vehicle and highway safety and has examined the issue of vehicle backing accidents. In 2014, the NHTSA argued installing rear visibility systems, such as video cameras, will increase the effectiveness of rear visibility between 28 and 33%. Additionally, the NHTSA argued this is significantly higher than systems that use sensors only.

Rear visibility technology involves the use of a rear-mounted camera, sonar, and/or radar that detects the presence of objects within a specified range or distance behind a vehicle. The required range should include a 10-foot by 20-foot zone directly behind the vehicle that is not otherwise visible to the driver (National Highway Traffic Safety Administration, 2014, pp. 9-10). The use of rear visibility/back-up cameras

eliminates the blind spot behind vehicles and gives the driver visual control of the area that is directly behind the vehicle (Texas Department of Insurance, 2007).

The NHTSA was partly responsible for introducing the Cameron Gulbransen Kids Transportation Safety Act of 2007 which was subsequently passed by Congress to address the issue of rear visibility technology. This act directs the United States Department of Transportation to amend Federal Motor Vehicle Safety standards “to expand the required field of view to enable the driver of a motor vehicle to detect areas behind the motor vehicle to reduce death and injury resulting from backing incidents, particularly incidents involving small children and disabled persons” referred to as back-over accidents (National Highway Traffic Safety Administration, 2014, pp. 9-10). Researchers for the NHTSA estimate there are “292 fatalities and 18,000 injuries that result from back over crashes each year” (“DOT proposes,” 2011, para. 5 ).

Although the legislation passed requiring all vehicles manufactured in the United States under 10,000 pounds to have rear visibility systems installed, the NHTSA (2014) does not anticipate the “entire on road vehicle fleet” to be equipped with rear visibility technology until the year 2054 (p. 12). Nelson (2012) writes 77% of 2013 model vehicles had standard or optional rear visibility/back-up cameras. This is significantly higher than 2008, when only 32% had rear visibility/back-up cameras. Unfortunately, this still creates safety and financial concerns for older model vehicles not mandated to be equipped with rear visibility technology (Nelson, 2012). With the utilization of rear visibility technology, the NHTSA estimates the savings annually to be between 265 and 396 million dollars when property damage only collisions are avoided (National Highway Traffic Safety Administration, 2014, p. 13).

A significant portion of police agencies' budgets are dedicated to the purchase and repair of fleet vehicles. Without the retroactive installation of vehicle rear visibility/back-up cameras, preventable fleet accidents will continue and tax dollars will be wasted. It is imperative that law enforcement agencies take the steps necessary to implement immediate retroactive installation of rear visibility technology in all existing fleet vehicles and to purchase that option on new fleet vehicles.

### **POSITION**

Not all automobile accidents are preventable. Periodically, drivers are simply in the wrong place at the wrong time. Law enforcement administrators, however, should place a heavy emphasis on counter-measures to help mitigate the risks of fleet accidents. Any government entity involved in funding law enforcement agencies should also be concerned with the reduction of fleet accidents. The problem of fleet accidents would be better served if it were addressed in the same manner in which agencies approach solving crimes. For example, when a significant increase in crime develops within a community, some law enforcement agencies implement a proactive policing approach to address the problems in the community. In addition, some police agencies have even utilized proactive methods such as establishing transparency and safety platforms to ensure the public that police agencies are fiscally responsible with tax revenues. Retroactively installing rear visibility/back up cameras on existing fleet vehicles and purchasing factory-installed rear visibility technology in new fleet vehicles will significantly reduce or prevent many fleet accidents which involve vehicles backing (Cooper, 2009, p. 2). It stands to reason that the reduction of fleet accidents will reduce costs associated with property damage, productivity, and third-party liability



claims. Making these purchases and changes to a law enforcement fleet inventory are examples of efficient management with regard to community service and also acknowledges budgetary concerns.

Law enforcement vehicle repairs cost more than just the obvious expense of paying an auto repair facility to do the work. Many police officers are required to utilize task specific equipment, which becomes unavailable when the vehicle they operate is out of service for repairs. The cost for the Harris County Sheriff's Office to equip a mid-sized GM marked vehicle to use solely as a patrol vehicle in 2015 was \$40,511.87 (Harris County Sheriff's Office, 2015b). This cost did not include the cost for equipment used by specialized units such as Traffic Enforcement Division or the Crime Scene Unit which utilized highly technical equipment to investigate accident and crime scenes. In a similar manner, when the vehicle is out of service, the officer who drives that vehicle is out of service, even though he or she is able bodied. Despite the size of a law enforcement agency, being proactive in minimizing fleet related crashes is beneficial and cost-effective. For example, utilizing the average cost of the General Motors bumper repair to their mid-sized sedan, paints a vivid picture. These figures demonstrate that the Harris County Sheriff's Office could have saved an estimated \$333,500 of taxpayer money if those 145 "Damage to county property" claims between 2013 and 2014, had been prevented (Harris County Vehicle Maintenance Center, 2015).

Along with the actual cost of operating and maintaining fleet vehicles, the morale of the officers within an agency is an investment that affects the overall operation of the agency. High morale will likely produce higher productivity while low morale will result

in lower productivity (McFarlin, 2017). Each law enforcement agency has their own policies and procedures regarding disciplinary actions taken against officers who are found to be “at fault” for fleet accidents. Those disciplinary actions sometimes include probationary action, suspension, remedial driving training, and/or reassignment to non-driving positions. When officers are disciplined for fleet accidents that could have been preventable, their morale could be greatly diminished due to these avoidable disciplinary actions. Conversely, when law enforcement agencies unilaterally take proactive steps to minimize fleet accidents, their leadership protects the officers, the public at large and reduces the costs incurred by the accident.

### **COUNTER POSITION**

Some would argue installing rear visibility/back up cameras in law enforcement vehicles is a moot point because lawmakers have already remedied this concern. In early 2008, Congress passed legislation requiring all newly manufactured vehicles under 10,000 pounds to have rear visibility technology installed by the year 2018 (National Highway Safety Traffic Safety Administration, 2014). The Cameron Gulbransen Kids Transportation Safety Act of 2007 was passed to address the senseless deaths of small children and elderly persons, which have occurred over the years because of back over accidents that occurred when the driver of a vehicle could not see what was directly behind their vehicle while it was backing (National Highway Safety Traffic Safety Administration, 2014, pp. 9-10).

The NHTSA (2014) estimates, even with auto makers complying with the legislation, there will still be vehicles on the road that do not have rear visibility technology, until the year 2054. It is important to acknowledge the transitional period,

where newly purchased law enforcement vehicles are not affected by first-hand legislation. These vehicles will not be equipped with rear visibility technology and will be operated for several years after 2018.

Initially, it might appear that the expense of retrofitting rear visibility/back-up cameras in existing fleet vehicles is undoubtedly going to be costly. However, when considering the purchase of the equipment in its totality, installing these much needed cameras will mitigate a significant amount of fleet accidents, thus resulting in money saved in the future. Having these cameras installed could save an agency thousands of dollars in potential property damage and injury claims in addition to the initial cost of the repair of the police vehicle. When all costs are considered, the cost of the equipment is negligible. Well known and respected manufacturers of back-up cameras such as Magna International Incorporated and Panasonic Corporation sell camera modules to auto makers. It is estimated to cost approximately 200 dollars to add their respective camera systems to each vehicle that already has some type of monitor (Nelson, 2012). Other aftermarket company's prices vary to add a camera only to a vehicle that already has some type of monitor installed. It is estimated to cost from 150-400 dollars, plus labor costs. However, the average estimated cost can be up to 1,500 dollars per vehicle to install a complete camera with a monitor system (Nelson, 2012). This cost is minimal when comparing the price of the camera equipment to the price of the bumper repair, any other major vehicle damage, loss of productivity and injury liability. Additionally, the benefits of having a complete camera system installed are even greater when considering the potential property damage and personal injuries these cameras are likely to prevent.

## RECOMMENDATION

Over the past few decades, advances in technology utilized by law enforcement agencies have vastly improved. As 21<sup>st</sup> century leaders in law enforcement, it is imperative to embrace these rapid evolving technologies, especially if they provide long-term cost effective solutions to problems involving financial and liability suits. For many police executives, the real challenge in deciding whether or not to adopt a specific technology, such as rear visibility/back-up cameras, involves finding the right technology and funding. Unfortunately, agencies will always continue to experience costs that are incurred by vehicle repair and property damage. These costs can be mitigated by the timely installation of rear visibility technology in law enforcement vehicles that do not currently meet the legislative requirement. Research and studies conducted regarding the installation of vehicle rear visibility/back-up camera systems have reported unequivocally that there are many benefits associated with installing these devices ("Ford offers," 2015). The efficient management of operating costs by minimizing the number of fleet accidents, the reduction of time vehicles and personnel are out of service, the curtailing of repair costs, and the prevention of disciplinary actions taken against officers that are involved in accidents are advantageous for both law enforcement agencies and taxpayers.

The Occupational Safety and Health Administration (2012) encourages agencies to promote safe driving practices by installing cameras which can greatly diminish the possibilities of having fleet accidents. In 2012, the Occupational Safety and Health Administration (OSHA) reported that motor vehicle crashes costs agencies across the

United States, approximately 60 billion dollars in medical care, legal expenses, property damage, and lost productivity. OSHA reported the average fleet accident cost an employer about \$16,500. In addition, the Department of Labor reported when an employee has an on-duty accident that results in injury, the cost to their employer increases to an average of \$74,000. These costs can even exceed \$500,000 when a fatality is involved (Occupational Safety and Health Administration, 2012). Police leaders should recognize and take advantage of the opportunity of installing rear visibility/back-up camera systems in police vehicles simply because they have the potential of saving even a single human life. Ignoring or marginalizing the effectiveness of these cameras will expose police agencies and government officials to unnecessary stress and liability due to a problem that could have been prevented.

Although Congress passed legislation that requires automakers to install rear visibility technology in all vehicles, the legislation only mandates that vehicles produced in 2018 and after must have rear visibility technology installed (National Highway Safety Traffic Safety Administration, 2014). This legislation does not address the vehicles that are currently in service or those that will be purchased prior to 2018. Law enforcement agencies should take the steps necessary to implement immediate retroactive installation of rear visibility technology in all police vehicle and purchase that option on new fleet vehicles. Granted the initial cost of the investment to retrofit existing fleet vehicles will be high, it is minimal compared to the money and time saved by preventing property damage, injury, or even death.

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