TRAFFIC SAFETY

RESOURCE GUIDE

IACP
International Association of Chiefs of Police

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INTRODUCTION

Police officers in the United States today know all too well how challenging it has become to ensure the safe movement of traffic on the roadways. Factors such as distracted driving, both alcohol *and* drug-impaired motorists, an increase in total miles driven, and newly emerging considerations such as autonomous vehicles, promoting traffic safety as a national priority has become even more complex.

The **Traffic Safety Resource Guide** is designed to help law enforcement officers to address the elements of traffic safety from education to enforcement as well as share research and best practices. The Guide provides promising practices to support leaders in responding to traffic safety issues they are encountering in their communities. While the Guide does not seek to address all of the issues, it serves as a source of potential strategies that can be implemented, while also providing the latest research. The Guide can also serve as a starting point for learning more about ongoing research and studies by trusted organizations with a long history of commitment to traffic safety.

The Guide is written for police officers. In fact, many of the contributors to the Guide are currently working in the field of traffic safety – police officers, researchers, practitioners and others who best understand what the key issues are. The IACP has learned anecdotally that police officers have been known to carry the Guide in their patrol vehicle trunk, while at the same time, police chiefs use the Guide in planning for meetings with their city manager, elected officials, and community groups.

As you review the Guide, please keep in mind that new traffic safety initiatives and research are emerging almost daily. The IACP, working with NHTSA, plans to develop a future electronic version of the Traffic Safety Resource Guide, possibly in either a webpage or app format. This will help facilitate near real-time updates of data and research while also providing a mobile platform for smartphones and tablets. Feel free to contact the IACP and NHTSA with more specific questions related to traffic safety that may not be addressed in this Guide.

The mission you have undertaken of ensuring safe motor vehicle travel on the many roads in your communities can be a very challenging task. By working together and harnessing the resources and best practices mentioned in the **Traffic Safety Resource Guide**, the IACP's goal is to enable law enforcement leaders to meet and exceed their traffic safety initiatives.

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CHAPTER 1: REDUCTION OF TRAFFIC CRASHES

Alcohol- and Drug-Impaired Driving

In every state in the United States, it is illegal to drive with a BAC of .08 or higher, yet an average of one person is killed in a drunk-driving crash every 48 minutes. Every day, thirty people in the U.S. die in an alcohol-related vehicle crash. [1]

While the National Highway Traffic Safety Administration (NHTSA) advises that impaired driving fatalities have fallen by a third in the last three decades, the risk of being involved in an alcohol-impaired crash is still one-in-three over the course of an individual's lifetime. Impaired driving fatalities in the U.S. increased by 5.7 percent from 2015 to 2017. Parallel to the overall number of lives lost in traffic crashes in 2015, the number of alcohol-impaired fatalities also rose 5.8 percent from 2015 to 2017. [2] (See Table: Fatalities and Fatality Rate per 100 Million Vehicle Miles Traveled in Alcohol-Impaired Driving Crashes, 2008-2017)

Meanwhile, the use of marijuana and prescription drugs has become even more prominent among drivers on U.S. roads, raising more challenges for traffic safety officials. With the legalization of cannabis in several states for medical or recreational purposes, the increased prevalence of drugged driving is likely to result in more deaths on roadways. More studies and research are needed, so law enforcement can prepare effective and efficient strategies related to drug-impaired motorists.

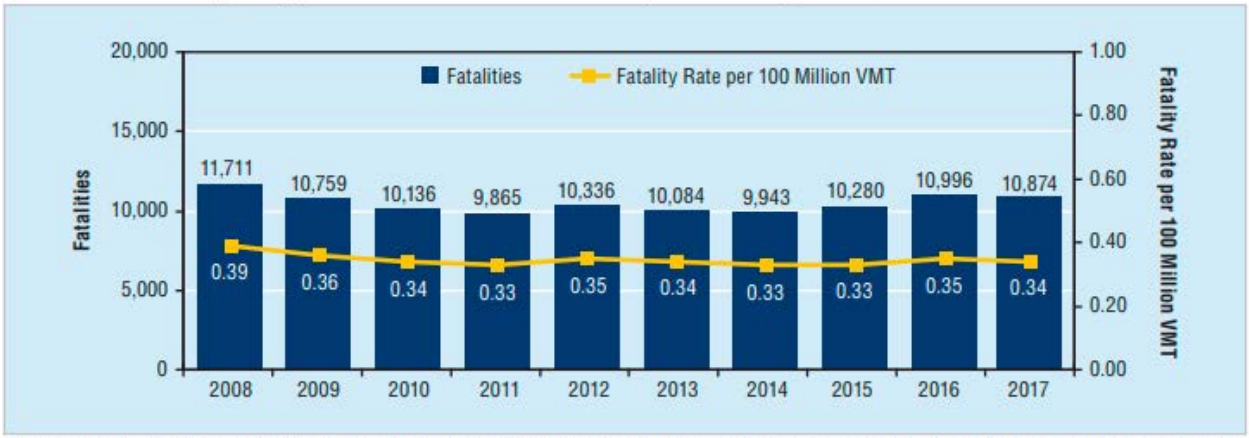
A NHTSA report indicated that the prevalence of marijuana in drivers in Washington State has increased significantly since the implementation of legal marijuana retail sales in 2014. During the daytime, when children and the elderly are more likely to be outside, the rate of THC identification in drivers more than doubled from 7.8 percent prior to cannabis legalization to 18.9 percent one year after legalization. [3]

A second survey considered whether marijuana use by drivers was associated with a greater risk of crash involvement. Results from the survey found that marijuana users were more likely to be involved in crashes, but that the increased risk was due in part to the potential for marijuana users to be in groups already at a higher risk of crashes, such as young men. [4] More data is needed on the link between marijuana use and the propensity of a higher incidence of crashes.

Most law enforcement officers in the U.S. do not test impaired drivers for drugs unless the motorists' blood or breath sample results are below the legal limit for alcohol. This is a standard operating procedure to save time and expenses associated with the testing process. Many times, drivers who have been involved in crashes have the presence of both alcohol and drugs in their system. [5] Without more established practices of testing for drug impaired driving, the true picture of drug-impaired driving will remain unknown.

Another complex and emerging issue related to drug-impaired driving is the significant increase in the use of prescription drugs. The abuse of opiate drugs specifically has received national attention as the United States is in the midst of an opioid overdose epidemic. The Centers for Disease Control and Prevention (CDC) reported in 2017 that 70,200 deaths were caused by prescription opioids and heroin – an all-time record. [6] As the instances involving the abuse of these drugs increases, law enforcement must be prepared to combat an

Fatalities and Fatality Rate per 100 Million VMT in Alcohol-Impaired-Driving Crashes, 2008–2017



Sources: Fatalities – FARS 2008–2016 Final File, 2017 ARF; 2008–2016 VMT – Federal Highway Administration's (FHWA) Annual Highway Statistics; 2017 VMT – FHWA's Traffic Volume Trends (May 2018)

increasing number of opioid-impaired people in the driving population.

Clearly, the data on alcohol and drug-impaired driving is very concerning. There has been a documented increased in the prevalence of drugged driving in the U.S. In fact, the number of drivers involved in fatal motor vehicle crashes who have tested positive for drugs increased from 28 percent in 2005 to 32 percent in 2012. [7] NHTSA has been a leader in working diligently to develop evidence-based and data-driven initiatives. Through research, public awareness campaigns, and the many state safety grant programs, NHTSA's goal is to eliminate alcohol- and drug-impaired driving. NHTSA has been working with various partners, including the IACP, GHSA, NSA, MADD, and law enforcement across the U.S. NHTSA regularly partners with law enforcement on successful campaigns to address impaired driving, such as Drive Sober or Get Pulled Over, Buzzed Driving is Drunk Driving, and The Ultimate Party Foul initiatives. More information regarding these campaigns on the NHTSA website at https://www.nhtsa.gov/ or on the IACP website at http://www.theiacptheIACP.org/trafficsafety.

The IACP Provides Leadership in Addressing Alcohol and Drug-Impaired Driving

Strong leadership in law enforcement is the first key to success in bolstering efforts to eliminate impaired driving. Ensuring that traffic enforcement resources are appropriately focused and agencies' field activities support desired outcomes is crucial to the success of the traffic safety mission. Chief executives who emphasize the link between education and enforcement with their rank and file officers will serve as a catalyst to motivate key partners beyond law enforcement.

The Broken Windows Model of policing demonstrated the opportunity to reduce crime and improve quality of life by addressing seemingly insignificant crimes, which thereby allowed law enforcement to deter people from committing larger crimes and drive down the general crime rate. There are concepts exhibited through the implementation of this theory into policing that are easily transferrable to traffic enforcement. [8] One research project conducted by Weiss recommended law enforcement agencies "to consider enhancing or expanding their use of traffic enforcement teams because of their potential value in reducing public order crimes." [9] Jurisdictions that have implemented a "Fixing Broken Windows" strategy can reinforce these concepts to contribute to the reduction of impaired driving.

In addition to ensuring aggressive impaired driving enforcement is occurring in their agencies, law enforcement agencies should consider:

- Developing strong support among government leaders;
- Sponsoring or participating in meaningful awards and recognition programs to provide positive reinforcement for impaired driving enforcement; and
- Publicly supporting advancements in automotive and enforcement technology for sensing impairment.

Criminal Justice Collaboration

Partnering and collaborating with other agencies and organizations in order to combine resources can serve as a "force multiplier," and achieve results that a single agency could not accomplish alone. There are excellent examples of innovative campaigns that approach the challenge of impaired driving from a multi-disciplined standpoint, incorporating education, awareness, and enforcement.

One such campaign is the High Visibility Education and Enforcement (HVEE) Pilot Project. While not focused only upon impaired driving, this project assembled partners from NHTSA, the IACP, the Governors Highway Safety Association (GHSA), the U.S. Department of Transportation to help reduce traffic deaths through HVEE initiatives. Four states – Delaware, Maryland, North Carolina, and Wisconsin – participated in this IACP-led effort with programs addressing specific localized traffic safety concerns. The HVEE concept offers an evidence-based, data-driven, problem-solving approach that combined proactive public education campaigns to raise awareness of the identified safety issue, followed by targeted enforcement involving multiple law enforcement agencies. One of the hallmarks of the program was the opportunity to collaborate with stakeholders from multiple disciplines, including representatives from state transportation organizations, state highway safety associations, and state, county, and municipal law enforcement agencies. A summary of each state's HVEE program and checklists for high visibility enforcement are available here: www.theiacp.org/HVEE. Additional examples of projects like the HVEE program are also located in the Bibliography of Resources section in the Appendix.

Public and private partnerships can help break traditional boundaries, provide broad-based support, amplify available resources and establish shared ownership. NHTSA, the IACP, and other key partners will continue to provide resources and research to law enforcement leaders to assist them in their development and implementation of impaired driving reduction strategies. These efforts, and the engagement of law enforcement agencies throughout the country, will be needed to overcome the multi-faceted challenge of impaired driving.

Effective Communication Strategies

Effective internal and external communication is another key to success in emphasizing law enforcement's efforts to eliminate impaired driving. Law enforcement leaders must take affirmative measures to "sell" impaired driving enforcement to both their officers and the public. Garnering the support and response of officers and the public requires leadership, which begins with awareness and commitment at the highest level of any organization. Motivating line-level officers to not only accept, but also become actively involved with impaired driving enforcement should be one of the focal points of any agency's traffic enforcement program. This motivation begins with the chief, sheriff, or other agency head and must be conveyed from the top-down throughout all levels of the organization.

Similarly, external communications are essential to success. Law enforcement executives should not be deterred by the occasional negative public response to impaired driving enforcement. In one example, the *Chicago Tribune* wrote an article entitled "Sobriety checkpoints yield thousands of minor citations but few DUI arrests." [10] A consensus of the vast body of research on public attitudes continues to show that the public rates impaired driving among the greatest traffic safety threats; additionally, there is broad-based support for enhanced enforcement. Impaired driving enforcement programs are greatly enhanced when an agency is proactive in garnering support for its efforts from key supporters and allies, such as MADD, as well as other traffic safety organizations, community groups, and coalitions. [11]

Two key partners are the State Highway Safety Office (SHSO) in each state, as well as, the Governors Highway Safety Association (GHSA). GHSA is an umbrella organization representing the interests of the SHSOs and serves as the state's voice on highway safety at the national level. Working collaboratively, the SHSOs and the GHSA facilitate innovative education and awareness campaigns and are highly recommended partners for any chief executive. NHTSA, SHSOs, and GHSA all provide template media materials on their websites that can be extremely valuable to law enforcement. [12] Refer here https://www.trafficsafetymarketing.gov/ for more information.

Impaired Driving Detection

Law enforcement officers utilize various practices and advanced technologies to detect impaired drivers. This section will summarize some of the more common methods and technologies used in the field.

Standardized Field Sobriety Testing

Developed in the late 1970's and early 1980's, the Standardized Field Sobriety Test (SFST) battery consists of tests administered and evaluated in a standardized manner to obtain validated indicators of impairment and establish probable cause for arrest.

A formal program of training was developed and is available through NHTSA to help law enforcement officers become more skillful at detecting DUI suspects, describing the behavior of these suspects, and presenting effective testimony in court. Formal administration and accreditation of the program is provided through the IACP. SFST training prepares law enforcement officers to use the standard test battery to enhance the prosecution of impaired driving cases.

The three tests comprising the SFST are (1) the horizontal gaze nystagmus (HGN), (2) the walk-and-turn, and (3) the one-leg stand. These tests are administered systematically and are evaluated according to measured responses of the driver. [13]

Consult the IACP and NHTSA for additional information regarding the SFST training curriculum and your local or state training centers for available classes.

Drug Recognition Expert (DRE) Program

A drug recognition expert (DRE) is a law enforcement officer trained to recognize impairment in drivers under the influence of drugs other than, or in addition to, alcohol. The IACP coordinates the International Drug Evaluation and Classification (DEC) Program with support from NHTSA. In addition to certifying law enforcement officers as DREs, the DEC Program educates prosecutors and judges in the prosecution of drugged drivers. [14] For more information on the DEC Program and DREs, visit www.decp.org. Also see *"Current Issues in Drug Impaired Driving"* by Lieutenant Matt Myers, Peachtree City Police Department, at the end of this chapter.

Advanced Roadside Impaired Driving Enforcement (ARIDE)

The Advanced Roadside Impaired Driving Enforcement (ARIDE) program was developed by NHTSA with input from the IACP Technical Advisory Panel (TAP) and the Virginia Association of Chiefs of Police (VACP). ARIDE was created to address the gap in training between the SFST and DRE training. The ARIDE program also stresses the importance of securing the most appropriate biological sample in order to identify substances likely causing impairment. [15] Additional information is available at this website: http://www.decp.org/training/. Another key resource is the article entitled *"Current Issues in*

Drug Impaired Driving" by Lieutenant Matt Myers of the Peachtree City, Georgia, Police Department, at the end of this chapter.

Roadside and Sobriety Checkpoints

Roadside checkpoints provide law enforcement personnel with a ready means to monitor and check driver condition, driver's licenses, insurance, vehicle registrations, and compliance with other laws regarding vehicle operation. Although federal case law supports the use of checkpoints in this manner (subject to certain restrictions), law enforcement executives should educate themselves on the state laws regarding the use of checkpoints before implementing such operations in their jurisdiction.

Because some courts and licensing authorities now issue restricted licenses to offenders, roadside checks allow officers to monitor compliance with court-ordered and statutory restrictions. Law enforcement personnel can contact increased numbers of vehicle operators without first having to make traffic stops. Roadside checkpoints also enable officers to conduct vehicle registration inquiries and detect uninspected or unsafe vehicles.

A sobriety checkpoint is a highly visible enforcement mechanism. All motorists approaching a designated area of a highway are stopped and briefly investigated for signs of intoxication. Due to legal issues, not all state laws allow law enforcement to conduct sobriety checkpoints. Some states have laws authorizing their use while others forbid them entirely; thus, law enforcement leadership should be cognizant of their state and jurisdictional laws and regulations.

The HSC and NHTSA have published operational guidelines that chief executives should be familiar with to ensure their personnel follow them closely, as well as make certain all officers conduct the checkpoints in a safe, legal, and effective manner. These guidelines suggest that checkpoints should be part of an ongoing program to combat impaired driving, have local judicial support, and conform to agency policy. The location should be pre-selected by management based upon statistics and should have special advance warning devices, a visible police presence, chemical testing logistics, contingency planning, effective detection and investigation techniques, operational briefings, comprehensive public information and public education efforts, and post-incident critiques based on data collection and evaluation. [16] Law enforcement leaders should contact the traffic safety resource prosecutor (TSRP) or SHSO in their state for assistance in developing policies and practices consistent with state and federal laws regarding road checks. Refer to the Appendix for a listing of TSRPs in each state.

Breath-Testing Instruments

The NHTSA Alcohol Countermeasures Program (ACP) provides continued support to further reduce the rate of intoxicated driving through the development and evaluation of measurement techniques for alcohol on the breath, production of performance guidelines for breath measurement devices, testing of instruments intended for police use, and technical support of demonstration and research programs.

Under Section 403 of the Highway Safety Act of 1966, the Secretary of Transportation is required to carry out a research and demonstration program. In the area of alcohol breath testing, the requirements of the Act are met by NHTSA through the Office of Research and Program Development and the Office of Behavioral Safety Research. Supported by a capable laboratory, they are responsible for the development and evaluation of test procedures and related instrumentation. [17]

The Alcohol Countermeasures Laboratory (ACL) evaluates alcohol devices according to NHTSA's Model Specifications for evidential breath testers, alcohol screening devices, and calibrating units. Devices that meet the specifications are added to NHTSA's Conforming Products List (CPL), which is available on the NHTSA website.

The ACL also evaluates other alcohol test devices of interest for potential usefulness in alcohol-impaired countermeasures, including ignition interlock devices, disposable or re-useable personal breath testers, passive breath testers, or devices that test other fluids for alcohol (e.g., saliva testers). [18] A comprehensive list may be found at the Alcohol Measuring Device Testing and Technical Information page: https://www.volpe.dot.gov/safety-management-and-human-factors/surface-transportation-human-factors/alcohol-measuring-device. [19]

Law enforcement leaders should be cognizant of state guidelines for testing instruments. Some states only allow preliminary testing to be conducted with a device approved by a specific agency, such as the state's forensic science laboratory.

Preliminary (or Portable) Breath Test Devices (PBT)

The preliminary (or portable) breath test (PBT) device is an instrument used for the purpose of breath alcohol screening in the field. A law enforcement officer can use the PBT as a preliminary screening tool for impaired driving by having the suspected driver provide a breath sample for an instantaneous determination of breath alcohol content.

Officers are reminded to refer to their applicable state and local laws regarding the use of evidence from a PBT. While results are generally not admissible as evidence of impairment, they do provide officers with additional objective information to establish probable cause for arrest and further chemical testing. [20]

Non-Invasive or Passive Alcohol Sensors

Passive alcohol sensors (PAS) are instruments that detect the presence of alcohol in normally expelled breath, and they require no cooperation from the driver. During a roadside interview of the driver, the officer places the sensor within six inches of the driver's mouth. It contains a small fan which samples the ambient air for examination. An electro-chemical mechanism analyzes the air for the presence of alcohol. [21]

From: https://goo.gl/images/QxLBNL

Some sensors are concealed within a flashlight or a clipboard, which can be used as a passive or active detector. NHTSA studies indicate these devices are effective during sobriety checkpoints when the decision to further evaluate drivers must be made expeditiously.

Vehicle-Based Sensors of Driver Behavior to Detect Impairment

Although enforcement and educational approaches have helped to reduce alcohol-impaired driving fatalities, new vehicle-based sensor technologies are being studied by NHTSA and other interested groups. One such approach concerns countermeasures that capitalize on the increasingly sophisticated sensor and computational platform that is available on many production vehicles. Such vehicle-based countermeasures have the potential to address alcohol-impaired driving and save thousands of lives each year. Vehicle-based countermeasures use sensors that describe drivers' control inputs (e.g., steering wheel and brake pedal movement), vehicle state (e.g., accelerometer and lane position), driving context (e.g., speed zone information and proximity of surrounding vehicles), and driver state (e.g., eye movements and posture). Data from these sensors can be transformed, combined, and processed with a variety of algorithms to develop a detailed description of the driver's response to the roadway. These sensors and algorithms hold promise for identifying a range of driver impairments, including distraction, drowsiness, and even age-related cognitive decline. Alcohol represents a particularly important impairment that might be detected by vehicle-based sensors and algorithms. [22]

For more information on one vehicle-based sensor study conducted by NHTSA, refer to this website: https://www-esv.nhtsa.dot.gov/Proceedings/22/files/22ESV-000322.pdf.

Alcohol Ignition Interlock

One effective strategy in addressing the problem of impaired driving, which has application to both first-time and repeat offenders, is the use of ignition interlock devices. An ignition interlock device is an after-market technology device installed in a motor vehicle to prevent a driver from operating the vehicle if the driver has been drinking.

A driver must submit a breath sample using the device before it will operate. If the driver's blood-alcohol content (BAC) is over a pre-set limit, the ignition interlock will not allow the vehicle to start. Studies have shown that these devices are effective in reducing subsequent arrests for driving under the influence among both first-time and repeat offenders, with reported reductions ranging from 50-90 percent while the interlock device is installed on the vehicle. From a law enforcement perspective, it is important for officers to be able to determine offenders who were sentenced to an ignition interlock program while in the field. One suggestion is to have a special designation or endorsement on an offender's license that is easily identifiable by a law enforcement officer. [24]

Notes:

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14. *Highway Safety Desk Book* (n.p., 2004), 5–7 – 5–9, https://ntl.bts.gov/DOCS/deskbk.html.
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17. *Highway Safety Desk Book* (n.p., 2004), 5–11 – 5–14, https://ntl.bts.gov/DOCS/deskbk.html.
18. Volpe, "Alcohol Countermeasures Help Reduce Intoxicated Driving," National Transportation Systems Center, October 31, 2013, https://www.volpe.dot.gov/safety-management-and-human-factors/surface-transportation-human-factors/alcohol-countermeasures (accessed February 3, 2017).
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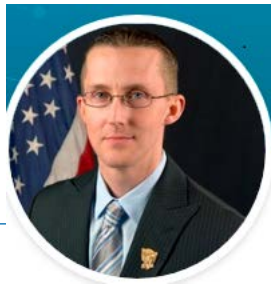
Current Issues in Drug Impaired Driving



By: **Lieutenant Matt Myers,**
Peachtree City Police Department,
Peachtree City, Georgia

The 2013-2014 National Roadside Study of Alcohol and Drug Use by Drivers revealed an encouraging trend of declining alcohol use by drivers. [1] The data collected by this study, along with declining alcohol-related fatalities documented by the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System, demonstrate promising evidence that "drunk" driving education and enforcement initiatives are creating positive change. While it may be encouraging that the Roadside Survey found only 8.3 percent of drivers were positive for alcohol, law enforcement should take note that researchers found over 20 percent of drivers tested positive for at least one drug – an increase from the 16.3 percent in 2007. These drugs included, among others, cannabis, sedatives, narcotics, stimulants and anti-depressant medications. As can be expected from recent legislative changes, the drug with the sharpest increase in use was cannabis. Drivers who tested positive for the drug leapt from 8.6 percent in 2007 to 12.6 percent in the 2013-2014 study.

The number of drug-impaired driver evaluations reported by Drug Recognition Experts also reflects this concerning trend. From 2009 to 2015, the number of formal drug influence evaluations reported by Drug Evaluation and Classification (DEC) Program state coordinators rose from 24,059 to 28,542, nearly a 20% increase. The number of DREs rose by only 6 percent during that time. Cannabis was the most frequently identified drug category in 2015, being identified in 10,880 DRE evaluations nationally – a 25 percent increase from 2012.

This data demonstrates an enormous and increasing need for law enforcement to expand their efforts to combat drug-impaired driving. Recent trends in cannabis legislation, and attempted cannabis legislation, suggest that the need for vigilance in this area will continue to increase in coming years.

Law Enforcement Countermeasures: Officer Training

Law enforcement managers should consider officer education the most fundamental step in effectively combating drug-impaired driving. NHTSA, in cooperation with the International Association of Chiefs of Police (IACP), maintains a series of progressive curriculum packages to build officer expertise in the area of alcohol

and drug impairment. The pinnacle of these programs is Drug Recognition Expert training.

Use of Drug Recognition Experts (DREs) is a vital component of any law enforcement response to the drug impaired driving issue. Simply put, a DRE is trained to make a three-point determination about suspected impaired drivers:

1. Is the driver impaired?
2. If the driver is impaired, is the impairment due to drugs or a medical condition?
3. If the impairment is drug-induced, what category or categories of drugs are causing the impairment?

The training to become a DRE is a rigorous process, but attainable for dedicated officers. It includes a two-day "DRE Preschool" that is designed to assess the candidate's ability to move forward in the program and prepare them for the next phase. Candidates who successfully complete the preschool then transition to a 7-day classroom phase where they learn the 12-step drug influence evaluation process, details of drug influence symptomatology, and how to execute the three-point determination described above. Upon passing the classroom phase, candidates then move onto a field certification phase in which they must conduct hands-on evaluations of actual drug impaired subjects and correctly render decisions about them. The final step in the certification process is then successful completion of the Final Knowledge Exam, which includes a detailed exploration of the knowledge they gained through the entire process up to that point. More details about the process and how it is supported in each state can be obtained from the state's DRE State Coordinator.

Law enforcement managers must understand that the value of DREs extends well beyond arrests they personally make. DREs supplement and bolster the arrests of other officers, provide expert testimony on cases made by other officers, and can serve as a community resource in a variety of contexts. Despite their great value, DREs only compose a small percentage of the law enforcement officers nationally.

According to the IACP, which manages the credentialing process for DREs, there were approximately 8,000 DREs, spread across 3,681 agencies, in the United States on December 31, 2016. The program is also represented in Canada, the United Kingdom, China, and Germany.

To aid in bridging the gap between the basic training received by most police officers in DUI Detection & Standardized Field Sobriety Testing and DRE training, NHTSA and IACP developed Advanced Roadside Impaired Driving Enforcement (ARIDE). ARIDE solidifies the student's proficiency in Standardized Field Sobriety Tests, trains them to administer two additional examinations, introduces the concepts of pupil size change as an indicator of drug influence, and familiarizes candidates with foundational concepts in identifying drivers under the influence of drugs other than alcohol. The standard ARIDE course is a 16-hour class available in all 50 states.

According to statistics from NHTSA's national tracking system for DRE Drug Influence Evaluations, ARIDE has proven to be a successful tool for screening impaired drivers into DRE evaluations for many states. For example, the tracking system indicates that 50.6 percent of the DRE enforcement evaluations conducted in Washington State during 2015 resulted from an impaired driving arrest made by an ARIDE-trained officer.

For more information about ARIDE and DRE training, as well as assistance contacting a DRE State Coordinator, visit www.decp.org

Law Enforcement Countermeasures: Refusal of Chemical Testing

Even when well-trained officers develop a strong body of evidence against an impaired driver using standardized sobriety testing, the lack of chemical testing can be a serious challenge to obtaining convictions in court. While there does not seem to be a credible estimate of blood draw refusals in recent years, research indicates that the average refusal rate for breath tests in 2011 was 24 percent (median 18 percent) across 34 states for which data was available. [2]

Several states in the United States have statutes allowing police officers to obtain search warrants for blood in the case of an impaired driver that refuses the state chemical test. The Arizona Department of Public Safety (AZDPS) was one of the first law enforcement agencies to implement large-scale use of search warrants and "no refusal" programs on impaired driving cases, and they can be considered a model for other agencies interested in aggressively combating this issue. AZDPS troopers apply for search warrants electronically when a driver refuses chemical testing and are able to execute the blood collection with little delay.

With the frequent use of search warrants for blood in their agency, AZDPS has also implemented a law enforcement phlebotomy (blood drawing) program to reduce complications and delays involved with using a third-party for sample collection. Troopers attend a 40-hour course for initial phlebotomy certification, then maintain the certification through meeting certain ongoing requirements. The ability to eliminate wait times at hospitals or other medical facilities is of particular

importance with drivers under the influence of cannabis, as research shows that THC blood concentration decreases an average of 73.5 percent in the first half-hour and 90.3 percent in the first 1.4 hours after smoking. [3] The ability of officers to draw samples themselves improves their collection time, as compared to the generally accepted 1.5 – 4-hour average range to obtain a blood sample using third-party personnel. For more information on other considerations in law enforcement phlebotomy programs and how to go about establishing a similar program in your state, contact the Arizona Law Enforcement Phlebotomy Program Coordinator via the Arizona Governor's Office of Highway Safety.

Challenges and Recommendations: Chemical Testing Policy and Practice

The observations and clearly articulated opinions of a well-trained officer should serve as the foundation for any impaired driving case, but chemical testing provides a useful, and sometimes crucial, means to support the officer's findings of impairment.

Even when a biological sample is collected by law enforcement for analysis, the content and scope of testing may still vary significantly between states. For example, some state statutes only allow law enforcement to collect urine for chemical testing purposes. This restricts the usefulness of the test in proving impairment, since urine shows historical (not necessarily recent) use of a drug and cannot be easily correlated to a level in the blood (where it can affect driving). In the case of such statutes, law enforcement managers should work with their state officials to move towards legislation more supportive of convicting impaired driving cases. A more common point of variance between states is the scope of drugs tested for and the minimum levels at which their lab can confirm and quantify the presence of a drug. Even with the longstanding record of cannabis as the most abused illicit drug in the United States, [4] some labs still do not test and confirm the presence of THC in blood - only an inactive metabolite. Others may confirm THC, but only at levels notably higher than where some people may be impaired. Similar issues extend to other drugs, both licit and illicit. Not only is this a challenge to convicting impaired drivers, but it may create the false impression of officers making unjustified arrests. In 2016, the International Association of Chiefs of Police (IACP) joined the National Safety Council's Alcohol, Drugs, and Impairment Division (NSC ADID) in supporting recommendations set forth in "Recommendations for Toxicological Investigation of Drug-Impaired Driving and Motor Vehicle Fatalities," [5] which provides recommendations for confirmation levels and scope of testing for forensic toxicology laboratories. The IACP's resolution encourages law enforcement to work in partnership with their toxicology labs to support implementation of the recommended standards. This resolution, and others, can be reviewed at http://www.theiacp.org/Resolutions.

With the expansion of medical and recreational cannabis laws across the country, several states have current or pending legislation that sets a *per se* threshold (other than zero) for THC in the blood. While the intent of such laws is typically to create a presumption of impairment over a certain level, the practical implication of such laws is often that attorneys and jurors erroneously presume drivers *under* that limit are *not* impaired. A recent position paper from the NSC ADID cautions that "It is further concluded that due to rapid changes in blood THC concentrations over time, there is no minimum safe threshold blood concentration below which a driver can be considered to have been unaffected while driving following recent cannabis use. Consequently there is no scientific basis for the adoption of THC *per se* laws for driving." Law enforcement managers should consider the challenges described in this position paper, and bring them to the attention of lawmakers when matters related to cannabis legalization or *per se* laws are at issue. [6]

The proliferation of drug-impaired driving has cued development of additional roadside testing technology that may assist officers with confirming the presence of certain drugs in a biological specimen, similar to portable breath testing devices used in alcohol cases. The most promising developments in this area are related to oral fluid testing. A small number of states are currently running pilot programs to test the practicality and reliability of roadside oral fluid testing. If this technology proves to have valid applications in roadside impaired driving enforcement, many states will still face hurdles due to state laws that prohibit such testing or require that a state agency endorse any device to be used for chemical testing. Current research correlating levels of a drug in oral fluid to levels in blood is also critically lacking, so early adoption of this technology will likely only be useful for establishing presence of the drug.

Public Education

NHTSA's Fatality Analysis Reporting System (FARS) indicates a reduction of over 50 percent in the number of traffic deaths attributable to alcohol-impaired driving between 1982 and 2014. While law enforcement efforts to deter impaired driving and apprehend violators have been important contributors to this decline, so too have public education campaigns implemented by state and federal government agencies, as well as private entities such as Mothers Against Drunk Driving (MADD). Similar efforts on the topic of drug-impaired driving, particularly cannabis-

impaired driving, may be warranted as legislative and social trends continue to facilitate increasing numbers of people likely to operate a vehicle while impaired by drugs. Jurisdictions newly facing the issue of increased cannabis-impaired driving can look to states like Colorado that have spent years developing programs specifically targeting that problem. The Colorado Department of Transportation (CDOT) has launched campaigns like "Drive High, Get a DUI", staged clever public demonstrations to draw the attention of the general public and recreational marijuana users, installed video games with sober driving messages at dispensaries to engage marijuana users at point of sale, and even partnered with ride-sharing services to increase awareness of safe ride alternatives. Countermeasures like these hold great promise in minimizing traffic fatalities related to drug impaired driving.

Notes:

1. National Highway Traffic Safety Administration. Results of the 2013-2014 National Roadside Study of Alcohol and Drug Use by Drivers. By A. Berning, R. Compton, and K. Wochinger. Washington, D.C.: National Highway Traffic Safety Administration, 2015.
2. Jones, R. K., and James L. Nichols. Breath test refusals & their effect on DWI prosecutions. Washington, D.C.: U.S. Dept. of Transportation, National Highway Traffic Safety Administration, 2012.
3. Hartman, R. L., T. L. Brown, G. Milavetz, A. Spurgin, D. A. Gorelick, G. R. Gaffney, and M. A. Huestis. "Effect of Blood Collection Time on Measured 9-Tetrahydrocannabinol Concentrations: Implications for Driving Interpretation and Drug Policy." Clinical Chemistry 62, no. 2 (2016): 367-77. doi:10.1373/clinchem.2015.248492.
4. Center for Behavioral Health Statistics and Quality. (2015). Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health (HHS Publication No. SMA 15-4927, NSDUH Series H-50). Retreived from http://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf
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Contributor Acknowledgements

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Distracted Driving

Distracted driving has emerged as a significant problem that requires the resources of law enforcement agencies. In some jurisdictions, distracted driving now exceeds alcohol as a contributing factor in crashes. Law enforcement agencies face the reality that nearly 68 percent of U.S. adults now own a smartphone. At any given moment during the daytime, more than 800,000 vehicles are being driven by an individual who is using a hand-held cellphone. [1]

Lawmakers have responded with primary laws banning texting while driving and youth under the age of 18 from using a cell phone while driving. There has also been legislation passed that requires distracted driving issues to be included in the state driver's license examination. As of April 2019, 48 U.S. states, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands have banned text messaging for all drivers, while all but 3 states have primary enforcement laws. [2]

NHTSA's "Road to Zero Fatalities" campaign and Strategic Plan address human factors as the primary causes of crashes, including impaired, drugged, distracted, and drowsy driving. NHTSA has emphasized the importance of these issues in a concerted education and awareness campaign. Law enforcement leaders are encouraged to review NHTSA's Distraction.gov website (https://www.distraction.gov/index.html) for links to best practices and campaigns conducted by law enforcement agencies to address the issue of distracted driving. [3]

The New York State Police (NYSP) and the Dalton, Georgia, Police Department (DPD) offer two innovative approaches to distracted driving. The NYSP model consists of a multi-pronged strategy emphasizing executive leadership starting with the governor of New York; data analysis; problem identification; public information and education, particularly with programs focused on youths; and enforcement. For their efforts in 2015, the NYSP was selected as the winner of the Distracted Driving Special Award winner in the 2016 National Law Enforcement Challenge (NLEC). Several important lessons learned by the NYSP in addressing this traffic safety issue could assist other agencies in replicating their success:

- **Lead with leadership:** Moving the needle on distracted driving requires strategic support at the highest levels, both internally and externally. One example of this was New York Governor Andrew Cuomo's creation of 91 "Texting Zones," where motorists can safely pull over on a roadway to use their mobile phones. The priorities of the command staff resonate agency-wide.

- **Stories sway:** Victim-impact stories can help change driver behavior by highlighting the human cost of distracted driving crashes.
- **Stealth drives success:** Covert SUVs have a significant tactical advantage over marked patrol cars during distracted driving enforcement due in part to their higher stance relative to other cars. [4]

The winner of the Distracted Driving Special Award in the 2015 NLEC, the DPD zeroed in on the issue in 2014 by focusing on specialized training, targeted education, and concentrated enforcement. With a population of 33,000 citizens and 61 sworn officers, community surveys revealed distracted driving as a top citizen concern. During a roadside visual survey, the DPD found that over half of observed motorists were engaged in some type of distracted behavior while operating their vehicles. Leadership in the DPD selected the month of October to be dubbed "Distractober," with correlating "Operation Thumbs Up/Distractober" campaign initiatives that included problem identification using community surveys, education of officers and citizens, and selective traffic enforcement details. The DPD reported a 23.7 percent reduction in distraction-related crashes following these efforts. Other lessons learned included:

- **Community input is important:** Citizen surveys can help agencies identify critical traffic safety issues.
- **Limited campaigns can produce lasting results:** Organized, short-term education and enforcement campaigns can help agencies target specific traffic problems in a meaningful way.
- **Enforcement yields education:** Traffic stops are an excellent opportunity to educate drivers on the hazards of distracted driving as well as enforce the law. [5]

To learn more about distracted driving initiatives, refer to the IACP website: https://www.theiacp.org/topics/traffic-safety

Notes:

1. National Conference of State Legislatures, "Distracted Driving," March 3, 2016, accessed February 3, 2017, http://www.ncsl.org/research/transportation/spotlight-distracted-driving.aspx.
2. "Distracted Driving," Governors Highway Safety Association, accessed June 7, 2019, https://www.ghsa.org/index.php/state-laws/issues/distracted%20driving.
3. "Distracted Driving," National Highway Traffic Safety Administration, accessed February 3, 2017, https://www.distraction.gov/index.html.
4. "Dialing Against Distractions," *Traffic Safety Innovations 2016* (IACP, 2017), accessed February 22, 2017, http://www.theiacp.org/Portals/0/documents/NLEC/Distracted%20Driving_v1.pdf.
5. "A Serious Distraction," *Traffic Safety Innovations 2015* (IACP, 2016), accessed February 3, 2017, http://www.iacp.org/Portals/0/documents/NLEC/Distracted%20Driving.pdf.

Drowsy Driving

Drowsy driving is not simply falling asleep at the wheel; it is a profound impairment that mimics alcohol-impaired driving in many ways. Drowsiness leads to slower reaction times and impaired attention, mental processing, judgment, and decision-making. Drowsiness can occur from accumulating sleep debt, typically less than six hours per night across multiple nights, or from only one night of not sleeping. Precise statistics of crashes caused by drowsy driving are not yet possible. Crash investigators can look for certain clues that indicate drowsiness was a likely contributor to driver error, but these clues are not always identifiable or conclusive. In lieu of consistent and conclusive evidence, researchers have used various methods to estimate the overall number of crashes or crash fatalities caused by driver drowsiness. [1]

NHTSA developed the "Drowsy Driving Research and Program Plan" in order to address the problem of drowsy driving in the United States. This plan has six broad focus areas, including measurement and problem identification, public awareness and education, policy development, high-risk populations, vehicle technology, and infrastructure. There will be a total of ten projects initiated with emphasis on these focus areas to enhance the science and program initiatives around drowsy driving. [2]

GHSA's "Wake Up Call! Understanding Drowsy Driving and What States Can Do" campaign is an important initiative that provides law enforcement agencies with excellent resources on this issue, such as a recorded webinar and a unique report examining the causes and effects of drowsy driving. The report contains adaptable best practices from agencies in Iowa, Utah, Texas, and New York to address drowsy driving. More information and resources can be found on the campaign's website: http://www.ghsa.org/resources/wake-call-understanding-drowsy-driving-and-what-states-can-do. [3]

Addressing the problem of drowsy driving is essential and the task is even more complex due to the following:

- The true extent of the problem is hampered by incomplete data;
- There is limited objective data to determine if a motorist is too tired to drive; and
- The general public does not fully understand the importance and dynamics of sleep and its impact upon safe driving. [4]

An important point has been established based upon research studying the similarities between drowsy driving and impaired driving. The Centers for Disease Control and Prevention (CDC) published an article which discussed

studies demonstrating how the lack of sleep mimics impairment and the ability to safely operate a motor vehicle. The CDC reported that being awake for at least 18 hours is the same as someone having BAC of 0.05 while being awake for at least 24 hours is the equivalent to have a BAC of 0.10. [5]

Working together with NHTSA, SHSOs, and other key partners, law enforcement can make drowsy driving a year-round priority. Potential specific strategies include:

1. Participating in the National Sleep Foundation's (NSF) Drowsy Driving Prevention Week each November. Law enforcement can work collaboratively with community partners to raise awareness and conduct enforcement efforts.

2. Educating themselves about the dangers of drowsy driving and being alert to the signs of drivers who may be under the influence of medications in order to help them stay awake on the roads. This may involve a partnership with their state's commercial vehicle enforcement units and DRE-trained officers who may have more advanced training and techniques to detect drowsy driving.

3. Leading or forming key partnerships during campaigns to educate shift workers, commercial vehicle operators, and adolescents on the dangers of drowsy driving. Educational materials are available from organizations like NSF, NHTSA, GHSA, and FMCSA.

4. Analyzing crash data with an emphasis on known drowsing driving high-risk corridors. Law enforcement officers can then conduct patrols where they are alert to the cues and behavioral signs of drowsy driving. Advertising these data-driven efforts, coupled with high-visibility enforcement, to address drowsy driving may have a deterrent effect.

5. Encouraging law enforcement leaders to contact their SHSO to learn more about best practices, funding for drowsy driving initiatives, and the latest research.

Notes:

1. Namni Goel et al., "Neurocognitive Consequences of Sleep Deprivation," *Seminars in Neurology* 29, no. 04 (2009): 320–39, accessed February 3, 2017, doi:10.1055/s-0029-1237117, https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/drowsydriving_strategicplan_030316.pdf.
2. Ibid.
3. "Wake up Call! Understanding Drowsy Driving and What States Can Do," *Governors Highway Safety Association,* 2016, accessed February 3, 2017, http://www.ghsa.org/resources/wake-call-understanding-drowsy-driving-and-what-states-can-do.
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5. "Drowsy Driving," *Centers for Disease Control and Prevention,* February 18, 2016, accessed February 16, 2017, https://www.cdc.gov/sleep/about_sleep/drowsy_driving.html.

Aggressive Driving

Aggressive driving, according to NHTSA, is when individuals commit a combination of moving traffic offenses, and in doing so, endanger other persons or property. Driving behaviors that commonly constitute aggressive driving include speeding, racing, frequently changing lanes, cutting off other drivers, failing to signal, running red lights, failing to yield, tailgating, slowing rapidly to discourage a tailgater, boxing in other vehicles, and using other intimidation maneuvers. [1]

The problem of aggressive driving can be further compounded by overt acts of intimidation such as gesturing or shouting at other operators. In some extreme cases, aggressive drivers have even reportedly engaged in assaultive and menacing behaviors towards other motorists, sometimes even using a firearm. Factors that lead to aggressive driving include road construction, extreme traffic congestion, perceived bad driving, and a general lack of patience in society today. [2]

States have addressed aggressive driving legislatively in different ways. Some have defined aggressive driving as a separate offense, while others may group it under the reckless driving statute. Generally, aggressive driving includes the behaviors often covered under the reckless driving law. However, other states have added language that defines a pattern of behaviors occurring over a short period with or without intention. States with a statute that require intention often find this difficult to prove, and thus use their reckless driving statute to cite offenders. The definition of aggressive driving often includes that these driving behaviors could result from aggression, selfishness, or competition. Many of the behaviors that constitute aggressive driving could also occur in the absence of aggression; for example, if a driver is inattentive. Several state legislatures use a threshold of three or more potentially aggressive behaviors committed in a sequence or over a short period of time in their statutory definitions of aggressive driving.

Aggressive driving may lead to more extreme actions on the part of the offender known as "road rage." This may involve criminal intimidation, sometimes coupled with violence, precipitated by driving activities. Road rage involves an intent to harm and can involve the use of the vehicle as a weapon take place outside the vehicle(s) involved. [3]

Response Strategies

A multi-disciplined approach to aggressive driving involving enforcement, legislation, environmental and situational factors, public education, and judicial responses are viewed as most effective. Law enforcement agencies

that use a blend of comprehensive strategies may see the most success in impacting aggressive driving behaviors. By using data to identify and then target known aggressive driving high-risk corridors, law enforcement can be most effective in addressing this issue. Other effective strategies include enforcement and sanctions to target individual aggressive drivers. Additionally, a focus on the driving environments, public education and awareness, and situational stressors that lead to aggressive driving, such as road construction during peak commuting hours, are suggested. [4]

Traffic enforcement to address aggressive driving has three primary goals:

- Deter cited drivers from driving aggressively in the future;
- Deter other drivers who learn about police enforcement from driving aggressively; and
- Remove aggressive drivers from the roads while they are angry and most dangerous.

Deterrence is advanced through significant fines or other consequences such as jail time, and through high-visibility enforcement. Effective enforcement campaigns typically include an emphasis on public information and education strategies, including roadside warnings. [5]

Best Practices in Targeting Aggressive Driving

A NHTSA-sponsored study entitled "Aggressive Driving Enforcement: Evaluation of Two Demonstration Programs" assessed the effects of two programs that were implemented to reduce the incidence of aggressive driving. The programs were conducted by the Marion County Traffic Safety Partnership a consortium of agencies in the vicinity of Indianapolis, Indiana, and the Tucson, Arizona, Police Department. Study results suggested that limited resources might be best spent on officer enforcement efforts, as opposed to public awareness campaigns. The study also found assigning full-time enforcement responsibility to a small team of officers to conduct special enforcement patrols may be more effective than tasking a larger number officers with an occasional overtime duty. The study also showed that crashes caused by aggressive driving can be effectively deterred by a combination of enforcement and public information and education.

Notes:

1. Colleen Laing, "Aggressive Driving," Center for Problem-Oriented Policing, Guide No. 16 (2010), http://www.popcenter.org/problems/aggressive_driving/.
2. Ibid. Laing.
3. "Statutes & Constitution: View Statutes: Online Sunshine," Florida Legislature, 1995, accessed February 16, 2017, http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=0300-0399/0316/Sections/0316.1923.html.
4. Ibid. Laing.
5. Ibid. Laing.

Young Drivers

The Insurance Institute for Highway Safety (IIHS) reports that teenage drivers have the highest crash risk per mile traveled, compared with drivers in other age groups. The challenge for youths operating a motor vehicle is their over-confidence in their driving skills and a failure to perceive the many hazards that exist on the road. [1] A 2014 study published in the *New England Journal of Medicine* demonstrated that one of the riskiest driving behaviors is the performance of secondary tasks requiring drivers to look away from the road, and that novice drivers appear to be especially prone to this type of activity while dialing or texting on a smartphone. [2] This kind of risky driving behavior is often compounded by the likelihood that other factors, such as inexperience, lack of awareness of risks, and speeding, are more common factors with novice drivers.

All 50 states in the U.S. and the District of Columbia have a three-stage Graduated Driver Licensing (GDL) system. GDL licensing has reduced teen crashes between 10-30 percent on average. Generally, these stages are:

1. The Learner Stage, which allows novice drivers the opportunity to drive under supervised conditions (typically with an adult).
2. The Intermediate Stage, which provides driving practice under restricted conditions prior to obtaining a full license. Restrictions may include number of passengers, minimum age, etc.
3. The Unrestricted Stage, which outlines when nighttime and passenger restrictions may be rescinded. [3]

GDL laws can be complex, but it is imperative that law enforcement officers are intimately familiar with their provisions. Law enforcement executives are encouraged to ensure their officers are aware of the importance of the GDL laws in their jurisdiction. GHSA is one organization that has encouraged law enforcement leaders to be aware of the risks for teen drivers and to understand the way GDL laws can help reduce these risks. Some effective strategies that law enforcement can lead include special awareness and education campaigns, targeted enforcement, and partnerships with community organizations and schools.

GHSA has found the following key take-aways are important for law enforcement to ensure success with their efforts:

1. Use peer-to-peer training initiatives to educate command staff about the risks for teens and how GDL works to address those risks.
2. Establish formal standard operating procedures (SOPs) for managing teens cited for passenger and nighttime driving violations.
3. Ensure that teen drivers fully understand the seriousness of GDL violations and ensure this information is shared with their parents.
4. Recognize that initial enforcement of GDL laws can present challenges. GDL laws can be complex and difficult for officers to fully understand. Training on GDL laws is essential for law enforcement.
5. A public awareness campaign, such as a voluntary GDL decal program to designate a GDL holder, is one way to raise awareness and garner the support of parents and the public. One example is a voluntary "Novice Driver" magnet that is provided to all GDL holders in the State of Delaware. [4]

NHTSA convened a Teen Driver Focus Group which studied teen driving behaviors. The focus group provided feedback on a variety of key topics and these are summarized as follows:

- **Enforcement:** Some teens reported an ability to avoid getting a ticket for GDL or traffic violations. Teens reported a deterrent effect when the certainty of being cited was high, as this could impact their ability to have full driving privileges.
- **Occupant protection:** Teens are well-aware of campaigns such as *Click It Or Ticket* and the importance of seatbelts.
- **Speeding and aggressive driving:** Focus group participants did not think driving five or ten miles over the posted speed limit was dangerous.
- **Distracted and drowsy driving:** Participants failed to see the link between these dangerous behaviors and the high rate of crashes. The prevalence of smartphones in this demographic group compounds the issue of distracted driving.

This study highlights general trends on key areas, and more information is needed to determine the relationship between teen unsafe driving and the rate of crashes. [5]

The combination of GDL programs and proactive enforcement of existing GDL laws will help address the risks of teen driving. Law enforcement leaders are encouraged to combine this approach with parent and teen engagement, using traffic stops as an educational opportunity, as well as targeted media coverage to help raise greater awareness and promote safe teen driving in their communities.

Notes:

1. "Licensing Systems for Young Drivers," *Insurance Institute for Highway Safety,* 1612, accessed February 6, 2017, http://www.iihs.org/iihs/topics/laws/graduatedlicenseintro?topicName=teenagers.
2. Sheila G. Klauer et al., "Distracted Driving and Risk of Road Crashes Among Novice and Experienced Drivers," *New England Journal of Medicine* 370, no. 1 (January 2, 2014), doi:10.1056/nejmsa1204142.
3. "Licensing Systems for Young Drivers," *Insurance Institute for Highway Safety,* 1612, accessed February 6, 2017, http://www.iihs.org/iihs/topics/laws/graduatedlicenseintro?topicName=teenagers.
4. "Curbing Teen Driver Crashes," *Governors Highway Safety Association,* 2012. http://ghsa.madwolf.com/html/files/pubs/sfteens12.pdf.
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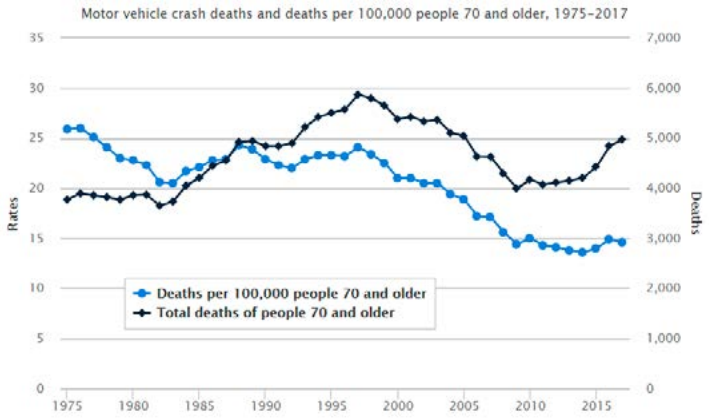
Older Drivers

NHTSA and the IIHS have studied important trends regarding older drivers. While some recent data points to a reduction in the total number of fatal collisions, almost 5,000 people over the age of 70 died in car crashes in the United States in 2017. This total is 15 percent less than the total in 1997, but a 32 percent increase since 1975. While this data reflects an improvement, there is still much work to be accomplished, especially since seniors represent the fastest-growing segment of drivers. [1]



[2]

The IIHS reports that the number of drivers over the age of 70 is growing, and, with baby boomers maturing, seniors now make up a higher proportion of the population in the U.S. Older drivers are more active and have a tendency to keep their driver's licenses longer, as well as drive more miles than previous senior generations. Per miles traveled, fatal crash rates increase significantly between the ages of 70-74 and climb to their highest rates for drivers 85 and older. These increases are attributed to elevated

injury susceptibility, particularly chest injuries and medical complications, rather than an increased tendency be involved in crashes. [3]

The AAA Foundation for Traffic Safety is another organization that can provide excellent resources and maintains the website "SeniorDriving.AAA.com" (http://seniordriving.aaa.com/). This website is an exceptional informational tool for law enforcement leaders to consult when considering new initiatives to address the complexities of senior drivers. There are free downloads and assessments that officers can share with seniors in their communities. [4]

The AAA Foundation also shared research on senior drivers and causation factors related to these motorists and crashes. There are three key functions that law enforcement should be aware of when interacting with the older driver:

1. **Vision:** Adequate visual acuity and field of vision are critical for safe driving, but tend to decline with age.
2. **Cognition:** Driving requires a variety of high-level cognitive skill, including memory, visual processing, attention, and decision-making skills. Certain medical conditions, such as dementia, as well as prescription medication can have an impact on cognition in seniors.
3. **Motor function:** Motor abilities are necessary to enter a vehicle safely, fasten a seatbelt, turn to view approaching traffic, and operate vehicle controls. These motor abilities tend to decline as individuals age, and they can decrease an individual's ability to drive safely. [5]

Law enforcement officers have an important role in ensuring senior drivers are operating in a safe manner and not creating an unnecessary risk to other motorists. According to NHTSA, there are several effective strategies that law enforcement can implement in their communities to improve the safety of older drivers. Similar to other effective campaigns to address a special traffic safety problem or special population, there must be a combination of efforts that include enforcement, education, and outreach.

A law enforcement agency should consider partnering with one of many other nonprofit or community organizations to share data and educational materials with seniors on the primary causation factors of crashes involving this driving population. An excellent program entitled "Older Driver Law Enforcement Instructor Training" is sponsored by the International Association of Directors of Law Enforcement Standards and Training (IADLEST) and is held through a partnership with NHTSA. In this course, law enforcement officers learn effective strategies for addressing senior drivers, develop effective enforcement initiatives, and create new opportunities to improve community relations related to the senior driving population. [6]

Other effective proactive steps that law enforcement officers can take include the following:

- Analyze and study location data and the incidence of crashes that involve elderly drivers, and work closely with state highway engineers to evaluate the need for changes in traffic control devices, warning signs, and traffic patterns. This can be especially important in known areas of high concentrations of senior citizens.
- Identify drivers with potential driving impairments and refer them to the state Division of Motor Vehicles for follow-up testing.
- Ensure that older drivers who are stopped for motor vehicle violations are not allowed to proceed with only verbal warnings, when younger drivers would receive citations. This negates the lifesaving benefits of the point system to detect individuals who commit particularly serious violations or violate traffic laws on multiple occasions.
- Be alert to drivers who appear to be lost or confused; stop them and inquire as to their welfare. If a driver appears to be suffering from some form of dementia, the motorist should not be allowed to proceed farther; instead, the individual should be referred to the motor vehicle licensing authority for reexamination and should have relatives or next-of-kin contacted to advise them of the situation.
- Make sure that officers receive periodic training in elderly issues, including the ability to recognize dementia and interact properly and sensitively with drivers who may be suffering from debilitating diseases, such as Alzheimer's. Local chapters of the Alzheimer's Foundation are always willing to participate in such training and provide police with tools and resources to raise their awareness. [7] For more information, refer to the NHTSA website: https://www.nhtsa.gov/road-safety/older-drivers

Law enforcement agencies can also play an important educational role in preventing crashes involving elderly drivers. The American Association of Retired Persons (AARP) has a driver-training program developed especially for older drivers. This program can be presented by law enforcement officers, in partnership with senior citizen volunteer instructors, at senior citizen centers and senior social events. It teaches mature drivers how to recognize and overcome their infirmities, as well

as self-assess their own driving skills. Such programs can build rapport with an ever-increasing segment of the population while also providing a life-saving service.

Notes:

1. "Fatality Facts," *Insurance Institute for Highway Safety,* accessed February 7, 2017, http://www.iihs.org/iihs/topics/t/older-drivers/fatalityfacts/older-people#Trends.
2. Anne McCartt, "Q&As Fatality Facts State Laws News Releases and Articles Public Presentations Regulatory and Legislative Policy HLDI Research Selected IIHS Bibliography The Older Driver Crash Picture: Trends and Factors" (presentation, Lifesavers National Conference on Highway Safety Priorities, Chicago, Illinois, 2015).
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4. "Seniordriving.AAA.com," *AAA Senior Driving*, 2017, accessed February 7, 2017, http://seniordriving.aaa.com/.
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Bicycle and Pedestrian Safety

Throughout the United States, there has been a pronounced increase in the number of citizens who are walking or cycling as their primary means of commuting to work. Whether it is to save on commuting and parking costs, for their own health and fitness or to have a reliable means of accessing public transportation, people want to take advantage of economical transportation options. Cycling and walking are not only lifestyle choices, they are a reality as communities take steps to promote safe and connected communities. The over-reliance upon the motor vehicle as the sole option for commuting has been undergoing a positive shift. Several states and cities are actively promoting alternatives through proactive education and awareness initiatives.

As the number of pedestrians and cyclists on the roads increase, law enforcement officials will need to play an important role in ensuring that commuting options are safe. The increase in fatality percentages are show in the graph below. On average, pedestrians make up 15 percent of all traffic fatalities, while bicyclists make up approximately 2 percent. These rates have unfortunately been trending higher in recent years, despite a slight decrease of 1.7 percent from 2016 to 2017. [1]

According to GHSA, the rate of increase for those biking or walking has been significant as more citizens realize the many health, economic, environmental, and societal benefits of these options. Preliminary studies by the Federal Highway Administration (FHWA) and NHTSA point to the following contributing factors for the increase in pedestrian fatalities:

- Increased motor vehicle travel on all roads, perhaps due to the stabilization of fuel prices;
- Improved economic conditions;
- Increased opportunities for walking and biking;
- Increased interest in the health and fitness benefits attributed to walking and biking. [2]

Additional studies are being conducted; however, the following significant trends are seen when studying crashes involving pedestrians and cyclists:

- Increased use of cellphones and electronic devices are a source of distraction for drivers, cyclists, and pedestrians;
- Relationship between driver speed and severity of injury to cyclists and pedestrians;

Table 1
Occupants and Nonoccupants Killed in Traffic Crashes, 2016–2017

Description	2016	2017	Change	% Change
Total*	37,806	37,133	-673	-1.8%
Occupants				
Passenger Vehicles	23,877	23,551	-326	-1.4%
Passenger Cars	13,508	13,363	-145	-1.1%
Light Trucks	10,369	10,188	-181	-1.7%
Large Trucks	725	841	+116	+16.0%
Motorcycles	5,337	5,172	-165	-3.1%
Nonoccupants				
Pedestrians	6,080	5,977	-103	-1.7%
Pedalcyclists	852	783	-69	-8.1%
Other/Unknown	261	228	-33	—

Sources: Fatalities—FARS 2016 Final File, 2017 ARF
*Total includes occupants of buses and other/unknown occupants not shown in table.

- Use of roads between 6:00 p.m. and midnight leads to a pronounced risk of death; and
- Alcohol and drug impairment on the part of drivers, cyclists, and pedestrians increases the risk of crashes.

More data is needed, but the role of alcohol in pedestrian crashes is evident. NHTSA has estimated that alcohol use by either the driver or pedestrian is a contributing factor in 48 percent of pedestrian fatalities. [3]

The law enforcement response to fatalities involving pedestrians and cyclists needs to incorporate multi-pronged strategies. According to GHSA, several countermeasures seem to hold promise in efforts to reduce fatalities and injuries. The most effective strategies may require collaboration between law enforcement, SHSOs, transportation officials, and community leaders. The following approaches can be considered by law enforcement leaders for implementation in their communities:

- Increased separation between pedestrians, cyclists, and motor vehicles using refuge islands, sidewalks, bike paths, and overpasses, as well as new traffic signalization;
- Increased pedestrian and cyclist visibility by enhancing lighting;
- Addition of high-visibility crosswalks and rapid-flashing beacons mounted to pedestrian and cyclist crossing signs;
- Targeted traffic enforcement, including the use of automated enforcement technology;
- Public information and awareness campaigns;
- Educational outreach in high-risk areas; and
- Data analysis and mapping to identify high-risk zones. [4]

The July 2016 issue of *The Police Chief* magazine highlighted an effective program conducted in the State of Delaware, where fatalities accounted for approximately 25 percent of all crash-related deaths in the state. The Delaware Office of Highway Safety, Delaware State Police, Delaware Department of Transportation, and Christiana Care Emergency Services held a collaborative press event in November 2015 to draw attention to the issue of pedestrian fatalities. [5]

Part of this campaign was a two-week educational initiative that included the distribution of posters, postcards, and reflective flashlights at strategic locations, such as schools and community centers. Additionally, pedestrian safety messages and posters were disseminated using social media and placed in libraries, schools, and other public locations. The initiative also used data analysis to identify the location for the highest concentration of fatalities in the state.

A week-long enforcement effort followed the education and awareness component. The Delaware State Police used a combination of on-duty and overtime resources with funds made available by the SHSO, following the High-Visibility Education and Enforcement (HVEE) approach. HVEE offers an evidence-based, data-driven, problem solving strategy using proactive public education campaigns followed by targeted enforcement.

Following this campaign, representatives of the various agencies that participated in HVEE program met at IACP headquarters and discussed their individual HVEE strategies. Lessons learned in Delaware and the other participating states included:

- **Start with data:** Data is seen as critical to any successful HVEE campaign. NHTSA's FARS, combined with local agency data, can form the foundation for data analysis.
- **Starting small can be the best approach:** Participating agencies in Delaware focused on a three-mile stretch to address pedestrian fatalities. This was seen as a good way to start the campaign, which could be easily expanded into other high-risk corridors.
- **Identify partners:** Any initiative that is targeting traffic safety issues, including one that targets pedestrians or cyclists, should have both traditional and non-traditional partners and stakeholders supporting it.
- **Communicate:** As traffic safety campaigns progress, it is important to communicate both internally and externally to ensure that all participating partners understand the goals and objectives of the campaign.
- **Enhance enforcement with education:** Agencies can help build trust and understanding within their communities by focusing on the importance of safe practices, while simultaneously articulating the need for enforcement.
- **Keep the message fresh:** Continuous updates to the over-arching message are essential. Updates to social media, print media, and electronic communications are all important. The use of both traditional media and social media is also highly recommended.
- **Assess the campaign:** Continued assessment and evaluation of program goals and results will help determine where and when to allocate resources. [6]

The GHSA report *"Pedestrian Traffic Fatalities by State: 2017 Preliminary Data"* details state-specific examples of

safety initiatives and best practices. The Safe Routes to School program, administered by the University of North Carolina Highway Safety Research Center, is another excellent source of information on a host of pedestrian and cycling safety resources. NHTSA, FHWA, the IACP, and the CDC all offer helpful resources on their websites, which can be helpful to law enforcement leaders.

Recent trends show a likely increased use of non-motorized transportation options in the future. It makes good health and economic sense for individuals to take advantage of these options and for communities to expand these opportunities. It is important for law enforcement leaders to be aware of emerging trends, address problems, and respond with strategies that increase safety for all pedestrians and cyclists.

Notes:

1. "Research Note: 2017 Motor Vehicle Crashes: Overview," *Traffic Safety Facts* (NHTSA, August 2016), https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812603.
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4. Ibid. Retting.
5. Brad Wentlandt, "High-Visibility Education and Enforcement (HVEE) Pilot Project," *The Police Chief* 83 (July 2016): 26–31, http://www.policechiefmagazine.org/high-visibility-education-and-enforcement-hvee-pilot-project/.
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Motorcycle Safety

The number of fatalities involving motorcyclists in the United States has recently decreased from a peak in 2008 of 5,112 deaths. A total of 5,172 motorcyclists died in crashes in 2017, a 10.2 percent increase from 2015. The data still show that fatalities have doubled since 1997 and continue to be an area of significant concern for NHTSA and law enforcement executives. [1] According to data from NHTSA, motorcyclists are 27 times as likely as passenger car occupants to die in a motor vehicle crash and 6 times as likely to be injured. [2]

As motorcycling has become more popular, especially over the course of the last 10 years, there has been a corresponding increase in crashes and fatalities involving motorcyclists. Motorcyclists accounted for a significant portion of the total number of motor vehicle fatalities. Despite the fact that motorcycles comprise only three percent of registered vehicles and less than one percent of vehicle miles traveled, they still account for nearly 15 percent of all motor vehicle fatalities. [3]

There are a number of contributing factors in many motorcycle crashes to include alcohol impairment, a significant increase in the number of registered motorcycles, lack of helmet use or use of novelty helmets (sometimes referred to as "brain buckets") that do not meet federal standards for crash protection, uneducated and unlicensed operators, and speeding. [4]

Using this data and additional ongoing research, NHTSA, GHSA, FHWA, and law enforcement executives have identified strategies to improve motorcycle safety. The most important findings include the need to ensure motorcycle riders are properly trained and licensed, the removal of alcohol-impaired operators from the roads, the need for all motorcyclists to wear Federal Motor Vehicle Safety Standard 218 helmets and clothing that provides both protection and visibility, the need to increase other motorists' awareness of motorcyclists by increasing visibility, and educating other drivers on the importance of sharing the road with motorcycles. [5]

IIHS reports that motorcycle helmet laws vary widely among states and there has been a considerable degree of change in the past fifty years. By the 1970's, almost all states had universal motorcycle helmet laws. However, in 1976, states lobbied Congress and new laws were adopted by states. This year marked the time when several states would no longer be assessed financial penalties for not having helmet laws. In 2019, 19 states and the District of Columbia have laws requiring all motorcyclists to wear a helmet, known as universal helmet laws. Laws requiring only some motorcyclists to wear a helmet exist in 28 states, while there are no helmet use laws in Illinois, Iowa, and New Hampshire. [6]

Best Practices in Addressing Motorcycle Fatalities

The New York State Police (NYSP) has been recognized by NHTSA and the IACP for a problem-based, comprehensive response to address fatal motorcycle crashes in the state. The NYSP approach to reducing motorcycle collisions and fatalities earned it the Motorcycle Safety Special Award in the 2016 National Law Enforcement Challenge (NLEC).

The NYSP found that motorcycles represented just over 3 percent of vehicle registrations on average in New York, however, they accounted for almost 15 percent of fatal crashes every year. Similar to national trends, the NYSP attributed the problem to helmets that did not meet federal standards, uneducated and unlicensed riders, and motorcycles that were in disrepair or lacked mandated safety equipment. The state police codified motorcycle safety and enforcement as a priority for the overall mission of the NYSP and enforcement details were increased, especially during the warmer months when ridership is at its highest levels. [7]

One of the key elements of the NYSP initiative was to begin focusing upon motorcycles the same way they approached commercial motor vehicles (CMV).

Motorcyclists were held accountable to a high standard of equipment and training compliance. A motor safety checkpoint program became a key component of the NYSP enforcement strategy. Troopers at the checkpoints check riders' licenses, helmets, and equipment, and the motorcycle is inspected for safety and noise compliance. The parallel approach to CMVs did not end with enforcement as officer education and experience was also addressed and improved upon. Troopers were offered additional training and familiarization with specialized laws related to motorcycles was also improved and eventually extended to local agencies and sheriff's departments. Additionally, motorcyclists were also offered additional educational materials while troopers also educated residents at public events across the state. [8]

The NYSP approach to motorcycle safety has had a significant impact, and fewer people are dying while operating a motorcycle. Following this initiative, the State of New York had a 6.7 percent decline in fatal motorcycle crashes, down from 164 fatalities in 2012 to 153 in 2015. [9] Through innovation, practical education, information, and enforcement, the NYSP has demonstrated how law enforcement officers can have a clear impact upon a challenging traffic safety problem.

Notes:

1. "Insurance Institute for Highway Safety," accessed February 19, 2017, http://www.iihs.org/iihs/topics/t/motorcycles/fatalityfacts/motorcycles#cite-text-0-0.
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8. Ibid. *Traffic Safety Innovations 2016 Motorcycle Safety Shifting Safety Gears Treating Motorcycles Like Commercial Motor Vehicles Has Helped the New York State Police Reduce Reckless Driving.*
9. Ibid. *Traffic Safety Innovations 2016 Motorcycle Safety Shifting Safety Gears Treating Motorcycles Like Commercial Motor Vehicles Has Helped the New York State Police Reduce Reckless Driving.*

Special Enforcement Initiatives to Reduce Crashes

By: **Sergeant Scott Taylor,** California Highway Patrol, Research and Planning Section

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Swarming Against Speeding

Federal grants helped the California Highway Patrol reduce speed-related collisions with extra training, education, and enforcement.

California is well known for its pleasant weather, its diverse population, and its thriving industries, including entertainment, technology, and agriculture. From San Francisco to Los Angeles to San Diego, however, it is also well-known for its traffic jams, which are consistently ranked as among the nation's worst. In fact, Californians are so averse to congestion that they perpetually rush from point A to point B in a desperate attempt to circumvent it. The result, unfortunately, is a preponderance of speeding and aggressive driving that has come to characterize California roadways. To loosen speeding's grip on Golden State motorists, the California Highway Patrol (CHP) leveraged federal grant funding that allowed it to increase its investment in strategic anti-speeding solutions in 2015. How the CHP utilized these grants earned the agency the Speed Awareness Special Award in the 2016 National Law Enforcement Challenge (NLEC).

Problem Identification

A 2013 survey, conducted by the National Highway Traffic Safety Administration (NHTSA), found that nearly half of American drivers think speeding is a problem on U.S. roadways, and that an overwhelming majority of drivers (91 percent) think everyone should obey speed limits. However, one in five drivers admits, "I try to get where I am going as fast as I can," and more than a quarter say, "speeding is something I do without thinking" and "I enjoy the feeling of driving fast."

According to the CHP, these contradictions are lethal in California. In 2015, it reported 288 fatal traffic collisions and 30,747 injury traffic collisions in which speed was the

primary collision factor, making "unsafe speed for roadway conditions" the leading cause of California car crashes.

"Speeding is the number one contributor to collisions in California," says Sergeant Scott Taylor. "That makes it our prime target."

Planning

Although speeding is the CHP's prime target at any time of day, the agency's resources pale in comparison to the problem's size. To build more muscle with which to match speeding's strength, the CHP sought and received several federal traffic safety grants that allowed it to successfully scale its efforts in 2016.

The most significant of these grants, according to Taylor, was the statewide Reduce Aggressive Driving Incidents and Tactically Enforce Speed IV (RADIATES IV) grant. Awarded by the California Office of Traffic Safety (OTS) with funding through NHTSA, RADIATES IV provided resources that CHP divided amongst three strategic objectives: targeted statewide enforcement on state and federal roadway segments within the CHP's jurisdiction, division-selected roadway enforcement on state highways and county roads, and traffic safety presentations.

Beyond the grant, the CHP facilitated officer training and technology procurement. Specifically, the agency is continually training officers in radar and lidar-based enforcement, while constantly evaluating, repairing, and replacing its radar and lidar inventory.

"That's training our officers don't get at the police academy," explains Taylor, who says radar and lidar training give officers an opportunity to mature and refine their speed enforcement skills by learning how to use the latest speed enforcement technology and techniques.

The CHP also applied for and received two Area-wide regional traffic safety grants, again awarded by OTS with funding through NHTSA. Targeting two Areas with higher-than-average fatality and injury rates from speed-related traffic collisions, Ukiah and Central Los Angeles, the grants helped the CHP direct extra resources towards education and enforcement in communities statistically shown to need them.

Education

Public education and information was a key component of both the RADIATES IV and Area-wide regional traffic safety grants. For the former, efforts included press releases to local and statewide media outlets, a freeway billboard, and educational materials and banners distributed at various community events statewide, all of which contained anti-speeding messages. Additionally, the CHP conducted 706 traffic safety presentations highlighting the dangers of speeding and aggressive driving. Delivered at high schools, state fairs, and even baseball games, these presentations reached more than 156,000 people across California.

The CHP utilized the same public education strategies in its Ukiah and Central Los Angeles Area offices as part of its Area-wide regional traffic safety grants, but tailored them for local populations with the help of multijurisdictional task forces consisting of diverse community stakeholders, including the CHP, California Department of Transportation, legislature, courts, probation departments, health departments, public interest associations, and other organizations and individuals interested in improving traffic safety. The Ukiah Area office, for instance, installed traffic safety signs on a major state highway at four high-collision locations, gave traffic safety presentations, and distributed grant-funded educational materials at public events including, local fairs, Indian casinos, high school and college career fairs, health and safety fairs, child safety seat classes, and teen driver training classes. At the same types of venues, the Central Los Angeles Area office distributed brochures and posters in both English and Spanish in order to reach its community's sizable Hispanic population at public events, school bus safety classes, teen driver training classes, safety fairs, cultural festivals, local businesses, town hall meetings, and municipal advisory council meetings.

"The nice thing about the regional approach is the task forces we assemble, which typically stay together and continue to meet [about traffic safety] after the grant term is over," Taylor says. "It gets all the important players in a community together and gets them thinking about what they can do to fix the speeding problem in their community."

Enforcement

Enforcement was a cornerstone of the CHP's grant-funded activities in 2016. In addition to devoting more than 2,249,598 hours of regular patrol hours, during which officers issued 719,471 citations to speeding drivers, the RADIATES IV grant allowed officers to dedicate nearly 15,485 grant-funded overtime hours to speed enforcement. During the aforementioned overtime, officers cited 9,333 drivers, 6,433 of which were for maximum speed violations and 517 for unsafe speed violations.

"Like all law enforcement agencies, we are short on people," notes Taylor, who says the CHP maximized the grants' effectiveness by deploying officers to locations at times that were determined to be statistically more vulnerable to speed-related collisions. "With overtime hours, the grant gave us the ability to augment our regular road people with officers specifically focused on stopping speeding drivers."

Additionally, officers gave 2,335 verbal warnings to speeding motorists. "Warnings are designed to let the officer interact with the violator and educate them," Taylor continues. "It opens up a dialogue where the officer can explain why their speeding is an issue, and through that, hopefully change their behavior."

Enforcement was also part of its Area-wide regional traffic safety grants, according to the CHP. The Ukiah and Central Los Angeles Area offices conducted 42 and 127 roving patrols, respectively, during which officers issued 363 and 859 unsafe speed citations.

Outcomes

The extra attention that the CHP gave to speeding through its grant-funded activities yielded positive results. According to the CHP, 2016 data is not yet available, but there were 249 speed-related fatal collisions and 25,853 speed-related injury collisions in FY 2015, a decrease from 267 and 27,556, respectively, in FY 2014.

"As we await certification of the 2015 collision data, we've reduced the number of [speed-related] crashes, which is a positive in and of itself," Taylor concludes. "More importantly, though, I think we've broadened the level of understanding for the motoring public about the dangers of speeding."

Lessons Learned

- **Large problems demand extra resource:** Traffic safety grants can help law enforcement agencies scale up in order to confront their communities' biggest challenges.
- **State and regional approaches can work in concert:** Broad statewide approaches have advantages; so do narrow regional approaches. Using them in concert allows agencies to exploit the best of both.
- **Every interaction is an opportunity:** Whether officers issue a citation or merely a warning, every interaction with a speeding motorist is a chance to educate them about the consequences of speeding. A citation can impact their wallet; education can impact their behavior.

Traffic Safety through High Visibility Enforcement

By: **Commander Chris Olson,** *Patrol Bureau Commander,* Oro Valley, Arizona Police Department.

Police departments across the country are continually looking for innovative ways to improve traffic safety within their communities in an effort to reduce crashes. In 2013, the Oro Valley Police Department (OVPD) created a "High Visibility Enforcement" program known as "HiVE", in an attempt to raise traffic safety awareness and reduce crashes in two of the Town's most dangerous and closely located intersections. The "HiVE" concept included several key factors:

- Bring as much attention to the problem as possible,
- Be transparent by publishing all of the dates and times of the deployments in advance through traditional and social media sites.
- Be highly visible to the motoring public, and
- Demonstrate that the intent of the program is to raise awareness through education and not through ticket writing.

In order to bring attention to the traffic safety issues within the intersections, OVPD partnered with local television, radio, and print media. OVPD shared crash data demonstrating the need to reduce crashes within the intersections and committed to release all "HiVE" enforcement activity after each "HiVE" deployment. Moreover, OVPD asked the media sources to assist the department in providing the dates and times of each "HiVE" deployment in advanced to forewarn the public about the increased police activity. OVPD found the media outlets to be extremely receptive, reporting on the program numerous times throughout the year. Early morning TV news stations, as well as, radio stations constantly broadcasted "HiVE" dates and times. Some journalists even ensured that their social media sites regularly posted "HiVE" deployment and activity information.

Marketing and branding was considered key to increasing awareness. The OVPD Traffic Unit was tasked with designing a logo that could be used on publications, social media sites, television, and as decals for both the officer's motorcycles and motorcycle helmets. Once a design was drafted, OVPD hired a graphic's company put the professional touches on the design. Today, the "HiVE" logo continues to be significantly and readily associated with

our traffic safety program. The program's motto is "Be Aware, Be Safe."

Source: Oro Valley Police Department

Five times each month, OVPD placed 5-6 motorcycle officers within and around the intersections during morning or afternoon peak travel hours, essentially saturating the area with highly visible police officers to gain the attention of the traveling motorists. Officers were instructed to make all traffic stops in locations that were visible to other motorist's without compromising their safety. Upon each traffic stop, officers let the motorist know the reason for the stop first, and that the officer was participating in a "HiVE" deployment in an effort to educate drivers about the importance of traffic safety. At the end of each traffic stop, the motorist was provided with a "HiVE" pamphlet illustrating the program goals. On occasion, the officer would also provide the driver and any young children with a "HiVE" keychain and decal.

The most crucial element of the program involved protecting the trust between the police and the public. It was critical to demonstrate to the public that the program was not designed to be a "ticket writing" campaign. OVPD's goal was to increase awareness and education. To accomplish this, OVPD asked motorcycle officers to keep moving violation enforcement activity at around 30 percent. In other words, approximately 3 out of every 10 drivers would receive a citation for the moving violation they committed. By publishing the enforcement activity after each "HiVE" deployment, the public was able to see the department's focus remained on education and not enforcement.

Source: National Sheriffs Association

The OVPD "HiVE" program was deployed in two of the Town's most dangerous intersections for three years (2013, 2014, and 2015). A comprehensive analysis showed a significant reduction in crashes when compared to the three years before the "HiVE" program:

Intersection Crashes	Pre-HiVE (2010-2012)	HiVE (2013-2015)	Collision Reduction
Oracle at Suffolk	124	72	41.9%
Oracle at Magee	144	123	14.5%
Intersections Combined	*268*	*195*	*27.2%*

To help further understand the significance of the program's affect, especially at Oracle and Suffolk, OVPD partnered with a Ph.D. statistician during the analysis. Dr. Stephen Powers of Creative Research Associates concluded, "statistical testing would indicate that something other than chance contributed to the reduction of crashes at Oracle and Suffolk." In addition to the crash reductions, OVPD's analysis showed that police officers wrote citations for moving violations only 19.6 percent of the time. Demonstrating that our police department could improve traffic safety through education and limited enforcement.

Special note: In 2016, OVPD began to move HiVE deployments from intersection to intersection in an attempt to further promote the programs education and crash reduction success. Unfortunately, within a very short time, traffic crashes began to rise at the intersections of Oracle/Magee and Oracle/Suffolk, indicating no lasting residual effects from the previous three-year enforcement program. Moreover, OVPD did not see any tangible crash reductions at the other intersections. Police chiefs need to be aware that OVPD's HiVE success was directly related to a long-term focus on one or two specific intersections. Moving the HiVE from intersection to intersection seemed to dilute the high-visibility approach as motorist were no longer concerned about seeing heightened traffic enforcement activity at a specific intersection and resorted to previous poor driving behaviors.

If you would like to learn more about the OVPD "HiVE" program please contact, Commander Chris Olson at 520-229-4902 or at colson@orovalleyaz.gov.

About the author: Commander Olson is the Patrol Bureau commander for the Oro Valley Police Department. He has a M.Ed. in Human Relations from Northern Arizona University and is a graduate of the 244th Session of the FBI National Academy.

The Importance of Occupant Protection

According to NHTSA, in 2015 in the United States, seatbelt use in passenger vehicles saved an estimated 13,941 lives. Over the last two decades, great strides have been made to increase belt usage through bolstered laws, targeted education, and selective enforcement programs. As a result, the seatbelt usage rate in the U.S. has now risen to 89.7 percent; however, nearly 27.5 million people still don't buckle up. Data from NHTSA show that nearly half of the 22,441 occupants killed in crashes during 2016 were unbuckled. Additionally, more than 50 percent of passenger vehicle occupants killed at night were not wearing their seatbelts, compared to 40 percent killed during the daytime. In fatality collisions, men continue to outnumber women in not wearing seatbelts. Pickup truck occupants tend to be the lowest among any vehicle type in wearing. [1]

A Look at Seatbelt Laws

Every state has some form of seatbelt law on the books, however, the laws vary greatly from state to state. Most variability between states is regarding applicability of the law to occupants based upon age of the rider and which seat they are occupying. Seatbelt laws are also divided into two enforcement categories: primary and secondary. Primary seatbelt laws allow law enforcement officers to stop and ticket a driver or passenger for not wearing a seatbelt, without any other traffic offense taking place. In secondary seatbelt law states, the officer may issue a ticket for not wearing a seatbelt only when there is another citable traffic infraction.

According to the Governor's Highway Safety Association, as of 2019:

- 34 states have primary seatbelt laws for adult front seat occupants.
- 15 states have secondary laws for adult front seat occupants.
- 1 state has no primary or secondary seatbelt law for adults.
- 18 states include rear seats as primary enforcement.
- 10 states include rear seats as secondary enforcement.
- 21 states do not have seatbelt laws applicable to adult rear seat occupants. [2]

New Hampshire is the only state that has not enacted a primary nor a secondary seatbelt law for adults, although the state does have a primary child passenger safety law that covers all drivers and passengers under 18. [3] According to NHTSA seatbelt usage statistics from 2017, jurisdictions with stronger seatbelt enforcement laws continue to exhibit generally higher use rates than those states and territories with weaker laws. [4] If your state does not have a primary seatbelt law, it is highly recommended that you contact to your state special interest groups, legislators, and chief/sheriff's associations to express support in proposing stricter occupant protection legislation.

Occupant Protection Model Program Overview

Traffic safety is one of many priorities for any law enforcement agency. Traffic safety is a critical component of protecting communities and ensuring a high quality of life for residents. While each jurisdiction may have unique traffic concerns, occupant protection is widely accepted as one of the key areas for law enforcement to focus education and enforcement efforts in order to enhance traffic safety. Below is a basic overview of how agencies should approach occupant protection in their jurisdictions.

Policies

Each department should make enforcement of occupant protection laws a priority that is clearly stated in their policies, procedures, or general orders. The officers should be clear that this is a violation that will be strictly enforced to the extent allowed by law, and that this violation is a leading contributor to highway fatalities. Some law enforcement cultures still consider this law as a victimless offense, and the agency administrators should take steps to help change that attitude by clearly identifying this as a priority of the agency.

Agency policy should also require all officers, ride-alongs, and transported prisoners to wear seatbelts while in departmental vehicles. Exceptions to this should be very narrow in scope, or nonexistent. Managers should reinforce that the majority of line-of-duty officer deaths each year are typically traffic related. Further, the FBI's annual report of fatalities indicates that the majority of officers killed in traffic crashes are not wearing seatbelts. [5] Officer buy-in can also be improved by providing training such as Below 100, which emphasizes several key areas of officer safety.

Officer safety is only one reason for law enforcement managers to establish and enforce such policies. Officers who are not wearing their belts are less inclined to take enforcement action for occupant protection violations, and they also will not be modeling the correct behavior to the citizens of their community. These policies should be reviewed with officers annually.

Training

While most adult seatbelt statutes are relatively straightforward, the details of child passenger laws can be quite complex. Furthermore, the retrospective determination of seatbelt use by occupants involved in a collision is notably more technical than most officers realize. It is recommended that on an annual basis the officers receive some form of training covering the occupant protection laws of their state. Officers assigned to work traffic crashes should also receive training on identifying belt use during examination of the vehicles. Roll call is an excellent time to train on such topics, but document management systems, such as PowerDMS, allow uniform presentation of training materials and a subsequent test to ensure that the material is understood.

Child Passenger Safety Technician training is also highly recommended. This certification is usually a three to five-day course and requires ongoing education to maintain a certification. This training is not only beneficial for enforcement but is also very useful for public relations events. Safe Kids Worldwide is an example of an organization that offers a National Child Passenger Safety Certification. Agencies should strive to always have a Child Passenger Safety Technician available to the public during daytime hours. Personnel resources for this effort can be multiplied by partnering with the local fire/EMS agency, as many of them will offer members of their staff for certification as well.

Source: California Highway Patrol

Public Information and Education

The key to public education effectiveness is finding the best avenue for your department to reach the largest number people in your at-risk population. Social media has become a key tool for many departments in reaching their community members with their educational messages. It is highly recommended that each agency develop a strong presence on social media sites such as Facebook, Twitter, and Instagram. One key to increasing "likes" or shares" is to post often, vary what kinds of topics are being posted, and to always include a photo or video with each post. There are several resources available online that provide quality content that can be shared regarding occupant protection. An example of one of these sites is www.trafficsafetymarketing.gov, which provides free tool kits for many traffic safety topics and each national enforcement campaign. Use of these free, professionally produced materials provides agencies with limited resources, an opportunity to present highly effective and appealing messaging materials through whatever media outlets they choose.

Occupant protection public education should also be incorporated in other public information outlets the department has access to, such as public speaking events, city/department email updates to residents, news releases, and the department's website. Variable Message Trailers are also a good tool to target roadside education in problem areas. Occupant protection messages should correspond with national campaign movements such as Click or Ticket, but not be limited to these times of year. Many states and areas have access to additional tools, such as rollover simulators, and these are great tools to use during events such as high school football games, National Night Out, fairs, or other jurisdiction specific events.

As previously mentioned, each agency should strive to have certified Child Passenger Safety Technicians. The availability of these should be advertised to the community with instructions on how to set up appointments or when residents can get their seats checked. In addition, it is recommended that agencies facilitate car seat check events in their community on a regular basis. Agencies should consider partnering with local special interest groups to help raise awareness and attendance of these events. Safe Kids is an example of one of these agencies that has numerous chapters across the U.S. and can usually supply materials and additional technicians for events. For best results, events should be advertised, be on good weather days, and be done in locations that receive a high volume of citizens from your target audience. Day care centers, preschools, elementary schools, and local parks are good locations to reach the target audience. Ensure the checkpoint is well signed so those driving by know what and where the event is. When doing an event at schools or daycares, it is preferred that the event be done when parents are picking their children up from these locations. It is also recommended that the agency conduct Child Seat Checkpoints during the National Child Passenger Safety Week.

Seatbelt usage surveys should be conducted routinely; preferably monthly, but quarterly if monthly is not practical. Locations should vary around the jurisdiction to get a broad survey of usage, but follow-up surveys should also be conducted at some point to check progress against previous data from the same location. This data will help the department gauge the effectiveness of their efforts and provide intelligence on where to direct more education and enforcement. Results should be published to the community. Many jurisdictions have found success installing seatbelt use percentage signs along the major thoroughfares of their cities. The signs typically show the prior month's usage results along with the jurisdiction's record rate. This type of public information can serve as a social norming tool, wherein citizens that are not complying with seatbelt laws can clearly see the abnormality of their decision - hopefully beginning a rehabilitation of the thought patterns that contribute to lack of belt use. Those complying can also be reaffirmed in their decision to continue taking the widely accepted safest course of action, and those who forgot to buckle up may be reminded.

Another program to consider is a "Saved by the Belt Award." In some states, there is an organization that will actually issue the award for the agency once they receive a nomination. It is highly recommended that each agency participates in this program or start their own program if no others are available in the state. The basic premise is that an officer submits a person(s) for this award if they are involved in a collision where the use of the seatbelt by the occupant(s) is deemed by the collision investigator to have saved the person(s) from serious injury or death. The award should be issued in a public setting, such as a city council meeting. The media should be encouraged to publish a story on the event. At a minimum, the agency should post a photo and story about the presentation on their social media events. This is an excellent opportunity to earn some free media coverage and further spread the idea that seatbelts save lives.

Enforcement

A robust occupant protection program requires placing a priority on enforcing occupant protection violations. While these violations should be enforced anywhere state law allows, it is beneficial to prioritize enforcement in areas with a demonstrated compliance problem whenever practical. As mentioned earlier, seatbelt surveys aid in determining where and when problem areas are located. It is recommended that surveys be conducted in locations that receive 500-1,000 vehicles per hour. Most surveys analyze driver belt use, but occasionally the department should survey passenger belt use as well. Another area that should be analyzed is seatbelt use during collisions. Most, if not all, state collision reports have a field denoting what form of restraint each vehicle occupant was utilizing at the time of the collision. Officers completing the reports should be encouraged to thoroughly investigate belt usage during collision investigations to improve the quality of data available from these reports. With current technology, most agencies should have access to electronic collision reporting software and the ability to conduct statistical analyses from the data contained in the reports. Unfortunately, many agencies fail to use collision data to its full potential and simply look at high-collision locations and times. Statistical reports and/or maps can often be generated to highlight the highest locations/times for collisions with unbelted occupants. Enforcement should be directed towards areas where collision trends show that belt use needs improvement. If the times of highest risk are at night, as indicated by national statistics, officers should use night time seatbelt enforcement details to enhance compliance and send the message that officers are on watch for such violations 24 hours per day.

Enforcement efforts should be increased during the national *Click It Or Ticket* campaigns, as well as any similar state campaign. It may be helpful for the agency to offer some type of non-monetary incentive for officers who perform in an exemplary manner during these mobilizations through their enforcement and/or public education efforts. Some departments also offer incentives such as free lunch with the chief, or even time off for exceptional performance. Posting enforcement results by officers periodically, particularly during campaign periods, may inspire increased participation from officers that are not prioritizing efforts in this area as much as others. An end of the year award for occupant protection efforts is also highly recommended and does not have to be limited to just enforcement outputs as the measure of success. Many other factors, such as the number of car seats checked or implementation of innovative education efforts, can deserve recognition as well.

Enforcement details should be conducted on a regular basis for occupant restraint violations. These details should include a spotter and at least one vehicle assigned to pull or wave the violators over after the spotter calls them out. The spotter should be in a good position to observe violations, and this usually means out of their car near an intersection. Being out of the car also puts the officers in a much better position to observe child seat violations. Many agencies have found great success with putting an officer/spotter in plain clothes at an intersection or having them dress like a road crew worker while looking for violations. Since seatbelt compliance percentages are often lower at night, details should be conducted after dark in well-lit areas that provide the correct lighting to observe infractions. Night time details also frequently lead

to the discovery of other crimes, such as impaired driving or drug violations, which can be an additional incentive for officers to participate in these details and further increase the safety of the roadways in your jurisdiction.

Evaluation of Efforts

The overall effectiveness of a department's occupant protection program should be routinely (monthly or quarterly) evaluated to determine the effectiveness of efforts over the last evaluation period. Strategies (enforcement, education, incentives, etc.) should be updated following each evaluation. Each agency is also strongly encouraged to compete in state or national traffic safety challenges. While the highest scoring applications do receive recognition, and in some states actual financial or equipment incentives, the main benefit to such competitions is a chance to thoroughly review efforts from the last year, evaluate their effectiveness, and then compare strategies and outcomes against industry best standards and other agencies. Participants should not be discouraged if their agency does not place or win, but rather, review the winning agency applications and look for strategies and ideas to improve their own program.

Conclusion

Law enforcement managers can make a significant impact on traffic-related deaths and injuries in their jurisdiction by prioritizing enforcement and education efforts related to occupant protection laws. By integrating the recommendations above, law enforcement agencies can build an occupant protection program that is supported by officers, highly visible to the public, data-driven, and based upon widely accepted best practices.

Notes:

1. "Seatbelts," NHTSA. Accessed July 5, 2017, https://www.nhtsa.gov/risky-driving/seat-belts.
2. "Seatbelts," Governors Highway Safety Association. http://www.ghsa.org/state-laws/issues/Seat-Belts.
3. Ibid.
4. "Traffic Safety Facts, Seatbelt Use in 2017 – Overall Results," NHTSA. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812465.
5. "FBI Releases 2016 Preliminary Statistics for Law Enforcement Officers Killed in the line of Duty," FBI. Accessed July 5, 2017, https://www.fbi.gov/news/pressrel/press-releases/fbi-releases-2016-preliminary-statistics-for-law-enforcement-officers-killed-in-the-line-of-duty.

CHAPTER 2: OFFICER SAFETY

Research in Brief: Officer-Involved Collisions: Magnitude, Risk Factors, and Prevention

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In 2016, law enforcement officer deaths rose to their highest level in five years, driven by firearm-related deaths. [1] However, the law enforcement community should not lose sight that motor vehicle events, including collisions and being struck by moving vehicles, have been a leading cause of death for many years. [2] In addition, there are even more collisions that do not result in fatalities, but can cause injuries and property damage. In California, for example, it is estimated that there are more than 100 non-fatal collisions for every fatal collision. [3] Vehicle collisions can have a tremendous emotional, physical, and financial impact on officers, their families, and their departments; yet, few formal research studies on these effects exist. Fortunately, several recent efforts have started to fill this knowledge gap.

In 2007, the California Commission on Peace Officer Standards and Training (CA POST) brought together law enforcement professionals and researchers to develop knowledge on officer-involved collisions, which led to the SAFE Driving campaign. [4] In 2011, the National Officer Safety and Wellness Working Group highlighted the need for better knowledge on collisions and effective reduction programs. [5] Subsequently, studies have been funded by the National Institute of Justice (NIJ), Bureau of Justice Assistance (BJA), and National Institute for Occupational Safety and Health (NIOSH) on this officer safety issue.

The Magnitude of Officer-Involved Collisions

One study, funded by the NIJ, examined over 35,000 officer-involved collisions in California from January 2000 to December 2009. [6] In that 10-year period, there were 39 officer fatalities, and 21 percent of the collisions (7,684) resulted in an injury to an officer. The collision data also revealed that seatbelt use was inversely associated with injury severity. Seatbelts were less likely to have been used in collisions resulting in severe injuries and death. Nearly 77 percent of the collisions (26,875) involved both a law enforcement vehicle and civilian vehicle. In these collisions, civilians were more likely to be killed than officers. Civilians represented 73 percent of the total fatalities, and officers represented 27 percent.

What Increases an Officer's Risk for a Collision?

A second study, funded by the BJA, examined collisions across eight California law enforcement agencies. The researchers examined collisions, training records, and driving policies, as well as conducted surveys and focus groups with officers. The primary predictor of an on-duty collision for officers was having a collision off duty. Family responsibilities such as having children and being in a committed relationship reduced the likelihood of an officer-involved collision. The survey also revealed 42 percent of officers reported wearing seatbelts "all of the time" on duty, and 34 percent reported wearing them only "some of the time" or "rarely." Factors associated with seatbelt use included feeling treated fairly by supervisors in organizational measures such as promotions and discipline, as well as having supervisors enforce departmental seatbelt policy. Officers with a risky driving attitude, as measured by a questionnaire, and those with prior on-duty collisions were less likely to report wearing seatbelts. [7]

Preventing Officer-Involved Collisions

During a six-month period in 2009, the Las Vegas (Nevada) Metropolitan Police Department (LVMPD) lost three officers in vehicle collisions. In response, the LVMPD developed a comprehensive collision prevention program that included a campaign to increase awareness of driving hazards, stringent driving policies, and an expansion of driver training. The campaign, titled 365 Alive, included visual cues such as decals in patrol cars and posters in hallways and parking garages. It also included daily driving safety messages distributed at roll calls. Policy changes included the introduction of or re-emphasis on seatbelts, intersection crossings, speed caps, and texting policies. Driver training was expanded to eight hours of in-service training annually for officers in their first three years of service and four hours of training every other year for officers with more than three years of service. NIOSH and NIJ funded a scientific evaluation of this program, which showed significant reductions in motor vehicle collision and injury rates after the program's implementation. There were also reductions in restricted and lost workdays, as well as in workers' compensation costs. [8]

Collectively, these studies have increased the knowledge of on-duty vehicle collisions. Moreover, the LVMPD has demonstrated that simple safety messaging and changes to training and policy can change culture. Prince George's

County (Maryland) Police Department (PGPD) is another example of an agency that uses incentives, education, and safety messages through its Arrive Alive campaign to develop and sustain a safe driving culture. [9] The next step for addressing officer-involved collisions is to identify initiatives like the LVMPD and PGPD efforts and determine how the programs work in agencies of different sizes and with different demands and resources.

Notes:

1. National Law Enforcement Officer Memorial Fund, "135 Law Enforcement Fatalities Nationwide in 2016," news release, December 29, 2016.
2. Byron Gustafson and Paul Cappitelli, "SAFE Driving—The Role of the Chief," *The Police Chief* 77, no. 3 (March 2010): 38–41.
3. Ibid.
4. Janna Munk and David Kinaan, "SAFE Driving Campaign: Building a Culture of Courage to Save Law Enforcement Lives," Officer Safety Corner, *The Police Chief* 83, no. 7 (July 2016): 12–13.
5. Darrel Stephens, Steven Edwards, and Mora Fiedler, *OSW Group Annual Summary: Issues and Recommendations Discussed for Improving the Wellbeing of Police Officer* (U.S. Department of Justice, Office of Community Oriented Policing, 2012); Darrel Stephens, Mora Fiedler, and Steven Edwards, *OSW Group Meeting Summary: Vehicle Operation, Risk Management, and Problem-Based Learning*, April 25, 2012 (U.S. Department of Justice, Office of Community Oriented Policing Services, 2013).
6. Scott E. Wolfe et al., Evidence-Based Solutions to Reduce Law Enforcement Officer Vehicle Crashes (forthcoming); Scott E. Wolfe et al., "Characteristics of Officer-Involved Vehicle Collisions in California," *Policing: An International Journal of Police Strategies and Management* 38, no. 3 (2015): 458–477.
7. Andrew Hansen, "The Influence of Department Policy and Accountability on Officer-Involved Collisions," *Policing: An International Journal of Police Strategies and Management* 38, no. 3 (2015): 578–594.
8. Hope Tiesman et al., "Evaluation of a Motor-vehicle Crash Prevention Program in Law Enforcement," Traffic and Vehicle Safety for Law Enforcement: Keeping Officers Safe on the Road (presentation, International Association of Chiefs of Police Conference, San Diego, CA, October 2016).
9. Kirk McLean, "Taking Care of Your Own: Sustaining a Culture of Crash Prevention Efforts in Law Enforcement," Officer Safety Corner, *The Police Chief* 84, no. 3 (March 2017): 12– 13.

Safety for Law Enforcement Officers – Still a Priority

By: **Hope M. Tiesman, PhD,** *Research Epidemiologist,* National Institute for Occupational Safety and Health, Morgantown, West Virginia; **Rebecca Heick, PhD,** *Assistant Professor of Public Health,* MCPHS University, Boston, Massachusetts

Between 2013 and 2014, the number of officers who died in the line of duty increased by 24 percent. In 2014, 50 officers were killed in firearm incidents, and 49 died due to motor vehicle events. [1] In the last decade, one officer a week, on average, has been killed on U.S. roads (2005–2014 = 61.9 deaths annually). [2]

Even though motor vehicle crashes are a leading cause of job-related deaths among law enforcement officers, data on motor vehicle injury and crash trends are scant. The National Institute for Occupational Safety and Health (NIOSH) embarked on a comprehensive statewide study of motor vehicle safety among law enforcement officers to better understand these issues. The study was conducted in one state (Iowa); however, the results and recommendations are useful to law enforcement leaders across the United States.

A State-Based Study

In 2011, 136 agencies were randomly selected for the study from a list of all Iowa law enforcement agencies, stratified by type (municipal, state patrol, sheriff) and size. Of those 136 agencies, 60 agencies (44 percent) participated, representing 1,466 officers. Surveys were distributed by agency leadership and returned to researchers using a self-addressed stamped envelope; individual officer response rate was 79 percent (1,157 responses). The survey included questions on occupational characteristics, motor vehicle training, safety practices and perceptions, and motor vehicle crashes (MVCs) and "struck-by" events in the last three years.

Key Findings

Most officers believed driver training was critical to their safety (96 percent); however, only half of the respondents believed that academy-provided driver training adequately prepared young officers to safely function in the field, and only 12 percent believed the average academy recruit had driving skills sufficient to safely operate a law enforcement vehicle. Additionally, only 29 percent of the officers received annual motor vehicle training. Hands-on training, such as pursuit driving, was reported about one-third of the time. While most officers reported having a motor vehicle policy, such as general operations or standard operating procedures, only 66 percent had received any training on the actual policy. The least common elements of written motor vehicle policies were speed restriction when using lights or sirens (27 percent of policies) and cellphone use restrictions (39 percent).

MVCs and struck-by events were reported as common. In the prior three years, 20 percent of the officers had at least one MVC, and 16 percent reported being struck by or nearly struck by a passing motorist. Most of the reported MVCs occurred during daylight (49 percent), in clear weather (70 percent), during non-emergency responses (64 percent), and at speeds lower than 50 mph (79 percent). Additionally, nonfatal roadside incidents mostly occurred during daylight (60 percent) and in clear weather conditions (60 percent). Nearly half of the non-fatal roadside incidents occurred during traffic stops (47 percent).

Finally, 81 percent of officers reported wearing a seatbelt "all of the time," but only 8 percent of officers reported wearing reflective gear while outside their patrol cars on highways.

Recommendations

Motor Vehicle Training

Agencies could consider providing more opportunities for motor vehicle training and provide officers with more hands-on experience. A study by the California Commission on Peace Officer Standards and Training (Cal POST) found that behind-the-wheel training resulted in the fewest collisions when conducted every two years. [3] Also, since many officers felt that academy-provided driver training was insufficient, states and agencies could conduct analyses of their current training programs to assess the consistency and effectiveness of their motor vehicle training efforts. Expanding hours of motor vehicle training and providing more hands-on training may be warranted.

Use of Personal Protective Equipment

In this study, reported seatbelt usage was high. Agencies should strive for 100 percent seatbelt use by implementing strong policies and supporting officers in the wearing of seatbelts. Recently, the United States' largest police unions and a coalition of major city police chiefs called all agencies to implement mandatory seatbelt use. [4] The use of reflective gear was very low; wearing high-visibility vests can significantly reduce an officer's chances of being struck on the roadway. [5] Agencies should encourage officers to wear high-visibility apparel whenever they work in the vicinity of moving vehicles.

Motor Vehicle Policy

An uncommon component of motor vehicle policies was cellphone restrictions. Research among commercial drivers shows that cellphone use is associated with an increased crash risk. [6] Agencies should consider implementing policies that reduce distractions in patrol cars by restricting the use of cellphones while officers are driving.

Another uncommon component was speed restriction. Both the National Highway Traffic Safety Administration and Cal POST found that "driving too fast for conditions or in excess of posted speed" was a leading factor in many officer-involved crashes. [7] Agencies could implement and enforce policies that restrict excessive speed.

Motor Vehicle Safety Culture

Experienced officers were less likely to have had an MVC and more likely to use safe driving techniques than those with less law enforcement experience. Mentoring programs may help to change driving culture, and formal mentoring programs in law enforcement have led to higher job satisfaction and a stronger work ethic in those mentored. [8] Agencies should also consider adding personal testimonies of officers who have been involved in MVCs into their motor vehicle training like those used in such programs as Below 100, since personal stories have been shown to have a large impact. [9]

Motor vehicle–related events have prompted some agencies to make significant changes to their motor vehicle policies and training in an attempt to change their driving culture. One such agency is the Las Vegas Municipal Police Department, whose crash prevention program's impact on MVCs and related injuries and costs is currently being evaluated through a jointly funded effort by the National Institute of Justice and NIOSH.

Action Items

- Encourage or require seatbelt use.
- Provide periodic motor vehicle training.
- Include personal testimonies of officers who have been involved in MVCs into motor vehicle training.
- Add cellphone restrictions and speed restrictions into current written motor vehicle policies.
- Encourage or require officers to use reflective gear while working in the vicinity of moving vehicles.

Notes:

1. National Law Enforcement Officers Memorial Fund (NLEOMF), *Preliminary 2014 Law Enforcement Officer Fatalities Report*, http://www.nleomf.org/assets/pdfs/reports/Preliminary-2014-Officer-Fatalities-Report.pdf (accessed January 5, 2015).
2. NLEOMF, "Causes of Law Enforcement Deaths," http://www.nleomf.org/facts/officer-fatalities-data/causes.html (accessed January 5, 2015).
3. California Commission of Peace Officer Standards and Training (CalPOST), *POST Driver Training Study* (Sacramento, CA: CalPOST, 2009).
4. Kevin Johnson, "Police Union, Chiefs Call for Mandatory Armor, Seatbelts," *USA Today*, November 20, 2014, http://www.usatoday.com/story/news/nation/2014/11/20/mandatory-armor-seat-belts/19326349 (accessed March 4, 2015).
5. Federal Motor Carrier Safety Administration (FMCSA), *Synthesis of Literature Relating to Cellular Telephone/Personal Digital Assistant Use in Commercial Truck and Bus Operations* (April 2011), http://ntl.bts.gov/lib/51000/51200/51275/Cell-PDA-Use-in-Commercial-Truck-and-Bus-Operations.pdf (accessed March 4, 2015).
6. Ibid.
7. National Highway Traffic Safety Administration (NHTSA), *Characteristics of Law Enforcement Officers' Fatalities in Motor Vehicle Crashes* (January 2011), http://www-nrd.nhtsa.dot.gov/Pubs/811411.pdf (accessed March 4, 2015); CalPOST, *POST Driver Training Study.*
8. Harvey Sprafka and April H. Kranda, *Best Practices Guide: Institutionalizing Mentoring into Police Departments* (Alexandria, VA: International Association of Chiefs of Police), http://www.theiacp.org/Portals/0/pdfs/Publications/BP-Mentoring.pdf (accessed March 4, 2015.)
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Below 100 Initiative: A Reality Check on Officer Safety

By: **Dale Stockton,** *Founder,* Below 100

There's a different conversation that's taking place around the country regarding officer safety, and it is being driven by Below 100, a commonsense training program that focuses on areas under an officer's control. Consider those last few words for a moment: *areas under an officer's control.* It is this perspective that has made Below 100's approach so different from others. Until recently, most discussions about officer safety centered on suspect actions and tactics designed to thwart the attack of an assailant. It is not that these are without merit. They're actually very important and should continue to be part of officer safety training. However, we have been so focused on the bad guy that we have often ignored the elephant in the room: culpability on the part of the officers who have lost their lives. Admittedly, this makes some uncomfortable. After all, officers who die in the line of duty have made the ultimate sacrifice. Reflect on this: what would those fallen officers want to share about how they died? Would they want their mistakes repeated, resulting in further loss? We all know the answer, and it's important that we make sure those who have died are never forgotten, including the lessons that can be learned. "Honor the fallen by training the living," has become a mantra for Below 100 trainers, and it should be the guiding principle for every trainer who stands in front of a group of officers, regardless of the subject.

When the concept of Below 100 was first coming together, the evidence and magnitude of preventable losses were so compelling that I assumed there must be an existing effort underway to address issues like seatbelt use, wearing body armor, speed, situational awareness, and complacency. Although there were initiatives or training courses that addressed parts of the problem, there really wasn't an overarching, comprehensive approach to tackle the thorny issue of addressing officer responsibility. In other words, no one had effectively said, "Look what we are doing to ourselves. We have to change this." The human tendency to blame others (the bad guys) for our losses rather than look at our own shortcomings had caused a degree of deadly ignorance.

Don't hear the wrong thing. I know full well that bad guys kill good cops. I also know, after reading more than 5,000 line-of-duty death summaries going back to 1980 that we, as a profession, have long failed to address areas that are squarely under our control, areas that have little to do with an armed assailant. In terms of making a difference, which of these do you have more control over?

- A determined assailant who is willing to set up an ambush and die trying to kill an officer;
- Actions and decisions that you make in regard to use of safety equipment, the way you drive and how you handle a call?

The need to place increased emphasis on areas under an officer's control becomes readily apparent with a simple examination of how a large portion of our losses are occurring. Over the last twenty years, losses due to vehicle-related incidents have accounted for approximately 25 percent *more* deaths than gunfire. Data from an extensive NHTSA review shows that half of fatal police crashes are *single-vehicle crashes.* The primary collision factor is overwhelmingly speed too fast for conditions. Just as troubling is the fact that approximately half of all police officers choose to operate their vehicles while not wearing their seatbelts. This has cost hundreds of lives and destroyed thousands of careers due to incapacitating and career-ending injuries. When it comes to speed, single-vehicle crashes and failing to wear a seatbelt, it is very, very difficult to lay the blame at the feet of the bad guy. As the saying goes, "This one is on us." And it's definitely up to us to change it.

A Quick Review

Below 100 is comprised of five very straightforward tenets:

1. **Wear your seatbelt.**
2. **Wear your vest.**
3. **Watch your speed.**
4. **WIN: What's Important Now?**
5. **Remember: Complacency Kills!**

Pretty simple, right? Yes, but they're definitely not easy. Simple to understand does not equate to being easy to make happen. Law enforcement culture has a long and storied history of resisting change, and tragically, many officers have died as a direct result of falling into a pattern of behavior that was facilitated by department culture.

How to Make a Difference: Vehicle Operations, Ambush Attacks, and Officer Health

Vehicle operations and roadway practices are areas where we can definitely improve, and it's time for everyone who wears a badge to take substantive steps to increase officer safety through improved vehicle safety. Seatbelts should be a given; speed awareness is critical, and officers need to wear reflective gear when investigating roadway incidents or directing traffic. We lose far too many officers to single-vehicle crashes where speed is the primary collision factor, and many officers are struck and seriously injured because

they are not seen while standing on or near the roadway. These events do not make the headlines like an ambush slaying, but they are just as deadly, far more prevalent, and an area that we can absolutely change.

There is little doubt that the level of hostility to law enforcement remains high, and it's definitely a time for vigilance. Body armor should always be worn when you're in a recognizable law enforcement role. This includes training days and administrative or office assignments. If you're in a plainclothes assignment, consider your armor as a highly-recommended option and a mandate when working the field or making suspect contacts. A suit coat or polo shirt offers zero ballistic protection. Body armor has already saved many thousands of lives, but it only works when you wear it.

Improved tactics are paying off, but complacency can turn any situation deadly in an instant. The ability to self- or buddy-treat gunfire wounds is making a huge difference in saving lives. Every officer should carry a tourniquet (on his/her person) and know how to use it. Check premise history when available, especially on domestic violence calls. When situationally appropriate, consider having the reporting party come to the curb for a meet instead of going to the door. Officers should consider using a passenger-side approach during traffic stops and continually use contact and cover techniques when working with another officer. If you're not familiar with contact and cover, check Google. You'll find it is super simple, and it works.

After vehicles and gunfire, heart attacks have consistently been the third leading cause of death for police officers. During the period of 2014 through 2016, 43 officers succumbed to duty-related heart attacks. This is not an "old guy" problem. The youngest was only 23, another was only 26 and many of the officers were in their 30's and 40's. It's time to acknowledge this deadly killer and to become proactive. No one has more control over their health than the individual officer. At a minimum, officers should know their blood pressure, cholesterol level, body mass index, and family history—then do something about it!

Courageous Conversations

Below 100 takes the position that it is the responsibility of every person wearing a badge, regardless of rank or assignment, to take individual and collective responsibility for officer safety. This includes having the courage to talk to another officer about the five tenets outlined above. Going into dangerous situations without adequate cover or engaging too quickly has been the story behind many police losses. If you know an officer who tends to push the envelope or take unnecessary chances, have the courage to talk to them. Tell them that you care and that their family and department need them. Point out that they're actually endangering others who may have to come to their rescue. Confronting a fellow officer is never easy, but it's far better than going to their funeral. Don't wait because you may not get a second chance. Every leader and trainer should remember that ignored behavior is condoned behavior.

Honor the Fallen

None of the officers whose names are on the National Law Enforcement Memorial thought their final tour of duty would take their life. For many, their deaths could easily have been prevented. It is clear that we can dramatically improve officer safety by simply exercising common sense. That's the operational principle of Below 100. Every line-of-duty loss should be reviewed by trainers, especially FTOs, and information gleaned should be shared with others and at briefing. We must honor the fallen by training the living. They would want nothing less from us. Remember, the life you save may be your own. For more information on Below 100, check www.Below100.org.

Destination Zero Program

The Destination Zero Program is coordinated by the National Law Enforcement Officers Memorial Fund in cooperation with the U.S. Department of Justice, Bureau of Justice Assistance, and the VALOR Initiative. Destination Zero has a goal of helping law enforcement agencies improve the health and safety of law enforcement officers. The program also fosters a platform that provides all law enforcement agencies with the ability to research successful and/or promising officer safety and wellness programs and to identify the resources necessary to begin their own risk management initiatives. [1]

Each year, the program recognizes officer safety and officer wellness programs that proactively engage employees in initiatives that increase overall officer wellness or reduce line-of-duty injuries or deaths. Awards are presented in four categories: general officer safety, officer traffic safety, officer wellness, and comprehensive safety. The award winners are selected and acknowledged during Police Week ceremonies in Washington, D.C. [2]

The Snohomish County, Washington, Sheriff's Office (SCSO) was selected in 2017 as the winner in the Officer Traffic Safety category. At the end of 2015, after sustaining 11 on-duty collisions that resulted in major injury to either an employee or a county resident, the Snohomish County Sheriff's Office (SCSO) introduced a new mindset to their officers: "Get there safe and get there alive." This was a change from the older philosophy of "Get there first get there fast."

The SCSO began working to incorporate the Below-100 training and its tenets into in-service training and into departmental messaging. All the agency supervisors attended a presentation by Kim Schlau, the mother of two teenage girls killed in a collision with an Illinois state trooper speeding to a call. The presentation was recorded and has been included in mandatory roll call training. The Snohomish County Sheriff's Office has distributed Below-100 posters to all their precincts, offices, and contract city locations.

SCSO updated their pursuit policy to be more restrictive and created a Driving Review Board (DRB), which meets monthly to review all agency pursuits and on-duty collisions. The Sheriff's Office is also installing telematics into all patrol cars. This new technology will allow the department to identify unsafe driving behaviors that can be addressed by supervisors and in training. [3]

Police departments can quickly learn about best practices and model programs by visiting the Destination Zero website at: http://www.nleomf.org/programs/destination-zero/. At this site, one can find hundreds of resources ranging from policies and procedures, officer wellness programs, traffic safety information, equipment, and presentations that will be helpful to law enforcement leaders.

Notes:

1. National Law Enforcement Officers Memorial Fund, "About Us," http://www.nleomf.org/programs/destination-zero/dz-about.html (accessed May 21, 2017)
2. Ibid.
3. National Law Enforcement Officers Memorial Fund, "Destination Zero," http://www.nleomf.org/programs/destination-zero/dz-about.html (accessed May 21, 2017)

Police Pursuits: Trends and Emerging Technology

The National Highway Traffic Safety Administration (NHTSA) defines police pursuits, pursuit terminations, and pursuit fatalities as follows:

A police pursuit is defined as an event initiated by a law enforcement officer operating an authorized motor vehicle giving notice to stop (either through the use of visual or audible emergency signals or a combination of emergency devices) to a motorist who the officer is attempting to apprehend, and that motorist fails to comply with the signal by either maintaining his/her speed or taking evasive action to elude the officer's attempt to stop the motorist. A pursuit is terminated when the motorist stops, the attempt to apprehend is discontinued by the officer, or at the direction of a competent authority. A police pursuit related death is defined as all fatalities recorded in a pursuit-related crash. [1]

In *Motor Vehicle Crash Deaths Related to Police Pursuits in the United States*, Dr. Fred Rivera found that "approximately 300 lives are lost each year in the United States from police pursuit related crashes, and one third of these are among innocent people, not being pursued by the police." Using the NHTSA Fatality Analysis Reporting System, "there were 260-365 police pursuits ending in a fatality annually in the U.S. for a total of 2654 crashes involving 3965 vehicles and 3146 fatalities during a nine year study period." [2]

Law enforcement leaders, researchers, and the general public have been working on training, policies and procedures, and emerging technologies in an effort to mitigate high-risk and unnecessary police pursuits. The Highway Safety Committee of the IACP has proactively initiated steps to adopt innovative pursuit training and model polices. For more information see: "P.U.R.S.U.E.: The Training Video" article in the *Police Chief* magazine which provides additional details for law enforcement leaders on this topic to include information about the P.U.R.S.U.E. training DVD.

Emerging technologies offer some potential alternatives to police pursuit, however, need further study. Some of the technologies being considered to mitigate the risk of pursuits include spike strips, OnStar Stolen Vehicle (SVS), aerial vehicles, nets and barricades, and StarChase. Of course, these technologies must be considered with many other factors including the type and size of the police department, fiscal resources, and training. [3]

The StarChase technology is particularly interesting and has been deployed by several law enforcement agencies in the United States. StarChase consists of a compressed air-launcher system mounted behind the grille of a police vehicle. The launcher has a laser target which discharges an adhesive projectile/tag containing a global positioning system (GPS) module that will transmit GPS coordinates to law enforcement via a digital roadmap. [4]

StarChase System.
Source: *Pursuit Technology Impact Assessment, Version 1.1* report

This tagging and tracking technology has been studied by the Johns Hopkins Applied Physics Laboratory supported by a grant awarded by the National Institute of Justice. According to the *Pursuit Technology Impact Assessment, Version 1.1* report, published in January 2017, the "end

users' opinion of StarChase is that it is a helpful pursuit management tool, but that it is not a comprehensive solution for avoiding or successfully resolving all possible pursuit scenarios." Potential complicating factors include Fourth Amendment considerations of deploying a GPS device on vehicle. Police departments will need to consult the latest court decisions in the consideration of using any GPS tracking system. [5]

Notes:

1. Definitions of Pursuits (In House Definitions) 2004. National Highway Traffic Safety Administration, US Department of Transportation, Washington, DC, Fatality Analysis Reporting System.
2. Rivara, Fred and C.D. Mack, "Motor Vehicle Crash Deaths Related to Police Pursuits in the United States," *Injury Prevention* (2004); 10; 93-95
3. Gaither, Morgan et al, "*Pursuit Technology Impact Assessment, Version 1.1*" (2017), https://www.ncjrs.gov/pdffiles1/nij/grants/250549.pdf, (accessed May 31, 2017).
4. Ibid.
5. Ibid.

The Dangers of Vehicle Pursuits: New Emerging Issues

By: **Richard Johnson, PhD,** University of Toledo, Ohio and **Harry Dolan,** *Chief (ret.),* Raleigh, North Carolina, Police Department

As long as crime has existed, criminals have been attempting to elude justice. The invention of the automobile gave criminals one more way to attempt to escape the grasp of law enforcement. While the use of motor vehicles by criminals is widespread, one could assume that vehicle pursuits have become safer for officers over time. Improvements in vehicle safety technology have made cars more maneuverable and safer, increasing the likelihood of surviving a high-speed crash. Advances in emergency trauma medicine have also increased the survival rate of traffic crash victims. Today, most law enforcement agencies have policies limiting the circumstances under which a vehicle pursuit may occur, how it will be monitored by management, and when it will be called off to avoid undue risks to the officers and the public. Police pursuit training has become more extensive and realistic, involving intense computer simulations and hands-on practice with real vehicles. Finally, anti-pursuit technologies have become common, such as devices used to deflate the tires of suspects' vehicles.

But have pursuits really become safer? Both authors have encountered high-speed vehicle pursuits that ended in the fleeing suspect surrendering to the police, without injury to officers, citizens, or suspects. On the surface, these incidents appear to be textbook successes. Many of these same pursuits, however, have also involved numerous assisting officers racing across the city at extremely high speeds, traveling through stop signs and red lights at rush hour, to assist in the pursuit by trying to get ahead of it to lay tire-deflation devices in the path of the pursuit. The authors have witnessed officers, miles from the pursuit, racing through intersections at breakneck speeds, just narrowly missing the cars of innocent people on their way home from work or school—even witnessed assisting officers, pumped with adrenaline, loudly cursing innocent citizens who did not move aside fast enough. While officers in direct pursuit are often governed by strict department policies limiting the pursuit to reasonable speeds, additional officers who are not in direct pursuit are often traveling at unsafe speeds all across the area to assist in the pursuit.

These observations led to a broader examination of the risks vehicle pursuits pose to officers. This broader study examined not only officers in direct pursuit, but also the danger and risks to officers assisting in these pursuits. This analysis of officer deaths associated with vehicle pursuits revealed that police vehicle pursuits have not become safer over time. In fact, some types of officer deaths associated with pursuits have been on the increase for the last few decades. The study reveals trends in officer deaths related to pursuits and provides a backdrop for an exploration of suggestions to mitigate the trends and understand the potential effects on police pursuit policies and practices.

Study Methodology

The study began with an investigation of law enforcement officers killed while involved in vehicle pursuits from 1960 through 2011. Data were gathered on all police officers killed in a motor vehicle–related death from the Law Enforcement Officers Killed and Assaulted (LEOKA) reports published annually by the Federal Bureau of Investigation (FBI), death descriptions offered on the Officer Down Memorial Page website, and archived newspaper articles surrounding each officer's death. These information sources were reviewed to identify officers whose deaths were associated with a vehicle pursuit in some way. This review identified 455 officer deaths related to vehicle pursuits during the 52-year study period.

Data were gathered on the role each of these officers played in the pursuits, revealing that 75 percent were directly involved in pursuing a fleeing suspect vehicle at the time of their deaths. Another 19 percent were involved in some sort of blocking activity (such as creating a roadblock or deploying tire deflation devices), and the remaining 6 percent were traveling to catch up to the pursuit or get ahead of it to establish a blocking position.

It was originally anticipated that the data would reveal a gradual decline in officer pursuit-related deaths for several reasons. First, advances in trauma medicine and EMS services at the scene of accidents have significantly reduced citizen deaths in automobile accidents over the last four decades. Second, improvements in automobile engineering have made vehicles significantly safer. Third, officer pursuit training has increased in quantity and quality, now including video-based simulations, as well as actual vehicle operations on a closed track. Fourth, most law enforcement agencies have developed detailed written policies governing when and how vehicle pursuits will be conducted, with some agencies limiting pursuits to cases of violent felony offenses. A few agencies have even banned pursuits entirely. Finally, the last four decades have witnessed the development and proliferation of tire-deflation devices used by police departments. These facts, taken together, would lead one to anticipate that, over time, the number of police pursuits has decreased, and when pursuits occur, they would be less likely to result in the death of an officer. The results of the analysis, however, only partially meet these expectations.

Study Results

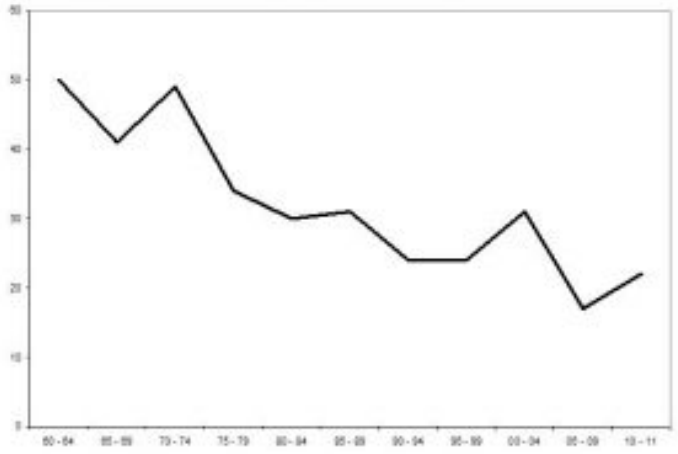


Figure 1. Officers killed while persuing a fleeing vehicle 1960-2011

Figure 1 is a line graph of law enforcement officers who were directly involved in a pursuit by chasing the fleeing suspect vehicle at the time of their deaths. These officers died by losing control of their vehicles, colliding with the suspects' vehicles, colliding with another police vehicle, or colliding with an innocent third party. This figure demonstrates that, as anticipated, this role in pursuits decreased in lethality over time. The number of officers who died while involved in direct pursuit gradually declined over the last five decades, from 50 officers killed between 1960 and 1964, to 17 killed between 2005 and 2010. It appears that the advances in pursuit policies, medical resources, and vehicle technology have paid off in officers' lives saved during direct pursuits.

Blocking Activities Deaths

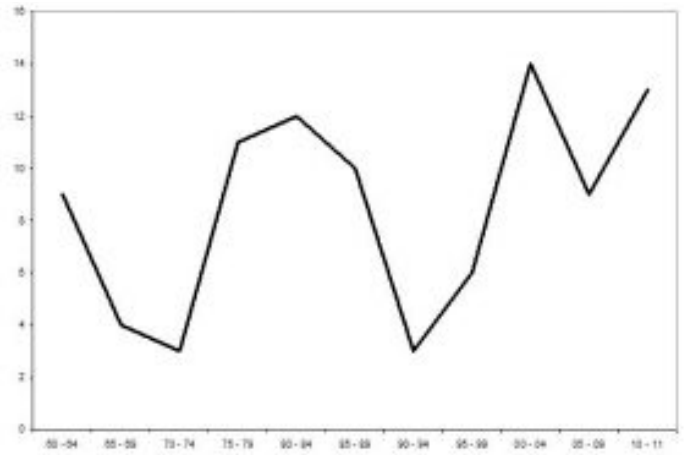


Figure 2. Officers killed while engaged in blocking activities 1960-2011

Approximately 19 percent of the pursuit-related officer deaths occurred to officers attempting to establish some sort of block to the fleeing suspect's path. This included establishing a roadblock with a patrol car or other obstruction, directing lights in the eyes of the approaching suspect, or deploying tire deflation devices. Figure 2 displays the trend in officer deaths related to this pursuit activity. As this figure reveals, there has *not* been a gradual decline in officer deaths of this nature. These types of officer deaths declined in the 1960s, dramatically rose again in the 1970s, and declined rapidly in the late 1980s and early 1990s. By the mid-1990s, these deaths were on a steep rise again and, after a brief dip, are continuing to rise today.

This unusual pattern may be explained by changes in the case law surrounding police pursuits, and the development of anti-pursuit technologies. Three landmark cases in the 1980s dramatically changed how roadblocks could be utilized during vehicle pursuits. First, in *Tennessee v. Garner* (1985), the U.S. Supreme Court took the first major step in defining the limits of police use of lethal force. One of many things that resulted from this case was the abolishment of the "fleeing felon rule" that had previously allowed the use of lethal force to prevent felons from escaping, regardless of the lack of imminent danger posed by the felon. This abolition, therefore, eliminated the practice of shooting at fleeing suspect vehicles (from a moving patrol car or a roadblock) in most cases. [1] The second case, *Jamieson v. Shaw* (1985), decided by the Fifth Circuit of the U.S. Court of Appeals, extended the decision in Garner to include other roadblock tactics that had a high likelihood of severely injuring or killing the fleeing suspect. In particular, this case suggested that placing a patrol car across the road on a blind curve and shining bright lights in the driver's eyes to prevent him or her from seeing the roadblock constituted an unreasonable seizure.

[2] In the third case, *Brower v. Inyo County* (1989), the U.S. Supreme Court also ruled that roadblock tactics that create a likelihood of death or injury to the fleeing suspect constituted an unreasonable use of force. In this case, officers had placed a semitruck completely across the highway around a curve, with patrol cars' headlights aimed to blind the fleeing driver on approach. [3]

These three court decisions and the influence they undoubtedly had on law enforcement agencies' pursuit practices may explain the tremendous decline in officer blocking deaths that began around 1985 and continued through the early 1990s. After 1985, roadblocks, if used at all, had to be constructed in a manner so that they would not cause injury to the fleeing suspect. Some of the pre-1985 officer deaths at roadblocks involved officers shooting at the fleeing driver from the roadblock, causing the driver to lose control and hit an officer or intentionally try to run down the firing officers. Others involved fleeing suspects being blinded by police lights, causing them to swerve and hit an officer. Still others involved officers off of the roadway who were hit when the suspect left the roadway in an attempt to go around a vehicle parked across the road. All three of these common scenarios were reduced dramatically by the restrictions placed on roadblocks by the U.S. federal courts. Fewer occurrences of these situations resulted in fewer officer deaths at roadblocks.

The steady resurgence of officer blocking activity deaths since the mid-1990s may be linked to the proliferation of tire deflation anti-pursuit devices. According to the U.S. Patents Office website, in the 1960s, no patents were filed for tire deflation devices. In the 1970s, two such patents were filed, and in the 1980s, seven patents were filed. In the 1990s, however, 19 new patents were filed, with another 24 filed in the first decade of the 2000s. [4] As the number and variety of these devices have increased, so have the number of officers killed attempting to deploy these devices. Almost all of the officers killed after 1995 while attempting some sort of blocking activity were killed while attempting to deploy tire deflation devices. Some were retrieving the devices from their trunks when rear-ended on the side of the road. Others were hit by the suspect vehicle or another citizen while deploying the devices, while still others were killed by patrol cars or other passing motorists as they attempted to retrieve the used devices from the road.

Traveling to Assist in the Pursuit

The last type of activity in which officers were engaged when killed during pursuits involved officers who were in fatal motor vehicle crashes while rushing in an attempt to either catch up to the pursuit or get ahead of the pursuit in order to establish a roadblock or deploy tire deflation devices. Between 1960 and 2011, 86 law enforcement officers died in this manner. Figure 3 reveals the pattern of these officer deaths since 1960.

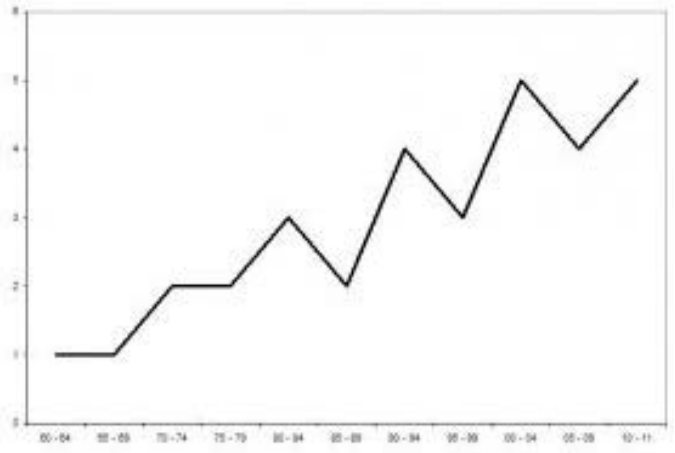


Figure 3. Officers killed while traveling to assist in the pursuit 1960-2011

As Figure 3 demonstrates, the number of officers killed in fatal auto crashes while traveling to assist in pursuits has been steadily increasing for several decades. In the 1960s, 13 officers died in this manner, but in the first decade of the 2000s, the number was 23, almost double the number of the first decade of the study. The exact reason for this steady increase is not completely clear. It may be a result of extensive media attention to vehicle pursuits today on news broadcasts and reality television shows, which glorify vehicle pursuits, possibly attracting officers to the excitement of a pursuit. It could also be an unintended consequence of the implementation of anti-pursuit technologies. More officers may be trying to get involved in the pursuit by establishing a blocking position with tire deflation devices. Finally, the expansion of radio communication capabilities and global positioning maps may have made more officers aware of the pursuit than was the case several decades ago. As more officers are aware of the pursuit, more officers try to get involved.

The authors have observed an increase in traffic collisions involving secondary officers responding to assist those in direct pursuit. When reviewing these collisions, it appeared that paralleling the pursuit had become commonplace. In some of the incidents reviewed, 20 or more police units paralleled a pursuit. The obvious safety issue with paralleling is the inherent danger associated with numerous emergency vehicles in close proximity traveling at high rates of speed while unaware of the others' locations.

The results of the present study raise the concern that the presence of the tire deflation devices in patrol cars may be resulting in an increase in the frequency and speeds associated with paralleling units. In fact, so great was the concern of one of the authors that, after reviewing the findings of this study, he directed all tire deflation devices

be removed from his agency's patrol cars. This decision was based upon the inability to support officers standing in roadways in close proximity to fleeing motorists traveling at high rates of speed, and the number of officers traveling at high rates of speed to get into position to deploy the devices was too great a risk to all concerned. The risks involved with the implementation of tire deflation devices demonstrate the need for the law enforcement profession to conduct evaluative research prior to implementing new technologies.

Implications for Policy and Practice

The results of this analysis of officer pursuit-related deaths may suggest the need for changes in police policies and practices. First, consideration should be given to expanding written departmental pursuit policies to include restrictions on the behaviors of officers assisting in pursuits. Just as many pursuit policies limit the number of officers or units that can participate in the pursuit, police executives should also consider restricting the number of officers who can engage in assisting with the pursuit. Limitations should be placed on how fast these assisting officers are allowed to travel, and, just like officers directly involved in the pursuit, they should be called off if traffic conditions make their travel unnecessarily dangerous.

Second, law enforcement agencies, in cooperation with tire deflation device manufacturers, should identify the safest and most effective tactics for establishing roadblocks and deploying these devices. By comparing tire-deflation device deployment incidents that resulted in deaths and injuries with deployments that were done safely, key differences may be identified that can lead to the development of best practices in the deployment of these devices. These evidence-based best practices can then be written into pursuit policies and incorporated into both academy and in-service training. It would also be beneficial to expedite the current research and experimentation into electronic vehicle kill switch technology that can remotely turn off the fleeing vehicle's engine, thus safely terminating the vehicle portion of the pursuit. Such technology is currently under development by several companies, but public pressure should be placed on these private companies to move more quickly to develop a model for practical field use.

Finally, to ensure officer buy-in with changes in tactics and written policies, street-level officers should be educated about the rising officer death rate from the deployment of tire deflation devices and traveling to assist in pursuits. Officers may exercise more caution when they realize that these activities are posing a greater risk to officer safety. Agencies can conduct after-action reviews to educate officers of the dangers they are posing to themselves and innocent motorists and pedestrians. Dash camera video footage from the assisting units, traffic camera footage, and in-car global positioning data can all be used in these after-action reviews to demonstrate to officers the dangers being posed by these activities.

Conclusion

The purpose of this study was to examine if they are being conducted in the safest manner. The natural tendency for police officers to over-respond during vehicle pursuits has long been an area of great concern for police administrators. Managing the fundamental desire of good cops everywhere to come to the aid of their peers remains an inherent challenge. Over the past several decades, considerable improvement in decision making has been demonstrated by officers and supervisors in direct pursuits. The information provided by this study reveals that the overriding concern today rests with the uncoordinated response of those coming to the aid of the officers in direct pursuit.

In spite of changes in technology, training, tactics, and policies designed to reduce the dangers vehicle pursuits pose for police officers, the annual number of officers killed *assisting* in pursuits has steadily been on the rise. Each decade, the number of officers killed while deploying tire-deflation devices or traveling to assist the pursuing officers increases. Street-level officers need to be informed of this growing danger, and better tactics and training need to be developed for the use of anti-pursuit technologies. Pursuit policies need to be expanded to include governing the behavior of officers assisting in pursuits. New anti-pursuit technologies need to be developed that would be safer for officers to deploy. Law enforcement is a dangerous profession, and every effort that can be made to improve safety should be made.

Notes:

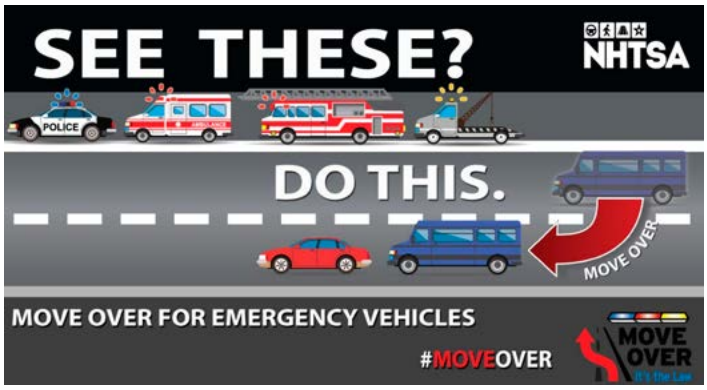
1. *Tennessee v. Garner*, 471 U.S. 1 (1985).
2. *Jamieson v. Shaw*, 776 F.2d 1048 (5th Cir. 1985).
3. *Brower v. Inyo County*, 489 U.S. 593 (1989).
4. U.S. Patent and Trademark Office, Patent Process—Search, http://www.uspto.gov/patents/process/search (accessed June 2, 2014).

Move Over Law

Law enforcement officers face various dangers in the performance of their duties. As highways become more congested and crashes become more complex to investigate, officers are facing even more dangerous circumstances. One of the most dangerous calls for service for officers is the various kinds of traffic-related incidents. Disabled and abandoned vehicles, traffic crashes, DUI, speed enforcement, and many other traffic duties place officers in harm's way, often on high speed interstates. There were 50 traffic-related officer deaths reported in 2018. This was a 9 percent increase from 2017. Traffic-related incidents one of the leading causes of death for on-duty law enforcement officers, fire, EMS, maintenance works, and tow/recovery professionals. [1]

Move Over Laws have now been enacted in all 50 States. While laws vary state to state, most require motorists traveling on controlled access highways with multiple lanes of traffic to move from the lane adjacent to stopped emergency or maintenance vehicles with lights activated. In addition, motorists must demonstrate due care to avoid colliding with such vehicles on all roadways.

As an example, the State of Colorado enacted a Move Over Law in 2005. The law states: "*On a highway with at least two adjacent lanes proceeding in the same direction on the same side of the highway where a stationary authorized emergency vehicle or stationary towing carrier vehicle is located, the driver of an approaching or passing vehicle shall proceed with due care and caution and yield the right-of-way by moving into a lane at least one moving lane apart from the stationary authorized emergency vehicle or stationary towing carrier vehicle…*" [2]



Source: University of Massachusetts Police Department

NHTSA, the IACP, State Highway Safety Offices, and other advocacy groups are aligned with law enforcement in an effort to better educate the public about Move Over Laws. Additionally, NHTSA, FHWA, and State Transportation Departments collaborate on Traffic Incident Management (TIM) training courses. The courses highlight the importance of Move Over concepts and raise the awareness of effective highway safety management and methods available to help improve the safety of motorists, crash victims, and emergency responders.

Notes:

1. National Law Enforcement Officers Memorial Fund (NLEOMF), *Preliminary 2017 Law Enforcement Officer Fatalities Report*, http://www.nleomf.org/facts/officer-fatalities-data/.
2. Move Over Laws.com, *Colorado Move Over Law,* http://www.moveoverlaws.com/colorado-move-over-law.htm (accessed May 31, 2017).

Officer Safety, Predictive Policing, and Community Relations

By: **Captain Arthur Combest,** Ohio State Highway Patrol, Columbus, Ohio

As an executive law enforcement leader, I think about officer safety every day. Hundreds of cadets enter through our academy doors each year to begin a career of public service, and I don't take my responsibility to them lightly. We train them to wear body armor to protect themselves from weapons. We teach them to wear safety belts in case of a crash. We also advise them that smart policing is safe policing.

"Smart policing" often translates to predictive or intelligence-led techniques that emphasize proactive efforts. Law enforcement agencies are sitting on treasure troves of data about the crime they address every day and tapping into that has revolutionized our ability to address the needs of our communities.

Police line of duty deaths in 2016 have spiked by 15 percent when compared to 2015.[1] With this in mind, law enforcement professionals are struggling to balance the need for officers to be out on the roads with the legitimate safety concerns that accompany visibility. The gut reaction is to pull back our proactive efforts. Though that protective instinct is understandable, we know our profession's future is not in reactive enforcement.

To recover our officers' confidence in proactive enforcement, our agencies need to rethink the traditional approach to officer safety. There is no one-size-fits-all solution. But we can start by expanding "smart" approaches to explicitly include community-police relations. We should also focus on transparency regarding proactive enforcement strategies, which we know

1 http://www.usatoday.com/story/news/nation/2016/11/02/ambush-style-killings-police-up-300/93155124/

ultimately make everyone safer. Our ability to do this will define officer safety in the 21st century environment.

We saw what's possible in July 2016, when hundreds of police officers and thousands of protesters descended upon Cleveland for the Republican National Convention. Law enforcement needed to reach civic and clergy leaders for assistance. Fortunately, networks of communication between the community and police were already in place. That community buy-in ahead of time was key to keeping the city and its people safe.

The story of that week could have been a dangerous clash with lasting damage as months of nationwide tension culminated in Cleveland. Instead, people who attended called it a block party.

Studies show the future of policing will emphasize these contacts more and more. When 200 police agencies were asked for their perspectives on the future of policing in 2012, 94 percent reported a current investment in community policing. It was the top response the surveyors received.[2]

Most police agencies understand that community safety is inextricably tied to officer safety. Officers can never completely control their environment. But they can contribute to a safer place with non-enforcement outreach efforts and by remembering every single interaction is an opportunity for a positive, lasting impression that improves officer safety.

This approach echoes the sentiment of the broken windows model, which suggests disorder in communities caused by less-severe crime leads residents to withdraw out of fear. That decrease in informal social control leaves a vacuum for serious crime to happen.[3] When police officers can encourage people to get outside and interact – through neighborhood walks, programs that reach children in friendly environments like schools, or participation in councils and groups that give people a space to gather and talk about their city's issues – we are investing in their safety as well as ours. It's about trust, and there isn't a part of it that isn't linked.

Another part of this effort to increase officer safety through community outreach is transparency. Transparency isn't about revealing confidential or personal information. It's about telling the public what we do and why we do it. This is increasingly important as our agencies invest in the kind of advanced technologies that make predictive policing possible.

Several news stories in 2016 highlighted public concerns related to new technology in policing. Use of start-ups like Geofeedia and Dataminr to monitor social media in targeted areas resulted in public backlash.[4] Seventeen civil rights and technology groups put out a joint statement that various predictive policing tools "supercharge" discrimination in minority communities.[5]

Whether or not civil liberties were violated is another discussion. The fact is community members are naturally suspicious of being treated like numbers, and too much reliance on technology without the human element of face-to-face conversation will breed distrust. That erodes any success we've had with community-police relations and officer safety, even though we know that intelligence-led policing will ultimately help everyone. It's taking two steps forward and one step back. We have to start a dialogue with our communities, and we have to translate that concern into visible and purposeful action.

Are we hosting or participating in face-to-face discussions with the community to explain the purpose of new initiatives and listening to their perspectives? While there, are we also explaining our officer safety concerns and how we all can work together?

Are we facilitating relationships with members of the media and pitching stories that dive into new technology and success stories? Are we sharing those stories on social media, where 6 out of 10 Americans now get their news?[6]

Are we viewing every single enforcement as an opportunity to make a good impression and prove that officers are there to help? Are we explaining to every law enforcement officer we employ how outreach is connected to officer safety, and are we giving them resources to prioritize those efforts?

These are worthwhile investments that have the potential to transform our interaction with the public and renew confidence in proactive policing. It'll lead to more trust, safer communities, and safer policing.

We are fortunate to work in a profession with colleagues who value the community and evidence-based approaches. More likely than not, your agency is already engaged with the community. Our end goal should be that a call to 911 feels like a call for help from a neighbor. Outreach efforts, transparency, and follow-up are essential to building these relationships.

2 http://www.policeforum.org/assets/docs/Free_Online_Documents/Leadership/future%20trends%20in%20policing%202014.pdf
3 http://cebcp.org/evidence-based-policing/what-works-in-policing/research-evidence-review/broken-windows-policing/
4 https://www.nytimes.com/2016/10/12/technology/aclu-facebook-twitter-instagram-geofeedia.html?_r=0
5 http://www.cnsnews.com/news/article/barbara-hollingsworth/coalition-predictive-policing-supercharges-discrimination
6 http://www.journalism.org/2016/05/26/news-use-across-social-media-platforms-2016/

This is a difficult, ongoing effort, but it is well worth it. The closer the bonds between police and the communities they serve, the safer we all are. That's what I want for law enforcement officers leaving our training academies and serving our communities.

Tactical Common Sense: Saving Lives with Seatbelts and Traffic Safety Vests

By: **Sergeant Joel Kuszynski,** Sheboygan, Wisconsin, Police Department

What would most police administrators or supervisors do if they learned of a simple, inexpensive piece of equipment that is proven to save lives? Would they hesitate to equip and train their personnel? What would many of them do if someone refused this piece of equipment?

There are two pieces of equipment that have been proven to save the lives of law enforcement officers, both of which are inexpensive and common. Most police leaders have likely already equipped their officers with them. Both of these items are constructed from simple nylon and, if used properly, will save lives: seatbelts and Class 2 or 3 ANSI/ISEA-approved vests. [1] Unfortunately, many officers are resistant to seatbelt and traffic vest use, claiming that they interfere with "good tactics."

Let's take a moment to talk about tactics. Merriam-Webster defines tactics as "the science and art of disposing and maneuvering forces in combat" and "the art or skill of employing available means to accomplish an end." [2] Police officers view tactics as team movements, angles, the use of firearms, and special training—all with the end goal of survival. No one would argue that good tactics and protective equipment aren't important to officer safety, and no police officer would intentionally go without body armor during a situation involving gunfire. However, many of those same officers choose not to wear seatbelts when driving a cruiser or an ANSI vest when standing in traffic. Why?

Police officers, especially those tactically minded, like gear. Ballistic vests, military-style carriers, rifle plates so light they float in water, communication systems, helmets, weapon lights… the list goes on and on. Most of this gear is black or camouflage, is expensive, and—most attractive of all—cool. Tactical terms are also cool: high/low, quick peek, hall boss, forward assault point, last cover, and concealment. The average seatbelt and traffic vest have little in common with other tactical gear with the exception of nylon webbing and hook and loop fasteners. They also don't share the cool factor; most of the time, they elicit the opposite reaction. Nonetheless, the lifesaving benefits of seatbelts and traffic vests are indisputable.

A study by the University of Michigan Transportation Research Institute found that an ANSI Class 2 or 3 vest increases the visibility of an officer in a simulated work zone from 125 feet to 891 feet. The average stopping distance of motor vehicles travelling between 35 MPH and 65 MPH is 159 to 425 feet. [3] Increasing officers' visibility along the roadway can literally save their lives.

Traffic-related deaths in the United States are the second leading cause of death for people ages 21–54. [4] Seatbelts are proven to save more lives in motor vehicle crashes than any other safety mechanism. [5] A head-on collision between vehicles traveling at 25 MPH is equivalent to driving a squad car into a brick wall at 50 MPH. Would anyone really be willing to do that without a seatbelt? Officers have no control over other vehicles on the roadway, and most officers are in a vehicle for the majority of their shifts. However, it appears that some do not realize the dangers of their most common function at work.

The arguments from officers who oppose the use of seatbelts or traffic vests tend to boil down to two primary concerns: "It takes too long to get a seatbelt off if I have to run after someone" and "My traffic vest makes me a target." Both sound like valid points, but, with some thought, they don't make sense. Of course, an officer shouldn't wear an ANSI traffic vest to an active shooting scene—the primary purpose of the vest, increased visibility, would be a significant drawback in this case. However, the vast majority of police officers drive a vehicle that is recognizable based on the model and markings. How can officers argue that, during routine activities, they wouldn't want the same visibility when out of their patrol vehicles?

Most states have a law similar to Wisconsin Statute 347.48 (2m) (dm), which exempts police officers from wearing seatbelts when "the operation of an authorized emergency vehicle by a law enforcement officer or other authorized operator under circumstances in which compliance could endanger the safety of the operator or another." [6] This is the excuse most often used by officers for not wearing seatbelts, but how often do most officers really encounter these situations? Do the risks of compliance outweigh the risks of not wearing seatbelts?

High-Visibility Education and Enforcement Pilot Program

As part of the continued focus on enhancing traffic safety and reducing fatal crashes across the United States, the IACP, the National Highway Traffic Safety Administration (NHTSA), the U.S. Department of Transportation, the Governors Highway Safety Association (GHSA), and other partners have created a High Visibility Education and Enforcement (HVEE) pilot program to enhance the Drive to Save Lives Campaign. Four states are currently participating in the program: Delaware, Maryland, North Carolina, and Wisconsin.

The pilot project focuses on using federal and state crash data and leveraging partnerships to respond to a particular traffic challenge in each area. Representatives from state and local law enforcement, state highway safety offices, and other public and private stakeholders partnered with IACP to look at NHTSA Fatality Analysis Reporting System (FARS) data and state crash data to determine each state's focus for the pilot.

Promising practices and lessons learned, including officer safety techniques, will be collected from each group. IACP will be producing and disseminating officer safety resources that will be useful for any officer engaged in motor vehicle enforcement. This type of traffic enforcement campaign is an opportunity for all departments to refresh officers' training and reinforce proper procedures and policies to ensure that officer safety remains a top priority.

Statistics may help officers understand why these two pieces of equipment are so important to their safety. According to the 2014 Federal Bureau of Investigation (FBI) statistics, 96 law enforcement officers were killed in the line of duty in 2014. Breaking the numbers down, 46 officers were killed with firearms; the other 45 were killed accidentally. Of the 45 officers killed accidentally, 28 were involved in automobile crashes and 6 were struck by vehicles. "Seatbelt usage was reported for 25 of the 28 officers killed in automobile collisions. Of these 25 officers, 15 were wearing seatbelts at the times of the accidents." No information was available on the use of ANSI traffic vests by those struck outside their cruisers. [7]

Taking a moment to analyze the numbers allows one to realize that accidental deaths are as common for police officers as are deaths by firearms. Between 1980 and 2008, 42 percent of the police officers killed in motor vehicle crashes were not wearing seatbelts. [8] Furthermore, a recent study by the California Commission on Peace Officer Standards and Training showed that nearly half of the police officers polled in California did not wear seatbelts. In contrast, the general U.S. public has a seatbelt usage that approaches 90 percent. [9]

There is an ethical aspect to this discussion, as well. Every state has either primary or secondary seatbelt laws that require citizens to wear them. Law enforcement officers are trusted with enforcing all laws. If an officer does not wear his or her seatbelt, can they ethically enforce the law? In addition, not wearing a seatbelt is often a policy violation. Policies are in place as a means of risk management. Are agencies effectively communicating these policies and their intent to their officers? Are police leaders willing to look beyond policy violations?

Law enforcement administrators should recognize that they have some control over these numbers. There are a number of different ways to increase seatbelt and safety vest use among officers. Possible approaches range from education to discipline, but the most effective method is creating cultural change. Implementing anticipatory change in an organization is certainly preferable to implementing reactive change resulting from the death of an officer. Roll call or shift briefing time is the perfect opportunity to reinforce the importance of safety gear, and those dialogues can be the gateway to cultural change in organizations. All lost officers are mourned, including those killed by violence and those killed in crashes, but people hesitate to ask whether or not an officer was wearing a seatbelt when killed in a crash. Most people don't wish to speak in accusatory terms when an officer loses his or her life, but can leaders and peers live with the possibility that an officer died as a result of not using proper safety gear because the importance of safety gear was not stressed or reinforced enough?

There is no question that every agency and leader make officer safety a priority. Likewise, the majority of officers also place a high priority on officer safety. The real question is whether the profession is dismissing the obvious when it comes to officer safety. If officers are as likely to die in a traffic incident as they are from a violent encounter, have agencies adequately focused their training efforts to reflect the reality of the risks? Do they spend as much time training officers in proper seatbelt usage and roadside work safety requirements as on the firing range? Agencies need to be willing to dedicate time to reinforcing seatbelt and safety vest use as part of tactical training. And, beyond training, police leaders must change their own traffic safety-related perspectives if they hope to change those of their officers.

David Kinaan, a former motorcycle sergeant in the California Highway Patrol, wrote a thought-provoking article titled "Courageous Conversations." He highlighted the need for police leaders to notice when officers are "taking shortcuts, or taking chances unnecessarily." He also noted that courage is needed by the person initiating the conversation, as well as the person listening to the conversation. In the article he asks, "If you don't say anything, who will?" [10] Leaders and peers must have the courage to start this conversation in their own agencies and with their own officers.

Ultimately, an agency is responsible for the actions of its officers. If the importance of seatbelts and traffic vests is not emphasized, officers may not take the issues seriously. If it is known that someone is not using proper safety equipment, steps need to be taken to correct the behavior, including discipline and remedial training as needed. The bottom line is that seatbelt and ANSI vest use is common sense. Officers know the dangers of their job, but they tend to focus all of their training on tactics. Law enforcement administrators need to dedicate more time and effort on the risks officers most commonly face on the job.

Notes:

1. Federal Highway Administration, "Pedestrian and Worker Safety," in *Manual on Uniform Traffic Control Devices for Streets and Highways* (2009), 564, 566, http://mutcd.fhwa.dot.gov/htm/2009/part6/part6d.htm#section6D03 (accessed January 21, 2016).
2. *Merriam-Webster*, s.v. "tactics."
3. University of Michigan Transportation Research Institute (UMTRI), "Illustration of Seeing Distances and Required Stopping Distances," 2 slides, https://www.usfa.fema.gov/downloads/pdf/saepedslide.pdf (accessed February 7, 2016).
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8. Eun Yong Noh, *Characteristics of Law Enforcement Officers' Fatalities in Motor Vehicle Crashes* (January 2011), 24, http://www-nrd.nhtsa.dot.gov/Pubs/811411.pdf (accessed February 7, 2016).
9. Tami Abdollah, "Not All Cops Use a Buckle," *Statesman Journal*, December 15, 2013, http://www.statesmanjournal.com/story/news/2013/12/16/not-all-cops-use-a-buckle/4036179 (accessed March 18, 2016.)
10. David Kinaan, "Courageous Conversations," *Law Officer* (April 2013), http://lawofficer.com/2013/04/30/courageous-conversations (accessed March 18, 2016).

CHAPTER 3: ALLOCATION, DEPLOYMENT AND EVALUATION OF TRAFFIC PERSONNEL

Police Allocation Manual (PAM)

By: **David Bradford,** *Executive Director,* Northwestern University Center for Public Safety

The *Police Allocation Manual (PAM)*, and *Police Allocation Manual User's Guide* were developed and field tested by Northwestern University Center for Public Safety under a contract (No. DTNH22-92-C-05051) issued by the National Highway Traffic Safety Administration, U.S. Department of Transportation. The author for the study was Dr. William Stenzel. The project was administered by the Office of Enforcement and Emergency Services.

There are three separate versions of The Police Allocation Manual (122 pages), one for state agencies, one for sheriff departments, and one for municipal departments. The Police Allocation Manual is designed to be used by law enforcement departments whose mission includes the delivery of patrol and traffic services. The Manual can be used to determine staffing levels for a traffic division with limited patrol coverage or for a patrol division with traffic responsibilities. The framework and rationale for the procedures presented in the Manual are the result of a distillation process that identified the "best" procedures currently in use by agencies throughout the United States, and then modified and blended those procedures into a comprehensive model for determining appropriate patrol staffing levels and deployment patterns. The procedures in PAM provide agencies with a logical and explicit format in which to frame requests for additional personnel and/or staff allocation. *The Police Allocation Manual* consists of four chapters and two appendixes:

- Chapter 1 provides a brief introduction to the purposes and uses of the Manual.
- Chapter 2 describes the PAM patrol staffing and allocation model.
- Chapter 3 contains eight worksheets, each with instructions that provide a step-by-step process for determining patrol staffing levels.
- Chapter 4 contains one worksheet for determining patrol staffing allocations over several geographic areas or time periods.
- Appendixes A and B contains worksheets that can be used as alternatives to the procedures presented in Section 5.2 in Chapter 3. Additional information about the PAM procedures can also be found in the companion document, *Police Allocation Manual User's Guide* (148 pages).

The Guide presents implementation, data definition, and data collection strategies used by the field test agencies. Also included in the Guide is a summary of key input values and numerical results obtained by the agencies that field tested the Manual.

The appendix materials in the Guide include:

- a list of the input data required to use the PAM model (Appendix A),
- a glossary of key terms and notation (Appendix B),
- a detailed example showing all nine worksheets in completed form (Appendix C),
- and derivations of all key formulas used in the model (Appendix D).

Law enforcement officers who are developing patrol staffing calculations for traffic safety services will find the information in the Manual to be very helpful. For additional information, contact the Northwestern University Center for Public Safety at nucps@northwestern.edu or toll free at 800-323-4011.

Using Traffic Safety Data to Drive Resource Allocation

By: **Jana R. Simpler,** *Former Director,* Delaware Office of Highway Safety and *Former Chair,* Governors Highway Safety Association

Law enforcement agencies are challenged every day with questions on how to best use their existing resources in a climate that is ever evolving. In the realm of traffic safety, support agencies such as the Office of Highway Safety can provide police agencies and law enforcement leaders with timely data to assist them in their decision making and resource allocation. Resource allocation in this day and age requires finesse. With no time, effort, or energy to waste, many law enforcement agencies are finding success by targeting limited resources by using crash data to drive decision making.

One of the most powerful resources law enforcement leaders generally should have at their fingertips is crash data, especially data specific to their jurisdiction. National crash data can be valuable in identifying trends and for making comparisons to support threat assessments about crashes and their causation at the macro level. The drawbacks related to national data are that it tends not to be as current or specific as state or local data and therefore not as valuable for making resource allocation decisions at the local level.

Law enforcement leaders may find their local and/or state crash data sets of greater value for making resource allocation decisions. Ultimately, all crashes are local, so the local data may provide greater clarity in the department's analysis of traffic safety issues. Because the relative sample population is far smaller, local data often provides greater insight regarding crash or injury causation, such as primary contributing factors, demographic details about the motorists involved, vehicle specifics, occupant protection use, problem intersections/locations, and levels and types of impairment. Armed with specifics about the types and locations of crashes, a chief, sheriff, or other operations officer can make informed decisions about how to allocate limited resources to address them.

A law enforcement agency's greatest assets are its human resources - especially its officers on patrol. Using the crash data to allocate resources allows an agency to more efficiently and effectively deploy these assets to improve traffic safety in their community. Officers can be directed to specific locations at specific times of the day/day of the week and even to look for specific violations. For example, directing safety restraint enforcement activities to an area where crashes are occurring in which drivers and/or passengers are unbelted typically leads to better compliance by motorists. Directed high visibility enforcement strategies have proven extremely effective at addressing a number of traffic safety issues, including safety restraint use, phone use and texting while driving, and impaired driving. Moreover, staffing strategies based upon crash data analyses are effective for general staffing, overtime traffic enforcement, and special details, such as saturation patrols.

Another related resource that law enforcement agencies manage is funding. With limited funds for traffic enforcement, crash data analysis can help identify an agency's traffic safety priorities and ensure that these limited funds are aligned with those priorities. This can facilitate decision making about where and when and for what target violation agencies deploy their officers. The analysis and subsequent targeted deployment can aid in driving the development of budgets related to the use of straight time and overtime funds.

Finally, there is a tremendous amount of evidence and commentary on the use of crime data to drive the use of staffing and allocate financial resources to address a certain problem. The same mentality for the use of crime data can easily be applied to the use of crash data to address crashes, serious injuries, and fatalities due to motor vehicle crashes. Targeting limited resources in a specific area, focusing on a specific violation as identified by careful crash analysis can reap dividends in the protection of the public and prevention of devastating crashes.

One model is the Data-Driven Approaches to Crime and Traffic Safety (DDACTS). DDACTS is an operational model for deploying law enforcement resources. This differs from traditional enforcement projects in that DDACTS is not meant to have a specific timeframe. DDACTS is a method of doing business. Operational deployment is based on data related to criminal incidents, traffic crashes, or other incidents causing social harm. The use of data is one of the primary elements of DDACTS, which is intended to "integrate location based crime and traffic crash data to establish effective and efficient methods for deploying law enforcement and other resources." [1]

Police leaders are always looking to work smarter, not harder. By using data to develop resource allocation models, leaders can pinpoint known traffic hot spots and provide more effective traffic safety practices for the community.

Notes:

1. Howard Hall, "Data-Driven Approaches to Crime and Traffic Safety — Its Application to Public Safety and Accreditation," *CALEA Update Magazine* (Issue 103).

The Changing of Culture as a Byproduct of the Delaware State Police's Implementation of the Stratified Model to Address Traffic Safety: The Pilot Study

By: **Captain Jennifer D. Griffin,** *Troop 1 Commander,* Delaware State Police and **Captain William D. Crotty,** *Director,* Delaware State Police Fusion Center and the Delaware Information and Analysis Center

Introduction

This article details the pilot study that was conducted by the Delaware State Police (DSP) on the implementation of the Stratified Model of Problem Solving, Analysis, and

Accountability (hereafter "Stratified Model"), which is an evidence-based practice to reduce incidents of criminal and traffic complaints using data driven analysis, while increasing accountability into police organizations day-to-day activities. The pilot study was conducted at Troop 1, a patrol troop in the northernmost region of the State of Delaware. This study officially started at Troop 1 on May 4, 2015. The goals of the pilot study were to:

- evaluate the usefulness of current data,
- evaluate and improve the quality and thoroughness of reports,
- improve responsiveness to the hot spots based on long term data analysis, as well as trends,
- ensure effective use of data by the Troop Administration and First Line Supervisors to develop and implement timely strategies,
- assess how officers respond to the new strategy,
- identify issues or obstacles and deal with them quickly,
- develop procedures to report outputs (productivity),
- develop means of communication to best convey information, data, and strategy,
- and most importantly, to increase accountability for Traffic issues across all levels of troop personnel from the captain to the newest trooper.

Agency

The Delaware State Police is a full-service law enforcement agency providing traffic and criminal enforcement along roadways and interstates, as well as patrol and investigative services in urban, suburban, and rural communities throughout the State of Delaware. With almost 800 troopers, the State Police is the largest police agency in the state and has primary jurisdiction statewide, while aiding numerous other law enforcement agencies.

Location/Participants

Troop 1, also known as the "First Troop in the First State" has been an icon, located at the top of Penny Hill since 1923. The 45-Troopers assigned to Troop 1 patrol an approximately 60-mile area, where diversity spans from Wilmington to Claymont, and Brandywine Hundred to Centreville. The patrol area also includes two interstate highways (I-95 & I-495), as well as the Concord Pike corridor, which has become a regional retail mecca, and the site of the world-wide headquarters for Astra Zeneca. During the pilot, Troop 1 was made up of four shifts, which included: one sergeant, one assistant, and eight patrol troopers per shift. The Troop also had a one trooper Retail Theft Unit (R.T.U.) and one Traffic Action Car (T.A.C.). The Troop Administration includes one traffic and one criminal lieutenant, who report directly to the captain, who is responsible for the overall implementation of the Stratified Model.

Stratified Model

The Stratified Model was developed by the pilot studies research partners, Drs. Rachel and Roberto Santos, who have been assisting law enforcement agencies in the United States and Canada over the last 10 years in implementing the model. This pilot study was one of the first times a state police agency in the United States implemented the model. The Stratified Model "provides a stratified structure that standardizes crime and traffic analysis**,** the problem-solving process, and accountability within a law enforcement agency while providing the flexibility to allow agencies to implement different evidence-based practices as they are deemed relevant for the unique nature of crime, traffic and environmental issues within a law enforcement jurisdiction." [1] The Stratified Model was selected due to its focus on using evidence-based practices to reduce incidents of criminal and traffic complaints, while using resources, both equipment and personnel, in the most efficient and effective manner, all the while embracing and enhancing community partnerships. For a comprehensive description of the Santos' Stratified Policing methodology as an example of a sustainability approach, please see the attached link from a presentation given at the Bureau of Justice 2013 Smart Policing conference (https://www.youtube.com/watch?v=R1G09KcAaqQ), or review *A Police Organization Model for Crime Reduction: Institutionalizing Problem Solving, Analysis, and Accountability.* Washington D.C.: Office of Community Oriented Policing Services.

Pilot study

A pilot study can be helpful as a "small-scale version or trial run in preparation for a major study." [2] A pilot study was employed because the Stratified Model was a major change from DSP's previously employed strategy of focusing primarily on solving crimes through intensive investigations, handing traffic crashes/issues after calls for service while reviewing statistics, versus ensuring responses were implemented effectively and efficiently. One of the major changes with the Stratified Model was the increased usage and reliance on data and analysis to formulate strategies to address and prevent additional incidents. There are five key factors to incorporate a structured approach to a pilot study. [3]

1. Plan and design the pilot study
2. Train personnel to accomplish change

3. Support and monitor pilot study
4. Evaluate pilot results
5. Make recommendations and improvements prior to agency wide implementation

Methodology

The Delaware State Police's method to execute this pilot study was structured around a simple three step process. The first step was an analysis focused on Data-Driven decision making via a comprehensive traffic study. The Delaware State Police utilized traditional hot-spot analysis of crash reporting data via the CrimeView system to identify geospatial density of crashes, day of the week and time of day frequency analysis, and analysis of the primary contributing behavior that led to the crash. CrimeView is computer software that allows for the mapping and organization of complex information from multiple databases into visualizations that reflect a snapshot of current activity. This analysis also allowed for the identification of locations and peak time periods where deployment could be most effective. Furthermore, the Delaware State Police also instituted a deployment time of 4-hours to coincide with these identified deployment areas.

The second step was to develop a specific traffic deployment strategy to target areas for crash reduction. This deployment strategy was formulated after an analysis of traffic data from the traffic study created by the Delaware State Police Crime Analysis Unit. Included in this strategy, was the identified responsibilities and accountability from the strategy development, to include collecting and reporting the results, which was performed by the Troop 1 Administration specifically reporting detailed metrics on the implementation of the strategy. The data points identified for this pilot were the following:

- Specific location
- Day of the week
- Time of the day
- Number of troopers assigned
- Number of hours dedicated in the target areas during target times
- Number of Traffic Summons/Citations for key crash contributing behaviors
- Total number of Summons/Citations - the focus was on the percentage (percent) of proactive enforcement in the hot spots, NOT the total number (#) of citations, or citations from crashes
- Number of crashes occurring during enforcement hours

The third step was the strict set of reporting periods of daily, weekly, and monthly reports based on the Stratified Policing Model process. Daily reporting occurred at the Troop level, where the Troop 1 Administration would report the strategy to include the specific deployment plan, and the outputs/productivity of the above data points. Weekly reporting occurred from both the Troop Administration and the Delaware State Police Crime Analysis unit. The weekly reporting from the Troop Administration consisted of aggregate reporting of the above data metrics, and the percentage obtainment of maximum deployment hours (i.e. 15 troopers covered 100 percent of the hot spot hours during the deployment times, and 550 /citations/ summons were issued, 500 of which were proactive/non-crash, on 480 separate operators). The weekly report from the Crime Analysis Unit would verify the specific metrics reported and the identification of data quality issues in reporting. Finally, monthly reporting from both the Troop Administration and Crime Analysis Unit summarized efforts and results. These monthly reports focused on aggregate reports of identified data metrics from the Troop Administration, while the Crime Analysis Unit provided a critical evaluation of deployment strategies/practices to validate which preformed behaviors of deployed Troopers optimized crash reduction. All the reports were shared with the Delaware State Police Executive Staff (Colonel, Lt. Colonel and Majors), Troop 1 Troopers, the County Investigative Units, and the Criminal Analysis Unit.

Rollout/Implementation of Stratified Model in the pilot study

Although a pilot study does not guarantee success when the strategy is fully implemented, it greatly increased the likelihood. To implement any type of change within a law enforcement agency, the first step should be to gather exhaustive information on the issue. The following is a brief chronological description of the process the DSP followed in developing the pilot study and then carrying it out:

- Gather exhaustive amounts of research and information on the Stratified Model
- Form a Stratified Model Committee
- Select a pilot location, in this case Troop 1
- Perform a Traffic and Crime Study of the pilot location, to provide data to drive decision and strategy creation
- Train Troop 1 Administration and First Line Supervisors, in this case Sergeants, on the Stratified Model, as well as their responsibilities/accountability
- Send explanatory emails and hold shift briefing meetings with all troopers to explain the model, implementation, goals, strategy, common language, and responsibilities/accountability

- Establish deadlines for reporting and communication
- Establish strict accountability guidelines to identify responsibilities at all levels

The first thing that had to be accomplished once the pilot site was identified, was to perform a comprehensive analysis of the troop's calls for service. This initial report established hot spots for traffic calls for service, which included crashes and traffic citation data. The analysis was performed by the Crime Analysis Unit and analyzed data for the prior year.

During 2014, Troop 1 investigated 2,856 traffic crashes. A geo-spatial analysis of the crashes clearly identified a hot spot of U.S. Route 202 and Interstate-95 which accounted for approximately 10 percent of all crashes in Troop 1 area. A report classification study revealed that reportable property damage crashes accounted for 67 percent of all crash investigations (1,928), Non-Reportable Crash investigations accounted for 17 percent of all crash investigations (503), Personal Injury Crashes accounted 14 percent of all Crash Investigations (416), and less than 1 percent were fatal crashes. Examination of the time of occurrence of these crashes revealed that 89 percent of all crashes occur between the hours of 0600 hours and 2100 hours, with 64 percent of all crashes occurring on the Interstate-95 between the hours of 0600-0800 hours. An examination of the primary contributing circumstances revealed the top three contributors to be Driver Inattention (19 percent), Following Too Closely (17 percent) and Careless Driving (11 percent). The utilization of the Stratified Model further focused the strategy and deployment for dealing with the traffic issues in the Troop 1 area.

Based on the enhanced data analysis, there were several initiatives that Troop 1 focused on to include:

- Increased enforcement during peak crash times and at hot spot locations;
- Increased proactive enforcement of crash contributing factors;
- Increased proactive DUI enforcement.

These were the top three traffic initiatives; thus, all traffic deployment tactics revolved around increasing productivity in these areas with a precise and targeted strategy. To reduce crashes based on the data, the Troop Administration's strategy was to have high presence and enforcement of crash contributing behaviors in the hot spot of Interstate-95 and U.S. Route 202 from the hours of 0600-1000. The second strategy was to increase proactive traffic enforcement as opposed to relying on troopers' enforcement of traffic violations *AFTER* crashes. And lastly, the third strategy was to increase DUI proactive production to engage the impaired driver before they crashed, as over 50 percent of all Troop 1 fatal crashes involved an impaired driver.

Results

During this pilot, Troop 1's first goal was to reduce traffic crashes in designated hot spots. To measure the success or failure of the pilot, the Troop 1 Administration examined the following data sets within the targeted area.

1. Geo-Spatial density changes to targeted area
2. Suppression of the frequency of crashes

Below is a representation of Geo-Spatial density changes to a targeted area. Table 1 is pre-pilot (January 1 - April 30, 2015), and Table 2 is post-pilot start (May 1 - August 30, 2015). Overall, looking at the post-pilot compared to the pre-pilot, it is evident that the increased enforcement decreased overall crashes. However, a deeper examination of the meaningfulness of these reductions from the focused 4-hour deployment by the Crime Analysis Unit found the following:

- Troop 1 successfully reduced crashes in the target area (U.S. Route 202 and Interstate-95) by 50 percent.
- The reduction of crashes in this targeted area also lead to a 30 percent reduction in the weekly complaint load for Troop 1.

Table 1. Pre-pilot (Jan. 1 - April 30, 2015)

Table 2. Post-pilot start (May 1 - Aug. 30, 2015)

In regard to the second strategy of issuing proactive tickets in the hot spots, troopers were advised to focus enforcement during peak crash times at peak crash locations. Troopers' enforcement efforts were closely measured, and accountability was tracked to ensure that they were present and engaged in the hot spots during appropriate times. The strategized targeted enforcement directed troopers to specific locations, at specific times, to show both presence and perform meaningful enforcement of crash contributing behaviors. The goal was to be present in the hot spot during the strategic time to both deter and apprehend violators. A 100 percent coverage of the entire 4-hour block by one or more troopers was the goal set by the Troop Administration. Although this was not always achieved, troopers were covering over 80 percent of the time, with most shifts covering 90-100 percent of the 4-hour blocks. Thus, time present in the hot spot during the strategized time was monitored daily by all shifts. However, being present was not the only data point being tracked. Engagement and enforcement in the hot spots during peak times was also closely monitored and reported daily, weekly and monthly to track outputs. Troop 1 troopers consistently wrote between 85-98 percent of all proactive tickets in the hot spots. Proactive citations in the hot spots was a key data point and a goal to be maintained. On many days, Troopers wrote 100 percent of traffic citations in the hot spots, showing not only their engagement, but their dedication to the process, even if it meant that they got less citations than they would have written at a different location. This was also shared with the community and key stakeholders to show that troopers were issuing citations in high crash locations for crash contributing behaviors. The daily tracking of this data point reaffirmed the goal for Troopers to issue meaningful tickets for dangerous moving violations in locations identified as hot spots to reduce crashes and change crash contributing behaviors as opposed to just going out and getting numbers.

The following graphs are the pre-and post-frequency analysis of the targeted area to show that the increased enforcement during the 0600-1000 hours decreased crashes. During the pre-pilot period, there were more than 10 crashes between 0600-0700 hours, approximately 50 between both the times of 0700-0800 and 0800-0900 hours, and then 30 crashes between the hours of 0900-1000 hours. During the post-pilot period, crashes were reduced to less than 10 during the 0600-0700 hours, and less than 35 between both the times of 0700-0800 and 0800-0900 hours (30 percent reduction), and an almost equal amount of crashes during the 0900-1000 hour block. The reduction in crashes during the 4-hour period, which is historically a rush hour period for commuters, reduce the calls for services for Troopers to allow them to engage in proactive deterrence and enforcement, while

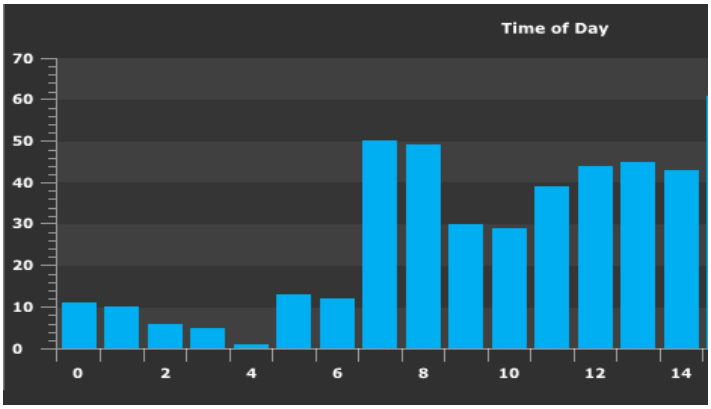

Table 3. Time of Day Pre-pilot (Jan. 1 - April 30, 2015)

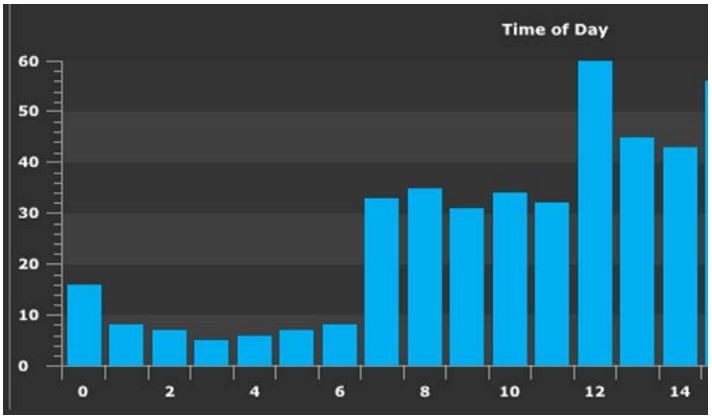

Table 4. Time of Day Post-pilot (May 1 - Aug. 30, 2015)

The last initiative was to increase proactive DUI enforcement, so that Troopers engaged the impaired motorists before they caused a crash and/or fatality. From May 1, 2014 to May 1, 2015, one full year prior to the pilot, Troop 1 troopers made 178 DUI arrests, 92 from crashes and 86 from proactive efforts. This resulted in 52 percent of DUI arrests from crashes and 48 percent from proactive enforcement. From May 1, 2015 to May 1, 2016, one full-year of the pilot study, Troop 1 Troopers made 243 DUI arrests, 91 from crashes and 152 from proactive efforts. This resulted in 37 percent of DUI arrests from crashes and 63 percent from proactive enforcement. Overall, there was a 15 percent increase when evaluating one year prior to the pilot to the first year of the pilot, and the overall number of DUI crashes decreased by 1 percent.

Lessons Learned and Conclusion

During and after the pilot study, there have been short- and long-term successes and cultural changes. In 2015, Troop 1 troopers worked to respond and adjust to the Stratified Model with its focus on the previously listed metrics and accountability. Most law enforcement leaders have heard the saying "There are two things that cops

hate most. The first is the way things are. And the second, is change." However, due to the successes experienced at Troop 1 in 2015 through the Stratified Model, there has been a cultural shift at all levels. The usage of accountability meetings and structured reporting not only provided timely data to base decisions on, but also provided timely updates on accountability. Prior to the pilot, troopers were more reactive to calls for service and less proactive in their efforts to decrease crashes. Throughout the process, engagement, effort, flexibility, and creativity were praised from the Troop Administration to the Executive Staff. Flexibility was a key component of the pilots' success, and failure wasn't seen as a negative, but as an opportunity to learn from a strategy and improve upon it. Due to the mentality that the strategies for handling a situation will change at any time depending on the data, the Troop Administration and troopers weren't afraid to try and fail because it viewed as part of the process to find what may or may not work. This allowed troopers at all levels the ability to take chances in their approach to resolving an issue.

One year after the pilot, the top three traffic initiatives continued to show success. In 2016, Troop 1 troopers again increased their proactive DUI enforcement by almost 20 percent. Increasing DUI production was critical to the Troop 1 traffic strategy as over 50 percent of DSP fatalities are DUI related; and by engaging the impaired driver prior to the crash, troopers are saving lives. Troopers, have also increased their proactive traffic enforcement in the hot spots, where most Troop 1 crashes occurred. On average, during the times of 0600-1000 hours between 90-95 percent of all proactive traffic citations were written in the hot spots, showing that troopers were enforcing traffic violations in those areas that are accounting for most crashes within the Troop area occur.

Although there are countless successes of the pilot study, and the full-implementation of the Stratified Model, there were challenges and obstacles that should be noted. First, with any change there is going to be apprehension and some resistance of the unknown. Agencies interested in moving to a Stratified Model with its data-driven focus need to take conscious steps to educate officers at all levels of the model, implementation, goals, strategy, common language, and responsibilities/accountability. Explaining the process through a variety of means (i.e. emails, PowerPoint presentations, informal and formal meetings) will not only ease fears and apprehension, but will also give officers input and buy-in to the process, as accountability and shared responsibilities is critical to the pilot's success. Secondly, make sure that other support units or groups understand the Stratified Model and their responsibilities and accountability in supporting the pilot location. Cultural change doesn't occur in a vacuum, and not ensuring other units not only understand the Model, but are held accountable for their responsibilities will surely undermine the pilot locations success. And lastly, remember that organizational culture isn't developed overnight, that it occurs over years, and in some cases generations. So, changing culture will take time, so do not lose hope when there are set backs or pushback.

Notes

1. Santos, Roberto G. & Rachel Boba Santos, Evidence-based policing, "What works" and Stratified Policing, "How to make it work," Translational Criminology 8 (September 2015): 20-22.
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Boba, R. & Santos, R. (2015). *A Police Organization Model for Crime Reduction: Institutionalizing Problem Solving, Analysis, and Accountability.* Washington D.C.: Office of Community Oriented Policing Services. https://ric-zai-inc.com/Publications/cops-p208-pub.pdf

For more information on The OMEGA Group, Crimeview Dashboard System, go to http://www.theomegagroup.com/police/omega_dashboard_police.html

CHAPTER 4: CRASH INVESTIGATION

Every day, law enforcement officers provide a critical role in ensuring the safety of motorists on our roads. While education, enforcement, and engineering are all components to traffic safety, the thorough and sound investigation of a crash provides critical information in addressing driver behavior. Additionally, data from the police crash investigation may assist in developing effective enforcement and engineering countermeasures.

Police departments have developed effective data-driven strategies to address crime hot spots. Equally as important is the use of crash investigation data points to help departments allocate resources where repeat crashes occurred, where driving under the influence offenses are predominant and where the most egregious traffic violations seem to cause crashes.

While some police departments have had to limit their traffic enforcement functions in order to address what some might claim are more pressing violent crime trends, the fact remains that citizens continue to be very concerned about traffic crashes and traffic enforcement in their communities. While some agencies have focused more intently on violent crime, other progressive agencies have used evidence-based practices in applying crime fighting principles to simultaneously address traffic issues. At the heart of these solutions is the efforts of the officer on the scene of a crash in providing meticulous details and important data through a professional collision investigation.

Purposes of Investigating and Reporting Collisions

Ideally, a collision should be both *investigated* and *reported.* Police administrators must be mindful of the purposes of investigating and reporting. Law enforcement officers have multiple goals in their investigation of crashes. First, they are expected to protect the crash scene and those involved to ensure secondary collisions do not occur. Secondly, they also provide a written record, in the form of a crash report, of the facts of their investigation.

State laws outline specific requirements, however, in most states, any crash involving injury, death or a certain value of property damage, necessitate a police investigation and crash report. The ultimate purpose is to make our roads and highways safe. More immediate purposes are to combat criminal activity, promote safety, and just results in civil litigation. In very serious crashes, where a death results, criminal charges ranging from vehicular assault to homicide by automobile may follow. These complex investigations may lead to extensive and protracted investigative tactics and can involve the use of multiple police resources (i.e. specially trained fatal crash investigation personnel) as well as new technologies.

Detecting At-Fault Drivers

Although investigation frequently reveals who is primarily responsible for the collision, sometimes technical reconstruction is required. The at-fault driver can be charged with the violation(s) that caused the crash and, if convicted, can be punished or given remedial driver training. If the number of previous violations is sufficient for suspension of the driver's license, the individual's license can be suspended or revoked. By policy, police departments are tasked with holding at-fault drivers accountable for their driving which may have resulted in a serious collision.

Detecting Medically At-Risk Drivers.

A crash may be caused by a driver's physical or mental deterioration through illness or age. By working with state motor vehicle departments, the police investigator can request retesting to determine if that individual can still drive safely, if restrictions should be imposed, or if the driving privilege should be suspended or revoked. In the absence of a thorough crash investigation, a potentially dangerous driver could continue to drive without having the condition properly addressed.

Detecting Distracted Drivers

With the increase in the number of distracted driving crashes, law enforcement has an important role in attempting to determine the level of distraction in crashes. With greater awareness, training, and investigative techniques, officers can attempt to establish the level of distraction pre-crash. In the most severe cases and where the filing of serious criminal charges will result, officers know to preserve all evidence (i.e. cellphone or mobile device that has been identified) and to seek search warrants and/or prosecutorial advice on evidence preservation. Forensic analysis of a mobile device may be necessary to establish a "timeline of activity on the device" leading up to the crash. [1]

Apprehending Criminals

A vehicle involved in the crash may have been reported stolen or the operator may be involved in some other undetected criminal activity. A thorough crash investigation will establish a specific date and time of the crash. Significant unsolved crimes have been solved by investigators referring back to crash investigation reports which have placed a suspect at a crash scene. Without an investigation, these criminal acts might not be discovered, and offenders have an opportunity to reoffend.

Hit and Run Collisions

These collisions may require additional investigative steps to be taken in identifying the offending operator who may have already fled the scene of the crash. Police officers have successfully used sound police investigative skills, motor vehicle databases, reconstruction, witness interviews, and, increasingly, technologies such as highway cameras to arrest and prosecute offenders. Enhanced penalties, especially in very serious crashes, may result in criminal charges as well as the revocation of the license.

Use of Motor Vehicles to Cover Up Homicides

Vehicles have been used to carry out homicides, and to cover up homicides committed at locations far removed from the staged crash. These homicides may not have initially involved the motor vehicle as the primary weapon or homicide instrument.

In those cases where a death results and a motor vehicle is involved, police officers are encouraged to use state or regional specially-trained advanced crash investigation personnel to establish cause and the manner of death. In most cases, this will require extensive joint investigative effort with the local medical examiner or coroner.

Drivers without Licenses or Insurance Coverage

Another reason for conducting a comprehensive crash investigation is to establish the operator(s) possess the required license and liability insurance coverage. Police departments provide an important service to the community in detecting and seeking the prosecution of unlicensed and uninsured motorists. The collision investigation also provides critical information to insurance companies in assigning fault and compensating victims of crashes that may have resulted from a violation of state motor vehicle laws.

Defective Equipment

Equipment problems also cause collisions. Police crash investigators have the authority to inspect vehicles to ensure all equipment was functioning properly at the time of the crash. Investigators may also inspect and ensure all equipment meets the established design and equipment standards mandated by law. This is especially important for heavy commercial vehicles and buses whose weight can make them especially formidable in a crash. Crash investigations encompassing a thorough equipment inspection may lead to additional charges or the removal of the vehicle from the road.

Vehicle Design Defects

Crash investigations may uncover problems in the design of the vehicle or equipment. It may be prone to roll- over, have its fuel tank located where it is particularly vulnerable, or come equipped with tires susceptible to failure when under-inflated. With no policy requiring the investigation of every collision, such findings might never come to light or be recorded; inherently dangerous designs would never be corrected.

Roadway Defects

An investigation can reveal problems with the roadway design or conditions, or with traffic control devices. Such problems may have contributed to similar crashes in the past and continue, unless reported to the appropriate federal or state department of transportation.

Insurance Settlements

Unrelated to safety but important to those affected, an investigation can provide a means for civil litigation to help the aggrieved party recover just compensation and establish a basis for insurance companies to determine payments for property damage, personal injury, medical expenses, and disability. A perceptive, well-trained officer will detect crashes that have been staged to bilk insurance companies—a crime now of such proportions that it adds substantially to the cost of insurance for every motorist. A detailed crash report conducted in the field by a trained investigator can be an excellent tool in fighting fraud.

Collision Reporting

A qualified officer or civilian investigator should properly investigate every collision. It is also important to file a standard crash report for every collision. These reports allow the federal and state governments and law enforcement agencies to compile statistics to assess objectively the effectiveness of police traffic enforcement.

The concept of selective traffic law enforcement rests on data that show the violations that actually cause serious crashes, and the locations and times when they are most likely to occur.

Levels of Investigation

The severity and circumstances of a collision will determine the proper level of investigation. In their order of complexity, the levels are usually called *at-scene investigation, advanced (technical) investigation*, and *reconstruction.*

At-Scene Investigation

Basic to any collision is an at-scene investigation. Ideally, the first responding officer will conduct this and file a standard crash report.

The officer's first task is to make the collision scene safe and prevent a second crash. Traffic must be immediately redirected by means of patrol vehicles or other emergency vehicles, cones and/or flares. Next, the officer must care for the injured, summoning emergency personnel if needed, and then observe and record facts pertaining to the collision. These include all measurements, such as the length of tire marks and the final rest positions of collision vehicles and bodies from permanent reference points; the drag factor of the roadway surface; view obstructions; the condition of the collision vehicles, including lamps and tires; the condition of the roadway, traffic signs and signals; and the weather and environmental conditions (daylight or nighttime). A field sketch should be made to show the direction of travel of the vehicles and the location of all relevant objects.

To document damage, the officer should photograph the vehicles and the collision scene. Finally, the officer should check all drivers for indications of impairment, interview all drivers and witnesses, and record their addresses and telephone numbers, as can is safe and reasonable to do so.

The at-scene investigation is concerned primarily with data gathering and recording. It may also involve some interpretation of the collected data. For example, from the skid mark measurements and the drag factor, the officer can calculate the minimum speed of the vehicle at the beginning of the skid.

Ideally, every officer should be qualified to conduct an at-scene investigation. By attending and successfully completing a state-approved course, an officer can become qualified to investigate crashes.

Emergence of Technology in Crash Investigation

In more complex cases or where significant criminal charges may result, investigators are more reliant upon emerging technology to aid their investigation. A comprehensive study was sponsored by the Federal Highway Administration in 2015. A report entitled "Crash Investigation and Reconstruction Technologies and Best Practices" was the culmination of this study. It provides information about traffic crash reconstruction technology investigators are using in the field as well as other evolving and promising innovative equipment for crash investigation and reconstruction. [2]

The technologies detailed in this report are becoming much more prevalent in their use by investigators. Global positioning systems, three-dimensional laser scanning, unmanned aerial systems (drones), among others, are all helping investigators to provide more precise investigative finding while also enabling roadways to be cleared of crashes and the traffic flow to be restored more quickly. This reduces the length of time that emergency response workers are exposed to traffic hazards at the scene.

Advanced (Technical) Investigation

Whereas an at-scene investigation should be conducted for *every* collision, an advanced investigation is undertaken whenever the data obtained at the at-scene level is considered insufficient to complete the investigation. The purpose of the advanced investigation is to collect additional data for determining the charges to be brought against one or more of the individuals involved, for litigation reasons, or for laying the foundation for the next level of investigation—re-construction.

Unlike the at-scene investigation, which is initiated immediately or as soon as practicable after the collision, the advanced investigation may take place at a later time. Data, including that from the at-scene investigation, will be interpreted, as well as collected. Since much of the evidence at the scene may already have disappeared, the advanced investigation may depend heavily on the completeness and accuracy of the data recorded in the at-scene investigation.

The same officer who conducted the at-scene investigation, if trained and qualified, may conduct the advanced investigation. This officer is expected:

- To determine the drag factor of the skid surface(s) and the minimum initial speed of each vehicle (unless already calculated in the at-scene investigation);
- To determine time-distance relationships and solve momentum problems;

- To match marks on the roadway with the parts on the vehicle causing this damage, to determine the point of impact;
- To determine what is impact damage to the vehicle and what is contact damage;
- To match the damaged areas of the vehicles to determine the principal direction of force (PDOF);
- To correlate injuries with the parts of the vehicle impacted by the occupants (occupant kinematics);
- To determine if headlamps and other lamps were ON or OFF at impact;
- To determine if any fire damage occurred before or after impact;
- To determine if a mechanical or electrical failure contributed to the crash (this may require the help of a specialist); and
- To prepare a scale drawing of the scene from measurements and notes made at the scene.

Officers can receive advanced investigation training by successfully completing a POST-approved course. The length of this training is up to 80 hours, and includes classroom instruction and hands-on activities. A prerequisite is usually the completion of a basic collision investigation course, such as at-scene investigation, or several years' practical experience in at-scene investigation.

Collision Reconstruction

Reconstruction is the highest of the three major levels of investigation, and is usually undertaken only in support of litigation or research. Its main purpose is to determine *how* the collision occurred. It deals primarily with direct and immediate causes of the crash. These frequently entail behavioral errors on the part of the drivers.

The findings are mostly objective, supported by the facts uncovered or determined by investigation at any of the three levels. The purpose may be extended to attempt a determination of *why* the collision happened (called "cause analysis" and sometimes regarded as a separate and even higher level of investigation). This phase looks at all the circumstances of the crash in order to identify the probable and possible contributing factors.

The findings are to some extent speculative. Take, for example, a case where two vehicles crash head-on. The *direct* cause is that one vehicle suddenly crossed the centerline and encroached on the opposite travel lane, placing this vehicle in the path of an oncoming vehicle. The probable *indirect* cause may be that the driver of the encroaching vehicle fell asleep, inasmuch as the collision occurred at 3:00 A.M., and the driver had been driving continuously since the previous noon.

Reconstruction expands on all the principles of at-scene and advanced investigation. In addition, it includes impulse—or the force exerted by each vehicle upon the other—and energy loss through crush—or the extent of deformation of the vehicle caused by the impulse. It may involve experiments to ascertain performance and other capabilities of the vehicle, or to determine driver and pedestrian behavior. Reconstruction entails assembling all the technical data required to build a case for court.

Among the duties of the reconstructionist are the following:

- Cooperating closely with the attorney, if litigation is involved;
- Interpreting photos, information contained in field notes, and all other recorded data from the at-scene and advanced investigations;
- Using photogrammetry to determine distances between objects and location of objects;
- Matching paint, glass and vehicle parts found at the scene to the vehicle being sought after its driver fled;
- Determining who was the driver of each vehicle;
- Determining occupant movement (occupant kinematics) and how injuries were received;
- Checking all calculations made previously and performing any additional calculations required; and
- As needed for the courtroom presentation, preparing scale diagrams of the scene—often via specialized computer-aided diagramming software—showing vehicle and body positions, time-distance relationships, and momentum vectors.

Although a reconstructionist usually has greater depth of knowledge and broader experience than an investigator qualified only in at-scene or advanced investigations, and can make more inferences from existing data, he is very dependent on the thoroughness and quality of the investigations conducted at the scene, and may have to work largely with the evidence that has been preserved and recorded by the officers who initially responded to the scene.

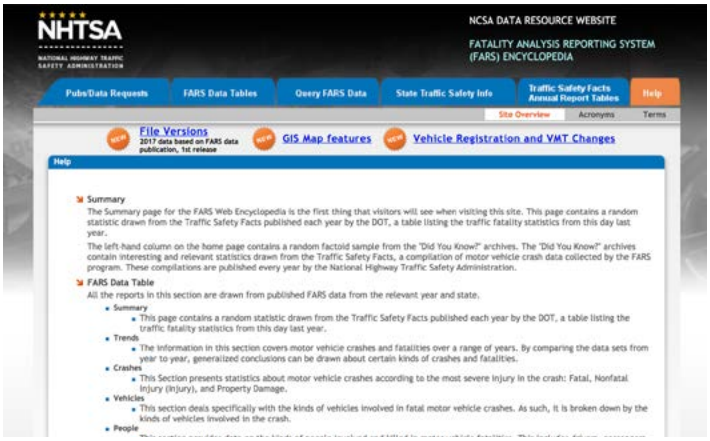
Officers can receive training in reconstruction by attending a POST-approved course of up to 80 hours in length. Such a course combines classroom instruction with hands-on activities. The pre- requisite is usually successful completion of a state-approved course in advanced (technical) investigation. More advanced and specialized

crash reconstruction training is typically conducted a state police academies by highly-trained senior investigators. Organizations such as the Institute of Police Technology and Management offer the "At-Scene Traffic Crash/Traffic Homicide Investigation" course and an "Advanced Traffic Crash Investigation" course, among others. (To learn more about these courses, see: http://iptm.unf.edu/)

Using Data to Better Understand Crashes: The Fatality Analysis Reporting System (FARS)

Police departments have become increasingly more skilled at using traffic crash data to address "hot spots" by deploying high-visibility enforcement in identified problem locations. As data has become more important to the efforts in analyzing crashes and causation factors, the need for comprehensive crash reporting by police officers is underscored.

NHTSA developed the Fatality Analysis Reporting System (FARS) in 1975 to assist the traffic safety community in identifying traffic safety problems and to evaluate both motor vehicle safety standards and highway safety initiatives. FARS maintains, analyzes, and provides access to data from motor vehicle crashes in the United States that occur on a public roadway and involve a fatality. NHTSA collects and tabulates data on fatal crashes from all 50 states, the District of Columbia, and Puerto Rico. NHTSA contracts with each state government to provide information on fatal crashes within the state. [3]



Source: NHTSA, FARS Encyclopedia site. https://www-fars.nhtsa.dot.gov/Help/Help.aspx

States also maintain their own traffic crash and highway safety data and some states have a Traffic Records Coordinating Committee (TRCC). The Governors Highway Safety Association, working with its State Highway Safety Offices (SHSOs) and NHTSA are involved in many efforts to ensure traffic crash data is standardized and can be used in the planning of effective highway safety programs. [4]

Additionally, the Model Minimum Uniform Crash Criteria (MMUCC) is another data set that law enforcement officers can use to help with planning effective highway safety strategies. The MMUCC is a voluntary minimum, standardized data set for describing motor vehicle crashes and the vehicles, persons and environment involved. The Guideline is designed to generate the information necessary to improve highway safety within each state and throughout the U.S. This data set, originally published in the MMUCC Guideline, 1st Edition (1998), has been revised three times, most recently in the 4th Edition (2012), in response to emerging highway safety issues. The 5th Edition is scheduled for a summer 2017 release. [5]

The Federal Highway Administration (FHWA), through its Office of Safety Programs, uses "safety data to identify those areas with the greatest need for improvement because understanding the most prevalent safety problems on our roadways is the first step to solving them. The FHWA Office of Safety's Roadway Safety Data Dashboard provides graphical presentations of data elements that characterize fatal crashes on U.S. public roadways. These elements include FHWA and NHTSA definitions of fatality type, collision type, collision location, and type of person involved in the fatal crash. All of these elements can be viewed and compared at the national, State, regional, or MPO level." To access the dashboard, click on https://rspcb.safety.fhwa.dot.gov/Dashboard/Default.aspx. [6]

Notes:

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CHAPTER 5: COMMERCIAL VEHICLES AND HAZARDOUS MATERIALS REGULATION

U.S. Department of Transportation

Federal Motor Carrier Safety Administration

As the lead federal government agency responsible for regulating and providing safety oversight of Commercial Motor Vehicles (CMV) in the United States, the Federal Motor Carrier Safety Administration's (FMCSA) mission is to reduce crashes, injuries, and fatalities involving large trucks and buses.

FMCSA was established on January 1, 2000, pursuant to the Motor Carrier Safety Improvement Act of 1999 (Public Law 106–159). Prior to this legislation, motor carrier safety responsibilities were under the jurisdiction of the Federal Highway Administration. FMCSA resources and programs are focused on and support its mission through education, regulation, enforcement, research, and innovative technology, thereby achieving a safer transportation environment. Additionally, FMCSA is responsible for ensuring that commercial vehicles comply with all Federal Motor Carrier Safety Regulations (FMCSR) and Hazardous Materials Regulations (HMR). Further, to accomplish these activities effectively, FMCSA works closely with Federal, State, and local enforcement agencies, the motor carrier industry, highway safety organizations, and the public.

The agency is guided by four core values:

- **Integrity.** We uphold the highest standards of equality, integrity, and ethical behavior. Through our actions, we earn the respect and trust of our peers, partners, customers, and the American people.
- **Knowledge.** We seek new ways to accomplish our responsibilities and achieve extraordinary results by delivering creative, forward-looking, and data-driven solutions in advancing our mission.
- **Collaboration.** We work as a team, furthering our goals and strategies by valuing the commitment and contributions of our many partners and stakeholders to achieve mission success.
- **Excellence.** We strive for excellence and seek to provide the highest level of service by embracing our mission with the utmost energy and enthusiasm.

We Are FMCSA Brochure.pdf

CMVs play a significant role in moving our nation's economy. They transport volumes of goods and carry thousands of passengers across the country every day. Every mode of transportation moves freight, but trucking is the primary mode of freight travel.

At the same time, CMVs pose unique safety and regulatory challenges due to their size, weight, and unique operation—from wide turns and massive blind spots, to transportation of hazardous materials.

That's why FMCSA asks everyone to be a partner in truck and bus safety.

FMCSA partners with industry, safety advocates, and state and local governments to keep our nation's roadways safe. Approximately 1,100 dedicated FMCSA employees across the country work diligently every day to improve CMV safety by preventing large truck and bus crashes and saving lives.

Our Roads, Our Responsibility

Large trucks and buses maneuver very differently than passenger vehicles. The *Our Roads, Our Responsibility* campaign empowers all drivers to be aware of those differences and make simple adjustments to help keep the roads safer for everyone.

Learn more about the Our Roads, Our Responsibility campaign.

Grants and Financial Assistance

FMCSA safety grant funding opportunities are primarily available to state and local government agencies in the 50 U.S. states, the District of Columbia, Puerto Rico, Northern Mariana Islands, American Samoa, Guam, and the US Virgin Islands. Applicants for FMCSA funding opportunities should be working on commercial motor vehicle safety activities and should demonstrate a capacity to work with highway traffic safety stakeholders which may include, but are not limited to, state and local law enforcement agencies, state departments of public safety, departments of transportation, state traffic records coordinating committees, associations that focus on commercial motor vehicle safety and training issues, and other industry stakeholders.

FMCSA State and local government grantees often work in conjunction with for-profit and nonprofit organizations including public and private institutions of higher education, businesses and independent contractor consultants. Specific eligibility for each of the FMCSA safety grant funding opportunities is defined below.

Commercial Driver License (CDL) Program Implementation Grant

Eligible Applicants: The state agency designated as the primary driver licensing agency responsible for the development, implementation and maintenance of the CDL program or State agencies local governments, or other persons for high priority activities or emerging issues as identified by the Secretary of Transportation. Learn more about the CDL Program Implementation Grant.

CMV Operator Safety Training Grant

Eligible Applicants: State or local governments; accredited post-secondary educational institutions (public or private) including colleges, universities, vocational / technical schools and truck-driver training schools. Primary funding priority is given to regional or multi-State educational or not-for-profit associations that recruit and train current and former members of the United States Armed Forces (including National Guard members and Reservists) and their spouses to receive training to transition to the CMV operation industry. Learn more about the CMV Operator Safety Training Grant.

Motor Carrier Safety Assistance Program (MCSAP) Grant

The Motor Carrier Safety Assistance Program (MCSAP) is a Federal formula grant program that provides financial assistance to States, including the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, Guam, and the U.S. Virgin Islands to reduce the number and severity of crashes and hazardous material incidents involving commercial motor vehicles (CMVs). Specifically, only the State lead agency (as designated by the Governor) is eligible to apply for MCSAP grant funding. Learn more about the MCSAP Grant.

High Priority Grant

High Priority is a Federal competitive grant program which provides financial assistance to States, local governments, federally recognized Indian tribes, other political jurisdictions as necessary, and other persons to carry out high priority activities and projects that augment motor carrier safety activities and projects:

1. To carry out activities and projects that augment motor carrier safety;
2. To advance the technological capability and promote the deployment of intelligent transportation system applications for CMV operations, including CMV, commercial driver, and carrier-specific information systems/networks; and to support and maintain CMV information systems and networks.

Learn more about the High Priority Grant.

Regulations

Regulations issued by FMCSA are published in the Federal Register and compiled in the U.S. Code of Federal Regulations (CFR). Copies of appropriate volumes of the CFR in book format may be purchased from the Superintendent of Documents, U.S. Government Printing Office, or examined at many libraries. The CFR may also be viewed online.

Search

Search FMCSA Regulations and Interpretations - 49 CFR Parts 300-399

Search HM Regulations - 49 CFR Parts 100-177

Search HM Regulations - 49 CFR Parts 178-180

Unified Registration System

FMCSA monitors and ensures compliance with regulations governing both safety (all carriers) and commerce (for-hire carriers). Companies may find they are subject to both registration requirements (USDOT Number and MC Number) or either one separately. To determine the need to apply for a US DOT number, click here. Learn more about URS.

Commercial Driver's License Program

Driving a Commercial Motor Vehicle (CMV) requires a higher level of knowledge, experience, skills, and physical abilities than that required to drive a non-commercial vehicle. In order to obtain a Commercial Driver's License (CDL), an applicant must pass both skills and knowledge testing geared to these higher standards. Additionally CDL holders are held to a higher standard when operating any type of motor vehicle on public roads. Serious traffic violations committed by a CDL holder can affect their ability to maintain their CDL certification.

Licensing

Driving a commercial motor vehicle is a big responsibility. It requires special skills and knowledge. Most drivers must obtain a commercial driver's license (CDL) through their home State (it is illegal to have a license from more than one State). In addition, special endorsements may be required if you or your company drivers will be driving any of the following vehicles:

- a truck with double or triple trailers
- a truck with a tank

- a truck carrying hazardous materials
- a passenger vehicle

Learn more about the Commercial Driver's License Program.

Hazardous Materials

FMCSA's mission includes reducing the number of transportation incidents that involve hazardous materials and could potentially harm the public and the environment. Developing programs to accomplish these goals and increase the safety of hazardous material transportation is the responsibility of the FMCSA Hazardous Materials (HM) Program. Learn more about Hazardous Materials Transportation.

Protect Your Move

Planning to move? FMCSA can help protect your life's memories and move with confidence. Our "Ready to Move" brochure and checklist is a handy tool to help you prepare for your move, and understand what you will need to know and do during each phase of your moving process. Explore the sections below to learn more.

Get Started

Learn About Moving Fraud

Find out what you need to know about moving fraud so you can plan your move with confidence.

Let's Go

Research Your Mover

When you move, there's plenty to worry about. Your mover shouldn't be one of them.

Get Started

File a Moving Fraud Complaint

Trouble with your move? Your complaint may help prevent others from becoming victims of moving fraud.

Look Before You Book

Cost effective... energy-efficient... comfortable... It's little wonder that bus travel is growing in popularity. And, overall, buses are one of the safest passenger options.

But even one crash is too many – particularly if you, a loved one, or your travel group is affected.

When planning a trip, exciting destinations and fun activities may be top of mind. Business or necessary personal bus travel may put the focus on convenience and cost.

But safety should always be the highest priority...

Wherever you're going, make sure the bus company that's bringing you there is safe. Check out the company's safety record and always Look Before You Book!

Contact Us

Headquarters

Federal Motor Carrier Safety Administration
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Field Offices & Service Centers

- Field Office Contact Information

Contact	Number
FMCSA Information Line ▪ U.S. DOT Numbers ▪ Status of DOT Numbers ▪ Operating Authority Information ▪ Safety Ratings ▪ Licensing Information ▪ Insurance Information ▪ Email ▪ Chat	1-800-832-5660
Consumer Complaints ▪ Household Goods ▪ Passenger Carrier (Motorcoach/Bus/Van) ▪ Hazardous Materials ▪ Safety ▪ Driver	1-888-DOT-SAFT 1-888-368-7238
Federal Relay Service for TTY	1-800-877-8339
Share the Road Safely	202-493-0472
NHTSA Hotline Number	1-888-DASH-2-DOT 1-888-327-4236

CHAPTER 6: DRIVER LICENSING SYSTEM

The Driver Licensing System

By: **Brian Ursino,** *Director of Law Enforcement,* American Association of Motor Vehicle Administrators (AAMVA)

Motor vehicle administrators of the U.S. states and Canadian provinces generally are responsible for issuing driver licenses. As well as serving as the *de facto* identification document of choice, the state-issued driver license also is used for:

- The verification and identification of persons who are driving motor vehicles;
- The operation of a secure license testing system which provides separate knowledge and skill tests for various types of vehicles, such as motorcycles, passenger vehicles, and commercial vehicles;
- Managing a pointer system targeting unsafe drivers for license suspension or revocation to remove hazardous drivers from the roads;
- Managing the Commercial Driver License Information System (CDLIS) pointer to ensure that commercial drivers have one driver record and one license; and
- Identifying and tracking traffic violators through the court system and preventing persons from defaulting on traffic citations.
- Responsible for accessing various Federal databases (i.e. Systematic Alien Verification for Entitlements (SAVE) and Social Security Numbers (SSN) via SSOLV, etc.)

The License as a Positive Identifier

When first issued, driver licenses were intended to verify that the holder complied with the regulations associated with vehicle operation and the privilege to drive.

A driver license database typically contains a variety of information, including some—but not always all—of the following: full name, date of birth, date of issue, date of expiry customer identifier, document discriminator, portrait, signature, cardholder address, vehicle classifications, endorsements, restrictions, sex, height, and eye color.

The DL/ID card has become the identity document of choice for satisfying: evidence of the privilege to drive, identification, age verification, address/residence verification, and automated administrative processing.

The state and provincial agencies issuing driver licenses are finding that better identity proofing and vetting of applicants is very challenging due to the absence of better initial identification systems. Currently, the verification of a U.S. birth certificate is less than optimal for identification purposes.

Motor vehicle administrators never sought to have driver's licenses serve as a national identification. However, when photographs were added to licenses to aid in positive identification and to reduce fraud, their usefulness for other purposes soon became apparent. Today, it is virtually impossible to cash a check, to board a commercial aircraft, to obtain government benefits, to access certain restricted areas, or to rent a car without presenting a valid license. In fact, many states and provinces have now passed laws that require motor vehicle agencies to issue "non-driver's photo identification cards" to persons who do not drive.

All states and most provinces are now using a digital photo method (versus a printed photo that is then affixed), which provides more effective physical security and permits photographic information to be transmitted via computer to police officers in the field.

These documents offer advantages over instant photo technology. Central electronic image storage makes access to the pictures and information much easier. Digital imaging has eliminated some of the fraudulent practices that plagued previous affixed photo approaches. Multiple driver's licenses, held by the same or different people, are more difficult to obtain, if the licensing authority takes the time to compare the appearance of the person applying for a duplicate license to the digital image of the original applicant.

Auditing of the driver's license production procedure also helps to eliminate abuse by individuals who create fraudulent licenses used in check and credit card fraud, in drug trafficking, in underage drinking, in tobacco usage and, in illegal immigration.

The implications for law enforcement go far beyond these obvious benefits. With a central image database of every driver in a state, the public safety community has a ready-made storehouse of photos that may be available to law enforcement except for those jurisdictions where privacy laws prevent such usage. The public safety community, particularly law enforcement, should be continually alert to legislation that limits and/or precludes the transmission to a police officer of the digital image driver's license and pertinent information.

After the Pentagon and World Trade Center terrorist attacks, concerns arose in the United States over the ease with which undocumented immigrants could obtain driver's licenses by using counterfeit supporting documents. In fact, several of the 9/11 terrorists had obtained multiple driver's licenses from various jurisdictions and had driven extensively throughout the Eastern seaboard and the Midwest, apparently scouting potential targets for attack.

Over the past several years, there has been widespread criticism of loopholes in the system of issuing driver's licenses and a call for national standardization of driver's license formats and data elements. Responding to such criticism, some oppose such standardization for fear that it would lead to some sort of "national identity card" that people would be required to display, similar to practices in some totalitarian nations.

Another major problem is the use of fraudulent driver's licenses by minors to purchase alcoholic beverages. A number of states have addressed this problem through the use of special licenses, or the addition of identifying features to the licenses of persons under the age of 21 years, so law enforcement, bartenders and package store employees can readily identify them. For example, many states now issue a vertical driver's license/ID card valid for persons under 21 years old.

Strategies to prevent counterfeiting and fraud include the use of biometrics, micro-printing, digital watermarks, digital photo overlays, and optical varying devices (typically holograms). Many states include additional security features in their documents that are not publicized outside their agencies. Other strategies include attacking the problem at the source by training license issuing agents and examiners to better spot phony supporting documents, such as birth and baptismal certificates, social security cards, and immigration paperwork.

All licenses contain machine-readable technologies (bar codes, magnetic strips) to provide the encoded details of the driver's license information, if a citation is issued in the field. A typical traffic stop in a jurisdiction using this technology can go something like this: The driver's license with a bar code or in some cases a magnetic stripe also, can be read by an in-car unit. This unit then transmits the information to the department's central computer that runs a standard check of traffic and criminal records on the individual. This information is returned to the car, either by the dispatcher or through an in-car computer. This same computer may display the photo of the driver from the driver's license database. Information on the type of violation is then entered into the unit. This generates the printed citation to be given to the driver and at the same time updates the departmental computer and transfers the violation information electronically to the courts and the DMV. Multiple entries of the same information or data entry errors are avoided, thus saving precious patrol time while.

All U.S. and Canadian jurisdictions have now deployed this technology. Work is progressing on standards (common data elements and compatible records) so that a national and, perhaps, an international network can be established. This progress emphasizes the importance of the law enforcement role to maintain a proactive relationship with motor vehicle departments.

In an effort to strike a reasonable balance between these competing interests and still address an escalating problem of fictitious, fraudulently altered and fraudulently obtained driver's licenses, the American Association of Motor Vehicle Administrators (AAMVA) invited the IACP, other law enforcement groups and vital statistics agencies to join a task force to work on ways to provide at least minimal standardization from jurisdiction to jurisdiction, and to combat fraud. One of the most controversial issues that the task force encountered is how to handle the problem of licenses for undocumented immigrants, and whether such licenses should be issued to expire when the individual's privilege to remain in the country expires.

Graduated Driver's Licenses (GDL)

Graduated Driver Licensing programs were designed to help reduce crashes amongst novice drivers by incorporating restrictions and minimizing their exposure to hazardous situations. The objective of a GDL program is to minimize motor vehicle crashes due to inexperience, high risk taking behavior, and high risk exposure by reducing and limiting hazardous exposures. By reducing hazardous exposures, it allows new drivers to safely gain driving experience before obtaining full driving privileges.

Three phases of a GDL Program:

- Learner Permit Phase
- Intermediate or Provisional Phase
- Full/Unrestricted Licensure

Currently there are no standardized national requirements for GDL programs. It is important to note that each State may have varying requirements and restrictions for each phase.

National Driver's License Compact

The Driver License Compact (DLC) was a major step necessary in helping to maximize law enforcement efforts against drunk drivers and other serious traffic offenders. The DLC was created to provide uniformity among the member jurisdictions when exchanging information with other members on convictions, records, licenses, withdrawals and other data pertinent to the licensing

process. The concept behind the DLC agreement was that each driver have only one driver license and one driver control record (DCR).

The Non Resident Violator Compact (NRVC) was developed to help standardize methods utilized by the various jurisdictions to process non-resident violators receiving citations, and their failure to appear or otherwise failure to comply with outstanding moving traffic summons. The NRVC allows participating jurisdictions to inform each other's motor vehicle administrations when a resident of one jurisdiction did not comply with the citation's term. Once the home jurisdiction motor vehicle administrator receives notice of a resident's citation noncompliance, the procedure for license suspension is initiated.

AAMVA supports the DLC / NRVC activities by providing Secretariat services and having an AAMVA Board Advisor in attendance at Compact Executive Board meetings.

For example, a driver charged with DUI in a Compact state will have his or her license suspended in his or her home state as well. Also, a nonresident driver can promise to appear in court, or to pay a waiver and be released without bond. If they fail to satisfy the court appearance, a mechanism permits the issuing state to revoke the driver's privileges until they comply with the laws of the other state.

Administrative License Revocation (ALR)

State government traditionally has retained the responsibility of issuing and regulating driver's licenses. Upon conviction, the courts have been permitted to limit or suspend driver's licenses or operating privileges. A current trend is to remove the license sanction from the courts, to eliminate unnecessary delays associated with court backlogs, and to reduce the impact of plea bargaining.

The National Highway Traffic Safety Administration advocates the on-the-spot revocation by police officers of the driver's licenses of those persons they arrest for driving under the influence of alcohol or drugs.

In states with this legislation, police officers are empowered to confiscate the driver's license of a person arrested for impaired driving when that person either refuses a chemical test of blood, breath or urine or tests above the prescribed limit. The license is usually forwarded to the licensing agency, and the holder is issued a temporary permit to drive pending a hearing. The benefit of ALR is that action is less complicated and immediately removes a known hazardous driver from the roads.

Most states have some version of ALR in operation; it is a condition for some states to receive additional federal highway safety funds. Although the system is claimed to get drunk drivers off the road more quickly, it is not without its critics. In some jurisdictions, the police feel that administrative law judges and hearing examiners are more prone to dismiss cases for hyper-technical reasons than are criminal court judges, and that the system just adds one more layer of complexity and ties police officers up at another hearing.

Detecting Suspended and Revoked Driver's Licenses

The revocation or suspension of a driver's license is potentially very effective because it prevents persons with physical or mental disabilities, as well as those with poor driving records or attitudes, from the other users of our highways.

In 2013, AAMVA published their Best Practices to Reducing Suspended Drivers. This publication includes research that reveals that approximately 40 percent of drivers suspended are suspended for non-driving reasons. Research further indicates that persons suspended for a driving reason are three times more likely to be involved in a crash than a person suspended for a non-driving reason. As a result, AAMVA recommends jurisdictions repeal laws and regulations requiring suspension for non-driving reasons. Implementation would result in 40 percent fewer suspended drivers and a commensurate reduction in resource drain on law enforcement and the courts. Moreover, the remaining suspended drivers would be the ones law enforcement should truly focus on removing from the roads. [1]

In practice, however, this strategy is not as effective as it should be, because many persons continue to drive after their driving privileges have been suspended or revoked and are not detected by law enforcement. This problem leads to a breakdown in respect for the law, places dangerous drivers on the roadways, and frustrates the criminal justice and driver's licensing processes.

Although detecting and apprehending suspended or revoked drivers is difficult, few police activities yield higher dividends in improving traffic safety and promoting respect for the law.

Repeated studies indicate that license suspensions are an effective sanction used in traffic law enforcement. For this reason, law enforcement generally opposes limited or "drive-to-work" licenses as a dilution of the law and too subject to potential abuse.

The Need for a Policy

Police agencies need policies to ensure that appropriate enforcement action is taken when a suspended or revoked driver's license is found. The policy should not permit an officer to lodge a charge of driving without a license as a substitute for driving after suspension. Policies should advocate that driving after suspension cases are pursued to conviction and not dropped as part of a plea bargain, especially when accompanied by DUI charges. When a

motorist displays a suspended or revoked license, the individual should be charged with that separate offense, as well as with driving after suspension. The license should be confiscated and returned to the state or provincial licensing agency.

Police agencies should form task forces to contact anyone who fails to turn in his or her driver's license, if it is under suspension or revocation. Officers should confiscate the license and return it to the licensing authority. The individual should be charged with failing to surrender a suspended or revoked license.

Violator-directed patrols are effective when police departments are notified by licensing agencies of the suspension or revocation of the driver's license of a person who is a habitual motor vehicle offender.

The National Driver Register (NDR)

The National Driver Register (NDR) is a central repository of information on individuals whose driver's licenses have been revoked, suspended, cancelled, or denied, or who have been convicted of certain serious traffic-related violations, such as driving while impaired by alcohol or other drugs.

When an individual applies for a license, state driver licensing officials query the NDR to determine if the individual's driving privilege has been withdrawn in any other state. Because the NDR is a nationwide index to driver records from all states, a state needs to submit only a single inquiry to obtain this information. The information obtained from the NDR assists state driver licensing officials in determining whether or not to issue a license.

The Federal Aviation Administration and the Federal Railroad Administration also use the NDR to process their inquiries for the detection of driving violations, especially alcohol-related ones, among their applicants for certification. In addition, the U.S. Coast Guard recently was authorized to receive NDR information regarding their applicants for certification.

Every state in the U.S. has established electronic access to the NDR file—a major step for states that issue licenses over the counter rather than require a waiting period.

As required by Public Law 97-364, the NDR has converted to a Problem Driver Pointer System (PDPS) to improve the timeliness and reliability of NDR information. Under the PDPS, the NDR no longer contains substantive data. Instead, it contains only identifying information to enable it to check whether or not adverse action has been taken against an individual—not specific information about *why* an individual's name appears in the NDR file; such information will be maintained by the state that executed the adverse action.

When a match occurs with a record on the NDR file, the NDR electronically points to the state where the adverse action is maintained, retrieves that information, and relays it to the state of inquiry. In this way, the state of inquiry is assured of receiving the latest information available regarding the driver's record.

Motorcycle Licensing Requirements

Motorcyclist deaths had been declining since the early 1980s but began to increase in 1998 and continued to increase through 2008. Motorcycle deaths accounted for 13 percent of all motor vehicle crash deaths in 2015 and were more than double the number of motorcyclist deaths in 1997. In 2015, motorcycle crashes were up 8.3 percent from 2014, according to the NHTSA. Forty-one percent of motorcyclist deaths in 2015 occurred in single-vehicle crashes, and 59 percent occurred in multiple-vehicle crashes. This has remained largely unchanged since the 1980s. [2]

To receive the proper endorsement in most states, individuals need to pass a knowledge and skills test by either a state licensing agency or state sponsored rider education course.

The Problem of Unlicensed Motorcyclists

Despite many states having licensing requirements, motorcyclists continue to operate without a valid license. In 2015, 27 percent of fatally injured motorcycle drivers were operating without a valid motorcycle license at the time of the collisions, while only 13 percent of passenger vehicle drivers in fatal crashes did not have valid licenses. Motorcycle riders involved in fatal crashes were 1.3 times more likely than passenger car drives to have previous license suspensions or revocations. [3]

Notes:

1. "Best Practices Guide to Reducing Suspended Drivers," *American Association of Motor Vehicle Administrators,* 2013, www.aamva.org/workarea/downloadasset.aspx?id=3723
2. "Traffic Safety Facts," *National Highway Traffic Safety Administration*, 2017, https://crashstats.nhtsa.dot.gov/Api/Public/Publication/812353
3. National Center for Statistics and Analysis. (2017, March). Motorcycles: 2015 data (Updated, Traffic Safety Facts. Report No. DOT HS 812 353). Washington, DC: National Highway Traffic Safety Administration

CHAPTER 7: REGISTRATION, TITLE AND INSPECTION ENFORCEMENT

Registration, Title and Inspection Enforcement

By: **Brian Ursino,** *Director of Law Enforcement,* American Association of Motor Vehicle Administrators (AAMVA)

License plates serve one common purpose across the states and provinces throughout North American jurisdictions; to identify motor vehicles. They also identify vehicle registrants and demonstrate compliance with motor vehicle registration laws.

License Plate Design and Manufacture

License plates are most effective when they are designed to optimize legibility to the human eye as well as for automated license plate readers (ALPR). The ability for law enforcement and citizens to quickly and easily identify license plate numbers (consisting of alpha and/or numeric characters) is fundamental to accurate vehicle identification.

Toward that end, law enforcement has a vested interest in ensuring the plates issued by their state comply with the License Plate Standard published by the American Association of Motor Vehicle Administrators in August 2016. The adoption of the administrative, design and manufacturing recommendations contained in this standard are intended to streamline the license plate retrieval processes within motor vehicle agencies, support highway safety, and increase certain revenue collection which is dependent on accurate license plate identification, such as toll collection, restricted lane access and parking regulations. License plate recognition, by human eye and ALPR, is critical to serving these purposes.

In addition, license plates play a central role in preventing and solving crimes. Every day across North America, crimes are prevented or solved through the identification of a license plate. It is difficult to quantify the missed opportunities that occur to prevent or solve a crime because a license plate was misread by either the human eye, or by ALPR, but testing has documented that misreads occur. Adoption of the license plate standards contained in this document will minimize the risk of such misreads.

Two-Plate Reflectorized Registration

Mandating that all vehicles display registration plates on both the front and rear of the vehicle enhances law enforcement's efforts to identify a vehicle rapidly, whether it is from a frontal position or from the rear of the vehicle. Police officers are commonly trained to jot down the license plate numbers of oncoming vehicles they see while responding to a collision or crime scene, in an effort to identify possible fleeing perpetrators or eyewitnesses to the incident. Bicyclists, pedestrians and drivers frequently observe the plate numbers of suspicious vehicles and report them to the police. This assistance has been instrumental in solving many serious crimes over the years.

To read more on the support of the AAMVA and the IACP policy position on license plates, please refer to the AAMVA and the IACP websites.

If for no reason other than officer and public safety, two-plate reflectorized registration should be incorporated as a primary design for registration plates in every jurisdiction. Additionally, a reflectorized plate aids in the prevention of collisions with vehicles parked along streets in poorly lighted areas.

The proliferation of different plate types bearing the same characters creates problems in proper vehicle identification and states should avoid issuing duplicate plate numbers.

Enforcing the Two-Plate Requirement

Vehicles required by law to display two registration plates are easier to identify, and the dual plate registration is effective in thwarting vehicle thefts.

In those jurisdictions where two plates are required, the absence of one plate provides an officer with articulable, reasonable suspicion to execute a traffic stop for a vehicle registration inquiry, leading to the detection of impaired drivers, persons operating under revocation or suspension, and persons transporting contraband.

It should be the responsibility of law enforcement and other public agencies to demonstrate and convey both to the public and to legislative bodies the benefits derived from a two-plate system. Vehicle owners can see potential benefits in the event their vehicles are stolen. Citizens can appreciate how the two-plate system enhances police officers' abilities to detect criminals and simultaneously heightens personal safety.

Police executives and associations should be proactive in advocating two-plate systems in jurisdictions that do not have them and in fighting back attempts to go to a one-plate concept. However, justifying the need for a two-plate system is difficult unless law enforcement officers aggressively enforce the two-plate requirement by stopping vehicles with only one plate and issuing either warnings or

citations to these drivers. Each police department should have a specific policy supporting enforcement against drivers with missing, mutilated, or illegible number plates.

Title Enforcement

Within the law enforcement community, title enforcement responsibilities usually do not generate discussion; however, without specialized training and concentration in vehicle titling and registration, the public can suffer astronomical fraud and economic loss.

Title enforcement requires investigating law enforcement personnel to have a comprehensive knowledge of federal, state and local laws, regulations, and ordinances and to understand the lack of uniformity between the various types of titles, duplicate titles, salvage titles, and manufacturer's statements of origin. As with most sophisticated law enforcement areas and functions, specialty skills have evolved that are essential to effectiveness.

The National Motor Vehicle Title Information System (NMVTIS) is a database operated by AAMVA. NMVTIS tracks vehicle history from cradle to grave and is designed to protect consumers from fraud and unsafe vehicles as well as keeping stolen vehicles from being re-sold. NMVTIS also has a "Law Enforcement Access Tool" specifically designed to assist law enforcement in deterring and detecting title fraud and other vehicle related crimes.

Hidden VIN

Beginning in 1981, all motor vehicles manufactured in the United States or imported for sale for on-road use were required to have 17-character vehicle identification numbers (VINs). With the enactment of the Federal Motor Vehicle Theft Law Enforcement Act of 1984, vehicles with high-theft potential were further required to use component part labeling. This secondary source of identification, the so-called "hidden VIN" (frame stamping, firewall stamping, transmission cross-members, engine markings, and transmission markings), may be used by specially trained officers to verify the authenticity of vehicles and/or of component parts. This secondary source of identification is required by law to be indelibly printed on a label or "inscribed" directly into a vehicle part. This label must be permanently affixed to the component part on an interior surface or location, so it cannot be damaged in a collision or during part installation, adjustment, or removal. It must be located in such a fashion as to prevent its destruction or defacement during normal dealer preparation, including any after-market installation procedures. The label must contain the manufacturer's logo, or some other unique identifier, plus the VIN. Any attempt to alter the label must either leave traces of the original number or visibly alter the label's appearance. In cases of non-label identifiers, inscriptions to the part must be so that any removal or alteration visibly changes the appearance of the vehicle part.

The location of secondary sources of identification is made at the discretion of the vehicle manufacturer. Manufacturers must notify the National Highway Traffic Safety Administration (NHTSA) in writing of their number system and their locations within 308 days of the date the vehicle line is offered for sale.

Having the special expertise to utilize secondary sources of vehicle identification to investigate cases is invaluable to a police agency. The National Insurance Crime Bureau (NICB), a private organization funded by the automobile manufacturers and insurers, has special agents available to assist law enforcement agencies on a regional basis to provide training and other technical assistance in identifying hidden VINs.

Periodic Motor Vehicle Inspection

Approximately, 17 U.S. states, plus several U.S. territories and Canadian provinces, have some type of a periodic motor vehicle inspection (PMVI) program for passenger vehicles. These jurisdictions require annual or semi- annual safety inspections at either state-maintained or private motor vehicle inspection stations licensed by jurisdictional authorities. For commercial vehicles and school buses, many jurisdictions require more frequent inspections. Law enforcement agencies are often charged with using specially trained officers or inspectors to perform additional inspections of school buses.

In other jurisdictions, periodic safety inspections by an authorized inspection station are not required, but officers are allowed to stop vehicles to conduct roadside safety inspections.

Although variation exists within the types of PMVI programs, most ensure the periodic inspection of basic safety components, such as steering, tires, suspension, brakes, lighting systems, and glass.

In addition, increased concern by the Environmental Protection Agency (EPA) over air pollution caused by vehicle emissions has led many jurisdictions to require periodic testing of motor vehicle emission systems. This procedure can be effectively combined with periodic safety inspections in a single system. Because PMVI programs help ensure the integrity of basic motor vehicle safety systems, law enforcement executives and associations are encouraged to lobby for enacting PMVI in those states and provinces where it does not currently exist.

Effectiveness of PMVI Programs

Studies conducted by the National Highway Traffic Safety Administration (NHTSA) have identified vehicle defects as

the sole cause in a significant number of fatal crashes. In addition, it has been determined that vehicle defects play a partial role in a much larger percentage of all collisions. The failure of essential mechanical vehicle components—such as ball joints, idler arms, rack and pinion steering units, shock absorbers or struts, tires, and brakes—can cause loss of control of a motor vehicle while it is in motion.

Public Support for PMVI

While PMVI programs are not always recognized for the benefits they deliver, public support does exist for such programs. Public perception in some regions is that the benefits derived from the inspection outweigh the inconvenience or cost of having to take a vehicle to a service facility for an inspection. Without a PMVI program, what would be a simple, low-cost replacement of brake pads often leads to the expensive replacement of rotors simply because the problem was not caught in time. Thus, PMVI programs can actually reduce the cost of motor vehicle maintenance, as well as enhance safety factors.

Law Enforcement Benefits and Concerns

With the conscientious efforts of state agencies, street-level enforcement officers, and public advocacy groups, a PMVI program can be effectively administered and enforced and can contribute enormously to highway safety. Requiring an inspection sticker on a vehicle also gives the police additional articulable, reasonable suspicion to stop a vehicle, and frequently leads to the detection of drunken drivers, revoked or suspended operators, persons transporting contraband, or stolen vehicles. Although not the primary purpose of a PMVI program, this enforcement tool can provide significant additional public safety benefits.

Rebuilt Vehicles

Motor vehicle thieves often utilize rebuilt or reassembled vehicles to conceal the identities of stolen vehicles. Using parts salvaged from several stolen vehicles to rebuild another vehicle, the thief then represents the stolen vehicle as one rebuilt and thereby is able to secure the proper documentation to legitimize the sale of the vehicle. Secondary concerns regarding rebuilt vehicles are the level of safety those vehicles provide to their occupants and their roadworthiness. Law enforcement officials must take specific measures to ensure that stolen vehicles are not legitimately sold in the public market, and that unsafe vehicles are not allowed to operate on the highways. Rebuilt vehicles can offer an affordable alternative to individuals who otherwise could not purchase vehicles, but unscrupulous or incompetent rebuilders may shortcut or overlook critical safety components. For this reason, all rebuilt vehicles should be inspected for safety compliance. A check of all vehicle safety equipment should be performed to assure compliance with applicable statutory requirements.

To prevent the sale of stolen vehicles, law enforcement personnel should examine all salvaged or rebuilt vehicles prior to issuing titles. Specially trained VIN examiners, generally at the state level, should closely scrutinize each such vehicle for signs of repair and/or part replacement. The examination should include a review of documentation to ensure all replacement parts are accounted for and that component part labels or inscriptions are intact and free of tampering. Any discrepancy should be thoroughly investigated, including an examination of major component part labels and identifiers

Specially Constructed Vehicles

Specially constructed vehicles, “street rods,” and other assembled vehicles pose many of the same problems as rebuilt vehicles. A specially constructed vehicle generally is not visually recognizable as being produced by a particular manufacturer, while an assembled vehicle is distinguishable because its composition is by a well-known manufacturer of commercially produced vehicles.

When the owner of a specially constructed or assembled vehicle requests a title or registration, law enforcement and vehicle titling authorities should ensure that the vehicle is examined for safety compliance. Such vehicles should be required to meet and be in compliance with all state equipment laws prior to final inspection and the issuance of a title.

A particular problem involves vehicles fitted with oversize tires or “jacked up” by other means so that they are extremely high on the road and their centers of gravity have been drastically altered. Such alterations can impair the handling dynamics of such vehicles and lead to component failure and dangerous traffic crashes.

When such vehicles slip through the registration process, street-level law enforcement officers are obligated to enforce state laws and local ordinances regarding such standards as bumper height requirements. Law enforcement agencies should have written policies encouraging their officers to enforce these requirements.

AAMVA has developed two best practice guides that may be useful:

Best Practices for the Title and Registration of Rebuilt and Specially Constructed Vehicles (2012)

http://www.aamva.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=4748&libID=4725

Best Practices for Title and Registration of Reconstructed and Replica Vehicles (2013)

http://www.aamva.org/WorkArea/DownloadAsset.aspx?id=4752

CHAPTER 8: UNIFORMITY, RECIPROCITY AND FEDERAL PROGRAMS

Federal Agencies and Grants

The following is a summary of the various federal agencies that are active in highway safety and traffic enforcement, along with their roles and responsibilities.

The U.S. Department of Transportation National Highway Traffic Safety Administration (NHTSA)

Website: https://www.nhtsa.gov/about-nhtsa

The National Highway Traffic Safety Administration (NHTSA) was established by the Highway Safety Act of 1970, as the successor to the National Highway Safety Bureau, to carry out safety programs under the National Traffic and Motor Vehicle Safety Act of 1966 and the Highway Safety Act of 1966. It also administers consumer programs established by the Motor Vehicle Information and Cost Savings Act, enacted in 1972.

NHTSA's mission is to save lives, prevent injuries and reduce economic costs due to road traffic crashes, through education, research, safety standards and enforcement activity.

NHTSA also sets safety standards for motor vehicles and associated equipment, investigates possible safety defects, assures that products meet safety standards and are not defective (through recalls if necessary) and tracks safety-related recalls. The agency also enforces regulations on fuel economy, odometer fraud, and vehicle theft.

402 Funds

The State Highway Safety Program, commonly referred to as Section 402, was initially authorized by the Highway Safety Act of 1966 and has been reauthorized and amended a number of times, including most recently on December 4, 2015, when the President signed into law the Fixing America's Surface Transportation Act (FAST Act), Public Law 114–94.

Section 402 funds are used to support countermeasure strategies and projects identified in the States' Highway Safety Plan (HSP). This includes resources to initiate new projects and catalyze or accelerate existing projects to address major safety issues with well-planned strategies, and leverage additional State and local investment in highway safety. States must have an approved HSP to receive Section 402 grant funds. To review eligibility determination, qualification criteria, and use of grant funds, reference: 23 CFR Part 1200.

The program is administered by the National Highway Traffic Safety Administration (NHTSA) at the Federal level and by the State Highway Safety Offices (SHSO) at the State level.

Under the FAST Act, states are required to have a highway safety program that is approved by the Secretary. Funds can be spent in accordance with national guidelines for programs to:

- Reduce drug- and alcohol-impaired driving
- Reduce speeding
- Encourage the use of occupant protection
- Improve motorcycle safety
- Improve pedestrian and bicycle safety
- Reduce school bus deaths and injuries
- Reduce crashes from unsafe driving behavior
- Improve enforcement of traffic safety laws
- Improve driver performance
- Improve traffic records
- Enhance emergency services
- Increase awareness of commercial motor vehicles
- Support school-based driver's education classes

In addition, states may (but are not required to) spend 402 funds on teen driver programs. If they do choose to fund these programs, they must fund only strategies authorized under 23 USC 402(m). No 402 funds can be spent on the implementation of automated enforcement programs.

States must submit an annual Highway Safety Plan (HSP) which must be data-driven and set quantifiable, annual performance targets for 15 performance measures. The plan must include strategies that will allow the state to meet its performance targets and must describe its successes in meeting its performance targets in the previous fiscal year.

States are required to submit their Section 402 and Section 405 consolidated grant application by July 1 of each fiscal year. The National Highway Traffic Safety Administration (NHTSA) will have 60 days (45 days beginning with FY 2018) to review and approve or disapprove the consolidated grant application.

Funds are apportioned to the states under the same formula as MAP-21: 75 percent population and 25 percent road-miles. At least 40 percent of Section 402 funds must be spent by local governments or be used for the benefit of local governments.

For exact dollar amounts, funding charts by fiscal year can be found on the Federal Grant Programs page under «Highway Safety Funding.»

Section 402 of title 23 of the United States Code requires the Secretary of Transportation to promulgate uniform guidelines for State highway safety programs. These guidelines offer direction to States in formulating their highway safety plans for highway safety efforts that are supported with section 402 and other grant funds. The guidelines provide a framework for developing a balanced highway safety program and serve as a tool with which States can assess the effectiveness of their own programs. NHTSA encourages States to use these guidelines and build upon them to optimize the effectiveness of highway safety programs conducted at the State and local levels. The Guidelines may be found at: https://one.nhtsa.gov/nhtsa/whatsup/tea21/tea21programs/index.htm.

Section 403

Section 403 funds demonstration grants (in addition to other programs) to develop new approaches and strategies to reduce motor-vehicle-related deaths and injuries.

Section 404: High-visibility enforcement program comprises not less than 3 campaigns in each of fiscal years 2016 through 2020. The purpose of each campaign carried out shall be to achieve outcomes related to not less than one of the following objectives:

1. Reduce alcohol-impaired or drug-impaired operation of motor vehicles.
2. Increase use of seatbelts by occupants of motor vehicles.

Incentive Funds

NHTSA FY2019 Section 405 Grant Determinations Table

NHTSA Highway Safety Grants Resources Guide

Section 405: Under the FAST Act, Section 405 is the National Priority Safety Program, which provides grant funding to address selected national priorities for reducing highway deaths and injuries. Previously authorized under MAP-21, the FAST Act made no substantive changes to many of the grants (Occupant Protection, State Traffic Safety Improvements, Impaired Driving Countermeasures and Motorcyclist Safety). Limited changes were made to the Alcohol-Ignition Interlock Law, Distracted Driving and Graduated Driver Licensing Incentive grants. The FAST Act added two new grants, 24-7 Sobriety Program and Nonmotorized Safety.

All are administered by the National Highway Traffic Safety Administration (NHTSA) at the federal level and the State Highway Safety Offices (SHSOs) at the state level.

Each program is authorized as a separate section or tier within Section 405, and each has its own eligibility criteria. States must satisfy the eligibility criteria of each tier in order to receive funding for that tier. States must submit their Section 405 applications on July 1 as part of the consolidated application process.

For exact dollar amounts, funding charts by fiscal year can be found on the Federal Grant Programs page under «Highway Safety Funding.»

Section 405(d): Impaired Driving Countermeasures

- 52.5 percent of Section 405 funds are earmarked for impaired driving incentive grants to reduce the risk of driving under the influence of alcohol, drugs or a combination of the two. There is a maintenance of effort requirement and states would have to provide a 20 percent matching share. All states receive funds under this tier. They are divided into low-, medium-, and high-range states based on the most recent three years of FARS data. Low-range states do not have to satisfy specific eligibility requirements. The requirements increase for the other two types of states. Low-range states have more flexibility in the use of funds than medium- or high-range states and may use up to 50 percent of the funds for any Section 402 purpose, in addition to qualifying by having an interlock program.
- States with a compliant 24-7 sobriety program also qualify for funding .The State must have a law the requires all individuals convicted of driving while intoxicated to receive restricted driving privileges for at least 30 days, and, must have a law or program that authorizes a statewide 24-7 sobriety program.
- 12 percent of this tier is earmarked for ignition interlock incentive funds. States that have an all-offender ignition interlock law, with certain limited exceptions allowed by the FAST Act, will be eligible for these grants. Eligible states can use these funds for any purpose under 402. States qualifying with a 24-7 program receive 3 percent of available funding States can qualify with both provisions and receive a total of 15 percent of available funding.

Section 405(e): Distracted Driving

8.5 percent of Section 405 funds are earmarked for distracted driving incentive grants. The FAST Act amended the qualifications, revising the Comprehensive Distracted Driving grant to provide more flexibility and establishing a new Special Distracted Driving grant for two fiscal years for States that do not qualify for the Comprehensive grant. States must enact and enforce a prohibition on texting as well as a ban of the use of all electronic devices for all drivers aged 18 and younger, plus additional requirements. Eligible states can use 50 percent of the funds for Section 402 purposes and 50 percent for distracted driving purposes. The FAST Act allows states with distracted driving data that conforms to the most recent MMUCC to use 75 percent of the funds for Section 402 purposes. $5 million of these funds are earmarked for a national media campaign on distracted driving.

Section 405(f): Motorcyclist Safety - Section 405(g): State Graduated Driver Licensing Laws

5 percent of Section 405 funds are earmarked for graduated driver licensing (GDL) incentive grants. States have to require a two-stage driver license and satisfy specific criteria for the learner's and intermediate stages. The FAST Act changed the age requirement to 18 (rather than younger than 21) and some other requirements are less prescriptive. Eligible states can use 25 percent of the funds for GDL-related purposes and 75 percent for any purpose under Section 402. If a state is in the lowest 25 percent of states for under-18 age drivers involved in fatal crashes per the total number of under-18 drivers in the state, the state may use 100 percent of the funds for any Section 402 purpose.

Section 405(h): Non-motorized Safety

5 percent of Section 405 funds are earmarked for non-motorized safety incentive grants. States would have to provide a 20 percent matching share, the only incentive grant with a specified federal fund limit. States are eligible if the annual combined pedestrian and bicyclist fatalities in the state exceed 15 percent of the total annual crash fatalities in the State using the most recently available final data from NHTSA's FARS. Eligible states may use grant funds *only* for training law enforcement on state laws applicable to pedestrian and bicycle safety; enforcement mobilizations and campaigns designed to enforce those state laws, or, public education and awareness programs designed to inform motorists, pedestrians and bicyclists of those state laws.

Section 1906: Racial Prohibition Grants

The Section 1906 Racial Prohibition Grants program was authorized under SAFETEA-LU. It was administered by NHTSA at the federal level and the State Highway Safety Offices (SHSOs) at the state level. Although this program was *not* reauthorized under MAP-21, the FAST Act revived the grant program for FY 2017-2020 with some changes and the law requirement was removed.

This program provides grants to encourage states to maintain and allow public inspection of statistical information on the race and ethnicity of the driver for all motor vehicle stops made on all public roads except local or minor rural roads.

Under the FAST Act, a state is eligible for a grant by:

1. Maintaining and allowing public inspection of statistical information on the race and ethnicity of the driver for each motor vehicle stop made by a law enforcement officer of a Federal ad highway or,
2. Undertaking activities during the fiscal year of the grant to do so.

Eligible states are able to use grant funds to:

1. Collect and maintain data on traffic stops; or,
2. Evaluate the results of the data

The FAST Act authorizes the Section 1906 program at $7.5 million each year for FY2017 – 2020. Eligible states cannot receive more than 5 percent of the total annual funding. A state may not qualify by providing assurances for grants for more than two years. The federal share payable is 80 percent. States may use grant funds only for the costs of:

1. Collecting and maintaining data on traffic stops, and
2. Evaluating the results of the data. Funds remaining available each fiscal year may be reallocated by NHTSA to carry our activities authorized under Section 403.

For Additional Resources: http://www.ghsa.org/about/federal-grant-programs/405 & http://www.ghsa.org/about/federal-grant-programs/1906

The Federal Highway Administration

Website: https://www.fhwa.dot.gov/

The Federal Highway Administration (FHWA) was established as a component of the Department of Transportation in 1967 as a result of the Department of Transportation Act (49 U.S.C. app. 1651 note). The FHWA supports State and local governments in the design, construction, and maintenance of the Nation's highway system (Federal Aid Highway Program) and various federally and tribal owned lands (Federal Lands Highway Program). Through financial and technical assistance to State and local governments, the Federal Highway

Administration is responsible for ensuring that America's roads and highways continue to be among the safest and most technologically sound in the world.

Federal-Aid Highway Program

The FHWA administers the Federal-aid highway program of financial assistance to the states for highway construction and improvements. This program provides for construction and preservation of the National System of Interstate and Defense Highways, financed generally on a 90-percent Federal, 10-percent state basis, and the improvement of other Federal-aid roads, with financing generally on an 80-percent Federal to 20-percent state basis.

The agency also administers the Highway Bridge Replacement and Rehabilitation Program to assist in the inspection, analysis, and rehabilitation or replacement of bridges both on and off the federal-aid highway systems.

The FHWA is responsible for carrying out several highway safety programs. These safety programs provide funding for projects which remove, relocate, or shield roadside obstacles; identify and correct hazardous locations; eliminate or reduce hazards at railroad crossings; and improve signing, pavement markings, and signalization.

The agency promulgates and administers highway-related safety guidelines providing for the identification and surveillance of crash locations; highway design, construction, and maintenance; traffic engineering services; and highway-related aspects of pedestrian safety.

Federal Motor Carrier Safety Administration

Website: https://www.fmcsa.dot.gov/

The Federal Motor Carrier Safety Administration (FMCSA) is the lead Federal government agency responsible for regulating and providing safety oversight of commercial motor vehicles (CMVs). FMCSA's mission is to reduce crashes, injuries and fatalities involving large trucks and buses.

FMCSA exercises federal regulatory jurisdiction over the safety performance of all commercial motor carriers (trucks and buses) engaged in inter- state and foreign commerce. The agency's motor carrier safety investigators conduct safety reviews at the carriers' facilities and at roadside to determine the safety performance of the carriers' operations. Compliance reviews are conducted to follow up on problem areas identified during the safety reviews and at times result in prosecution or other sanctions against violators of the federal motor carrier safety regulations or the hazardous materials transportation regulations.

Grant Funds

The FMCSA safety grant funding opportunities are primarily available to State and local government agencies in one of the 50 States, the District of Columbia, Puerto Rico, Northern Mariana Islands, American Samoa, Guam, and the US Virgin Islands. Applicants for FMCSA funding opportunities should be working on commercial motor vehicle safety activities and should demonstrate a capacity to work with highway traffic safety stakeholders which may include, but are not limited to, State and local law enforcement agencies, State departments of public safety, departments of transportation, State traffic records coordinating committees, associations that focus on commercial motor vehicle safety and training issues, and other industry stakeholders.

Commercial Driver's License (CDL) Program

The Commercial Driver's License (CDL) Program Implementation Grant provides financial assistance to States to achieve compliance with the requirements of 49 CFR Parts 383 and 384. Additionally, the CDLPI grant program provides financial assistance for other entities capable of executing national projects that aid States in their compliance efforts and that will improve the national Commercial Driver's License (CDL) program.

The goal of the national CDL program is to reduce the number and severity of commercial motor vehicle crashes in the United States by ensuring that only qualified drivers are eligible to receive and retain a CDL.

Federal Law Enforcement Training Center

Website: https://www.fletc.gov/

The Federal Law Enforcement Training Center (FLETC), a bureau of the U.S. Department of Homeland Security FLETC serves a leadership role as the U.S. Federal Government's principal provider of world class, interagency training of Federal law enforcement personnel. The FLETC prepares new and experienced law enforcement professionals to fulfill their responsibilities in a safe manner and at the highest level of proficiency. Training consists of all phases of law enforcement instruction, from firearms and high-speed vehicle operations, to legal case instructions and defendant interview techniques. The FLETC delivers interagency training with optimal efficiency through the government-wide sharing of facilities, equipment and expertise which produces economies of scale available only from a consolidated law enforcement training organization.

It is through consolidated training that the FLETC can respond quickly to emerging training needs, readily adapt

to new requirements and focus exclusively on training, which is FLETC's only mission. The FLETC currently provides law enforcement training to over 80 Partner Organizations. The FLETC also trains state, local, tribal, campus, and international law enforcement officers and agents. The number of agencies attending training, the number of students trained and the number of student-weeks delivered have steadily increased over the FLETC's 37-year history.

NHSTA Regional Offices

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Sacramento, CA 95814
(916) 498-5058
Email: Region9@dot.gov

Regional Administrator NHTSA – Region Office 10
3140 Jackson Federal Building
915 Second Avenue
Seattle, WA 98174
(206) 220-7640
Email: Region10@dot.gov

FHWA Field Services/ Resource Centers

Eastern Field Services/Resource Center
Center 10 South Howard Street, Suite 4000
Baltimore, Maryland 21201-2819
(410) 962-0093

Midwestern Resource Center
One Prairie Office Center
4749 Lincoln Mall Drive, Suite 600
Matteson, Illinois 60461-1021
(708) 283-3500

Field Services
12300 West Dakota Avenue, Suite 340
Lakewood, Colorado 80228
(720) 963-3250

Southern Field Services/Resource
61 Forsyth Street, S.W., Suite 17T26
Atlanta, Georgia 30303
(404) 562-3570

Western Resource Center
201 Mission Street, Suite 1700
San Francisco, California 94105
(415) 744-3100

CHAPTER 9: EMERGING AND CRITICAL ISSUES IN TRAFFIC SAFETY

Traffic Safety's Critical Role in the Law Enforcement Mission

By: **William P. Georges,** *Assistant Chief (Ret.)*, Albany, New York, Police Department

Leadership is an important concept in law enforcement, and every member of an agency from the chief executive to field training officers should strive to both lead and provide guidance to personnel that results in long-term benefits for both the agency and the community it serves. There are numerous factors and changing situations that negatively impact every community, and, as a result, an agency's priorities are constantly shifting.

One of the factors that is omnipresent is traffic safety. Illegal and unsafe driving are problems that negatively impact every community. From crashes and the related problems that result from them to neighborhood complaints about speeding and other violations, traffic safety is a daily issue affecting law enforcement; as such, traffic safety should be a core component of every agency's overall mission.

While the first reaction to this statement may be "sure, we do traffic," often, traffic enforcement is sometimes viewed as a "have to do," but not a "need to do." Also, at times, traffic-related activities are decreased due to factors such as shifting priorities and assignments, increased calls for service, decreased personnel levels, and so forth. It is important to understand why maintaining or, in some cases, beginning or enhancing a comprehensive traffic safety program is important and how this activity can provide myriad benefits to a community and enhanced overall public safety.

First of all, as simple as this statement may sound, traffic enforcement is law enforcement! Every traffic stop is basically an investigation. Did the motorist knowingly commit the violation? Are there extenuating circumstances? Is the driver impaired and, if so, by what means? Are the occupants of the vehicle really who they say they are? Is there additional criminal activity beyond the initial reason for the stop? With a crash investigation, especially in a serious crash, an in-depth investigation must be conducted. What actions or factors contributed to the crash? Are there traffic violations and, if so, what are they? Is the driver impaired? Is the driver properly licensed? What other factors might have contributed to the crash? Investigators must interview witnesses, examine physical evidence, determine the minimum initial speed each vehicle was traveling, determine if there are possible vehicle defects, take measurements and photos, do scale drawings, and carry out other related investigative tasks. The skills required for these law enforcement duties are similar to any other investigation—and it's just as important that these investigations be taken seriously and be performed with diligence.

A comprehensive traffic safety plan can benefit a community and its residents in many ways, including reducing unsafe driving, contributing to investigations, and improving community-police relations. In order to capitalize on a traffic safety plan's full potential, it is necessary to examine the different areas that can be affected and the components that can be initiated by an agency.

Decreasing Crashes and Unsafe Driving

When one speaks of traffic safety, the mission of reducing crashes and unsafe driving is understandably what most people think of first—and with good reason. Most law enforcement personnel are familiar with crash data, but the numbers are worth mentioning. Every year, crashes kill or seriously injure people while also costing millions in medical, lost property, and other costs. In 2017, the National Highway Traffic Safety Administration (NHTSA) reported that 37,133 people were killed in traffic crashes in the United States. While efforts in enforcement, education, engineering, and EMS have slightly decreased this number in the past few years, the current death and injury rates on U.S. roadways are still alarming. This is not only a traffic safety problem, but also a public health problem. What do data show about the impact on your community? How can law enforcement improve this dangerous condition and better safeguard community members? The answer is clearly a comprehensive traffic safety program, and a variety of efforts and initiatives can be conducted by a single department or, as has been done in many jurisdictions, by multiple agencies working together in a single operation, thus expanding the area covered by the initiative and using collaboration as a force multiplier.

Crime and Traffic Safety

Effective and balanced traffic enforcement can often lead to the discovery of or leads for other criminal offenses. One need only look to general news sources to see cases where an initial traffic stop led to additional criminal investigations or arrests. From driving while impaired by alcohol or drugs, to the possession of narcotics or firearms, to human trafficking and wanted persons, traffic stops often are the foundation for other criminal arrests. With good investigative skills, traffic stops can often result in additional charges. As a result, increasing traffic enforcement does have the potential to also increase other types of criminal apprehensions.

It is also important to monitor, analyze, and understand the relationship between crime and traffic safety in a jurisdiction. Using the Data-Driven Approaches to Crime and Traffic Safety (DDACTS) model can greatly enhance an agency's analysis of both crash and crime activity and the nexus between them. This NHTSA program, developed in partnership with the IACP and several other organizations, provides the framework for analysis of timely and accurate data as they relate to both traffic enforcement and crashes and to crime and has proven very useful in effective analysis and personnel deployments. Additional information on DDACTS can be found on NHTSA's website at www.nhtsa.gov.

Traffic Enforcement as a Component of Community Policing

For many community members, a traffic stop may be the only contact that they will ever have with law enforcement, so educating people about the importance of traffic safety is a key factor in these encounters. Just issuing a citation negates an opportunity to positively interact with community members. It is important that they understand the dangers of unsafe driving and the heartache that it has the potential to cause them and others. Officers need to ensure that community members understand that traffic enforcement is not done for revenue generation and is conducted in locations where data show that dangers exist or when a violation is observed. Some agencies offer motorists a pamphlet explaining how or why traffic safety benefits their community. There are obviously several options that law enforcement personnel have when stopping a person for an offense. There is a citation, a warning ticket, or an oral warning, among other options, but the most important actions are terminating the offense and educating the offender. Having community members understand the importance of traffic safety and the positive impact that it can have on their quality of life through both enforcement and educational efforts, such as child safety seat checks, pedestrian and bicycle safety, impaired driving informational sessions, and other activities, can be an integral part of a community policing model.

Allied Organizations

There are numerous organizations, both public and private, that are available to assist an agency with its traffic safety mission. One of the most important is a state's Highway Safety Office (SHSO). Every law enforcement agency should maintain a good relationship with its SHSO and take advantage of its expertise and resources. In addition to NHTSA and SHSOs, the following allied organizations can assist agencies with a variety of matters, including data and analysis, programs, material, and subject matter expertise:

- American Association of Motor Vehicle Administrators (AAMVA)
- Federal Highway Administration (FHWA)
- Federal Motor Carrier Safety Administration (FMCSA)
- Federal Railroad Administration (FRA)
- Foundation for Advancing Alcohol Responsibility (FAAR)
- Governors Highway Safety Association (GHSA)
- Mothers Against Drunk Driving (MADD)
- National Safety Council (NSC)
- Safe Kids Worldwide

Additionally, IACP's Highway Safety Committee is a resource for IACP members. The committee comprises representatives from international, federal, state, county, and municipal agencies, along with representatives from allied organizations. The committee and its members are available to assist IACP members with traffic safety issues.

From a serious vehicle crash, to a resident's complaint of cars speeding through the neighborhood and endangering children, to other problems caused by traffic-related issues, law enforcement agencies are impacted by traffic safety on a daily basis. Main-taining a comprehensive traffic safety program consisting of data-driven enforcement, education, and engineering as a core component of an agency's mission will serve to enhance public safety, work as a part of community policing efforts, and ultimately produce positive benefits. Traffic safety should always be mission critical for both the agency and its personnel.

Traffic Enforcement: Back to the Basics

By: **Howard B. Hall,** *Chief of Police,* Roanoke County, Virginia, Police Department and **Anthony S. Lowman,** *Major,* Maryland State Police

Quite a few years ago, as the authors were completing selection processes and training academies, they were each asked repeatedly why they wanted to become a law enforcement officer. Like most, they said that they wanted to save lives and help their communities. Today, they would answer that question the same way. Their roles, however, have changed. Instead of directly performing law enforcement work, they direct the work of others. As such, they have the opportunity and obligation to direct they limited resources to tasks and activities that positively impact their communities.

Law enforcement leaders, whether local police chiefs, state troopers, or sheriffs, are faced with numerous, competing demands that include significant issues like increasing violent crime, home grown extremists, and opioid addiction. Given the seriousness and complexity of these problems, it is not hard to see why traffic safety sometimes takes a back seat. Law enforcement leaders should, however, consider the extent to which traffic safety impacts the overall safety of their communities. In 2015, there were 35,092 people killed in the U.S. in traffic crashes, a 7.2 percent increase from 2014 [1], while 15,696 were victims of homicide. [2] The number of victims in both of these categories is far too high, but the number of traffic crash victims is more than double the number of murder victims. For many of our communities, the odds of being killed or injured in a crash are far higher than suffering a similar outcome from a crime.

Citizens want to live in safe communities, and too often, safety is judged based on crime, particularly homicide. Many people consider large cities, where homicides occur in higher numbers, to be more dangerous than other places. However, in 2002, an article in *Governing* included an argument that safety is an issue broader than simply violent crime. The author asked, "What if, instead of being measured by itself, homicides were to be measured along with other forms of violent fatality, specifically, automobile crashes, the second major category of violent death in the United States?" William Lucy, a University of Virginia professor, found that the most dangerous parts of metropolitan areas are likely to be rural or exurban communities simply because the fatal crash rates are much higher. Lucy combined statistics for homicides committed by strangers and traffic fatalities from Houston, Texas, in 2000 and calculated a death rate of 1.5 per 10,000 people. Using the same calculation, he found that the rate in Montgomery County, Texas, bordering Houston, was 2.5 people, more than double the number in Houston. [3] This was due to the much higher rate of traffic fatalities. The point is that while violent crime makes the news, traffic crashes often present a greater threat. While there are some visible exceptions, most agencies could do more to improve the overall safety of their communities by ensuring that traffic safety is a continuous priority.

Hopefully, the safety of officers, troopers, and deputies is a high priority for law enforcement leaders as well as their agencies. Law enforcement officers drive millions and millions of miles every year, exposing them to all of the dangers associated with traffic crashes. A review of the Officer Down Memorial Page (ODMP) shows that traffic-related incidents are one of the leading causes of line-of-duty deaths. [4] Additionally, numerous more agency personnel are injured in these incidents. Consistently enforcing traffic laws and working to reduce crashes not only makes communities safer, it makes officers safer.

The economic costs of traffic crashes are tremendous. Here are some interesting and disturbing, findings from a 2010 publication of the National Highway Traffic Safety Administration:

- The economic cost of motor vehicle crashes that occurred in the U.S. in 2010 totaled $242 billion. This is equivalent to approximately $784 for every person living in the U.S. and 1.6 percent of the U.S. Gross Domestic Product.
- The lifetime economic cost to society for each fatality is $1.4 million. Over 90 percent of this amount is attributable to lost workplace and household productivity and legal costs.
- Each critically injured survivor cost an average of $1.0 million. Medical costs and lost productivity accounted for 82 percent of the cost for the most serious level of non-fatal injury.
- Lost workplace productivity costs totaled $57.6 billion, which equated to 24 percent of the total costs. Lost household productivity totaled $19.7 billion, representing 8 percent of the total economic cost.
- Total property damage costs for all crash types – fatal, injury, and property damage – totaled $76.1 billion and accounted for 31 percent of all economic costs.
- Congestion costs, including travel delay, added fuel usage, and adverse environmental impacts cost $28 billion, or 12 percent of total economic crash costs.
- Approximately 7 percent of all motor vehicle crash costs are paid from public revenues. Private insurers pay approximately 54 percent of all costs. Individual crash victims pay approximately 23 percent while third parties, such as uninvolved motorists delayed in traffic, charities, and health care providers, pay about 16 percent. Overall, those not directly involved in crashes pay for over three-quarters of all crash costs, primarily through insurance premiums, taxes, and congestion-related costs, such as travel delay, excess fuel consumption, and increased environmental impacts. In 2010, these costs, borne by society rather than by crash victims, totaled over $187 billion. [5]

Law enforcement leaders should also consider the amount of resources that their agencies devote to responding to crashes. If they can take action to prevent them, much like preventing crime, they can not only reduce the number of victims in their communities, but also re-allocate limited resources to other activities.

Keeping the roadways safe is a multi-disciplinary task that requires participation from law enforcement, engineers, emergency medical personnel, elected officials, advocacy

groups, and the general public. The individual roles of these groups include designing and maintaining roads in accordance with safety standards, developing effective laws and rules of the road, implementing response protocols to mitigate damage and injury when incidents occur, and ensuring comprehensive public awareness. While many of these overlap, there is one task that is exclusive to law enforcement, which is traffic enforcement. Law enforcement officers are sworn to enforce the laws, including traffic laws, and are given the authority to do so. In fact, they belong to the only profession that is granted this authority. It is incumbent upon them, therefore, to ensure that traffic laws are vigorously enforced to promote safe roadways.

The purpose of this article is to argue that the traffic stop is one of the most valuable self-initiated activities that a police officer, deputy, or trooper can perform, simply because a single traffic stop provides a high return on investment in the form of five separate benefits related to public safety.

Return on Investment

Specific Deterrence – Traffic: The most basic reason for stopping a vehicle is because of a traffic violation. The purpose of the stop is to identify the driver responsible for the violation and to take the appropriate enforcement action. Traffic citations and the penalties that may result are intended to change driver behavior. Even minor violations can result in hefty fines, higher insurance, and points against driver's licenses. If necessary, repeat offenders may have their licenses suspended or revoked by motor vehicle authorities who use conviction data to monitor the behavior of the drivers they license. This is particularly important for commercial vehicle drivers who operate the largest vehicles on the roadways, oftentimes across many states.

Studies have shown that highly visible traffic enforcement leads to reductions in traffic crashes and changes in driver behavior. For example, a study of the *Click It Or Ticket* Program in Massachusetts found that "tickets significantly reduce crashes and non-fatal injuries." [6] This, of course, is one of the underlying reasons for conducting enforcement in the first place.

General Deterrence – Traffic: The visibility traffic stops gets the attention of other drivers and have the potential to change their behavior as well. Passing drivers are likely to assume that a traffic stop is resulting in a citation for the other driver. That memory may help to change those drivers' behavior, particularly if the enforcement efforts are sustained over time.

A study sponsored by the National Highway Traffic Safety Administration (NHTSA) found that that "the most important difference between the high and low belt use states is enforcement, not demographic characteristics or dollars spent on media … Enforcement was much more vigorous in the high belt use states, as shown by an average of twice as many seatbelt law citations per capita…" [7] There have also been a number of case studies documenting the effectiveness of high-visibility enforcement on impaired driving offenses. For instance, a formal evaluation of the Checkpoint Strikeforce program indicated a 7 percent decrease in impaired drivers involved in fatal crashes associated with the overall program. The participating states of Maryland and Virginia, as well as the District of Columbia, have all remained at low-fatality rates as the program has continued. [8]

Specific Deterrence – Crime: It is well-known that traffic stops lead to the apprehension of criminal suspects. Whether the offender is as notorious as the Oklahoma City Bomber or simply a wanted subject on a misdemeanor warrant, the violator contact can frequently lead to a criminal subject being arrested and the recovery of evidence, contraband, or illegal weapons. Any law enforcement officer that develops the skills to look beyond the traffic stop will consistently produce significant criminal arrests. For example, the Grand Prairie, Texas, Police Department determined that traffic enforcement was responsible for 37 percent of all arrests in 1994. It was also determined that 47 percent of the arrests made by traffic enforcement officers were for serious and criminal offenses. [9] This makes the traffic stop an indispensable tool in areas experiencing patterns or trends of criminal activity.

General Deterrence – Crime: Many criminals commit their crimes in areas where they are comfortable. This may be near their homes or places of work or recreation. The crime is made easier since the offender is familiar with the area, the people, and potential escape routes. If law enforcement can make an area uncomfortable for a potential criminal, the likelihood of a crime being committed may be reduced. What could be more uncomfortable than a police vehicle with lights flashing in the area of the potential crime?

Studies have shown that visible police presence has an impact on crime in targeted areas. Two studies in the 1970s and 1980s demonstrated that communities with higher levels of traffic enforcement also experienced lower rates of robbery. [10] In the mid-1990s, the Peoria, Illinois, Police Department dramatically increased its traffic enforcement and self-initiated activity. This resulted in large reductions in reported crimes, as well as traffic collisions. [11]

Since 2008, agencies around the country have been implementing the Data Driven Approaches to Crime and Traffic Safety (DDACTS) model to maximize the use

of resources to target both crime and crash problems. NHTSA states, "By identifying areas through temporal and spatial analysis that have high incidences of crashes and crime, DDACTS employs highly visible, targeted traffic enforcement to affect these areas. This model affords communities the dual benefit of reducing traffic crashes and crime, thus reducing overall social harm. Drawing on the deterrent value of highly visible traffic enforcement and the knowledge that crimes often involve the use of motor vehicles, the goal of DDACTS is to reduce the incidence of crashes, crime, and social harm in communities across the country." [12]

Research suggests that this has been successful. A study of the Shawnee, Kansas, Police Department's use of DDACTS found reductions in robbery, auto theft, and auto burglary, along with total reductions in targeted crimes of almost 40 percent over a three-year period. Overall crashes were also reduced by 24 percent. [13]

Intelligence: Perhaps the most valuable benefit of the traffic stop is the information that it generates. Gone are the days when citations and warnings were simply filed away. Modern records management systems allow us to collect information about who is stopped, what they were driving, where it occurred, and when it happened. This information can be extremely valuable to the investigation of crimes that may not have been discovered at the time of the stop. Crime analysts and investigators use this information to develop suspects and leads that may result in the clearance of criminal incidents.

All of this results in a tremendous return on investment from a single traffic stop carried out by uniformed patrol personnel. For these reasons, law enforcement leaders should be doing everything possible to encourage traffic stops in their communities.

A simple way to start a discussion about traffic stops with enforcement personnel is to talk about tolerance; in other words, under what circumstances do officers routinely stop vehicles? Law enforcement leaders should this question in a room full of officers. The answers will vary greatly, ranging from hazardous violations and suspected crimes, to administrative violations, such as expired tags. While officers have always had and will continue to have discretion in terms of stopping vehicles, command staff should encourage stops for all of these things. The discussion gets better when the topic of speed tolerance is introduced. An officer will rarely admit to stopping a speeding vehicle for less than 10-20 miles per hour over the limit. This begs the question of why they would allow drivers to routinely violate established speed limits by this margin, particularly in residential areas, school zones, or high crash areas. Law enforcement agencies should be working to lower this tolerance to enhance the safety on roadways, pointing out that the mere stopping of a vehicle does not necessitate charges being placed.

While this resource guide strongly advocates for traffic enforcement, it should be done in a random or arbitrary manner; should be purpose-driven and directed at social harms affecting our communities.

Enforcement Done Right

Communities expect their law enforcement agencies to keep the population and their roadways safe. In other words, they expect, and sometimes demand, traffic enforcement. Any law enforcement official who works with residential communities can recount the numerous, and sometimes vociferous, complaints of speeding and other local traffic violations that are brought to their attention by citizens. These citizens rightly expect that, when complaints are valid, their local law enforcement agency will take action. They also expect that their children can travel safety to and from school and their daily commutes, and those of their family and friends, can be completed in a timely and safe manner. While enforcement practices in some areas have led to criticism, the fact remains that a strong traffic safety program is integral to community policing.

The return on investment from the traffic stop becomes especially significant when the activity is deployed properly. Enforcement should be purpose-driven and directed at a specific problem occurring in a community. For the most part, these problems will relate to traffic crashes, crime, or other social harms. It is important to understand where problems are occurring, as research has shown that a large percentage of criminal incidents occur in relatively small geographical areas.

The first major study to arrive at this conclusion was conducted in Minneapolis in the 1980s. The study found that 3.5 percent of the addresses in the city of Minneapolis produced about 50 percent of crime reports. Another study in Seattle found that 86 street segments out of over 29,000 examined accounted for one-third of juvenile crime in the city. [14] Observations would suggest that this also occurs for traffic crashes as state highway safety offices and law enforcement agencies routinely analyze the locations of crashes and identify areas and intersections with particularly high numbers of incidents. Deploying enforcement to the places where problems occur is the first step towards mitigating the dangerous effects of traffic violations. Of course, narrowing this further, targeting the days and times when the problem is most likely to occur will also increase effectiveness. Officers engaged in targeted enforcement should understand what they are doing and why. While it is appropriate to expect that officers will enforce violations that they observe while on routine patrol, there should be a reason for targeted

enforcement and officers should understand it. It is even better when officers communicate that reason to the drivers being stopped. A data-driven, place-based, and purpose-driven approach is appropriate and provides the information necessary not only to justify actions, but also to share with their communities to promote understanding.

To be accepted by their communities, enforcement must not only be data-driven and place-based, it must also be conducted in a legally sound, fair, and impartial manner. Simply driving around a vehicle in a high-crime or high-crash area is not, by itself, a reason for a stop. Over the years, there have been many court decisions that define what is required for a stop to comply with constitutional principles. Generally, the totality of the circumstances must lead to "a particularized and objective basis for suspecting the particular person stopped of criminal activity."[15] This is the basis for reasonable suspicion, which is necessary before a stop is made. Fortunately, most traffic stops are made for observed violations of traffic laws and far exceed the criteria established by the Supreme Court. Officers should be cautioned, however, that initiating a stop for suspected criminal activity may require a more specific articulation of facts.

Fairness and consistency is a critical part of any enforcement program. The notion of fairness is imbedded in the principles of procedural justice. Leading researchers on this topic have identified several factors that influence the perception of fairness:

- **Voice:** The perception that your side of the story has been heard.
- **Respect:** The perception that system players treat you with dignity and respect.
- **Neutrality:** The perception that the decision-making process is unbiased and trustworthy.
- **Understanding:** Comprehension of the process and how decisions are made.
- **Helpfulness:** The perception that system players are interested in their personal situation to the extent that the law allows. [16]

Most of these factors can be achieved through communication with the person being stopped. Although officers may never be able to change the perception of some who simply refuse to understand the role of law enforcement, the overwhelming majority of citizens will respond positively to officers who provide an explanation for the stop and what will happen as a result.

Fairness is particularly important as it relates to the disposition of a stop. Violators should be treated as similarly as possible based on the seriousness of the offense. Officers have the discretion to use enforcement options that range from physical arrest to warnings. The use of these should be proportional to the offense, with more serious and hazardous violations resulting in more severe actions. Fairness naturally leads to the need for consistency. Agencies should consider policies and training that define enforcement options and their suggested uses. In general, officers have the following options:

- **Physical Arrest:** Physical arrest is the most severe enforcement option available and is appropriate for serious violations, which are generally prescribed in the laws of each state. Significant traffic violations, such as impaired driving, often result in arrest. Criminal examples would include outstanding warrants or possession of illegal weapons or controlled substances.
- **Citation:** Citations, normally resulting in a monetary fine or points against a driver's license, may be the most common form of traffic enforcement activity. These are appropriate for hazardous traffic violations, particularly those that are contributing to traffic crashes in targeted areas. Other appropriate uses would include significant administrative violations such as lack of a license, suspended driving privileges, driving without insurance, and significant registration issues. One other area where citations are almost always appropriate is occupant protection. Seatbelt use in most states has been mandatory for many years. Those who violate these laws are likely to be doing so intentionally; therefore, enforcing these laws by issuing citations is appropriate.
- **Written Warning:** Many agencies use or have recently implemented written warning systems. These are based on the premise that the appropriate response to a violation is not always a formal enforcement action. Violations that are minor in nature or are newly enacted may be handled more effectively as an educational opportunity for the motorist. The purpose of using a written warning is to document the nature of the stop and maximize the benefits that have previously been discussed. Appropriate uses of this tool may include minor or less-hazardous moving violations, administrative issues such as expired tags, and speeding violations where the motorist is only slightly above the posted limit.
- **Verbal Warning:** Verbal warnings have existed for as long as traffic stops. Even in agencies without formal written warning policies, these are being used. It is simply a function of officers trying to achieve fair outcomes in their enforcement stops. When written warnings are allowed, verbal warnings should be minimized as they don't result in a record of the stop. There will always be a few cases where these

are appropriate, such as the need to respond to an emergency call after a stop has been initiated.

It is important that agency leaders take the time to consider policies and training related to the importance of traffic enforcement, procedures for traffic stops, and appropriate outcomes. The New Jersey State Association of Chiefs of Police has developed a model policy entitled "Traffic Enforcement Tolerances and Latitude" that addresses these issues. It also discusses a variety of violations and enforcement options to ensure fair and consistent enforcement. It does not, however, supplant an officer's judgement or discretion in dealing with the myriad of issues that can arise from a stop.

Much of the external and internal issues that traffic stops have been known to cause could likely be avoided by having simple conversations about these issues. Our employees and our communities should understand what we do and why we do it. This can be accomplished with a little planning and good communications.

Conclusion

There is and always has been a strong case for making traffic safety a priority and using traffic enforcement as a tool to reduce both traffic crashes and crimes. Doing this the right way takes time to plan and properly implement. Fortunately, there are numerous resources that can help. Consider the following:

- Every state has a highway safety office that is responsible for distributing highway safety grant funding. Many of these offices have law enforcement liaisons and other staff and resources for the specific purpose of helping agencies implement traffic safety programs. A list of state offices as well as other highway safety resources can be found here: http://www.ghsa.org/about/shsos
- The National Highway Traffic Safety Administration maintains a web site with a tremendous amount of information on all aspects of traffic safety here: https://www.nhtsa.gov/road-safety .
- The IACP posts a variety of related information on its web site at: http://www.iacp.org/TrafficSafety
- Many state chiefs and sheriffs associations can also help. For example, the Virginia Association of Chiefs of Police coordinates the "Smart, Safe, and Sober" Program here: http://www.smartsafeandsober.org/. The Maryland Chiefs of Police Association, Maryland Sheriff's Association, and the Maryland Highway Safety Office recently collaborated on the publication of the "Law Enforcement Executive's Guide to High Visibility Enforcement," which can be found here: http://www.nlelp.org/wp-content/uploads/2016/09/LE_Exec_Guide.pdf

These resources will help law enforcement leaders focus on traffic safety and improve the safety of their communities.

Notes:

1. https://www.nhtsa.gov/press-releases/traffic-fatalities-sharply-2015
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3. http://plannersweb.com/wp-content/uploads/2006/10/297.pdf
4. http://www.odmp.org/
5. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812013
6. Luca, Dara N. "Do Traffic Tickets Reduce Motor Vehicle Accidents? Evidence from a Natural Experiment," Journal of Policy Analysis and Management, Vol. 34, Issue 1, Winter 2015.
7. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/810962
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14. Weisburd, David. "Place Based Policing," Ideas in American Policing. Police Foundation: Number 9, January 2008.
15. United States v. Cortez, 449 U.S. 411 (1981)
16. https://cops.usdoj.gov/html/dispatch/09-2013/fairness_as_a_crime_prevention_tool.asp

Leading Traffic Safety

By: **Dr. Mitchell Weinzetl,** *Former Senior Program Manager,* The International Association of Chiefs of Police

If you do a quick Internet search on *negative articles about the police*, you will get about 61 million hits. In the wake of such negativity, some law enforcement leaders (and some police officers) have questioned the value of continuing proactive traffic stops.[7] In addition, various members of the public and the media have even suggested that police agencies should rethink this aspect of their work, calling for a reduction or elimination of traffic stops altogether.[8] Although those involved in the discussion have offered numerous reasons for considering a reduction of effort in this area, much of the emphasis seems to focus on reducing biased enforcement. To be clear, biased policing is wrong, in any category. Still, from an industry leadership

7 http://www.npr.org/2016/07/25/486945181/some-police-departments-are-rethinking-traffic-stops-to-reduce-bias
8 http://www.latimes.com/opinion/op-ed/la-oe-0813-kutz-traffic-stops-20150812-story.html

and public safety perspective, the question remains; "Is reducing traffic enforcement or the use of traffic stops in everyone's best interests?"

According to the National Highway Traffic Safety Administration (NHTSA), there were 35,092 fatal motor vehicle crashes in 2015, which represents a 7.2 percent increase over 2014 figures.[9] The number of fatal crashes in 2015 translates into 96 fatalities per day, with one occurring every 15 minutes across the U.S. In the same year, NHTSA estimates that there were 2,443,000 injuries associated with motor vehicle crashes, which amounts to nearly 5 persons injured in crashes per minute, in every hour of every day. In light of these statistics, it is evident that traffic safety is an ongoing concern in the U.S., and despite criticism over their use, law enforcement leaders need to remain vigilant in encouraging the use of traffic stops to achieve public safety objectives. However, leaders also have the responsibility to ensure that traffic stops are done properly, in an unbiased manner, and that their use and purpose is clear, both to the officers who conduct them, and those in the public who are on the receiving end of these encounters.

Most would agree that the primary purpose of a traffic stop is to "promote public safety by stopping a violation, reducing crashes [the severity and number], and enhancing public enjoyment."[10] Significant private and public research has been done regarding traffic stops and roadway safety (e.g., NHTSA, Bureau of Justice Assistance), and there is significant evidence that there is a correlation between traffic enforcement and reducing motor vehicle crashes. In particular, a 2015 study that evaluated the *Click It Or Ticket* campaign in Massachusetts, showed that a 1 percent increase in traffic citations resulted in a .28 percent reduction in traffic crashes.[11] In one specific example, Safe Communities of Wright County Minnesota, which is a private collaborative traffic safety partnership focused on the areas of Enforcement, Education, Engineering and Emergency Medical Services (the 4 E's), has observed a 40 percent reduction of serious injury and fatal motor vehicle crashes since 1997, all of which occurred during a period of significant population and traffic growth within the county.[12] Although there is clear evidence that supports the importance of traffic enforcement in reducing motor vehicle crashes and promoting public safety, some still object to their use, and it is important to understand what is prompting these objections.

Despite the significant evidence that supports the use of traffic stops in improving roadway safety, traffic stops have also become a popular tool by the police in addressing issues of crime, particularly drug trafficking. In fact, there are a variety of resources available for officers that encourage the use of traffic stops for detecting criminal activity, including Charles Remsberg's ageless text, *Tactics for Criminal Patrol*, and numerous in-service training courses on criminal interdiction through traffic enforcement. Like the traffic safety data, regular media reports that chronicle significant arrests emanating from traffic stops, provide significant evidence of the effectiveness of these efforts. Even though these approaches work, *success* in this regard (in terms of arrests) has caused great scrutiny over the tactics used, and whether they are biased or discriminatory.

As criminals have become more sophisticated and as crime has evolved, law enforcement has evolved, too. Recognizing that catching criminals, and preventing and solving crimes, is a complex business, much of the policing industry has turned toward intelligence-led policing,[13] predictive policing,[14] or data-driven approaches to policing. These methods involve an analysis of data available to the agency to determine personnel deployments, to include proactive efforts in hot-spot areas (where crime is notably higher or more frequent than other areas) or areas where predictive models suggest a greater likelihood of criminal incidences. However, this data analysis is not necessarily restricted to crimes, it also typically involves an analysis of traffic patterns areas where a significant number of motor vehicle crashes occur.

In an effort to engage best-practices relating to the use of data, many law enforcement agencies have adopted a specific operational model, Data-Driven Approaches to Crime *and* Traffic Safety (DDACTS).[15] The DDACTS model utilizes "location-based traffic crash and crime data to establish effective and efficient methods for deploying law enforcement and other resources." One of the key components of the DDACTS model is the strategic and tactical focus on places. This focus is based on three underlying assumptions:

- It is more efficient to focus on places than to focus on individuals;
- The places that experience a high number of traffic crashes also exhibit a high number of crimes; and

9 https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812318
10 https://www.criminaljusticedegree.com/basic-composition-of-traffic-enforcement/
11 Luca, D. L. (2015), Do Traffic Tickets Reduce Motor Vehicle Accidents? Evidence from a Natural Experiment. J. Pol. Anal. Manage., 34: 85–106. doi:10.1002/pam.21798
12 https://www.safecomm.org/
13 https://www.ncjrs.gov/pdffiles1/bja/210681.pdf
14 https://www.nij.gov/topics/law-enforcement/strategies/predictive-policing/Pages/welcome.aspx
15 https://www.nij.gov/topics/law-enforcement/operations/traffic/Pages/ddacts.aspx

- Tools like computer mapping have made it easier to adopt place-based strategies.[16]

The use of DDACTS (or other data-driven approaches) by police agencies is a double-edged sword; the methods used produce positive results, but they can also produce community trust and resentment issues by those who feel disaffected. Accordingly, it is incumbent upon law enforcement leaders to address and mitigate these concerns. So, what should law enforcement leaders do?

1. Law enforcement leaders must understand that there is a right way (and a wrong way) to conduct traffic stops. Most in the industry would agree that traffic stops have the potential to be dangerous and contentious, and officer-safety issues demand that they are conducted in a particular manner. At the same time, concerns over officer safety do not necessitate that officers engage in behaviors that are considered rude or abrasive, and leaders should not condone this or accept this as a given or an excuse by officers. Traffic stops can be done correctly, safely, and frequently, without generating citizen complaints. For example, Los Angeles Sheriff's Deputy Elton Simmons has written more than 25,000 traffic tickets over 20 years, all without generating a single complaint.[17] The Elton Simmons YouTube video, provides a real-life example of how the approach and demeanor of the officer can contribute to success in the traffic safety mission. This video could be a valuable training tool for new officers, or those who seem to generate an inordinate number of complaints. Either way, leaders must set the standard for traffic stop encounters, and leaders must provide staff with the guidance they need to conduct them properly, safely, and in an appropriate manner.
2. Leaders should ensure that officers understand that during all traffic stops, they are expected to engage the elements of *Procedural Justice.*[18] As noted in the 21st Century Policing Task Force Report, the core concepts of procedural justice include:
    - Treating people with dignity and respect
    - Giving individuals 'voice' during encounters
    - Being neutral and transparent in decision making
    - Conveying trustworthy motives

    Although the concepts should be promoted throughout the organization, internally and externally, and with respect to all citizen contacts, the frequency and nature of traffic stops requires that officers consistently practice these behaviors. Additionally, leaders should develop strong policies related to impartial policing, and provide ongoing training to officers in these areas, whether that training is formal or informal.
3. When considering concentrated enforcement efforts, whether they relate to traffic safety, crime, or both, agencies should be data-driven, to include monitoring of resources deployed, and the results of those efforts. Part of the data-led strategy of the agency should include examining whether their tactics are producing required results, and if they are not, leaders should thoughtfully adjust their approach. Leaders should share this information and the results with the public, to include outcomes, and any associated adjustments in the approach of the department.
4. Whether traffic stops are used for crash reduction or crime interdiction, leaders should adopt an education strategy, both for officers, and for the public. Officers need to understand where they are being deployed and why, and what their objectives are. They also need to understand the purpose behind what they are being asked to do, as this will equip them to engage the public in a positive manner. Agencies should consider creating a literature piece that explains why they are conducting traffic stops, or working a criminal interdiction detail. Officers could use this brochure as a means to explain their presence, and to further justify the intervention. This type of action relates back to procedural justice, and adds to police transparency and legitimacy.
5. In addition to delivering materials during direct encounters, agencies can also educate the public in other ways. Many police agencies use various social media outlets, such as Facebook and Twitter, to convey important public safety messages. Some departments, like the Orwell, Ohio, Police Department, have even used their website as an educational forum, providing detailed information about why the police make traffic stops, why the police act in a certain way during those encounters, and tips on what the public can do to make the traffic stop less stressful for all.[19]
6. More than ever in the history of law enforcement in the U.S., there is a need for leaders to engage the public directly on the issues of crime, police procedures, and

16 https://www.nhtsa.gov/staticfiles/nti/pdf/809689.pdf
17 https://www.youtube.com/watch?v=Phzi1wmEeEw (Elton Simmons)
18 The President's Task Force for 21st Century Policing, *Final Report of the President's Task Force for 21st Century Policing* (Washington, D.C.: Office for Community Oriented Policing Services, 2015), http://www.cops.usdoj.gov/pdf/taskforce/TaskForce_FinalReport.pdf
19 http://www.orwellpolice.com/trafficstops.htm

personnel deployments. The public has a keen interest in what the police do, as those efforts tend to affect them, either directly or indirectly. Further, the public has set a new standard of accountability for the police, and more transparent and robust communication is now a mandate. When police agencies are considering new or varied approaches to crime and/or traffic safety, leaders should thoughtfully consider how these strategies will affect the public, and when doing so would not compromise those efforts, the public should have the opportunity to offer their feedback and input for consideration.

Traffic stops have proved to be a very effective mechanism for police agencies to improve roadway safety, and to reduce crime and apprehend criminals. In conducting traffic stops, it is important, that law enforcement leaders ensure that traffic stops are done properly, for the right reasons, and in a fair and unbiased manner, which does not produce discriminatory treatment.

Secondary to ensuring that they are done properly, law enforcement leaders also have a responsibility to engage the public on this topic to explain the purpose, processes, and personnel deployments used, and to educate the public on the outcomes associated with these efforts. Further, in keeping with a procedural justice approach, police agencies should consider allowing the public to have a voice in this process, when appropriate, and law enforcement leaders should consider the will of the public when determining how, when, and where, the police engage the resources at their disposal.

In Pursuit of Bias-Free Traffic Enforcement

By: **Lorie A. Fridell, PhD,** *Associate Professor,* Department of Criminology at the University of South Florida

The issue of biased policing returned to the forefront in the late 1990's and early 2000's. The focus was on vehicle stops and we heard complaints about "Driving while Black" and "Driving while Brown." The issue of biased policing returned to the forefront *again* in 2014 following the shooting of Michael Brown and other events in Ferguson, Missouri. Attention turned to bias and the use of force, but again vehicle stops remained in the headlines; many of the most controversial cases involved police actions associated with a vehicle stop, including incidents in Cincinnati, Ohio; North Charleston, South Carolina; Columbia, South Carolina; Waller County, Texas; and Tulsa, Oklahoma.

This article will focus on bias in policing, with a particular emphasis on both the issues and interventions as they are linked to traffic enforcement. It will address the topic using the perspective of the modern science of bias that recognizes that even well-intentioned individuals, including well-intentioned law enforcement, have biases that can impact on perceptions and behavior. After setting forth the science and discussing how bias might manifest in traffic enforcement, the article will outline what agency leaders can do to promote bias-free policing in traffic enforcement and all other police activities. Emphasis will be given to interventions linked to training and measurement.

The Modern Science of Bias

Social psychologists have been studying bias and prejudice since about the 1950's. For a long time, they recognized only what we now call "explicit biases." With explicit biases, a person associates groups–such as racial minorities, women, transgender individuals, homeless people–with negative stereotypes. These associations are based on animus or hostility toward the groups, and the person with these biases is well aware of them and unconcerned about the discriminatory behavior that those biases produce. (See, e.g., Amodio & Mendoza, 2010; Dovidio et al., 1997; Nier, 2005; Petty, et al., 2009). As an example, a racist has explicit biases.

Starting in the 1980's, these social psychologists discovered another way that bias and prejudice can manifest–in the form of *implicit* biases. Implicit biases share some similarities with explicit biases. With implicit biases, we still link individuals to stereotypes or generalizations associated with their group or groups. And these biases and stereotypes can impact on perceptions and behavior. But, unlike explicit biases, implicit biases are not based on animus or hostility and these implicit associations can impact individuals *outside* of conscious awareness. The worst news is that, even individuals who reject prejudice and stereotyping at the conscious level, can and do manifest implicit biases (Correll et al., 2007; Dasgupta, 2004; Dovidio, et al., 2002; Dovidio et al., 2009; Greenwald & Krieger, 2006).

This science requires that we move away from the "old notion" that individuals who produce biased policing are identifiable by their overt animus and hostility toward groups. We now know that even our well-intentioned law enforcement professionals can produce biased policing. In fact, the key implications for law enforcement of the science of implicit bias are these: (1) even the best officers—because they are human—can produce biased policing; and (2) even the best agencies—because they hire humans to do the work–will have biased decisions and therefore must be proactive to produce fair and impartial law enforcement.

How Bias Might Manifest in Law Enforcement?

How might implicit bias manifest in law enforcement? It may lead an officer to perceive the ambiguous behavior of a Black male as more threatening than the same behavior on the part of a White male. It may manifest among agency command staff who decide (without crime-relevant evidence) that the forthcoming gathering of Black college students bodes trouble, whereas the forthcoming gathering of White undergraduates does not. Although these types of implicit biases pertaining to Blacks and crime are well-documented, there are other biases that might impact law enforcement actions or procedures. For instance, implicit bias might lead an officer to be consistently "over vigilant" with males, low-income individuals, and Hispanics, and "under vigilant" with female subjects, people of means, and Asians.

Traffic enforcement is "ripe" for the manifestation of implicit biases. First, most people's interactions with police is in the context of traffic enforcement. Second, there is lots of discretion in traffic enforcement, and wherever there is discretion there is the potential for human bias. Putting those two facts together, we have interactions that are both numerous and at high risk for human bias.

How might implicit bias manifest in traffic enforcement?

Implicit bias might lead the line officer to automatically perceive crime in the making when he or she observes two young Hispanic males driving in an all-Caucasian neighborhood. When there is a motor vehicle crash and the participants tell two different versions of what happened, implicit bias might lead the trooper to believe the story of the man in the shirt and tie driving the BMW as opposed to the story of the man in dirty jeans driving a pick-up truck. After a vehicle is stopped, implicit bias might lead the deputy to request for consent to search from the young kids in low-hanging pants, whereas the same request would not be made of individuals with other demographics and dress.

Consequences of Biased Policing

There is no question that biased policing can negatively impact the community members who are on the "receiving end" of this treatment; and those negative experiences can produce negative impressions of law enforcement that can have serious consequences for agencies (Tyler & Huo, 2002). But it is also the case that biased policing can have negative *impacts on the officer engaged in it.* Policing based on biases or stereotypes can produce ineffective, unsafe, as well as unjust policing. In terms of *effectiveness*, biases and stereotypes might, for instance, lead an officer to focus on a particular group in her surveillance or when she runs queries on license plates (see Meehan & Ponder, 2002). If this focus is link to stereotypes about demographic groups and not criminal intelligence, she might miss the traffic violations or crimes committed by other demographic groups to which she does not attend. In a role play in the training program described below (Fair & Impartial Policing), patrol officers are dispatched in a role play to a domestic violence scene and told the perpetrator is still present. They arrive to find the sobbing victim with a man comforting her on one side and a woman comforting her on the other. Invariably the officers approach the man and take him off to the side–leaving the victim next to the actual perpetrator, the female partner. Biases can lead to *ineffective* policing.

Policing based on stereotypes and biases can also be *unsafe*. Much of the community concern about bias since the events in Ferguson has pertained to use of force. The allegation is that law enforcement are over-vigilant with certain groups based on stereotypes about that demographic. (An example is provided below.) But the converse of this potential problem is the danger when police are *under-vigilant* with certain groups based on their biases. Correll et al (2002, 2007) in laboratory "shoot, don't shoot" studies found that both police and non-police subjects were slower to identify a gun in the White man's hand, than in the Black man's hand. The danger of biases leading to under-vigilance was highlighted in a story shared by an officer with the Las Vegas Metropolitan Police Department.[20] This officer was responding to the shooting of two of his fellow officers in 2014. The PD knew little about who had shot these officers, but other events indicated they might be inside a nearby Walmart. The officer telling the story was moving down a Walmart aisle toward a White male that he identified as the killer of his colleagues, when he saw a White female. He reports, "I thought that this woman wasn't going to be a threat and so I let her remain as she was a little bit longer than I should have." Once he realized that she "wants to be exactly where she is right now," he exchanged gunfire with her, wounding her and thwarting the threat. (He was not hit.) In telling his story, this officer recognized that his (very understandable) stereotypes about who is a threat slowed down his response and could have led to his own death.

An additional concern about how biases can be unsafe for police was raised in the New York State Task Force on Police-on-Police Shootings (2010). This Task Force found for both the state and the U.S. that the off-duty, plain clothes officers who were the tragic victims of friendly

20 The story was shared during a segment entitled "Cops See it Differently, Part 2" on "This American Life" broadcast February 13, 2015. Found on 3/20/2017 at https://www.thisamericanlife.org/radio-archives/episode/548/cops-see-it-differently-part-two; segment starts at 54:00.

fire were disproportionately individuals of color. The Task Force writes (2010, p. 3): "Our conclusion from the review is clear; inherent or unconscious racial bias plays a role in shoot/don't-shoot decisions made by officers of all races and ethnicities. The role may be small and subtle, measured during simulations only in milliseconds of action or hesitation, but the patterns . . . are clear and consistent."

Policing based on stereotypes and biases can also be *unjust*. An incident involving a South Carolina Trooper raises the specter of bias impacting on an officer's decision to shoot. In-car cameras show Trooper Sean Groubert pulling over a young man for a traffic stop. They both pull into a gas station and stop their cars. The young man of color emerges from his car and is asked by the trooper to produce his license and registration. The young man turns quickly to reach into the car and the trooper– his on-camera voice clearly indicating fear–opens fire on the man, hitting him in the hip. While it is perilous to try to ascertain motivations, including biased motivations, it is legitimate to ask whether a middle-aged woman engaging in the same behavior would have produced the fear and gunfire on the part of this trooper.

Promoting Bias-Free Policing Through Training

With the assistance of the modern science of bias, the law enforcement profession can be more effective in the efforts to promote bias-free policing. We certainly cannot stop the efforts that agencies have adopted to combat manifestations of *explicit bias*. For instance, agencies try to screen out individuals with explicit biases at the hiring stage; agency leaders try to identify officers with explicit bias (who were *not* screened out at the hiring stage) to hold them to account. The discovery of implicit bias, however, requires that our efforts be more comprehensive. What agencies can do to promote bias-free policing comes under the heading of a "comprehensive program to produce fair and impartial policing." Interventions within the "comprehensive program" are linked to these elements (see Fridell 2017):

- leadership and culture,
- recruitment and hiring,
- bias-free policing policy,
- training,
- supervision,
- accountability,
- measurement,
- outreach to diverse communities, and
- operations.

Highlighted here are guidance for agencies in the realms of training and measurement.

There are two types of training programs for law enforcement that reflect the modern science of bias: (a) implicit bias awareness training and (b) high-quality, scenario based use-of-force training.

Implicit Bias Awareness Training

For many years, across the U.S., traditional "racial profiling" training has missed the mark because some programs were based on outdated understandings of bias and prejudice. Many of these programs have treated the law enforcement audience as if they all manifested explicit bias. The message was that police needed to "stop being prejudiced," with an emphasis on reducing police animus toward marginalized groups. We now know that this message is ill-suited to most law enforcement, who may not hold explicit prejudices. And further, these messages–offensive to most–have produced a backlash against training linked to this topic.

For the overwhelming majority of well-intentioned officers who want to police safely, effectively and justly, the training that is needed is "implicit bias awareness training." Such programs give officers the information they need to recognize their implicit biases and also, importantly, give them the tools to reduce and manage them. These programs use curricula that address not just racial or ethnic bias, but also biases based on other factors such as sexual orientation, gender identity, socio-economic status, gender, and so forth.

The Fair & Impartial Policing (FIP) Training Program (www.fairandimpartialpolicing.com) was developed with the assistance of law enforcement experts and social scientists, and with the financial support of the USDOJ Office of Community Oriented Policing Services (COPS Office). There are specific curricula for various subsets of agencies: (1) recruits in the academy and patrol officers, (2) first-line supervisors, (3) mid-level managers, (4) command-level personnel, and (5) trainers (i.e., the train-the-trainer version).

The mantra of the curriculum for academy recruits or in-service patrol officers is: "policing based on stereotypes and biases is ineffective, unsafe, and unjust." Trainees learn (1) about the science of bias, (2) how individuals can reduce and manage their biases, (3) how impartial policing is linked to the concepts of procedural justice and legitimacy, and (4) what they need to do as police professionals to ensure bias-free policing.

First-line supervisors and mid-level managers, like the patrol officers, need to understand the science of bias and the tools for reducing and managing them. However, these groups also need to understand how to "scan" for biased policing on the part of their subordinates and how

to intervene when bias is suspected. It is made plain during the training that identifying biased behavior is not easy, because "biased policing" is, by definition, linked to the motivations of the officer. The training program guides supervisors on when and how they can (and should) intervene to stop what *appears* to be inappropriate conduct, while keeping in mind the ambiguous nature of the evidence and the sensitive nature of the issue. The newly updated 2017 version trains supervisors to engage in "crucial conversations" (Patterson et al., 2012) and discusses how biases can manifest *internal to the agency* in the form of "managerial bias."

The command-level FIP curriculum is arguably most effective when the agency executive invites concerned community stakeholders to participate. Full-group and small-group discussions allow participants to share their views; perspectives; and, sometimes, their long-held frustrations. Together they learn about the implications of the science of bias for police policies and practices. This program covers the previously mentioned "comprehensive program to produce fair and impartial policing." After participating in the program, police executives come away from the training with preliminary action plans.

Importantly, implicit bias awareness curricula do not have to, indeed *should not*, ignore the elephant in the room. It is a criminological fact that some demographic groups engage disproportionately in some types of crimes. White individuals are disproportionately represented among people involved in crimes of the powerful (see e.g., Lynch & Michalowski, 2006) and people of color are disproportionately represented among people who commit street crimes (see e.g., Kubrin & Weitzer, 2003; McNulty & Bellair, 2003; Sampson et al., 2005). That these disparities exist does not negate the existence nor harm of implicit biases. It is time to bury the false narrative that there is *either* (a) disparity in criminal behavior across demographic groups, or (b) police bias. There can be both.[21]

These training sessions can produce a transformation in thinking among participants. It is not unusual, in fact it is common, for attendees to enter the room for Fair & Impartial Policing training with attitudes that are defensive or even hostile. They may expect another program that treats them as if they all have explicit biases. But then the trainers start to talk about science; and it is not the science of *police* bias, it is the science of human bias. The attendees start to learn about how their human biases might make them unsafe, ineffective and unjust, and the defenses start to melt away. Comments in evaluations include:

- **Recruit Participant:** *I learned what 'implicit bias' means and understand its effects on me, (the) decisions I make and (the) community perceptions of officers.*
- **Patrol Officer Participant:** *We were told we were going to 'racial profiling' class all day and, to be honest, that already put me off–thinking it was going to be the same stuff we always get. I was very, very surprised and happy to receive this training today.*
- **Mid-level Manager Participant:** *(The training) gave me some eye-opening information. I used to say I wasn't biased; I can no longer say that. However, this course has given me the opportunity to have an open conversation about this topic.*
- **Command-level Participant:** *I am leaving the class with a new perspective on my own views and beliefs. I have a new awareness of bias-based policing within my own agency. The presentation of scientific data provided me with a more convincing argument that supported the existence of unintentional, but widespread racial bias, which I was typically quick to dismiss.*
- **Training-of-Trainers (TOT) Program Participant:** *(I) wanted nothing to do with FIP or its philosophy. As fate would have it I was "hand-picked" to attend the (train-the-trainer) classes and forced to go after presenting every excuse I could come up … I came in Monday as opposed and defensive as I could covertly be without getting into trouble…. It took about two hours and I was sold on the theory of the class and wondering why I had not been through this training sooner.*

High-Quality, Scenario-Based Use of Force Training

The implicit bias awareness training described in the previous section is most relevant for those decisions where the law enforcement professional has a moment, even a brief one, to contemplate how his or her biases might be impacting on him/her. The program helps them recognize when implicit biases might be manifesting and helps them to thwart their impact on behavior. Some police decisions, however, do not allow for that moment of contemplation. This is especially true of often quick-moving use-of-force situations. To help thwart the impact of human biases on these split-second decisions, agencies need to provide scenario-based, use-of-force judgment training that conditions officers to focus not on demographics, but on indicators of threat. The implicit bias concept—exposure to counter-stereotypes (see e.g., Blair et al., 2001; Dasgupta & Rivera, 2008)—can be used to explain the potential of this bias-reducing training. In modern, state-of-the-art, use-of-force training, officers "role play" while interacting with one or more individuals in video scenarios. The officer must determine whether or not the person in the scenario is a threat and, if the

21 Agency policy on biased policing is important for communicating clearly to personnel when it is legitimate, and when it is not, to consider demographics in making law enforcement decisions. See Fridell 2017.

person *is* a threat, the appropriate amount of force to use. This raises the question: How might effective use-of-force training take the demographics—and associated stereotypes and biases—out of that decision-making? The answer is as follows: The individuals who turn out to be a threat in a given scenario must be just as likely White as Black, just as likely female as male, just as likely old as young, and so forth. With prolonged exposure to these counter-stereotypes over time, the law enforcement officer should learn that demographics are "non-diagnostic" in terms of threat, and the officer should instead redirect his focus to different clues, such as placement of hands and other subject behavior. Laboratory studies indicate the potential value of this exposure for removing the effect of demographics—and the associated stereotypes—from split-second decisions regarding the use force (Plant et al., 2005; Plant & Peruche, 2005).[22]

Numerous agencies use video scenarios for their use-of-force judgment training and it is not unusual for a scenario to include a counter-stereotype. But it is reasonable to ask whether law enforcement agencies provide *enough* of this scenario training to in-service officers to produce the effect that both theory and preliminary research says is possible. According to research by Morrison and Garner (2011), fewer than half of police agencies have access to video-simulator training and, of those that *do* have access, the level of exposure to scenarios for in-service officers (versus recruits) is very low. Six in ten of the agencies that currently have these resources expose their officers to fewer than four scenarios annually, while a quarter expose their officers to just one scenario a year. And those scenarios to which these officers are exposed may not contain the requisite elements to produce the desired outcome.

Vehicle Stop Data Collection to Measure Biased Policing

As shared above, there are a number of elements associated with the comprehensive program to produce fair and impartial policing (e.g., leadership and culture, recruitment and hiring, policy, supervision). The previous section highlighted the importance of agency training for producing bias-free policing; the measurement element is highlighted here since traffic enforcement has been key to some of the efforts to *measure* biased policing. Many agencies and several states have implemented vehicle stop data collection, whereby officers making stops record/transmit information on the stop, such as the perceived demographics of the person stopped, the reason for the stop, activities during the stop (e.g., search), the disposition of the stop (e.g., ticket) and so forth. There are benefits and costs of vehicle stop data collection (see Fridell 2004, 2017). On the "pro" side, data collection can convey the agency's commitment to unbiased policing, can give the agency information on what officers are doing, and might deter biased policing. On the other hand, the cons or costs include the time it takes officers to fill out forms and for supervisors to ensure they are being submitted, the resources devoted to data input and analysis, and the misuse or misreporting of results. And much of the debate, too, is centered on this question: *what can we actually measure?* The aspiration, of course, is to measure biased policing and yet these systems are wanting relevant to that goal. What agencies or their social science partners can do with these data is measure disparity. For instance, the data can be used to determine if, for instance, one demographic group is stopped disproportionate to its representation in a comparison (benchmark) population. What is much more challenging, however, is determining the causes or sources of disparity. The identified disparity might be produced in part by law enforcement bias, but it could also be produced in whole or in part by other legitimate factors such as differences in driving quantity, quality and location (see Fridell, 2004). The fact that disparity is not to be equated with police bias is often lost on key audiences, including community members and the press.

Agencies that choose to engage in vehicle stop data collection, or that are required to, would be well served to partner with a social scientist for designing the system and conducting the analysis. (And, remember, many university professors will offer their services without charge, in exchange for the use of the data in their research.) Agencies should also involve key community stakeholders in the discussion and planning early on and educate these individuals on the promise and constraints associated with data collection so that they can assist agency leaders in conveying the true meaning of the results to the broader public.

But also important is maintaining perspective with regard to where vehicle stop data collection fits into an agency's commitment to bias-free policing. Data collection imperfectly measures biased policing; all of the other elements of a comprehensive program (outlined above) actually do something about it. Therefore, it is legitimate for an agency leader with finite resources to decide that measurement is not as important as effective implicit-bias awareness training, use-of-force video training with exposure to counter-stereotypes, or other efforts designed to produce bias-free policing.

22 To be most effective, research on implicit bias indicates that these scenarios with counter stereotypes should be placed in ambiguous-threat situations. See Fridell 2017.

Conclusion

Concerns on the part of community members of biased policing go way back in our history. For many years, leaders were frustrated in their attempts to understand and respond to these concerns. Fortunately, the social scientists have provided important information that can advance our understanding of, and our efforts to achieve, biased policing. Police professionals—from the line level to the corner office–have new tools to promote bias-free policing in traffic enforcement and all other law enforcement activities.

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Highly Automated and Connected Vehicles

By: **Staff Sergeant Terence McDonnell,** New York State Police, Albany, New York

Technology advancements are transforming society on a daily basis and this is especially true of automotive transportation. The modern motor vehicle is a computer-controlled machine that is becoming increasingly automated. Fully self-driving vehicles, once a thing of fantasy, are today considered inevitable. While this transformation may be unnerving to some, it holds tremendous potential to reduce motor vehicle crashes and their resultant injuries and fatalities. The National Highway Traffic Safety Administration (NHTSA) estimates that human error is a factor in more than 90 percent of traffic crashes. Therefore, if human operation is removed from the driving task, tremendous public safety benefits should be attainable. In addition, the integration of technologies that allow modern motor vehicles to continually communicate both with each other and with the roadway infrastructure promises to improve safety and efficiency and thereby improve public health. Finally, driverless cars promise increased mobility and independence for large segments of society, including the elderly, the blind, and the physically and mentally challenged.

However, such transformative technologies do not come without risk, and regulators and lawmakers are challenged

to strike a balance between encouraging testing and deployment of these vehicles on public roads and potentially hampering technological development due to perceived safety threats. States and political jurisdictions worldwide have taken varying approaches in this regard.

At the federal level in the United States, NHTSA issued its first Federal Automated Vehicles Policy in September 2016, which the Secretary of Transportation acknowledged was not intended to be the final word but merely a framework and foundation on which to build for the future. [1] Indeed, the NHTSA Policy is not regulatory in nature, serving merely as guidance to the industry. It is important to realize that such technologies are also applicable to commercial motor vehicles and there is a tremendous potential for improved safety and economy for connected and automated trucks. Like NHTSA, the Federal Motor Carrier Safety Administration (FMCSA), which bears responsibility for the safety of the nation's trucking industry, is also engaged in an ongoing effort to balance its safety mission without hampering technological development and integration in the trucking industry.

Autonomous Vehicles: Revolution or Evolution

The history of vehicle automation has largely followed two divergent strategies: a revolutionary approach and an evolutionary one. The revolutionary approach is dedicated solely to the development of fully autonomous vehicles, based largely on GPS tracking, integrated mapping and telemetry, and development of artificial intelligence to enable the vehicle to "recognize" its environment and "learn" how to respond appropriately based upon millions of miles of experience, much the same way humans learn to drive. The evolutionary approach is based upon integration of multiple technologies and capabilities, such as lane centering, crash avoidance, blind spot monitoring, and adaptive cruise control, which may allow a human operator to cede driving responsibilities to the vehicle itself under certain circumstances only, enroute to perfection of the systems and ultimately to autonomous driving.

SAE International (formerly the Society of Automotive Engineers) developed a six level taxonomy for automated vehicles ranging from no automation (Level 0) to full automation (Level 5) in order to provide a standard framework for the industry and regulators alike [2]. This system has been widely adopted and includes a lexicon of standard terms used in the industry. Highly automated vehicles are considered Levels 3 and 4, and are differentiated by whether the human operator needs to be prepared to take control of the vehicle under circumstances outside of the vehicle's operational design capabilities (Level 3 – Conditional Driving Automation) or if the vehicle itself is capable of achieving a minimal risk condition without human intervention under such circumstances (Level 4 – High Driving Automation). A Level 5 vehicle is fully autonomous and may be designed to operate without manual steering or operational controls or even without a human onboard.

Connected Vehicles

In contrast to autonomous vehicle technology, connected vehicle technologies refer to any of a variety of communications technologies which facilitate information sharing between vehicles (vehicle-to-vehicle, also known as V2V), between vehicles and the roadway infrastructure (vehicle-to-infrastructure, also known as V2I), and the vehicle and anything (V2X), including via the internet and "cloud-based" applications. Connected vehicle technologies are largely envisioned to operate on a Dedicated Short Range Communications (DSRC) frequency (5.9 GHz) set aside by the Federal Communications Commission (FCC) specifically for this purpose. DSRC technologies are capable of V2V communications up to about 300 meters, and V2I with roadside equipment at a range of 800 meters or more [3]. Other communications technologies, such as 4G and 5G, may also be integrated in connected vehicles. A wide variety of V2X capabilities are possible, including:

- Intersection and vehicle-to-vehicle collision avoidance
- Intersection control for traffic volume harmonization
- Approaching emergency vehicle warnings
- Roadway alerts and traveler information
- Vehicle performance optimization and resultant fuel economy/environmental benefits
- Commercial vehicle safety inspection clearance
- Toll and parking management.

Several connected vehicle technologies are under development specifically for use by the law enforcement/first responder community, including:

- Intersection signal prioritization for emergency vehicles
- Enhanced interoperability between first responders enroute to or on the scene of emergencies
- Situational awareness and staging guidance
- Public messaging to approaching traffic from on scene first responders
- Public messaging to aid "move over" law compliance
- Automatic notifications to dispatch points

- Direct communications with highly automated or fully autonomous vehicles
- Electronic VIN and vehicle pedigree transmission to emergency responders to identify potential hazards at crash scenes prior to approach.
- Although connected vehicle technologies have evolved relatively independent of autonomous vehicle technologies, there are obvious safety benefits of integrating both to achieve a safety synergy.

Law Enforcement Concerns

While highly automated vehicles hold great promise for the improvement of public safety, there are also significant law enforcement concerns inherent in the testing and deployment of these vehicles on public roads, particularly as they integrate with traditional vehicles under human operation. These include, but are not limited to:

- Enforcement of traffic laws, operator responsibility, and liability
- Risks to first responders from unintended movements/ unexpected behavior
- Access to data for crash investigations
- Vehicle response to manual traffic controls/hand gestures
- Vehicle response to emergency vehicles
- Vehicle identification as highly automated or fully autonomous vehicles
- Cybersecurity and criminal use
- Criminal behavior targeting vehicles with predictable behavior
- Commercial vehicle safety and integration of automated commercial vehicles with traffic
- Training needs of law enforcement officers nationwide

Technological advancements are occurring rapidly. Although industry and safety organizations alike caution against the temptation to enact laws and regulations governing highly automated vehicles, law enforcement should stay informed and engaged on the issues. It is incumbent upon law enforcement leaders to ensure that the needs and concerns of their officers and communities are given proper consideration as jurisdictions consider the testing and subsequent deployment of highly automated and connected vehicles.

Notes

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Legalization of Marijuana: Issues for Traffic Safety

By: **Dr. Darrin T. Grondel,** *Director*, Washington Traffic Safety Commission and *Chairman*, Governor Highway Safety Administration

Throughout the U.S., marijuana is the most commonly detected non-alcohol drug found in drivers who died within one hour of a motor vehicle crash. Data from the National Highway Traffic Safety Administration (NHTSA) National Roadside Survey (NRS) in 2013-2014, noted that more than 22.5 percent of night-time drivers tested positive for illegal, prescription, or over-the-counter medications (based on the combined results of either or both oral fluid and blood tests. [1, 2, 3] Additionally, 8.6 percent of weekend nighttime drivers tested positive for psychoactive THC. This number increased to 12.6 percent in the 2013- 2014 NRS, a 48 percent increase. [4]

In 2012, Washington State and Colorado were the first states to legalize recreational marijuana. This set the stage for numerous state public initiatives and legislative actions around the U.S., resulting in a patchwork of differing marijuana laws.

As a result, law enforcement executives are grappling with the various challenges legalization poses to the safety of their communities, especially in the arena of fatal and serious injury collisions due to drug impaired driving. This article provides a high-level overview of lessons learned, areas of focus, resources and training, and other useful information to enhance a jurisdictions preparation, response, and resource allocation.

Marijuana 101

This basic overview is critical in establishing a foundation for understanding the definitions and terminology prior to jumping into a discussion of marijuana legalization. Law enforcement professionals are generally attuned to marijuana and its impairing effects, however, what do we really know about cannabis? Do we understand the chemistry and the differences between delta-*9tetrahydrocannabinol (Δ9-THC), 11-Hydroxy-THC or 11-OH-*

THC and *11-nor-9-Carboxy THC or THC-COOH*, known as Carboxy and why this is important?

"Marijuana or cannabis consists of 483 compounds and 84 different cannabinoids - these are different classes of chemical compounds that act on cannabinoid receptors in cells that repress neurotransmitter release in the brain." [5] In examining the various THC metabolites, it is important to understand the differences between psychoactive (impairing) and inactive (not impairing). The following is not a scientific resource but for contextual purposes only:

THC or delta-9tetrahydrocannabinol (Δ9-THC) is the most well-known cannabinoid and the main psychoactive substance found in marijuana.

Hydroxy-THC *11-Hydroxy-THC or 11-OH-THC*, is a psychoactive metabolite of THC formed in the body after marijuana is ingested or consumed.

Carboxy-THC is an inactive metabolite of THC formed in the body after marijuana is consumed and is not a psychoactive substance. Carboxy-THC can remain in the body for days or weeks and may show up in chemical tests, indicative of recent use. Carboxy-THC is not a useful indicator for impairment.

Marijuana is significantly different than alcohol; however, the public and even some within the criminal justice community erroneously try to compare them, especially when it comes to per se blood concentrations. Per se relates to a statutory prohibition of a blood concentration. For example, 5 Nanograms/mLis used by some states as a cutoff, whereby anyone over 5 nanongrams/mL is presumed to be impaired. The chemical composition, methods of ingestion, absorption, and presentation of impairment between marijuana and alcohol are very different. The patch work of legislation and the lack of research have resulted in three types of per se laws for driving under the influence of drugs:

- Per se: illegal to drive with amounts of specified drugs in the body exceeding set statutory limits. The Per Se limits in the United States range from zero tolerance to 5 nanograms.
- Driving Under the Influence of Drugs (DUID): illegal to drive while impaired by any drug or substance.
- Zero Tolerance: illegal to drive with any amount of specified drugs in the body.

See NMS (2014) for key provisions of each state's laws and procedures.

There are a number of research studies regarding the effects of THC on the brain, including evidence that THC binds with cannabinoid receptors in the brain, the hippocampus (short-term memory), cerebellum (coordination), and basal ganglia (area of the brain managing unconscious muscle movement), and other parts of the body. Marijuana is a lipid (fat) soluble, and is therefore stored in the fatty tissues (including the brain), as opposed to water-soluble, like alcohol, which distributes into areas of the body with a high water content, such as the blood. [6]

The legalization movement has raised the awareness of the importance of enforcement and toxicology. Officers traditionally make a stop on a suspected impaired driver, make observations of the driver's behavior, notice the presence or lack of an odor of intoxicants, conduct standard field sobriety tests (SFST) and make an arrest based on the totality of the circumstances. In many cases, once a breath alcohol reading in excess of .08g is obtained, the officer generally concludes the investigation without considering if drugs might also be a consideration of impairment. Unfortunately, legalization has identified this gap in the DUI investigation process. Toxicology reports are indicating the presence of multiple drugs to include alcohol in a driver's system, also known as poly drug use, which could be amplifying the impairment but is not being collected as part of the DUI investigation. Officers also need to be conscientious of drivers who exhibit signs of impairment and have a low portable breath test (PBT) or BAC result. It is not uncommon for those who have consumed drugs to have also consumed a beer or two prior to driving and, if stopped, would produce a low PBT reading and potentially be released without further investigation.

Despite the increased risk of drugged driving, jurisdictions are operating from a deficit in regards to baseline data, reliable database systems, and consistent data on marijuana or drug related crashes.

Data

Legalization has highlighted a significant data gap, "Most state data on drugged driving in its current form is of limited use for measuring and tracking drugged driving incidents, evaluating the effects of changing laws... and or improving our knowledge about drug use and driving impairment." [7] Inadequate data systems at a national, state, and local level are complicating the issues and providing a misperception to the public regarding the level of risk resulting from drugged driving. Law enforcement leaders need to play an active role in current and future database systems, weighing in on the type of data collected, and methods of collection, with consideration of improving the quality and value of the data.

In Washington state, an evaluation of crash reports and toxicology highlighted the importance of delineating

between the presence of active or non-active THC and other drugs and impairment. The increase in testing puts additional pressures on labs by requiring more trained technicians, supplies, and hours in court.

Fatal and serious injury crash reports may display the quantity of a drug listed, but may only indicate one drug even though the toxicology report identified several substances in the drivers system. The NHTSA Fatality Analysis Reporting System (FARS) captures alcohol use and the BAC level; however, FARS only allows for three drugs to be entered into the fatality report, by name only and does not allow for the blood level. FARS is the official database for all fatality crashes in the United States and should have no limitations on the number of substances entered and should include the toxicology results for a national perspective on drugs involved in fatality crashes.

A question that states with legalized marijuana often receive is, "Have fatality collisions increased with drivers positive for THC?" This is a difficult question to answer with the lack of good baseline data. In response to legalization, Washington state completed a descriptive report entitled, "Driver Toxicology Testing and the Involvement of Marijuana in Fatal Crashes, 2010-2014." The analysis on fatality crashes delineated psychoactive THC and non-active Carboxy-THC, to assess potential impacts of legalization on fatality crashes. In 2014, 84.3 percent of Washington drivers positive for cannabinoids were positive for active THC, compared to only 44.4 percent of cannabinoid-positive drivers in 2010. In this descriptive report, of 75 drivers involved in fatal crashes who tested positive for active THC, approximately half (38) exceeded the 5 ng/ml THC per se limit. In 2015, 36.4 percent of fatalities involved a drug-positive driver and 19.9 percent involved an alcohol-impaired driver, marking the fourth year in a row where drug involvement occurred more frequently than alcohol impairment. Many drivers were impaired by a combination of multiple drugs or by drugs and alcohol, an increasingly-common factor known as the "poly-drug use." Washington drivers involved in fatal crashes who were under the influence of multiple drugs (including alcohol) rose from 82 in 2011 to 146 in 2015, a 78 percent increase. In Washington State from 2013 - 2015, impaired drivers (including those with alcohol BAC >= .08 or drug-positive) were a factor in nearly half (49.4 percent) of all traffic fatalities and 19.2 percent of all serious injuries. Impaired driver-involved fatalities increased 6.5 percent in 2013 - 2015 (717) compared with 2010 - 2012 (673). [8]

Law enforcement leaders must consider data collection, methods, and sources as one of their highest priorities in addressing drugged driving, regardless of whether their jurisdiction is facing legalization or not. This data is essential to accurately and objectively educate the public and future jurors on the issues of drugged driving.

Public Perception

Several state and national surveys have identified a divergence in public perceptions between drunk driving and drugged driving. The results demonstrate a public indifference towards drugged driving (Responsibility.org) and abhorrence to drunk driving. The public tend to view drunk driving as clearly dangerous and socially unacceptable with decades of research to substantiate the dangers of alcohol-impaired drivers. Conversely, with mixed information and a lack of substantive research regarding drugged driving, the public does not feel strongly one way or the other about drugged driving. As a result of legalization and the fervent debate surrounding impairment by marijuana, leading researchers from around the world are undertaking a variety of research proposals to better understand the science of marijuana impairment.

Law enforcement organizations working collaboratively with their respective stakeholders need to develop key messaging using accurate data and relevant research to show the impacts of marijuana use on impaired driving.

The Pacific Institute for Research and Evaluation (PIRE), on contract with the National Highway Traffic Safety Administration, conducted a Roadside Survey in Washington State in 2014 and 2015, where they surveyed 926 drivers in five counties. Of drivers who said they had used marijuana within two hours of driving, 67 percent said that it made no difference in their driving with some respondents indicating it made them a safer driver. This self-reported data is an area of opportunity to educate the public on what is known about marijuana and the impacts it has on the brain, overall coordination, depth perception and ability to operate a motor vehicle. [9]

Research

The overarching theme around legalization of marijuana remains a knowledge gap around the effects of cannabis (and other drugs) on driving. This is challenging for those on both sides of the issue. Some proponents of marijuana legalization claiming it is safer than alcohol, they are safer drivers, and it has no effect on driving. Over the past 40 years empirical research clearly demonstrates a strong relationship between BAC levels and levels of impairment. Conversely, research establishing levels of impairment with psychoactive drugs is not well documented. Research in this area is challenged since, "Most psychoactive drugs are chemically complex molecules, whose absorption, action and elimination from the body are difficult to predict, and considerable differences exist between individuals with regard to the rates with which these processes occur." [10] The strength and potency of marijuana has changed dramatically, especially since legalization. While most governmental research involving marijuana utilized THC

levels of 3-6 percent, this is well below what states are seeing in the varying products available to consumers (flower, edibles, liquids, and other consumable products), which have been recorded with THC levels closer to 30-40 percent and hash oils reaching upwards of 92 percent THC. The impact these products have on driving requires additional research to accurately reflect crash risk.

Enforcement

Drug impaired driving may be perceived as being more complex than alcohol-impaired driving, necessitating officers to have a higher level of training and expertise. However, drug impaired driving should not be seen as more challenging. The officers do need to have some additional training to identify the signs and symptoms to successfully determine drug impairment. In some states SFST training is not part of the basic Police Officer Standards and Training certification course, which should be included and mandated for all officers.

Law enforcement leaders need to ensure their officers are SFST trained and maintain certification if applicable in their jurisdiction. Agencies should also consider training all officers in Advanced Roadside Impaired Driving Enforcement Training (ARIDE), and in consideration of agency size and geographical dispersion should have a number of officers trained as Drug Recognition Experts (DREs).

Due to the complexity and time required to process a drug-impaired driver and challenges in prosecution, law enforcement leaders need to be aware of the issues to be actively engaged in helping officers stay motivated in combatting overall impaired drivers.

Jurisdictional Considerations

The preceding information provided a foundation of the issues and challenges with legalization relevant for law enforcement leaders. The following are considerations for executives to consider in addressing the issue of legalization and the impacts on impaired driving.

- Creation of an Impaired Driving Task Force or Working Group comprised of various disciplines and subject matter experts. Some states have included a representative from the marijuana industry. The group can outline the roles, responsibilities, and deliverables but should consider:
  - Developing baseline data if possible with current data available and identifying the gaps
    - » Crash – arrest data, toxicology, hospital, public perceptions/attitudes on driving, healthy youth surveys, etc.
  - Assess
    - » Current DUI and DUID laws – definitions, laws, gap analysis
    - » Medical and Recreational – what is truly medical? What conditions? Dosage? How is it managed? Who will regulate?
    - » Judicial – review current laws, sanctions, and training – comparison with legalized states and countries
    - » Impaired driving training in respective jurisdictions
- Develop and implement an educational campaign with materials in multiple languages and relevant to various cultures
- Evaluate data collection sources (e.g. traffic crash data, toxicology, poison control, hospital, etc.)
  - What information is collected? How is it collected? Who has access for analysis? Are the systems connected for data sharing to get a broader perspective?
- Creation of a Marijuana Regulatory Agency
  - Full enforcement authority
  - Track from seed to sale
  - Packaging requirements with THC level, not attractive to children
  - Rules and regulations
- Seek dedicated funding sources from marijuana revenues for education and enforcement
- What DUID laws will be considered:
  - Illegal to drive while impaired by any drug or substance or,
  - Zero Tolerance – Illegal to drive with any amount of specified drugs in the body or,
  - Per se: illegal to drive with amounts of specified drugs in the body exceeding set limits
- Law enforcement training to include SFTS, ARIDE, and DRE
- Utilize Traffic Safety Resource Prosecutors to support prosecution and training
- Process of developing or enhancing electronic search warrants for blood

- Chemical Evidence – Oral Swabs, Blood or Urine
  - Phlebotomy for LE officers – this is a paradigm shift and provides support for the system of arrest creating efficiency with more timely evidence collection, single chain of custody for blood evidence and testimony, and can be done road side or at a secure facility.
  - What percentage of surviving and deceased drivers are tested for drugs in your jurisdiction? Do the coroners or medical examiners provide a toxicology screen with the death certificate?
- Toxicology evidence collection and analysis – How will it be collected? What are the screening tolerances? What impacts will legalization have on the crime lab and what resources are needed? Is the lab centralized or do samples need to go out of state?

The legalization of marijuana highlights new and unique challenges for law enforcement organizations, the criminal justice system, and our communities. The local, state, and national data on impaired driving, particularly drugged driving, is on the rise and compelling to take action. Throughout the U.S., we are seeing significant changes in our culture and social acceptance of impairing drugs, as such law enforcement executives need to prioritize traffic safety training, initiatives, and programs to combat impaired driving. This needs to be a collaborative approach to addressing key processes and countermeasures to support public safety and the quality of life in your community.

This chapter has provided you with a deeper understanding of the issues and challenges of marijuana legalization, including lessons learned from states that have legalized. Law enforcement executives should assess each jurisdictional consideration, in particular the training their officers have received and available training to elevate their skills, which should be a foundational step moving forward.

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Are Red Light Cameras an Effective Crash-Reduction Solution?

By: **Richard J. Ashton,** *Chief of Police (Retired),* Frederick, Maryland

Picture a young family leaving a large suburban shopping mall in a late model SUV after an afternoon of shopping for summer clothes for an upcoming vacation and enjoying pizza and ice cream. As their SUV enters the roadway from the mall on a green traffic signal and begins to make a left turn, it is broadsided by a pickup truck that fails to stop for a red traffic signal. The family members' lives are shattered forever. Even though all were using appropriate occupant restraints at the time of the crash, the 29-year-old father is pronounced dead on the scene; the 6-year-old son sustains serious internal injuries; and his 4-year-old sister and his mother suffer no physical injuries. The 26-year-old driver of the truck is uninjured.

Sadly, this scenario was repeated, on average, more than twice a day in the United States in 2008 when 762 lives were lost in crashes resulting from red light violations. [1] Sixty-four percent of those killed in 2009 were in vehicles other than the one that ran the red light. [2]

When traffic control signals operate as intended, they facilitate the systematic movement of the greatest amount of traffic in the least amount of time with the greatest amount of safety and with the least amount of congestion. However, when drivers fail to heed signals' directions, crashes often occur, and, sometimes, our relatives, neighbors, friends, and coworkers are seriously injured or killed. In 2005 and 2006, about 21 percent of all traffic fatalities in the United States occurred at intersections, and approximately 30 percent of those intersections were signalized. [3]

Law enforcement officers initiate effective enforcement actions—ideally on the days and at the times and locations that these violations historically have transpired—to increase red light compliance and thereby reduce the needless deaths and injuries they produce. Realistically, however, officers are unable to undertake traffic enforcement as often as they wish because of competing demands and ever-growing workloads at a time when their agencies' authorized strengths and budgets are dwindling. Even when officers are able to enforce against red light violations, their efforts often add to existing congestion and lead to frustration when these officers cannot safely apprehend violators or even stop their vehicles on shoulders that are sufficiently wide.

Automated red light photo enforcement cameras (red light cameras) "can prevent the most serious crashes" [4] and can augment—not supplant—officers' enforcement efforts. These programs have grown exponentially in the United States, from 1 in 1992 [5] to 535 in April 2011; [6] have been supported by the IACP since 1998; [7] and should serve only one purpose: to enforce 24/7 against red light violations in an effort to reduce the crashes they trigger, as well as the deaths and injuries they cause.

Following are several items that support the effectiveness of red light cameras: [8]

- A 2011 study compared fatal intersection crash rates before (1992–1996) and after (2004–2008) 14 U.S. cities with populations of 200,000 or more had implemented red light cameras and then compared those results to 48 similarly sized cities without cameras during both periods. It found that the average annual rate of fatal red light–running crashes had

declined for both study groups, but the decline had been greater for cities with red light cameras than for cities without them (35 percent versus 14 percent); and that the average annual rate of all fatal crashes at signalized intersections had decreased by 14 percent for cities with red light cameras and had increased slightly (2 percent) for cities without them. The study concluded that red light cameras had reduced the citywide rate of fatal red light–running crashes and, to a lesser but still significant extent, the rate of all fatal crashes at signalized intersections. [9]

- Howard County, Maryland, began testing red light cameras in 1994; has utilized them for enforcement since 1997; has regularly evaluated its program; and has found "substantial overall crash reductions at almost every approach that had a red light camera," with the majority of the approaches experiencing reductions in excess of 10 percent. [10] Overall, Howard County realized a 31 percent reduction in all crashes, a 42 percent decrease in angle crashes, and a 30 percent decline in rear-end crashes. [11] Moreover, a 2002 socioeconomic cost of collision study conducted by the Maryland State Highway Administration at Howard County and other Maryland red light camera sites identified statistically significant reductions in overall crashes and in left-turn crashes, which resulted in an average cost savings of $196,000 per intersection studied. [12]

- When the Virginia legislature allowed the statute under which red light cameras had been authorized to lapse in 2005, the relative risk of red light running in the months immediately following their discontinuation was 2.63 times higher at four Virginia Beach intersections, and it increased at those same intersections to 3.59 times higher one year after the law's demise. [13]

- A study conducted between July 1, 2007, and June 30, 2008, by the Texas A&M University System's Texas Transportation Institute of 56 intersections with red light cameras in 10 Texas cities showed an average 30 percent decrease in overall crashes, as well as an average 43 percent reduction in right-angle crashes. [14]

- The Transportation Research Board's 2003 synthesis suggested that "automated enforcement of red light running can be an effective safety countermeasure." [15]To that end,

  - *There is a preponderance of evidence, albeit not conclusive, indicating that red light–running camera systems improve the overall safety of intersections where they are used . . . There is also evidence, also not conclusive, that there is a "spillover" effect to other signalized intersections within a jurisdiction.* [16] *Although nearly every study and crash analysis performed . . . has had some experimental design or analysis flaw or deficiency, there is considerable "evidence" that [red light] cameras do have an overall positive effect.* [17]

Considerations

While evidence supports the effectiveness of red light cameras, jurisdictions considering their use should think about several issues to ensure program success.

- Red light cameras should be implemented only to benefit public safety and once an engineering study supporting their installation at the intersection or intersections under consideration has been completed. Unfortunately, too many jurisdictions have obtained red light cameras to generate revenue by placing them at intersections through which many drivers run red lights but that lack histories of serious collisions amenable to reduction via red light cameras. Some exacerbate this situation by reducing the length of the yellow change interval at the same time as the cameras became operational, obviously creating additional violations and more revenue to offset budget shortfalls or to fund other items. One small municipality even attempted to fund from red light camera fines a police officer retirement system. However, this municipality failed to realize that the jurisdiction's limited number of red light cameras working 24/7 would achieve only its goal of significantly reducing violations and would not produce a meaningful revenue stream over time.

- Jurisdictions considering the installation of red light cameras need to investigate first what is causing the crashes they wish to reduce. Not all collisions at red light–controlled intersections can be cured by red light cameras. A poorly designed intersection or a signal obscured by sunlight at certain times will not become safer with red light cameras. Philadelphia, Pennsylvania, mixed and matched its solution by increasing the yellow change interval by about one second, reducing red light violations by 36 percent [18] and, by installing several months later red light cameras, decreasing red light violations further by 96 percent. [19] Other jurisdictions have achieved success simply by increasing the yellow change interval, which the Federal Highway Administration (FHWA) recommends be a minimum duration of three seconds and a maximum duration of six seconds. [20]

Source: National Cooperative Highway Research Program

- A conscientious review of the photographs taken by red light cameras should be undertaken before any action against an alleged violator is initiated. This process ensures that anything other than bona fide violations are eliminated early on; should be conducted by experienced law enforcement officers, who could be retirees or officers assigned to limited duties; and prevents the embarrassment of citing a violator whose vehicle did not commit a clear-cut violation, was in a funeral procession, or whose registration plate was obscured. Only about 35 percent of photographs in Sacramento, California, result in the issuance of citations. [21]

- One of the reasons for installing traffic control signals is to reduce the frequency and the severity of certain types of crashes, especially right-angle collisions. [22] Of the approximately 21 percent of traffic fatalities in the United States occurring at intersections in both 2005 and 2006, about 46 percent of them were T-bone collisions and only 5 percent were rear-end crashes. [23] Broadside crashes have declined in many jurisdictions where red light cameras have been adopted. For example, Oxnard, California, realized a 32 percent decrease in T-bone crashes and a 68 percent reduction in right-angle collisions involving injuries. [24] Although some studies have indicated that the installation of red light cameras has increased the number of rear-end crashes, others have not. [25] In any event, rear-end crashes tend to be less serious in terms of injury and cost than right-angle crashes. [26] Perhaps rear-end crashes will decline once motorists become acclimated to vehicles' stopping at yellow lights rather than continuing through intersections—the latter of which many did prior to the installation of cameras. In the aforementioned Texas study of 56 intersections, rear-end collisions increased 5 percent (by 5 crashes) during the 12-month study; however, in terms of those occurring at intersections where there had been more than 10 crashes per year, the number of rear-end crashes actually decreased. [27] In the Oxnard study, rear-end crashes increased a statistically insignificant 3 percent. [28] In Howard County, they dropped a total of 30 percent at all but one involved site. [29]

- Red light cameras are a relatively new enforcement technology, and their adoption may require amending existing laws or ordinances so a jurisdiction's program is not derailed when reality conflicts with prevailing statutes. Consulting with competent legal counsel; contacting nearby jurisdictions to ascertain what legislative obstacles they have encountered; and reviewing such publications as the FHWA and the National Highway Traffic Safety Administration's *Red Light Camera Systems Operational Guidelines*, [30] the IACP's *Highway Safety Desk Book*, [31] and the IACP's *Manual of Police Traffic Services Policies and Procedures* [32] during the program's planning phase will allow jurisdictions to identify and avoid the pitfalls others endured.

Final Thoughts

Red light camera programs should be evaluated periodically to recognize whether or not their intended purpose still is being achieved. The importance of discovering intersections where crashes are not declining is as significant as identifying those where they are, so the former can be analyzed further to ensure the appropriate crash-reducer is implemented. The results of these evaluations may yield information upon which to focus future efforts. For example, the study of 46,997 red light violations at 11 intersections in Sacramento, California, between May 1999 and June 2003 [33] suggested that as the age of the violator increased, the probability of running a red light while speeding decreased; [34] that most violations occurred during the daytime, with the highest frequency being between 2:00 p.m. and 2:59 p.m.; [35] that about 56 percent of the violating vehicles were not speeding at the time of violation; [36] that more than 94 percent of red light violations occurred within two seconds after the onset of the red light; [37] and that about 4 percent of the violators were repeat offenders. [38] Releasing to the public findings such as these contributes to the transparency of the program.

Perhaps if red light camera citations were accompanied by points against violators' driver's licenses rather than by fines akin to parking citations, the cameras would reduce even more the frequency of crashes and the needless injuries and deaths they cause. Granted, the number of citations issued would decrease in response to the threat of points, and more citations would be challenged before

the judiciary because the consequences of sustained violations would be greater. However, the controversy relative to revenue generation might finally be divorced from the public safety purpose on which the adoption of red light cameras should be based. The current tendency is to regard a violation linked to a vehicle's owner rather than to its driver as a mere inconvenience, and this perception would be eliminated.

The success of red light cameras can be linked to the program's transparency. If the public safety purpose of red light cameras, as well as the operation of the program, is discussed extensively in various forums throughout the jurisdiction prior to implementation; if appropriate signage is provided to apprise drivers of the use of red light cameras; if reports of malfunctioning cameras are investigated promptly and, when verified, incorrect citations are rescinded; and, if a straightforward means of contesting what drivers believe are improperly issued citations is provided and publicized, many negative issues can be avoided and public support for the effort can be garnered. A jurisdiction that operates by itself as much of the red light camera program as it is able generally will gain greater public acceptance of it. For example, while Texas allows a jurisdiction to contract for certain aspects of a red light camera program, it prohibits a jurisdiction from "agree[ing] to pay the contractor a specified percentage of, or dollar amount from, each civil penalty collected." [39] The manner in which contractors have been compensated has been in many jurisdictions as contentious an issue as the creation of cash cows.

While red light cameras are not a panacea, their judicious use can achieve what law enforcement officers cannot: 24/7 enforcement against red light violations and a resulting decline in lives needlessly lost and in serious injuries sustained.

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32. IACP Highway Safety Committee, "1.28 Photo Enforcement," in *Manual of Police Traffic Services Policies and Procedures* (Alexandria, Va.: July 2004), 80–81.
33. Yang and Najm, *Analysis of Red Light Violation Data Collected from Intersections Equipped with Red Light Photo Enforcement Cameras,* 11.
34. Ibid, 39.
35. Ibid.
36. Ibid, 19.
37. Ibid, 35.
38. Ibid, 25.
39. Photographic Traffic Signal Enforcement System, Texas Transportation Code § 707.003(b

Speed Cameras to Reduce Speeding Traffic and Road Traffic Injuries

By: **Rebecca Steinbach, Chloe Perkins, Phil Edwards, Deirdre Beecher, Ian Roberts**

Background

Exceeding the speed limit is one of the most common criminal offenses committed in the United Kingdom and can engender tremendous social harm. Speed limits on roads regulate traffic speeds by establishing a safe upper limit on vehicle speeds. Consequences of exceeding the speed limit can be severe with a direct relationship between speeding vehicles and increased crash risk. Many countries have seen an increase in the use of automatic speed enforcement to enforce traffic speed limits, detect speeding vehicles and reduce road traffic collisions and injuries that result from them. These methods employ speed detection devices such as cameras, which may be monitored or unmonitored, mobile or fixed, overt or covert. Speed cameras mostly use speed sensors to trigger a camera to capture an image of any vehicle (and its number plate) travelling above a pre-set speed. Modern systems use digital and video cameras and are able to transmit information over data networks. Once the evidence has been reviewed and an offence verified, a notification is sent to the registered owner of the vehicle. Sanctions for committing an offence can include licence points, driving bans, fines and driver awareness courses. The focus of this review is on the use of all types of speed cameras to prevent speeding, road traffic collisions and injuries and fatalities resulting from road traffic collisions.

Objectives

The aim of this review was to update and expand a Cochrane systematic review of traffic speed enforcement cameras, and to explore under which circumstances speed cameras may, or may not work, and to assess whether any effects differ by type of device (i.e. covert versus overt, fixed versus mobile cameras). The update included studies published after 2010 (the date of the last Cochrane update) and has been expanded by including information on mechanisms, moderators, implementation and economic costs of speed camera interventions (EMMIE framework). [1]

Search methods

We searched the following electronic databases: OVID Transport database (1988 to June 2015); National Police Library (to June 2015), Cochrane Injuries Group Specialised Register (to 16/03/2015), Cochrane Library CENTRAL database (to 16/03/2015); Ovid MEDLINE(R), Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid OLDMEDLINE(R) (1946 to 16th March 2015); Embase Classic+Embase (OvidSP) (1947 to 16th March 2015); ISI WOS: SCI-EXPANDED (1970) & CPCI-S (1990) to 16th March 2015); PROQUEST (to 12/06/2015); EBSCO (to 12/06/2015); Web of Knowledge (to 12/06/2015); Heritage (to 12/06/2015).

Selection criteria

Randomised controlled trials, interrupted time series and controlled before-after studies that assessed the impact of speed cameras on traffic speeding, road crashes, crashes causing injury or fatalities, were eligible for inclusion.

Data collection and analysis

We independently screened studies for inclusion, extracted data from full text reports, and assessed methodological quality. We reported study authors' outcomes and calculated standardised results based on the information available in each study.

Results

The systematic review is based on a total of 51 primary studies including the 35 studies in the previous Cochrane review and an additional 16 evaluations uncovered from our searching which met the selection criteria. Nine of the primary studies in the review were carried out in the UK, 11 from Australia, five from the USA. The remaining studies were carried out across a number of other countries (including Denmark, Finland, Germany, Spain, Hong Kong, Belgium, South Korea, Netherlands, New Zealand, Canada, Norway, and Italy).

The evidence evaluated in this updated review shows speed cameras bring about consistent reductions in both speed and collision outcomes. Results suggest that the implementation of speed camera programmes is associated with a:

- 7 percent reduction in average speed
- 52 percent reduction of vehicles exceeding the speed limit
- 19 percent reduction in collisions
- 18 percent reduction in collisions resulting in injuries
- 21 percent reduction in severe or fatal collisions.

There was no evidence that the effect of speed cameras differed by whether the camera was overt or covert. However, there was some evidence to suggest that fixed cameras had a slightly greater effect on all road traffic collisions and those resulting in fatalities or severe injuries, than mobile cameras.

Authors' conclusions

This review was sufficiently systematic that most forms of bias that could influence the study conclusions could be ruled out and provides evidence that speed cameras are an effective intervention for reducing speeding behaviour, and can help combat some of the negative consequences of speeding such as fatalities and injury collisions. Considering continuing increases in traffic volumes, speed cameras appear to be a worthwhile intervention to protect public safety.

Notes:

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Unmanned Aerial Systems and Traffic Safety

By: **Brad Blair,** *(ret.) Deputy Commissioner,* Ontario Provincial Police

The Ontario Provincial Police (OPP), Traffic Safety and Operational Support Command have been operating Unmanned Aerial Systems (UAS) since 2012. This technology is utilized to enhance our search and rescue capabilities, for forensic Identification purposes, as well as collision scene mapping as part of the *Rapid Clearance* mandate within the Highway Safety Division (HSD).

The UAS compliments, but does not replace, the OPP's aviation assets. The current OPP UAS provides imagery through high resolution digital video, still images and Forward Looking Infrared Cameras (FLIR). The small size and autonomy allow these UAS units to reach areas that may be too treacherous or difficult for officers to be deployed. The resilience that these units have to snow, rain, and wind provide search managers with continued, low maintenance aerial assets available at all times. It also allows for aerial photography and 3D modeling of complex crime scenes.

The OPP was one of the first police services in Ontario to utilize a UAS for major collision investigation. In 2013, the Traffic Support Unit – HSD deployed two units in the Greater Toronto Region. The UAS utilizes aerial photography and video to create an ortho-mosaic aerial image of a collision scene. The aerial images provide officers the ability to capture the objective collection of scene evidence in significantly less time and replaces the traditional Robotic Total Station for mapping at collision scenes. The UAS has a proven ability to provide a faster investigative process through a photo "grid-map". On average, the Traffic Support Unit – HSD maps a major collision scene in twenty-two minutes.

The UAS software also provides the Reconstructionist better analysis tools to review and animate a collision scene. The UAS software is capable of creating 2-D and 3-D images of a scene. The scene images can be manipulated to allow for various vantage points within the collision. Images can be linked together to allow for a visual representation moving through the collision scene, for example, a vehicle path of travel. Accuracy of all the UAS images is within one centimeter per pixel and similar to traditional scene mapping tools. The more technologically advanced UAS images and visual representations provide invaluable representations of the collision scene to both to the Reconstructionist and court when applicable. The UAS directly contributes to rapid clearance while extending investigative excellence at major collision scenes.

As the technology advances and the regulations are set in place to guide both private and commercial use of these small aerial units, the technological advantages and cost savings that will be realized will certainly be substantial and their use amongst police services will likely expand significantly.

5 Ways NG911 Can Improve Your Agency

Adapted from NG911 Next Generation 911 for Leaders in Law Enforcement. An educational supplement produced in coordination with the International Association of Chiefs of Police, the National Sheriffs' Association and 911.gov. 2013.

Improved Officer Safety

With NG911, a 911 "call" will take very different forms: Staff at PSAPs will be able to receive, process and store text, pictures and videos from citizens. Even better, that information can be quickly — sometimes almost immediately — relayed to first responders, giving them more precise information. For example, access to live video from cameras inside a bank being robbed could give responding officers valuable information about suspects, weapons and the number of hostages.

NG911 also permits other digital information, such as maps, to be forwarded to officers, says Marcoux. "Most of the law officers [in Vermont] have mobile data terminals in their vehicles so we could push a map out to them instead of having the 911 operator relay this information verbally," he explains. "When you're working alone in a rural situation, the more information the officer has, the safer he will be." Dispatchers could quickly send backup to help a wounded

officer wherever he is in a sprawling rural area. Another benefit will be the ease in which dispatchers can share intelligence with officers, providing additional information on what could be a dangerous situation.

In the future, the effectiveness of the NG911 system's ability to share data back and forth with officers in the field should increase as the First Responder Network Authority (FirstNet) establishes a wireless public safety broadband network.

Improved Efficiency

One big benefit of NG911: The new technology will allow PSAPs to identify the location of callers — especially those on wireless devices — faster and more accurately so law enforcement can find citizens quickly in an emergency. "Because NG911 provides more precise location information automatically, an officer won't spend as much time looking for a car that went off the road and into a ditch," says Mark Grady, founder of INdigital Telecom which provides NG911 technology to the state of Indiana.

Getting more evidence in the form of videos and photos will be very useful when it comes to solving cases or taking them to trial. "If someone snaps a picture of a license plate or a suspect, that's obviously beneficial to law enforcement," says Marlys R. Davis, E-911 program manager for King County in Seattle.

With this information, a deputy or officer would be able to identify and catch a suspect more easily. Adds Chief Reyes: "We would significantly increase the apprehension and case-closure rate with the amount of evidence coming into our center." Transferring a 911 caller's information between jurisdictions is far easier, too, when agencies are on the same Internet Protocol (IP) technology. Jackie Mines, director of emergency communication networks for the Minnesota Department of Public Safety, couldn't do that with her previous network. "That alone is a huge benefit," she says.

Improved Public Safety

In 2005, the year before NG911 came to Indiana, Grady says that a citizen who dialed 911 would wait 23 to 27 seconds for the call to be routed to a 911 operator; with NG911, that's now less than 3 seconds. "If you're waiting for someone to take a call during a domestic violence situation, things can go sideways on you pretty quick," he notes.

Texting for help is also potentially life-saving when citizens can't make a call or speak without endangering themselves. The major wireless carriers have agreed to support texting to 911 by 2014, however, NG911 texting applications will continue to improve upon the proposed services.

Source: 911.gov

Similarly, an upgraded emergency response system will provide better public service in a natural disaster or other emergency. NG911 call centers will be able to instantly re-route a call to another tier of PSAPs if the first is not available. This was essential when Vermont was struck by Hurricane Irene. "Our second-busiest PSAP in Rutland had to be evacuated," says Jim Lipinski, former Enhanced 911 IT manager for Vermont, one of the first U.S. states with a statewide NG911 system. "In a traditional 911 system, calls would have queued up and people would have abandoned them." But during the storm and its aftermath, the system was able to distribute the load throughout Vermont – meaning every 911 call was answered swiftly.

Better Access for Special-Needs Communities

The deaf and hard-of-hearing, the mentally disabled, the physically disabled and senior citizens will especially benefit from an upgrade to the nation's 911 system, since it will be easier for them to reach 911 with their phones, without requiring additional devices. Judy Flores, director of the Black Hawk Consolidated Communications Center in Waterloo, Iowa, helped launch the country's first text-to-911 program in 2009. "The biggest benefit so far is allowing our citizens to have that extra access point, in particular our hard-of-hearing and speech-impaired community," she says. "They have the same access as anyone else [now]."

Potential Costs Savings

Upgrading to NG911 is not inexpensive, but over time, the agencies that upgrade will save money through efficiencies. Vermont was able to save significant funds by rerouting 911 calls from a PSAP that was taking less than 1 percent of the state's calls because the new IP technology can pick up calls from other parts of the state. As already noted, it's easier, faster and less expensive to share information between jurisdictions and agencies; many communities and regions will likely combine their resources to make the transition to NG911 possible.

Then there are the incalculable costs. Says Flores, "If you save one life because you made an improvement, how can you measure that?"

Public Relations and Messaging in the Digital Age

By: **Katie Nelson,** *Social Media and Public Relations Coordinator,* Mountain View Police Department

Police departments are not strangers to the need to develop solid working relationships with journalists, especially from their local media outlets. But with the advent and subsequent astronomical rise in the use of social media by the public, the ability to connect with a wider audience is no longer an elective pursuit, it is an inevitable one. And unlike in the past, when departments relied on media representatives to try and showcase or highlight a particular message from police agencies, we now have the opportunity to take total control of that story and tell it how we would like to in a digital sphere, every time. That ability to quickly and effectively connect and message is particularly important when it comes to traffic and highway safety.

Far too often, social media management and public information officer duties are part of a collateral assignment and as a result, the department spokesperson has potentially little to no experience in communicating with the media or adequately utilizing social media tools to effectively organize and champion a public relations campaign. Even more detrimental is the potential for a lack of enthusiasm behind an online campaign or a public safety message due to an insufficient understanding of what truly integral pieces public relations and social media are to an agency. There is so much opportunity to have a message that resonates through and beyond your community.

Public Information

How do you want to be viewed by those you serve? The public perception you build is almost entirely defined by how you choose to connect and converse with your audience. Nothing replaces the ability to go out and personally meet with your residents, which creates an almost immediate sense of support and confidence within your community. The more face time you can have with your business owners, neighbors, and schools, the greater opportunity you have to define your agency's brand – the public display of the mission statement your department personnel work to personify every day.

Such an effort should also not be limited to just the public relations role. This should be an exercise that is accomplished regularly from the top down. The more who buy in and understand and support the need to regularly connect with the community, either through in-person programs or social media campaigns, the greater the likelihood will be that your agency builds a brand that is considered transparent and trustworthy.

While some agencies will have the opportunity to develop a role dedicated solely to social media management and public relations, others could potentially have a team implemented for these efforts. Some departments are unable to do either, but that in no way hinders an agency's ability to have a solid public information outreach program.

Both external and internal information are key functions of a public relations role, and communicating capably under each of these is imperative to the vitality of the department's didactic enterprises, particularly when it comes to efforts around traffic safety messaging.

To note, information dissemination differs greatly for each. External outreach – most effectively done through social media channels for most agencies — informs and educates the public of department business with regards to department efforts and activities. It gives your residents a chance to ask questions, and be informed of actions taken on behalf of the department. It also allows the media to cover it if they so wish, but your need for them is greatly diminished by your agency's own ability to provide the information yourselves, in essence making you a primary source of information, and the local media, secondary. It also allows you to message at opportune times throughout the day. By doing so, you increase the chance that your message is not only read, but understood, shared and discussed. This once again bolsters your efforts made to regularly enhance the overall department image.

Internal public information is disseminated to department employees for the purpose of providing information on internal activities and on employee achievements. Always have a way for your personnel to see how the public is reacting to external messaging. Department morale often benefits from the positive notations made, particularly on social media, of a job well done for which officers are rarely thanked for in person and in public.

Social Media

Social media is one of the most effective and relevant ways to communicate with your residents, especially if done correctly.

Studies have shown that roughly 79 percent of online adults (roughly 68 percent of all U.S. adults) use Facebook. [1] That is more than triple the number of online Americans who use Twitter (24 percent) or Instagram (32 percent). [2] In addition, a social media mobile exclusive app that cannot be ignored is Snapchat, where an average of more than 10 billion videos are shared a day. [3] Nextdoor, a hyperlocal social media site, is also coming of age in a social sphere where a majority of internet users are digital natives.

Other websites such as YouTube and LinkedIn continue to share space in the ever-expanding social media realm, but they do not possess the juggernaut messaging opportunities that sites like Facebook do.

Agencies should, at this point, be well established in their presence on most of these platforms, depending on their community's specific use, and experimenting regularly with messaging efforts to gauge what the public prefers to see and read.

But what many agencies are still failing to accomplish are effective messaging strategies on platforms that not only encourage engagement, they are increasingly demanding it.

> *For successful engagement, understand that social media is the language and digital platforms are dialects. Fluency in both matters.*
>
> – Captain Chris Hsiung, *Mountain View Police Department*

Today, social media platforms should not be utilized to merely blast information to the public. Rather, they should be considered places where agencies and the residents alike can converse and engage. Two-way engagement is critical in building trust and transparency with the public as well as creating effective social listening options for agencies to understand their communities and what their communities are discussing both online and off. [4]

Two-way engagement has been statistically proven to be an asset to agencies. Captain Zach Perron of the Palo Alto, California, Police Department definitely proved this in "Beyond the Digital Bullhorn: The Benefits of Two-Way Engagement Strategy."

The study was conducted over several months. It conclusively proved that the more an agency actively responded to inquiries and commentary on social media platforms, the agency not only attracted more followers – a benefit to spreading critical information when needed by your department – it also suggested that an agency would be viewed more favorably and as being more willing to be more "transparent" than those who did not utilize this communication tactic. [5]

Such efforts can directly correspond to traffic safety messaging. The public is far more willing to appreciate notifications on traffic alerts, enforcement efforts, and educational opportunities if you 1) communicate to them in their preferred space – online and 2) if you show a concerted effort to engage with them. Your message dies with you if you are not sharable online.

For example: an agency planning on conducting enforcement targeted specifically at speeding vehicles in school zones can capitalize on photos of officers looking out for children as they cross the street to their school. A clever reminder on social media that you are out protecting the youngest citizens in your area will overwhelmingly elicit positive feedback and responses versus zero notifications at all. To not alert residents that you will be conducting some type of traffic enforcement, for example, often leads to speculation and can result in rumors and false information being spread. It also denies you a great opportunity to positively showcase your department.

Social media truly allows you to take control of your narrative, particularly on a topic that at times can be divisive. Utilization of digital messaging allows you to get your message across to not only your residents, but to a much wider audience. It also gives you more power to effectively resonate and relate to your community that will help build much-needed trust and support over time.

Media Relations

Media relations is no longer the *most* important tool at your disposal in your quest for a good public affairs program, but it is still an *important* one. The majority of the public should have the ability to directly have contact with you through various social media channels, be it Facebook, Twitter, Nextdoor, Instagram, or Snapchat. But even with all of these free communication tools at our fingertips, nearly 90 percent of messages (these can be comments, questions, direct messages, etc.) are ignored by "brands." [6] A brand is essentially a name, symbol, or design that identifies and differentiates a product from other products. [7]

As such, this can mean that those who are feeling ignored will turn to media personnel to try and have them get the answers they seek. On average, people who pose a question on Twitter, for example, expect a response within 60 minutes. [8]

Perceptions of police have also been strongly influenced by portrayals on television, in movies, or in books. But remember, every opportunity for positive publicity can create positive opinions, but conversely, one negative experience can destroy every effort you have made to encourage your public to trust and confide in you. And more often than not, your residents include media professionals who witness your behavior both as a private citizen and as a public personality.

"Antagonistic relationships between the police and the traditional media need to become a relic of the past." – Captain Zachary Perron, *Palo Alto Police Department*.

Fear of close contact with the media, either because of an incident in which your agency received unfair treatment,

or as a result of a "horror story" from a fellow officer, are debilitating to your public relations efforts. By cutting off contact or refusing to meet with reporters – who rotate so quickly now from role to role at their respective outlets – you jeopardize your ability to not only have that news outlet's followers, viewers, or readers at your disposal for eyes and ears when it comes to your messaging campaigns, but you also risk creating a greater amount of work for your agency when it comes to establishing and maintaining public trust. The more you shy away from interacting with the press, the more likely they are to report on your agency in a biased manner or ignore you completely.

Because of the continuing decline of the journalism industry, reporters are often pulled in a multitude of directions, attempting to cover several stories in the span of a day. They often have less than eight hours to cover a story, so it can be difficult to contact them or get to know them in a greater capacity than just their byline. The quickest way to combat that is to follow them on social media. Most major news outlets now require their reporters to be on Twitter, for example. Follow them, and interact with them online. Invite them to your events, and suggest meeting in person in a neutral space, such as a coffee shop in your town.

While you can't change how past interactions dictated a reporter's relationship with someone in your department, your proactive efforts to engage with them can often identify a potential problem and manage its outcome. Make every effort to maintain a dialogue with media personnel in your public relations role, because the more reachable you are and the more relatable you are, your department's messaging efforts will become a higher priority for them to cover and subsequently, your message will reach potentially millions more.

Community Programs

Community programs are formal services that serve a demonstrated need within a particular community or area. They are sponsored totally or partially by the law enforcement agency and are aimed at mitigating a particular problem, or at advising a segment of the population about a specific program. These activities can include both crime prevention programs and traffic safety projects. Examples are Neighborhood Watch, Operation Identification, DARE, rape and assault prevention, child molestation prevention, bicycle safety programs, Halloween safety, departmental appearances, tours, speaking presentations, and ride-along programs.

All can be documented and promoted on social media in an effort to enhance the public's awareness of efforts your department or agency is undertaking. They can simultaneously serve as a marketing tool for your agency to showcase and highlight your officers and the multifaceted approach they take with their jobs.

Working with the Media

In your role as a public information officer, you must recognize and understand the needs and requirements of journalists and in turn, work to help them try to understand the methods, policies, and constraints under which law enforcement personnel operate. By doing so, you increase the likelihood that journalists will give you a fair opportunity to have your voice heard in their stories and even more so, that the best possible image of the department can be conveyed to the public.

News happens around the clock, and as such, it oftentimes can impact your agency, either directly or indirectly. Media outlets operate on a nearly 24-hour news cycle, with most television, radio and newspaper reporters beginning their first segments or stories of the day at 4 am and continuing well into the evening. As employment numbers in journalism continue to decline, more news organizations are being spread thinner, requiring journalists to cover several stories or topics on a given day, requiring them to become "experts" on any topic in mere hours. [9]

While different states operate under different requirements with how much information can be released on any given incident, journalists believe, and more often, so does the public, that they should report on as much detail as possible on a story they consider to be newsworthy. In this news cycle, you have minutes to jump to the front of the narrative opportunity and control the story and the dissemination of information.

When news initially breaks, something called the "newsjack" occurs. [10] The "newsjack" is a period of time where you have all the incipient, relevant information you can release, and everyone else, including the media, are scrambling for it. This period of time is vital for a public information officer. It gives them the ability to push out initial but critical information and as much safety messaging as possible, which will then in turn be shared by media professionals and public alike.

As such, this period of time is particularly vital for law enforcement agencies' use of social media. Every journalist will be looking to quickly share as much as news as possible – being first is vitally important among journalists when it comes to breaking news – and then getting ahead of the story to continue to maintain dominance. As a public information officer, you must then retain control of the narrative and storytelling as much as possible until what is known as the "archival process" – or when the story is more commonly known to be "put to bed" – is completed. Leaks will inevitably happen, and with more and more journalists using scanners as sources of information to stay ahead in the story-telling game, this can be difficult.

If an event provokes media interest, particularly on a regional, national or international scale, a story will go out, with or without your help. Law enforcement needs the media as an ally, but the media do not need us to do a story—their ability to do a story doesn't depend on us. They do, however, depend on us to keep providing timely and updated information. To fail at doing this not only sours your agency's reputation, it removes the control of the story from your hands.

Print media publications often have more space to go into finer details of a story, but they too have deadlines. Again, as the journalism industry continues to try and grapple with the ever-expanding digital sphere of available news, their deadlines have been pushed up to increasingly unreasonable times, often in the afternoon. Because of these deadlines, you can have very little time to provide information, or commentary, on a situation. Nothing looks worse for an agency than having a news source state that you either refused to comment or could not be made available for comment.

Help out journalists by not only providing relevant information, but as you update them, provide quotes and images that they can use in their stories. These can be shared oftentimes through social media in things like a livestream, or as part of an update or in a press release. The more visuals and quotes a journalist can have from your agency, the less likely they are to call you or email you to ask for them.

When you do provide comment in-person, especially for television or radio reporters, think in 10-second sound bites. You want to minimize editing by a station as much as possible, so make every word count. When you release a breakdown of a major event, do not use law enforcement jargon that could be easily bungled by someone who doesn't understand or know to what you are referring. Updates and releases that require little or no editing on a reporter's or editor's part helps minimize corrections that could potentially need to be issued if they didn't understand what was being communicated by your agency.

If you are being interviewed over the phone, which is fairly common particularly for radio stations, make sure you know you are being recorded. Only 11 states in the United States require for interviewees to be notified that they are being recorded in a phone conversation. [11] Federal law states that at least one party must be aware the phone call is being recorded for it to be legal. [12] As such, it is always acceptable to ask if you are being recorded. If you can, also take time before the official recording begins to ask what questions may be put forth by the journalist.

The same can be said for on-camera interviews. If the interview is planned, ask questions ahead of time so you know what you may need to research and so you can make sure that what you have said is accurate. When speaking with journalists in any setting, avoid as much as possible providing a personal opinion and if you realize you said something in error, rectify it.

Avoid going "off the record," either in a recorded setting or otherwise, at all costs. Also, remember that television crews also have deadlines, and are just as willing to move forward with a story, with or without you.

As the hunt for breaking news continues to rise, more televisions crews are becoming mobile and working from the field. As such, on-the-spot interviews have become commonplace for public information officers. Be sure you are trained to respond to live requests.

National News Media

Be aware that any incident in your town could potentially become regional, national, or international coverage, particularly situations such as protests or storm damage. If a traffic incident is extremely severe, that can also rouse attention of reporters out of your area. Always anticipate that the more severe an incident, the more likely it will be that you will be speaking to national media representatives.

If you are the sole public information officer for your agency, coordinate efficiently when speaking with national or international journalists. Their time zones will play a big role in their deadlines and their need to speak with you. If you have a public relations team, make sure someone is designated to speak with any journalists on-camera or on the phone is the same person who speaks with international news media. This will ensure accurate and equal sharing of information to all reporters. If your team is working together to coordinate release of information to the press, make sure the process is streamlined between those who are working on compiling information and those who are working to share it with others. This streamlining process should be practiced several times throughout the year in table-top exercises, both for teams and for sole public information officers, to make sure that when an incident does occur, you are ready and the process is as seamless as possible. As a public information officer, you should always be included in the decision-making process of what can and cannot be released.

Public Service Announcements

Public Service Announcements can be extremely effective if done in such a way that captures viewers' attention through creativity and impact. It is becoming increasingly crucial to find new and inventive ways to share the same safety announcement, be it for drunk driving, using your seatbelt or to not text and drive.

Find ways that can translate across traditional and social media channels that will resonate with your community.

Messages can be effective without always being serious; injecting humor into a PSA is oftentimes allows viewers to relate and to be entertained. It also allows them to want to listen, which should be the goal of your objective, every time.

Messages should be anywhere between 30 seconds and 60 seconds. This allows them to be played across traditional and social media platforms without any issues of needing to be trimmed down. But remember, if a viewer's attention is not captured within the first 10 seconds, they will most likely not continue to watch the remainder of the message. [13]

Managing the Media

Despite what the current climate may suggest, a majority of journalists want to provide and publish accurate information to their followers. They operate in an extremely high-stress environment, and often work long shifts and often for very low pay. To date, there are roughly 40,000 journalists employed full-time in the United States. [14] That number is expected to continue to decline as reporters seek higher paying jobs or as the burnout rate continues to intensify because of working conditions.

With these numbers declining, and with the turnover rate continuing to rise in newsrooms across the country, it is vitally important that you meet with journalists, and always exchange contact information so that the journalist knows the best way to reach you and vice versa.

If possible, instruct the journalist to follow you on social media, so that they can have access to information as quickly as possible when an incident occurs. This will relieve some of the stress on you so that you do not have to remember to individually email or call each person that requests updates on an incident.

If you must send out a news release, first make it available online on your social media channels and then send one email that encompasses all the journalists who are covering or who could potentially cover the event. It is imperative that you also have a formal department policy on handling news media, on what information can and cannot be released, and on department use of social media.

Most journalists have press credentials issued to them by their respective news agency, but if your department does issue separate credentials, let journalists know as soon as possible so that if they arrive at a scene, they will have the closest possible access without disrupting any investigations or destroying evidence.

Finally, have regular meetings – twice a year at least – to have check-ins with journalists and to make sure that any questions or concerns they may have are addressed. This will also encourage additional goodwill between your department and any media representatives.

Notes:

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Traffic Incident Management (TIM)

By: **Annjanette Kremer, P.E.,** *Traffic Incident Management Engineer,* Michigan Department of Transportation

Traffic incident management (TIM) is the planned and coordinated multi-disciplinary processes used to detect, respond, and clear traffic incidents as quickly as possible while protecting the safety of on-scene responders and the traveling public. Safe, quick clearance is necessary so that traffic flow may be restored to pre-incident levels as safely and quickly as possible. An incident is defined as any non-recurring event that causes a reduction in roadway capacity. Such events include but are not limited to traffic crashes, debris in the roadway, disabled vehicles, spilled cargo, floods, and other unplanned natural or man-made events.

Given the wide range of issues involved with incidents, close coordination is required among a diverse range of traffic safety stakeholders. These stakeholders include professionals from fields that include law enforcement, fire, emergency medical services, towing and recovery, transportation, dispatch and hazardous materials, as well as the media. One of the principal concerns related to incident management is secondary crashes, which occur after the initial incident due to issues such as unexpected slowed or stopped traffic. Many times, a secondary crash is more severe than the primary crash or incident, and all incidents represent inherent dangers to responding personnel at the scene.

Other side effects of incidents include:

- Increased response time by first responders such as emergency medical services, police, fire, towing & recovery, medical examiners, etc.

Lost time and a reduction in productivity. For each minute a freeway lane is blocked during peak use, an estimated 4 minutes of delay result after the incident is cleared accounting for 4.2 billion hours/year in delays. [1]

- Increased cost of goods and services transported by highways
- Increased fuel consumption
- Reduced air quality and other adverse environmental impacts
- Reduced quality of life for those sitting in traffic.

Photo credit: Michigan Department of Transportation

Prior to the development of TIM practices, traffic incidents were handled with minimal inter-agency coordination or communication. Emergency responders were dispatched to or arrived on scenes of traffic incidents to handle the duties of their specific area of expertise, including crash investigation, emergency medical services, fire services, tow and recovery, etc. What often ensued, particularly at larger scale incidents, was a chaotic response where essential responders were hampered by other responders and their parked vehicles from reaching the scene. Ambulances with injured patients could not leave the scene efficiently. TIM was developed to organize that chaos by extending the principles of the Incident Command System to the highway environment, and thereby improving coordination, efficiency, effectiveness, and safety.

Managed response means overlapping as many tasks of the many responding groups as possible without compromising the integrity of any task or safety on the scene. This can only be achieved by extensive planning involving the responding organizations, agreements on procedures and policies, and mutual program action to identify and obtain personnel and equipment resources to accomplish planned tasks.

The keys to effective traffic incident management are quick and accurate incident detection and notification; rapid response of available resources, including traffic control; safe and quick removal of the incident; effective inter-agency communications supported by integrated communications systems; and provision of accurate and reliable information to travelers in the area about the location, nature, impact, and expected duration of an incident. The components of a proper traffic incident management program include planning, detection and notification, verification and response, site management, clearance, recovery, and motorist information. Many documents on traffic incident management are available on the Internet at http://www.ops.fhwa.dot.gov/eto_tim_pse/about/tim.htm.

TIM Law and Guidance

Manual on Uniform Traffic Control Devices

Chapter 6I of the Manual on Uniform Traffic Control Devices (MUTCD) contains information on the types of temporary signs, barriers and other traffic control devices that are approved for use in traffic incident management areas. This MUTCD is available online at http://mutcd.fhwa.dot.gov/.

Laws to Promote Safe, Quick Clearance

Three general types of laws have been enacted in support of TIM

1. **Move Over:** These require drivers approaching a scene where emergency responders are present to either change lanes when possible and/or reduce vehicle speed. Move Over Laws have been enacted in every state, most Canadian Provinces, and in nations worldwide. The laws vary jurisdiction-to-jurisdiction, and law enforcement officers should be intimately familiar with the law in their jurisdiction and should be encouraged to enforce the law in earnest to improve public compliance.
2. **Driver Removal:** Also known as the "Steer It, Clear It" law, "Move It" law or "Fender Bender" law, it requires that vehicles in minor property damage crashes, be moved out of the travel lanes to a safe location where drivers can exchange information and/or wait for law enforcement assistance. By moving the vehicles from the roadway, traffic flow is restored and secondary crashes can be avoided and reduces the officer's exposure.
3. **Authority Removal:** Also known as "Hold Harmless" law, clarifies the authority and responsibility of pre-designated public agencies to clear damaged or disabled vehicles and spilled cargo from the roadway to allow normal traffic flow to resume and prevent the occurrence of secondary incidents. Authority Removal laws typically provide indemnification for these agencies if removal duties are performed in good faith and without gross negligence. [2]

The Safe, Quick Clearance Laws enhance motorist and responder safety, and reduce congestion and delay. Although a number of states, provinces and nations currently have one or more of these laws in place, observed variability in the existence, wording, and coverage of Safe, Quick Clearance Laws challenges further implementation. [3]

For more information on best practices in Safe, Quick Clearance Laws see: http://www.ops.fhwa.dot.gov/publications/fhwahop09005/quick_clear_laws.pdf.

TIM Performance Measures

Evaluation metrics provide the necessary feedback to TIM responders to allow them to improve performance. Equally important, they provide decision makers with the data to demonstrate the value of TIM activities and justify their related expenditures. The most used TIM performance measures are:

1. **Roadway clearance time:** The time between first recordable awareness of incident by a responsible agency and the first confirmation that all lanes are available for traffic flow.
2. **Incident clearance time:** The time between first recordable awareness of incident by a responsible agency and time at which the last responder has left the scene.
3. **The number of secondary crashes:** Incidents for which a response or intervention is taken, where a collision occurs either a) within the incident scene or b) within the queue (which could include opposite direction) resulting from the original incident. [4]

TIM Training and Resources

SHRP2 TIM Training

The National Traffic Incident Management (TIM) Responder Training program also known as the Strategic Highway Research Program (SHRP2) TIM Training was developed to improve the coordination of all traffic incident responders from the moment the first emergency call is made through conclusion of the incident and return of normal traffic flow.

The curriculum is based on extensive and detailed research conducted with TIM responders across the country and is based on a train-the-trainer approach. The FHWA-led 8-hour train the trainer course builds a team of instructors within each state, region, or agency. They, in turn, train their colleagues using this innovative curriculum. Shorter, four-hour courses and one-hour training modules are also available. Training modules are flexible and can be modified to fit state and local regulations or practices. A web-based training program is also available. For more information on the program or to contact the lead person in your state see: https://www.fhwa.dot.gov/goshrp2/Solutions/Reliability/L12_L32A_L32B/National_Traffic_Incident_Management_Responder_Training_Program.

TIM Network

The TIM Network is comprised of individuals representing various TIM disciplines with the goal of facilitating practical

and results-oriented communication. A key facet is continuous, specific, and relevant outreach. The goal of the TIM Network is to connect traffic incident management (TIM) professionals from across all disciplines to discuss developing issues of national interest, keep practitioners apprised of the latest industry information, and garner important input. There is no cost to join. [5]

To find more information go to http://timnetwork.org/.

Responder Safety.com

Responder Safety.com is the website of the Emergency Responder Safety Institute, which is an advisory group of public safety leaders and transportation experts committed to reducing deaths and injuries to America's emergency responders. The site is a clearinghouse of information related to TIM and first responder safety issues and includes data, news, training opportunities, PSAs, and links to other first responder organizations. [6]

Free online training, videos, and more can be found at http://www.respondersafety.com/About-Us/Default.aspx-

Notes:

1. U.S Department of Transportation, "National Support Needed to Improve Highway Safety and Reduce Congestion," http://ops.fhwa.dot.gov/publications/fhwahop12007/index.htm
2. (accessed April 21, 2017)
3. U.S Department of Transportation, "Traffic Incident Management Quick Clearance Laws: A National Review of Best Practices,"https://ops.fhwa.dot.gov/publications/fhwahop09005/quick_clear_laws.pdf (accessed April 21, 2017)
4. Ibid.
5. U.S Department of Transportation, "Performance Measures," http://www.ops.fhwa.dot.gov/eto_tim_pse/preparedness/tim/pm.htm (accessed April 21, 2017)
6. TIM Network, "About the Network," http://timnetwork.org/about-the-network/

The Incident Command System (ICS) and the National Incident Management System (NIMS)

Complex incident scenes require effective coordination of multiple resources who may bring varied training, equipment, resources, procedures and protocols. In an effort to promote standardization and more effective management of incidents, the federal government, through FEMA, has adopted the National Incident Management System (NIMS) and the Incident Command System (ICS).

According to FEMA, NIMS is a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work together seamlessly and manage incidents involving all threats and hazards—regardless of cause, size, location, or complexity—in order to reduce loss of life, property and harm to the environment. NIMS is the essential foundation to the National Preparedness System (NPS) and provides the template for the management of incidents and operations in support of all five National Planning Frameworks. [1]

ICS is a systematic tool used for the command, control and coordination of an emergency response. ICS allows agencies to work together using common terminology and operating procedures for controlling personnel, facilities, equipment and communications at a single incident scene. [2]

Federal, state and local authorities should take advantage of free training to ensure they have a clear understanding of their roles and responsibilities for successful emergency management and incident response. This can vary from the investigation of a traffic crash to managing a large scale hurricane event, such as Hurricane Harvey which impacted Texas in 2017. FEMA has made NIMS and ICS training available on the FEMA website. The Federal Highway Administration has significant information available regarding NIMS and ICS concepts and how they apply to managing traffic incidents. Law enforcement leaders are encouraged to review this information and be sure that their first responder community have been trained on these concepts. [3] Additionally, the ResponderSafety.com Learning Network provides numerous training programs including "Traffic Incident Management: Incident Command & Management" which delve into ICS concepts as they relate to a highway incident. [4]

Law Enforcement Application

NIMS and ICS is readily adaptable to law enforcement and other emergency response disciplines. Since the 1980's, law enforcement agencies have adopted the principles and continue expand the training and daily use application of NIMS and ICS in managing police emergencies.

The effectiveness of ICS training increases when an integrated approach involves regional law enforcement agencies and representatives of other emergency disciplines. This enhances closer working relationships and on-scene coordination and cooperation. Whereas perhaps in the past, training occurred more in a vacuum and was limited to law enforcement or the fire service only, now, through new partnerships, police, fire and EMS are able to train together. Enhanced communications and understanding of how ICS can work for all first responders is a key take-away of this training which can then be applied in the field. Interagency relations have been improved; and the concept of teamwork, vital to the management of complex incidents, has been established and reinforced. Response to the natural and technological disasters, civil disturbances, security and crowd control details, and the entire gamut of law enforcement activities can be managed through ICS implementation and use. ICS is a widely accepted tool among law enforcement agencies because it is logical and easy to implement yet still compatible with ICS utilized by fire and other primary emergency response disciplines. It has been accepted and

endorsed by the IACP's Highway Safety Committee as the preferred method of handling major highway emergencies.

Notes:

1. "National Incident Management System," FEMA, accessed September 1, 2017, https://www.fema.gov/national-incident-management-system
2. "Simplified Guide to the Incident Command System for Transportation Professionals," U.S. Department of Transportation, Federal Highway Administration, accessed September 1, 2017, https://ops.fhwa.dot.gov/publications/ics_guide/
3. Ibid.
4. "Traffic Incident Management: Incident Command & Management," ResponderSafety.com, accessed September 1, 2017, http://learning.respondersafety.com/Training_Programs/Traffic_Incident_Management_Incident_Command_Management.aspx

Enforcement, Engineering, Education and Evaluation

The basics of an effective traffic safety program has always involved the "three E's + 1"—enforcement, engineering, and education, along with evaluation—working in conjunction for safer roads and drivers. Today, it is recognized that it involves the "four E's, plus OER"—enforcement, engineering, education, evaluation, and other emergency responders, all working together to reduce crashes and to mitigate and manage incidents, particularly at complex crash scenes. Public safety officials, state and local engineering departments, federal and state DOTs, traffic safety advocacy groups, community groups and local citizens can collaborate on initiatives to bring solutions to identified problems.

Some crashes are caused by vehicle defects. Adopting mandated federal motor vehicle safety standards, such as safety belts, supplemental restraint systems and rollover and side impact protection, have reduced the number of injuries in traffic collisions.

NHTSA is also working to promote new vehicle technologies that will further increase the potential to reduce the number of crashes. [1] NHTSA has maintained a robust vehicle safety program. The program includes the issuance of vehicle safety standards and requires manufacturers to recall vehicles and equipment that have safety-related defects. [2] You can learn more about this important NHTSA initiative on the NHTSA website. State motor vehicle safety inspection programs help to ensure that vehicles are maintained in safe operating condition and these programs identify potential vehicle failure on highways.

Enforcement

As has been mentioned in previous chapters of this Resource Guide, enforcement is also a key component to any traffic safety programs. Targeted traffic enforcement programs by law enforcement deter unsafe drivers by causing the suspension or revocation of driver's licenses for hazardous moving violations. In addition, enforcement efforts to detect vehicle equipment violations are one step in helping to identify and remove unsafe vehicles from the road.

Education

Public information campaigns conducted by the NHTSA, the GHSA, state highway safety representatives, state and local law enforcement agencies and licensing authorities, and public traffic safety advocacy agencies, along with high school and commercial driver education programs, and driver improvement programs, help educate drivers with the traffic laws and instill in them proper driving attitudes.

Engineering

Engineering is an important consideration in any effort to enhance traffic safety. Design, construction, and maintenance of highways and traffic control devices can be instrumental in reducing collisions.

Enforcement and engineering are encouraged to work in concert with one another to promote highway safety. Law enforcement officers on patrol are able to proactively help engineers in identifying potential hazards that can either be eliminated or mitigated. By reporting obscured or nonfunctioning traffic control devices and dangerous highway conditions and by providing feed- back from citizen complaints and the study of traffic congestion problems, officers can offer important input to traffic engineers.

Engineers can work with officers by making highway improvements, such as changing speed zones; erecting new types of traffic control devices; and placing roadside objects, such as utility and sign poles and guard rails, so that out-of-control vehicles are slowed or stopped without causing injury to occupants. Engineers at state highway departments utilize data from traffic crash reports to assess and improve traffic safety problems. It is important that this collaboration between law enforcement and engineers continues so potential causal factors can be identified early and funding can be allocated for traffic safety projects. A good example of a cost-effective traffic safety improvement project was detailed in an article titled "Engineering Solutions to Enhance Traffic Safety Performance on Two-Lane Highways." [3]

Evaluation

The final E stands for evaluation. Every time you make a change or adopt a new or revised strategy, you should have in mind how you will measure the results. There are many ways to evaluate your results. Pre- and post-surveys of the attitudes of motorists or the public, pre- and post-traffic or speed surveys, pre- and post-crash statistics, comparisons of citations issued for specific periods, and interviews of officers involved in a project are but a few of the methods of evaluation that can be used.

American Association of State Highway and Transportation Officials (AASHTO)

One important organization that has played an integral role in promoting highway safety through a variety of efforts is the American Association of State Highway and Transportation Officials. Representing the highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico, AASHTO's primary goal is foster "the development, operation, and maintenance of an integrated national transportation system." [4] AASTO has a Standing Committee on Highway Traffic Safety that was developed in 1976 with representatives from state DOTs, NHTSA, GHSA, FHWA, AAMVA and others who are able to bring solutions to complex traffic safety and engineering-related issues. While not having a role in enforcement per se, AASHTO provides advocacy and research while raising awareness in education, engineering and evaluation efforts.

On an annual basis through AASHTO's Safety Management Meeting, a Safety Leadership Award is awarded to a state "that has made significant improvements in safety by showing leadership in safety, strong safety partnerships and strategic planning, and innovation in safety." As an example, the 2016 Safety Leadership Award winners were the State of Minnesota and the State of Tennessee. Minnesota was recognized for developing new safety countermeasures and methods for moving toward zero, including alternative designs for intersections, warning strips in pavement and vendor contracts to install safety infrastructure treatments quickly." [5]

AASHTO is an excellent resource for law enforcement leaders. With regular meetings and opportunities to share best practices at the national and regional levels, AASHTO continues to work with federal and state DOTs, engineering officials, representatives from state, county and local law enforcement agencies, traffic safety advocates and others to support national efforts to reduce fatalities and serious injuries. Annual meetings and conferences held by organizations such as the IACP's Highway Safety Committee, NHTSA and AASHTO provide opportunities for law enforcement leaders to learn more about emerging best practices in the traffic safety discipline.

Notes:

1. "Safety Technologies," NHTSA, accessed September 1, 2017, https://www.nhtsa.gov/equipment/safety-technologies
2. "Safety Issues & Recalls," NHTSA, accessed September 1, 2017, https://www.nhtsa.gov/recalls
3. "Engineering Solutions to Enhance Traffic Safety Performance on Two-Lane Highways," Hindawi, accessed September 1, 2017, https://www.hindawi.com/journals/mpe/2015/762379/
4. "AASHTO Overview," AASHTO, accessed September 1, 2017, https://www.transportation.org/home/organization/
5. "Committee on Safety," AASHTO, accessed September 1, 2017, https://safety.transportation.org/

CHAPTER 10: LEGAL ISSUES IN TRAFFIC SAFETY

Legal Issues in Traffic Safety

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DISCLAIMER

This Section is intended to provide a general overview of some of the legal cases related to traffic safety but is not intended to provide legal advice. A law enforcement officer needs to understand that many state courts renounce U.S. Constitutional law claiming that their particular state constitution provides greater protections to individuals than the Federal Constitution. The cases included represent the federal rules and usually the majority rule on these issues. Do not rely on these cases until you check with your state prosecutor and/or your state Traffic Safety Resource Prosecutor. Additionally, a law enforcement officer must be familiarized with the applicable laws for his enforcement jurisdiction, strategies and tactics for detecting offenders, and the elements that must be established for a successful adjudication. Further, a law enforcement officer should be knowledgeable on the legal decisions and current trends in his own locality. Lastly, a law enforcement officer may find it helpful to review the legal section of his state DUI Detection and Standardized Field Sobriety Test course in addition to this document.

Reasonable, Articulable Suspicion vs. Probable Cause

The standard for a traffic stop requires objective justification, also known as reasonable, articulable suspicion (RAS) and is based on the totality of the circumstances. Reasonableness depends on a balance between the public interest and the individual's right to personal security free from arbitrary interference by law officers.

An officer cannot pull a single driver from the stream of traffic without at least an articulable, reasonable suspicion of wrongdoing. *Delaware v. Prouse*, 440 U.S. 648 (1979).

A court must consider the totality of the circumstances (*e.g.*, the whole picture) in determining whether a reasonable suspicion exists. *United States v. Cortez*, 449 U.S 411 (1981).

If a reasonable suspicion stop lasts too long, it turns into an arrest and an arrest requires probable cause. *Florida v Royer*, 460 U.S. 491 (1983).

The standard is satisfied by some minimal level of objective justification. The officer must be able to articulate something more than an inchoate and unparticularized suspicion or hunch. The 4th Amendment requires some minimal level of objective justification for making the stop. That level is considerably less than proof of wrongdoing by a preponderance of the evidence. *U.S. v. Sokolow*, 490 U.S. 1 (1989).

For the purposes of determining whether an encounter between police and an individual constitutes a seizure for purposes of the Federal Constitution's 4th Amendment, where the encounter takes place is one factor, but it is not the only one. The "reasonable person" test--under which the appropriate inquiry, in determining whether an encounter between an individual and the police is consensual for the purposes of the 4th Amendment, is whether a reasonable person would feel free to decline the officers' requests or otherwise terminate the encounter--presupposes an innocent person. *Florida v. Bostick*, 501 U.S. 429 (1991).

Reasonable suspicion is a less demanding standard than probable cause not only in the sense that reasonable suspicion can be established with information that is different in quantity or content than that required to establish probable cause, but also in the sense that reasonable suspicion can arise from information that is less reliable than that required to show probable cause. Reasonable suspicion, like probable cause, is dependent upon both the content of information possessed by police and its degree of reliability. Both factors, quantity and quality, are considered in the totality of the circumstances, the whole picture, that must be taken into account when evaluating whether there is reasonable suspicion. *Alabama v. White*, 496 US 325, 110 S. Ct. 2412 (1990).

The process of making a reasonable suspicion determination allows officers to draw on their own experiences and specialized training to make inferences from and deductions about the cumulative information available to them that "might well elude an untrained person." *United States v. Arvizu*, 534 U.S. 266 (2002).

Traffic Stop - General

Not all personal intercourse between policemen and citizens involves "seizures" of persons within the meaning of the 4th Amendment; only where the officer, by means of physical force or show of authority, has in some way restrained the liberty of a citizen is the inference that a "seizure" has occurred justifiable. *Terry v. Ohio*, 392 U.S. 1 (1968).

A traffic stop is a seizure of the driver even though the purpose of the stop is limited and the resulting detention is quite brief. See *Delaware v. Prouse*, 440 U.S. 648 (1979).

A driver is not "seized" simply because the police have chosen to follow his or her vehicle. In order to constitute a seizure under the 4th Amendment, there must be either the

application of physical force, however slight, or submission to an officer's show of authority to restrain a subject's liberty. While a pursuit may be a show of authority—if the defendant runs away—s/he has not submitted to the authority, and no seizure therefore has occurred. *California v. Hodari D*., 499 U.S. 621 (1991).

NOTE: Some state courts, however, have expressly refused to adopt the holding of *Hodari D*. and, instead, rely on a totality of the circumstances standard in determining whether a person has been seized, *e.g., State v. Randolph*, 74 S.W.3d 330 (2002).

Whether or not a police officer normally stops vehicles for minor traffic violations and uses the evidence of such violations as a pretext to stop vehicles for some other purpose is immaterial, as long as articulable, reasonable suspicion of some sort of law violation is present. It is not necessary to probe into the officer's mind to further justify the stop. *Whren v. U.S.,* 517 U.S. 806 (1996).

NOTE: Some state courts, however, under their state constitutions have rejected the *Whren* rule, *e.g*., *State v. Ladson*, 138 Wash. 2d. 343, 979 P2d. 833 (1999).

Presence in a high crime area alone is not sufficient to justify a stop, but is one factor in the totality of the circumstances. Nervous, evasive behavior is also a pertinent factor in determining articulable, reasonable suspicion for a stop. Headlong flight on the approach of a police officer is "the consummate act of evasion" and not necessarily indicative of wrongdoing but certainly suggestive of such. *Illinois v. Wardlow*, 528 U.S. 119 (2000).

Passenger in automobile stopped by police officer held to be seized within meaning of 4th Amendment and thus allowed to challenge constitutionality of the stop. The relevant question is whether a reasonable person in defendant's position after the car was stopped would have believed himself free to terminate the encounter between the police and himself. *Bredlin v. California*, 127 S. Ct. 2400 (2007).

Traffic Stop — Length / Duration

If a reasonable suspicion stop lasts too long, it turns into an arrest and an arrest requires probable cause. *Florida v Royer*, 460 U.S. 491 (1983).

A routine traffic stop is a relatively brief encounter and is more analogous to a *Terry* stop than a formal arrest. A seizure that is justified solely by the interest in issuing a warning ticket to the driver can become unlawful if it is prolonged beyond the time reasonably required to complete that mission. *Illinois v. Caballes*, 543 U.S. 405 (2005).

An officer's inquiries into matters unrelated to the justification for the traffic stop . . . do not convert the encounter into something other than a lawful seizure, so long as those inquiries do not measurably extend the duration of the stop. *Arizona v. Johnson*, 555 U.S. 323 (2009).

A police stop exceeding the time needed to handle the matter for which the stop was made violates the United States Constitution's shield against unreasonable seizures. A seizure justified only by a police-observed traffic violation, therefore, becomes unlawful if it is prolonged beyond the time reasonably required to complete the mission of issuing a ticket for the violation. *Rodriguez v. U.S.,* 575 U.S. __, 135 S.Ct. 1609 (2015).

Traffic Stop—Ordering Driver/Passengers Out of Vehicle

An officer may order a driver out of the car as a matter of course. *Pennsylvania v. Mimms*, 434 U.S. 106 (1977).

An officer may order a passenger out of the car as a precautionary measure, without reasonable suspicion that the passenger poses a safety risk. *Maryland v. Wilson*, 519 U.S. 408 (1997).

If traffic stop is valid, police can order the driver and passengers out of the vehicle. Officer can pat down driver and/or passengers if the officer reasonably concludes that the driver and/or passenger might be armed and dangerous. Can only pat down those individuals whom the officer believes to be armed and dangerous. *Arizona v. Johnson*, 555 U.S. 323 (2009).

Traffic Stop—Questions at Traffic Stop (Miranda?)

Roadside questioning of motorist detained pursuant to routine traffic stop did not constitute "custodial interrogation" for purposes of *Miranda* rule, so that pre-arrest statements motorist made in answering such questioning were admissible against motorist. *Berkemer v. McCarty*, 468 U.S. 420 (1984).

NOTE: In other words, as part of a traffic stop, an officer may engage in a limited amount general, on-the-scene questioning without giving the *Miranda* warnings, if the subject is not yet in custody. For instance, a DUI suspect could be asked what drugs he had been taking and how much alcohol he had consumed prior to driving and prior to being arrested.

NOTE: Where a DUI driver is transported to the police station and held, he is in custody for purposes of *Miranda*. Questioning in custody requires *Miranda* warnings in misdemeanor cases. *Berkemer v. McCarty*, 468 U.S. 420 (1984).

Before custodial interrogation, defendant must be warned that he has the right to remain silent and anything he says can be used against him, and he must be told he has the right to a lawyer; he may knowingly and intelligently waive these rights. *Miranda v. Arizona*, 384 U.S. 436 (1966).

Traffic Stop—Arrest

If a reasonable suspicion stop lasts too long, it turns into an arrest and an arrest requires probable cause. *Florida v Royer*, 460 U.S. 491 (1983).

The 4th Amendment does not prohibit a warrantless arrest for a minor motor vehicle offense, such as a safety belt violation, as long as the arresting officer had probable cause for the arrest. *Atwater v. City of Lago Vista*, 532 U.S. 318 (2001).

Traffic Stop—Anonymous Tip / Citizen Informant

Informant's tip may carry "sufficient indicia of reliability" to justify an investigative stop, even though it may be insufficient to support an arrest or search warrant. For purposes of determining the validity of an investigatory stop of a person's automobile based on an anonymous caller's tip that the person is engaged in criminal activity, it is not unreasonable to conclude that (1) the independent corroboration by the police of significant aspects of the caller's predictions about some facts imparts some degree of reliability to the other allegations made by the caller, including the claim that the person is engaged in criminal activity, (2) if the anonymous tip contains a range of details relating not just to easily obtained facts and conditions existing at the time of the tip, but also to future actions of third parties ordinarily not easily predicted, someone with access to such information is likely also to have access to reliable information about the person's illegal activities, and (3) where significant aspects of the caller's predictions are verified, the caller is honest and at least well enough informed to justify the stop. *Alabama v. White*, 496 U.S. 325 (1990)

In the context of information supporting an investigatory stop, the citizen-informant category of cases is treated quite differently than those involving anonymous tips. Information from ordinary citizens who have personally observed what appears to be criminal conduct carries with it an indicia of reliability and is presumed to be reliable. *State v. Ramsey*, 129 Ohio App. 3d 409, 717 N.E. 2d 1158 (1998).

While acknowledging that an anonymous tip alone seldom demonstrates an informant's basis of knowledge or veracity, under appropriate circumstances, an anonymous tip can demonstrate sufficient indicia of reliability to provide reasonable suspicion to make an investigatory stop. *Navarette v. California,* 572 U.S. ___, 134 S. Ct. 1683 (2014).

Traffic Stop—Pretextual Stop

The temporary detention of a motorist upon probable cause to believe that he has violated the traffic laws does not violate the 4th Amendment's prohibition against unreasonable seizures, even if a reasonable officer would not have stopped the motorist absent some additional law enforcement objective. Detention of a motorist is reasonable where reasonable articulable suspicion exists that a traffic violation has occurred. *Whren v. United States*, 517 U.S. 806 (1996).

The subjective intentions of individual police officers play no role in ordinary, probable cause 4th Amendment analysis. A traffic violation arrest will not be rendered invalid by the fact that it was a mere pretext for a narcotics search. *Arkansas v. Sullivan*, 532 U.S. 769 (2001).

Traffic Stop—Flight under Suspicious Circumstances

The defendant's flight from officers in area of heavy narcotics trafficking supported reasonable suspicion that defendant was involved in criminal activity and justified stop. The individual's presence in area of expected criminal activity, standing alone, is not enough to support reasonable, particularized suspicion that the person is committing a crime, but officers are not required to ignore relevant characteristics of location in determining whether circumstances are sufficiently suspicious to warrant further investigation. *Illinois v. Wardlow*, 528 U.S. 119 (2000).

Traffic Stop—Hit and Run

Requiring a driver involved in a collision to stop at the scene and provide name and address does not violate the driver's constitutional rights. *California v. Byers*, 402 U.S. 424 (1971).

Traffic Stop—Parking

The government may create parking districts and prohibit non- residents from parking on public streets in such areas. It does not violate equal protection of the law, since classifying parkers into residents and nonresidents is a reasonable classification. *County Board of Arlington County v. Richards*, 434 U.S. 5 (1977).

Traffic Stop—Roadblocks / Sobriety Check Points

As long as law enforcement officers conduct a non-discretionary roadblock, it does not violate the 4th Amendment. How many impaired drivers are arrested is not relevant. *Michigan Dept. of State Police v. Sitz*, 496 U.S. 444 (1990).

NOTE: Some state supreme courts, however, have ruled otherwise under their state constitutions, see *State v. Koppel and Forrest*, 127 N.H. 286, 499 A2d. 977 (1985).

A checkpoint whose primary purpose was to detect evidence of ordinary criminal wrongdoing (*e.g.*, to interdict illegal drugs) was rejected by Supreme Court because it lacked individualized suspicion and because its primary purpose was ultimately indistinguishable from the general

interest in crime control. *Indianapolis v. Edmond*, 531 U.S. 32 (2000).

NOTE: The Court specifically differentiated such roadblocks from sobriety checkpoints, also indicated that its holding "does not affect the validity of . . . searches at places like airports and government buildings, where the need for such measures to ensure public safety can be particularly acute[;] . . ." and noted that it would in all likelihood sustain "an appropriately tailored roadblock set up to thwart an imminent terrorist attack or to catch a dangerous criminal who is likely to flee by way of a particular route. . . ."

In judging reasonableness of a brief, information-seeking stop (checkpoint), the Court looks to the gravity of the public concerns served by the seizure, the degree to which the seizure advances the public interest, and the severity of the interference with individual liberty. *Illinois v. Lidster*, 540 U.S. 419 (2004).

NOTE: In *Lidster*, the reasonableness of a brief, information-seeking stop [checkpoint] was upheld where vehicle occupants, as members of the public, were asked for their assistance in providing information about a fatal hit-and-run crash which had occurred a week earlier at the same location and time of night and which in all likelihood had been committed by others.

Vehicle Searches—Incident to Arrest

Incident to and contemporaneous with a valid arrest, officers may search the entire passenger compartment of a vehicle, including any closed container(s) therein to discover instruments of a crime, contraband, evidence of a crime, or dangerous weapons. *New York v. Belton*, 453 U.S. 454 (1981).

Search incident to an arrest exception does not apply to an offense for which a person would normally be only issued a traffic citation, even if the officer may have probable cause to make the arrest. *Knowles v. Iowa*, 525 U.S. 113 (1998).

In many cases, as when a recent occupant is arrested for a traffic violation, there will be no reasonable basis to believe the vehicle contains relevant evidence. *Atwater v. City of Lago Vista*, 532 U.S. 318 (2001).

Search Incident to Arrest only authorizes police to search a vehicle incident to a recent occupant's arrest only when the arrestee is unsecured and within reaching distance of the passenger compartment at the time of the search. *Arizona v. Gant*, 556 U.S. 332 (2009).

Officers must generally secure a warrant before conducting a search of data on cell phones. The United States Supreme Court's holding, of course, is not that the information on a cell phone is immune from search; it is instead that a warrant is generally required before such a search, even when a cell phone is seized incident to arrest. The United States Supreme Court's answer to the question of what police must do before searching a cell phone seized incident to an arrest is accordingly simple—get a warrant. *Riley v. California*, 573 U.S. __, 134 S. Ct. 2473 (2014).

Vehicle Searches—Exigency

A police officer can search a motor vehicle and any container therein capable of carrying the object of the search without a warrant, if the officer has probable cause to believe that it is carrying contraband. This is based on the inherent mobility of a vehicle that can allow it to quickly travel outside the jurisdiction of the officers. *Carroll v. United States*, 267 U.S. 132 (1925).

The *Carroll* automobile exception does not require a separate finding of exigency in addition to a finding of probable cause; in cases where there was probable cause to search a vehicle, a search is not unreasonable if based on facts that would justify issuing a warrant, even though a warrant has not been actually obtained. *Maryland v. Dyson*, 527 U. S. 465 (1999).

NOTE: This may hold true even if the owner of the vehicle is in police custody at the time of the search; it is noteworthy, however, that the search in this case involved only an examination of the exterior of arrestee's vehicle. *Cardwell, Warden v. Lewis*, 417 U.S. 583 (1974).

NOTE: It does not matter if a container belongs to the driver or a passenger, as long as it is capable of containing the object of the search. *Wyoming v. Houghton*, 526 U.S. 295 (1999).

NOTE: Some states interpret their state constitutions to require probable cause and also exigent circumstances or another exception to the warrant requirement. *State v. Sterndale*, 139 N.H. 445 (1995).

Vehicle Searches—Inventory

When officers tow or otherwise take a vehicle into custody, if the police department has a policy requiring it, they may make a complete inventory of the contents of the vehicle in order to protect the owner's property and protect the police from accusations of theft. *South Dakota v. Opperman*, 428 U.S. 364 (1976).

The search may include any open or closed containers in the vehicle, if the department's policy specifically calls for this action. *United States v. Ross*, 456 U.S. 798 (1982).

Vehicle Searches—Consent Searches

Consent for a search is valid only if it is freely, voluntarily, and knowingly given. Officers are not required to inform the person that he has the right to refuse consent. *Schneckloth v. Bustamonte*, 412 U.S. 218 (1973).

When deciding whether consent was voluntary or not, courts will consider three factors—the proximity in time between any illegal police conduct and the consent to search, the presence of any intervening circumstances, and the purpose and flagrancy of any official misconduct. *Brown v. Illinois*, 422 U.S. 590 (1975).

Police officers are permitted to ask a person in custody or control of a motor vehicle for consent to search the vehicle and the individual's person; if the person is illegally detained, however, when he consents to the search, the consent is tainted by the illegality and is ineffective to justify the search. *Florida v. Royer*, 460 U.S. 491 (1983).

NOTE: Articulable, reasonable suspicion of wrongdoing is not required in most jurisdictions in order to ask a person for consent to search, but New Jersey follows a more stringent rule under its state constitution, *State v. Carty*, 322 NJ Super 200, 753 A2d. 149 (2000).

NOTE: A growing body of state case law favors written waivers that contain a notice of the right of refusal. Some states have ruled that if a police officer is still holding the person's license and registration when asking for consent to search, the consent will be invalid unless the person was told of his right to refuse, *State v. Hight*, 146 N.H. 746, 781 A2d. 11 (2001).

Computer Checks of Registration Plate Numbers

The supreme courts in some states have held that random computer checks of passing vehicle's license plate numbers are not searches under the 4th Amendment or the state constitution. If check reveals the registered owner has a suspended license that provides reasonable suspicion for a traffic stop. *State v. Richter*, 145 N.H. 640, 765 A.2d. 687 (2000).

Community Caretaking

Whether a search and seizure is unreasonable within the meaning of the 4th Amendment depends upon the facts and circumstances of each case. It is permissible to search a vehicle pursuant to the police community caretaking functions, those that are totally divorced from the detection, investigation, or acquisition of evidence relating to the violation of a criminal statute. *Cady v. Dombrowski*, 413 U.S. 433 (1973).

NOTE: In *Dombrowski*, police removed defendant's car to a tow yard following a crash and defendant's DUI arrest. Defendant was a police officer in another jurisdiction; arresting police searched defendant's vehicle for his department-issued weapon to protect public safety to prevent the weapon from falling into untrained or malicious hands (*e.g.*, community care taking). Search found to be reasonable.

Some states recognize a "community caretaking exception" to the requirement of articulable, reasonable suspicion to justify a motor vehicle stop. Seizure of property by the police is justified by the community caretaking exception when it constitutes no more than a routine and good faith attempt, in the exercise of reasonable caution, to safeguard the defendant's own property. *State v. Psomiades*, 139 N.H. 480 (1995).

NOTE: Police officer's actions in removing valuables without a warrant from a car left by the side of the road at 3 a.m. constituted a legitimate caretaking function, and therefore did not violate the New Hampshire Constitution.

Driver's License

A driver's license is an "important interest" and cannot be taken away or denied without affording the person due process of law. *Bell v. Burson*, 402 U.S. 535 (1971).

Licensing authority may summarily suspend or revoke a license based on official records and prior to a preliminary hearing. *Dixon v. Love*, 431 U.S. 105 (1977).

Under implied consent, summary suspension of license based on refusal to submit to breath test upon DUI arrest is permissible; compelling interest in highway safety justifies summary suspension effective pending the outcome of the prompt post-suspension hearing available. *Mackey v. Montrym*, 443 U.S. 1 (1979).

An officer's affidavit for refusal under implied consent does not have to recite the reasonable grounds the officer had that the driver was DWI. *Illinois v. Batchelder*, 463 U.S. 1112 (1983).

NOTE: Some jurisdictions have ruled that Administrative License Suspension hearings are non-criminal in nature, that the Exclusionary Rule does not apply to them, and that the issue of probable cause to stop the vehicle therefore is not to be considered in such hearings. *Lopez v. Director of Motor Vehicles*, 145 N.H. 222, 761 A2d. 448 (2000).

Standardized Field Sobriety Tests (SFST)

It is not required to give the *Miranda* warnings to a motorist before asking him if he will submit to a chemical test or to a physical balance and coordination test, because you are not asking him to make incriminating statements. *South Dakota v. Neville*, 459 U.S. 553 (1983).

Need not provide Miranda prior to SFSTs. *Berkemer v. McCarty*, 468 U.S. 420 (1984).

Miranda affords protection against self-incrimination to persons under custodial interrogation. The Supreme Court distinguishes between testimonial and real or physical evidence when invoking the privilege. SFST constitute real or physical evidence; whereas requiring defendant to respond to specific questions is testimonial. A defendant's statements during administration / performance of SFST may not be testimonial and may, therefore, be admissible. In order to be testimonial, an accused's communication must itself, explicitly or implicitly, relate a factual assertion or disclose information. Only then is a person compelled to be a witness against himself. *Pennsylvania v. Muniz*, 496 U.S. 582 (1990).

NOTE: In *Muniz*, responses made by defendant while officers conducted field sobriety tests were admissible, but after defendant received direct questions that could have been construed as custodial interrogation, *Miranda* warnings should have been given.

Implied Consent and Refusal

Where a driver refused a chemical test, this refusal could be admitted into evidence at the trial, and it did not violate his constitutional rights. *South Dakota v. Neville*, 459 U.S. 553 (1983); *Missouri v. McNeely, 569 U.S. __, 133 S. Ct. 1552 (2013).*

Some jurisdictions have found no due process violation even when a police officer fails to provide to a suspect notice of the consequences of his refusal. *Kanikaynar v. Sisneros*, 190 F.3d 1115 (10th Cir. 1999).

All 50 States have adopted implied consent laws that require motorists, as a condition of operating a motor vehicle within the State, to consent to BAC testing if they are arrested or otherwise detained on suspicion of a drunk-driving offense. *Missouri v. McNeely,* 569 U.S. __, 133 S. Ct. 1552 (2013) and *Birchfield v. North Dakota,* 579 U.S. __, 136 S. Ct. 2160 (2016).

NOTE: But some states' implied consent laws provide for NO testing if driver refuses (even if SW obtained), see *State v. Adee*, 241 Kan. 825, 740 P. 2d 611 (1987) citing *State v. Brunner*, 211 Kan. 596, 507 P. 2d 233 (1973)).

NOTE: Some states have determined that in order for consent to be valid, a driver must have the ability to ultimately refuse when requested to submit to a chemical test. In other words, without the ability to refuse, some states have deemed such consent to be coerced and disallowed the use at trial of subsequent test results. See *State v. Won*, 136 Haw. 292, 361 P.3d 1195 (2015) and *State v. Ryce*, 303 Kan. 899 (2016).

A refusal to submit to a blood test cannot be criminalized; a refusal to submit to breath can be a separate crime. *Birchfield v. North Dakota,* 579 U.S. __, 136 S. Ct. 2160 (2016).

NOTE: Some jurisdictions may equate breath test limited intrusion to urine or oral fluid tests.

NOTE: Some jurisdictions may charge a refusal offense (or equivalent) if a defendant refuses to submit to a blood test after a search warrant has been obtained.

Chemical Testing—Warrantless Searches

The natural dissipation of alcohol in the blood does not create a categorical per se exigency that justifies a warrantless search. *Missouri v. McNeely*, 569 U.S. __, 133 S. Ct. 1552 (2013).

A breath test, but not a blood test, may be administered as a search incident to a lawful DUI arrest. *Birchfield v. North Dakota*, 579 U.S. __, 136 S. Ct. 2160 (2016).

Chemical Testing—Right to Attorney Prior to Test

Courts are split as to whether the taking of a sample of a defendant's blood, breath or urine, even under implied consent, is a "critical stage of a criminal proceeding" at which a 6th Amendment right to counsel is applicable. See *Sites v. State*, 300 Md. 702, 481 A. 2d 192 (1984) and *Heles v. South Dakota*, 530 F. Supp. 646 (SD), vacated as moot, 682 F. 2d 201 (CA8 1982). Some courts have found a right to counsel based on state law, e.g., State v. Fitzsimmons, 94 Wash. 2d 858, 620 P. 2d 999 (1980), or on general due process guarantees, see, e.g., State v. Newton, 291 Ore. 788, 636 P. 2d 393 (1981) (en banc plurality).

Chemical Testing—Saving Breath Sample for Defendant

The due process clause of the 14th Amendment does not require that law enforcement agencies preserve breath samples in order to introduce the results of breath-analysis tests at trial. *California v. Trombetta*, 467 U.S. 479 (1984).

NOTE: State courts and legislatures, of course, remain free to adopt more rigorous safeguards governing the admissibility of scientific evidence than those imposed by the Federal Constitution. See e. g., Lauderdale v. State, 548 P. 2d 376 (Alaska 1976); City of Lodi v. Hine, 107 Wis. 2d 118, 318 N. W. 2d 383 (1982).

The U.S. Constitution does not require the prosecution to preserve a breath sample so that a defendant can have it analyzed at a later time. *California v. Trombetta*, 467 U.S. 479 (1984). NOTE: In some states, such as New Hampshire, the State Supreme Court has ruled that under the State Constitution, a second sample is required. *State v. Cornelius*, 122 N.H. 925, 452 A.2d. 464 (1982).

APPENDIX A: BIBLIOGRAPHY OF RESOURCES




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Photo Credit #1: Takepart website. This May Be a New Model for Community Policing

http://www.takepart.com/sites/default/files/styles/large/public/Camden.jpg

(Photo: Andrew Burton/Getty Images). Website: December 23, 2016.

Photo Credit #2: Police Officer Holds Baby: https://stock.adobe.com/nl/search?filters%5Bcontent_type%3Aphoto%5D=1&filters%5Bcontent_type%3Aillustration%5D=1&filters%5Bcontent_type%3Azip_vector%5D=1&filters%5Bcontent_type%3Avideo%5D=1&filters%5Bcontent_type%3Atemplate%5D=1&filters%5Bcontent_type%3A3d%5D=1&safe_search=1&ca=0&similia_id=14491965

Website: December 23, 2016.

Photo Credits: #3 https://unsplash.com/@_th4d_ Thaddaeus Lim; From Unsplash Website. December 23, 2016.

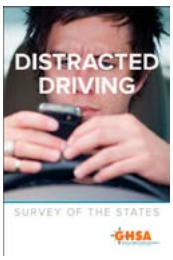
Photo Credit: #4 Delaware State Police. Seifert, Personal collection. December 23, 2016.

This Bibliography of Resources serves as supplementary information providing current resources available to assist law enforcement officers with further research and additional information. This part of the Resource Guide includes contemporary information available to assist leaders in their efforts to address five main themes of traffic safety. These five themes are divided into four sections:

1. **Section One: Reduction of Traffic Crashes**
2. **Section Two: Officer Safety**
3. **Section Three: Commercial Vehicles and Transportation of Hazardous Materials**
4. **Section Four: Emerging and Critical Issues**

The bibliography encompasses books, academic journals, downloadable archived research materials, websites, webinars, podcasts, magazine articles and more. After reviewing these resources, you are encouraged to look at the bibliography for each item as this will provide additional helpful research materials. The resources serve to point the reader to promising practices, strategies, research, and lessons learned for enhancing traffic safety.

SECTION ONE: REDUCING TRAFFIC CRASHES



***2013 Distracted Driving: Survey of the States* (Governors Highway Safety Association, 2013)**

Website Link: http://www.ghsa.org/resources/2013distracted

Abstract: The Governors Highway Safety Association (GHSA) provides this website and a downloadable publication which outlines efforts to combat distracted driving. Highlights of the report include the latest information on laws and law enforcement, public education efforts, partnerships with other organizations and data.

***A New Tool to Assess the Costs and Effectiveness of Traffic Crash Interventions* (Liisa Ecola and Jeanne S. Ringel, 2016)**

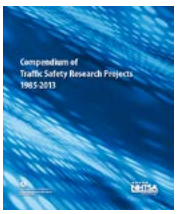
Website Link: http://www.rand.org/blog/2016/04/a-new-tool-to-assess-the-costs-and-effectiveness-of.html#reductions3

Abstract: This April 2016 blog post from the Rand Corporation provides details about an online tool called Motor Vehicle Prioritizing Interventions and Cost Calculator for States (MV PICCS) that generates state-specific cost-effectiveness estimates for traffic crash interventions. MV PICCS allows users to compare 14 interventions on cost and effectiveness. The tool is available for free at www.cdc.gov/motorvehiclesafety/calculator.

Aggressive Driving Enforcement: Evaluation of Two Demonstration Programs (Jack Stuster, 2004)

Website Link: https://www.nhtsa.gov/document/aggressive-driving-enforcement

Abstract: This report presents the results of a study conducted for the National Highway Traffic Safety Administration (NHTSA) to assess the effects of two programs that were implemented to reduce the incidence of aggressive driving. The programs were conducted by the Marion County Traffic Safety Partnership (a consortium of agencies in the vicinity of Indianapolis, Indiana), and The Tucson, Arizona, Police Department. Study results suggest that limited resources might be better spent on officer labor than on publicity, and that focusing enforcement responsibility on a small team assigned full-time to the special enforcement patrols might be more effective than sharing the responsibility among a large number of officers as occasional overtime duty.



***Compendium of Traffic Safety Research Projects 1985-2013* (National Highway Traffic Safety Administration, 2014)**

Website Link: http://www.nhtsa.gov/staticfiles/nti/pdf/CompendiumTrafficSafetyResearchProjects1985-2013.pdf

Abstract: The Compendium is a NHTSA summary of research on alcohol-involved driving, drug-involved driving, occupant protection (e.g., seatbelts, and child safety seats), speed and other unsafe driving behaviors, motorcyclist safety, pedestrian and bicyclist safety, older driver safety, novice and young driver safety, fatigue and distraction, and emergency medical services.

***Costs and Effectiveness of Interventions to Reduce Motor Vehicle–Related Injuries and Deaths: Project Report and Online-Tool Documentation* (Jeanne S. Ringel, Johanna Zmud, Liisa Ecola, Christina Pavis and Gregory S. Jones, 2015)**

Website Link: http://www.rand.org/pubs/tools/TL144z1.html

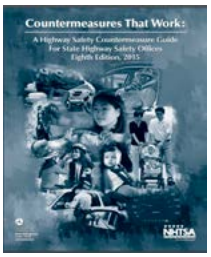
Abstract: This report from the Rand Corporation documents the approach, data, and assumptions used to produce an online tool that allows state decision makers to assess the costs and effectiveness of implementing up to 14 interventions and to select those most effective in reducing deaths and injuries from motor vehicle crashes for a given implementation budget. It also provides examples of how costs and benefits were identified for certain interventions, as well as instructions about using the tool in various modes of analysis. The tool was developed for and is hosted by the Centers for Disease Control and Prevention's National Center for Injury Prevention and Control.

***Countermeasure Strategies for Pedestrian Safety.* (Federal Highway Administration and the Pedestrian and Bicycle Information Center, 2015)**

Website Link: http://www.pedbikeinfo.org/training/webinars_PSAP_countermeasurestrategies.cfm

Abstract: The Federal Highway Administration and the Pedestrian and Bicycle Information Center developed this webinar series. The webinars provide participants with an in-depth exploration of some of the countermeasures and

design strategies that can be implemented to improve pedestrian safety. Each of the 12 sessions feature detailed information about countermeasures and design strategies, supporting research and guidance, as well as case studies highlighting examples of implementation from around the United States.



***Countermeasures that Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices Eighth Edition, 2015.* (Arthur Godwin, Libby Thomas, Bevan Kirley, William Hall, Natalie O'Brien and Kate Hill, 2015)**

Website Link: www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork8th.pdf

Abstract: This guide is a basic reference to assist State Highway Safety Officers in selecting effective, science-based traffic safety countermeasures for major highway safety problem areas.

***Eyes on the Road: Searching for Answers to the Problem of Distracted Driving* (Sarah Karush, Insurance Institute for Highway Safety, 2014)**

Website Link: https://www.iihs.org/news/detail/searching-for-answers-to-the-problem-of-distracted-driving

Abstract: This resource from the Insurance Institute for Highway Safety details research by the Institute and the Virginia Tech Transportation Institute (VTTI). The Institute found drivers' near-crash and crash risk changes as their cellphone usage patterns change and how cellphone use fits in with other driver behavior and affects attention to the road. The research confirms that frequent cellphone users have more near misses or crashes.

***Florida's Pedestrian & Bicycle Focused Initiative* (State of Florida, 2016)**

Website Link: http://www.alerttodayflorida.com/

Abstract: In 2011, Florida's Department of Transportation developed a very successful Bicycle/Pedestrian Focused Initiative working towards the goal of increasing awareness and decreasing fatalities of bicyclists and pedestrians. This website has information on significant accomplishments, the outreach and media campaign, education, engineering and enforcement as well as a compendium of resources and research related to pedestrian and bicycle safety information.

***Graduated Driver Licensing Research Review* (AAA Foundation for Traffic Safety, 2012)**

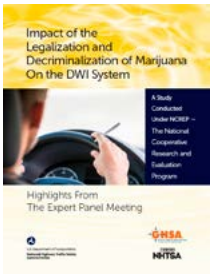
Website Link: https://aaafoundation.org/graduated-driver-licensing-research-review-2010-present/

Abstract: This research from the AAA foundation is the latest in a series of reviews of research on graduated driver licensing (GDL) published in the Journal of Safety Research. The intent is to keep researchers and policy makers current regarding the existing state of knowledge about GDL, and to identify information gaps and areas where clarification of research findings is needed.

***High-Visibility Education and Enforcement (HVEE) Pilot Project* (Brad Wentlandt, 2016)**

Website Link: http://www.policechiefmagazine.org/high-visibility-education-and-enforcement-hvee-pilot-project/#sthash.dY6w0hlv.dpuf

Abstract: This resource details the high-visibility education and enforcement project. Four U.S. states participated in the IACP-led effort with programs addressing specific local safety concerns. The HVEE approach offers an evidence-based, data-driven problem-solving approach by using proactive public education campaigns to raise awareness of the identified safety issue, followed by targeted enforcement involving multiple law enforcement agencies.



***Impact of the Legalization and Decriminalization of Marijuana on the DWI System: Highlights from the Expert Panel Meeting* (NHTSA and Governor's Highway Safety Association, 2017)**

Website Link: http://bit.ly/ncrep062617#sthash.EFqskPIh.dpuf

Abstract: The legalization of marijuana for medicinal or recreational use at the state level has the potential to have downstream effects on the entire impaired driving system. In its first completed research project, the National Cooperative Research and Evaluation Program (NCREP) convened a group of national experts, representing states that had enacted such laws, to discuss these consequences and identify issues for consideration by other states that may be considering the adoption of these laws. *Impact of the Legalization and Decriminalization of Marijuana on the DWI System* is the culmination of these deliberations. It outlines key factors for consideration in seven topic areas: law enforcement, prosecution, adjudication, forensics, data, State Highway Safety Offices (SHSOs) and public outreach.

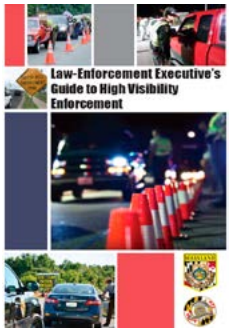
***Implementing DDACTS in Baltimore County: Using Geographic Incident Patterns to Deploy Enforcement* (Howard Hall and Emily N. Puls, 2010)**

Abstract: In 2008, the Baltimore County Police Department began implementation of Phase I of its DDACTS (Data-Driven Approaches to Crime and Traffic Safety) initiative. This article examines in detail how and why the Baltimore County Police Department chose to incorporate and implement the DDACTS model as part of its overall data-driven policing strategy. Results from the evaluation of Baltimore County's use of DDACTS are encouraging and show that DDACTS can be used to efficiently and effectively deploy scarce police resources.

***Increasing Impaired-Driving Enforcement Visibility: Six Case Studies* (James Fell. A. Scott McKnight and Amy Auld-Owens, 2013)**

Website Link: https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/811716.pdf

Abstract: This report presents six case studies of "high-visibility enforcement" (HVE) which are law enforcement efforts aimed at deterring unsafe driving behavior by increasing the public's perception of being caught, arrested, and prosecuted. The report is intended to provide information on impaired driving HVE programs for regional, State and local agencies considering incorporating HVE strategies into their efforts to curb impaired driving or to modify existing HVE programs.



***Law Enforcement Executive's Guide to High Visibility Enforcement* (Maryland Chiefs of Police Association, 2016)**

Website Link: http://www.nlelp.org/wp-content/uploads/2016/09/LE_Exec_Guide.pdf

Abstract: The Maryland Chiefs of Police Association, Maryland Sheriff's Association, and the Maryland Highway Safety Office recently collaborated on the publication of the "Law Enforcement Executive's Guide to High Visibility Enforcement," which can be found here: http://www.nlelp.org/wp-content/uploads/2016/09/LE_Exec_Guide.pdf

***Marijuana, Other Drugs, and Alcohol Use by Drivers in Washington* State (Anthony Ramirez, Amy Berning, Katherine Carr, Michael Scherer, John H. Lacey, Tara Kelley-Baker, and Deborah A. Fisher, 2016)**

Website Link: https://www.nhtsa.gov/staticfiles/nti/pdf/812299-WashingtonStatedrugstudy.pdf

Abstract: In Washington State legal sales of marijuana began July 8, 2014. A voluntary, anonymous roadside study was conducted to assess the prevalence of drivers testing positive for alcohol and other drugs, including marijuana, on Washington's roads. Data was collected in three waves, before implementation of legal sales, about 6 months after implementation, and 1 year after implementation. This research provides important information on the impact of data on marijuana use by drivers.

***Older Drivers Safety Program* (Georgia Department of Public Health, 2017)**

Website Link: https://dph.georgia.gov/ODS

Abstract: Funded by the Georgia Governor's Office of Highway Safety, this website provides information for law enforcement regarding several initiatives to reduce the number of injuries and fatalities experienced by older drivers.

***Pedestrians and bicyclists* (The Insurance Institute for Highway Safety Highway Loss Data Institute, 2017)**

Website Link: http://www.iihs.org/iihs/topics/t/pedestrians-and-bicyclists/qanda

Abstract: This resource from the Insurance Institute for Highway Safety provides important information on fatality facts, public presentations, research and policy related information regarding pedestrians and bicyclists.

***Police Training to Spot Marijuana Use* (Oriana Durand, 2017)**

Website Link: http://www.telegram.com/news/20170101/police-training-to-spot-marijuana-use

Abstract: This January 2017 article which was published in the Telegram & Gazette (Worcester, Massachusetts) described the challenges faced by law enforcement with the detection of impaired drivers. The Drug Recognition Expert (DRE) program was described and police officers detailed how it can be used to help determine if a motorist was under the influence of drugs.

***Progress in Teenage Crash Risk During the Last Decade.* (Susan A. Ferguson; Eric R. Teoh; Anne T. McCartt, 2007)**

Journal of Safety Research, v38 n2

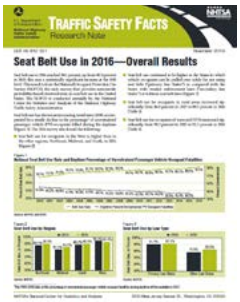
Website Link: http://www.sciencedirect.com/science/journal/00224375/38/2

Abstract: This research examined the most recent data on teenagers' fatal and nonfatal crashes in the United States to determine current crash rates as well as changes in crash rates during the past decade for calendar years 1996 and 2005 were extracted for fatal crashes from the Fatality Analysis Reporting System and for police-reported crashes.

***Recommendations for Toxicological Investigation of Drug-Impaired Driving and Motor Vehicle Fatalities* (Barry K. Logan, et al, 2013)**

Website Link: https://academic.oup.com/jat/article-lookup/doi/10.1093/jat/bkt059

Abstract: This research is presented in the Journal of Analytical Toxicology. The report describes the review and update of a set of minimum recommendations for the toxicological investigation of suspected alcohol and drug-impaired driving cases and motor vehicle fatalities involving drugs or alcohol. The recommendations have the goal of ensuring that a consistent set of data regarding the most frequently encountered drugs linked to driving impairment is collected for practical application in the investigation of these cases and to allow epidemiological monitoring and the development of evidence-based public policy on this important public safety issue.



***Seatbelt Use in 2016 – Overall Results* ((National Highway Traffic Safety Administration, 2016)**

Website Link: https://crashstats.nhtsa.dot.gov/#/

Abstract: This NHTSA Traffic Safety Facts bulletin reports on seatbelt use in the United States where use has reached its highest level since the federal government began regular surveys in 1994.

***Smart Policing and Data-Driven Approaches to Crime and Traffic Safety (DDACTS) Webinar.* (Chief Howard Hall and Chip Coldren, et al, 2014)**

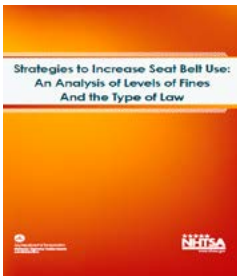
Website Link: http://www.strategiesforpolicinginnovation.com/tta/webinars/spi-data-driven-approaches-crime-and-traffic-safety

Abstract: The Smart Policing Initiative hosted a webinar on Data-Driven Approaches to Traffic and Crime Safety (DDACTS). This was an online, interactive seminar aimed at engaging the SPI community in a focused discussion around recent evidence regarding the effectiveness of DDACTS, how DDACTS reflects Smart Policing Principles, and DDACTS information resources available to police agencies. Four police agencies also discussed their experiences with DDACTS, including Roanoke County (VA), Metro Nashville (TN), Mesa (AZ), and Shawnee (KS).

***State of Knowledge of Alcohol-Impaired Driving: Research on Repeat DWI Offenders* (John H. Lacey and Ralph K. Jones, 2000)**

Website Link: https://one.nhtsa.gov/people/injury/research/pub/Alcohol-ImpairedDriving.html

Abstract: This study reviews the scientific literature since 1990 relating to drivers who have been convicted more than once of driving while impaired by alcohol (DWI). It covers the role of such drivers in alcohol-related crashes, their characteristics, and the nature and effectiveness of countermeasures designed to reduce their alcohol-crash involvement. The review was performed as part of a larger review of the state of knowledge of alcohol-impaired driving at the millennium.



***Strategies to Increase Seatbelt Use: An Analysis of Levels of Fines and the Type of Law* (James L. Nichols, A. Scott Tippetts, James C. Fell, Amy Auld-Owens, Connie H. Wiliszowski, Philip W. Haseltine, and Angela Eichelberger, *2010*)**

Website Link: www.nhtsa.gov/staticfiles/nti/occupant_protection/pdf/811413.pdf

Abstract: The main objectives of this study were to determine the relationships between seatbelt use in the States and (1) the type of seatbelt law enforcement (primary versus secondary), and (2) seatbelt fine levels. The study examined law type and levels of fines as predictors of seatbelt use for two time periods (1997 to 2002 and 2003 to 2008) using panel regression analyses. Two outcome measures were examined: seatbelt use among front-seat occupants over age 8 killed in passenger vehicle crashes from the Fatality Analysis Reporting System (FARS) and the observed statewide seatbelt use of front-seat occupants in passenger vehicles.

***Teenagers: Driving Carries Extra Risk for Them* (The Insurance Institute for Highway Safety Highway Loss Data Institute, 2016)**

Website Link: http://www.iihs.org/iihs/topics/t/teenagers/hldi-research

Abstract: The Insurance Institute for Highway Safety Highway Loss Data Institute maintains this website with links to state laws; fatality facts; public presentations; regulatory and legislative policy; HLDI research and Q & A's.

***The Roadway Safety Guide: A Primer for Community Leaders* (Roadway Safety Foundation, 2014)**

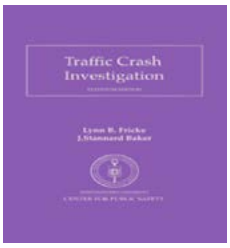
Website Link: https://www.roadwaysafety.org/programs/roadway-safety-guide

Abstract: The Roadway Safety Foundation is a non-profit educational organization charted in 1995 by the American Highway Users Alliance working with private and public sector safety partners to reduce fatalities attributed to roadway conditions. The Roadway Safety Guide is designed to provide community leaders and elected officials with basic information to improve roadway safety in their communities.

***Traffic Safety Initiatives: Motorcycle Safety* (Samuel Capogrossi, 2017)**

Website Link: https://www.policechiefmagazine.org/traffic-safety-initiatives-motorcycle-safety/

Abstract: This 2017 article from the Police Chief magazine highlights key statistics related to motorcyclists on U.S. roadways. It summarizes ongoing research findings of NHTSA, GHSA, FHWA and best practices to improve motorcycle safety. The article reports that some of the key findings are the need to ensure motorcycle riders are properly trained and licensed; the need to remove alcohol-impaired operators from the roads; the need to increase other motorists' awareness of motorcyclists by increasing visibility and the need to educate motorcyclists on the importance of wearing approved helmets and clothing.



***Traffic Crash Investigation* (J. Stannard Baker and Lynn B. Fricke, 2014)**

Website Link: https://sps.northwestern.edu/center-for-public-safety/shop/product.asp?intProdID=431

Abstract: *Traffic Crash Investigation, 11th Edition* is a comprehensive collection of the most important techniques and definitions essential for developing an accurate picture of motor vehicle crashes. Crash investigators who practice these techniques provide information that ultimately saves lives and reduces monetary losses. Considered the definitive standard by attorneys, prosecutors and judges, law enforcement officers, engineers and other safety groups, the 11th edition is a major update of the text.

***Traffic Safety Innovations: How Agencies Use the National Law Enforcement Challenge to Zero In on Traffic Safety Issues* (Bethany Peterson and Matt Alderton, 2016)**

Website Link: http://www.policechiefmagazine.org/traffic-safety-innovations-how-agencies-use-the-national-law-enforcement-challenge-to-zero-in-on-traffic-safety-issues/

Abstract: This resource provides a summary of the National Law Enforcement Challenge a traffic safety recognition program aimed at the issues of impaired driving, occupant protection, and speeding. The article describes law

enforcement programs which serve as a collection of success stories and recommendations from agencies that have implemented best practices to address a traffic safety problem specific to their community or in support of the state's highway safety strategic plan. Traffic safety initiatives in nine police departments were described.

***Traveling the Three Lanes on the Road to Zero* (National Highway Traffic Safety Administration, 2016)**

Website Link: https://www.nhtsa.gov/press-releases/traveling-three-lanes-road-zero

Abstract: This resource briefly introduces the new strategic plan of NHTSA. NHTSA has adopted "three lanes to zero to help deliver a future free of motor vehicle fatalities: Proactive Vehicle Safety; Advanced Vehicle Safety Technologies and addressing Human Factors like drunk, drugged, distracted and drowsy driving.

***Using Cost-Effectiveness Analysis to Prioritize Spending on Traffic Safety* (Liisa Ecola, Benjamin Saul Batorsky and Jeanne S. Ringel, 2015)**

Website Link: http://www.rand.org/pubs/tools/TL144z1.html

Abstract: This report examines how traffic safety funding could be spent to reduce motor vehicle crash–related injuries and deaths. Specifically, it assesses three issues: the most cost-effective interventions at the national and state levels, whether to allocate incremental funding increases to all states or spend the funds in targeted states, and how best to allocate funds that target drunk driving.

SECTION TWO: OFFICER SAFETY

IACP Officer Safety and Wellness Website

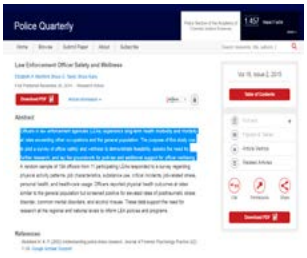
Website Link: http://www.theiacp.org/COSW

Abstract: Comprehensive website hosted by the IACP which offers tools, model policies, reports and publications, and articles and blog posts related to officer safety and wellness.

Is Today Your Day? (IACP and the New York State Police, 2010)

Website Link: https://youtu.be/Lv_viNAylqc

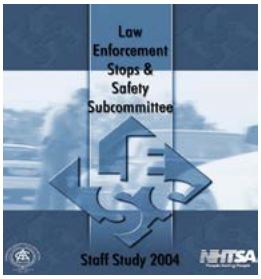
Abstract: This YouTube video was produced by the Ohio State Highway Patrol and the IACP. It is a twenty-two minute video promoting officer safety to reduce police officer deaths and injuries. It is suitable for roll call training.



Law Enforcement Officer Safety and Wellness (Elizabeth A. Mumford, Bruce G. Taylor and Bruce Kubu, 2014)

Website Link: https://journals.sagepub.com/doi/abs/10.1177/1098611114559037?journalCode=pqxa

Abstract: Officers in law enforcement agencies (LEAs) experience long-term health morbidity and mortality at rates exceeding other occupations and the general population. The purpose of this study was to pilot a survey of officer safety and wellness to demonstrate feasibility, assess the need for further research, and lay the groundwork for policies and additional support for officer wellbeing.



Law Enforcement Stops and Safety Subcommittee Staff Study (IACP and NHTSA, 2004)

Website Link: http://dnn9ciwm8.azurewebsites.net/TrafficOfficerSafetySubcommittee

Abstract: This 2004 Staff Study Report documents the work to date of the IACP Law Enforcement Stops and Safety Subcommittee. It includes technology, practices, and research related to improving officer safety and preventing police vehicle crashes. Recommendations are included at the end of each section of the report as benchmarks against which to measure future successes to improve the safety of police vehicles, highway environment and design, and traffic stop practices.

Officer Safety: Reducing Injuries and Fatalities for the Law Enforcement Officer on the Front Lines of Traffic Safety (Sheriff John Whetsel and Ed Hutchison, 2015)

Podcast from the National Law Enforcement Liaison Program

Website Link: http://www.nlelp.org/podcast-sheriff-john-whetsel-and-ed-hutchison-on-officer-safety/

Abstract: During the GHSA 2015 Annual Meeting, the National Law Enforcement Liaison Program (NLELP) sat down with Sheriff John Whetsel, Sheriff of Oklahoma County, Oklahoma and chair of the National Sheriffs Association Traffic Safety Committee, and Ed Hutchinson, Director of Traffic Safety for the National Sheriffs Association, to talk about ways to reduce injuries and fatalities for the law enforcement officers who are on the front lines of traffic safety. This podcast, as well as the NLELP website, offers information on officer safety concerns, best practices, case law, occupant protection, and multi-state and regional initiatives related to traffic safety.

The Influence of Officer Positioning on Movement During a Threatening Traffic Stop Scenario (William J. Lewinski, PhD, Jennifer L. Dysterheft, Dawn A. Seefeldt, MA, Robert W. Pettitt, PhD, 2013)

Website Link: https://www.forcescience.org/2013/03/the-influence-of-officer-positioning-on-movement-during-a-threatening-traffic-stop-scenario/

Abstract: This research study uses science to evaluate officer responses to deadly threats encountered during traffic stops. Topics covered in the study include passenger-side approaches; mitigation of hazards on traffic stops; officer position relative to the B-Pillar of a vehicle on tactical responses to a lethal threat and origination of threats from within the stopped vehicle.

They Don't See You **(IACP and Ohio State Highway Patrol, 2014)**

Website Link: http://dnn9ciwm8.azurewebsites.net/TrafficOfficer-SafetySubcommittee

Abstract: This YouTube video was produced by the Ohio State Highway Patrol and the IACP. It is a ten minute video highlighting officer safety considerations and is suitable for roll call training.

Solutions for Safer Traffic Stops **(Richard J. Ashton, 2004)**

Website Link: http://www.policechiefmagazine.org/solutions-for-safer-traffic-stops/

Abstract: This Police Chief magazine article reports on the findings and recommendations to date of the International Association of Chiefs of Police's Law Enforcement Stops and Safety Subcommittee (LESSS), which has been assigned the task of improving officer safety during traffic stops and other roadside contacts.

SECTION THREE: COMMERCIAL VEHICLES AND TRANSPORTATION OF HAZARDOUS MATERIALS

***Best Practices and Lessons Learned in Commercial Vehicle Enforcement: A Perspective from the Ohio State Highway Patrol* (Colonel Paul A. Pride, 2015)**

Website Link: https://www.theiacp.org/news/blog-post/best-practices-and-lessons-learned-in-commercial-vehicle-enforcement-a-perspective-1

Abstract: This IACP Blog article details the efforts of the Ohio State Highway Patrol in addressing commercial vehicle enforcement safety. Colonel Paul Pride, Superintendent of the Highway Patrol, provides best practices around the Road Watch 100 campaign and lessons learned.

***Best Practices and Lessons Learned in Commercial Vehicle Enforcement: A Perspective from the Tennessee Highway Patrol* (IACP, 2015)**

Website Link: https://theiacpblog.org/2015/03/23/best-practices-and-lessons-learned-in-commercial-vehicle-enforcement-a-perspective-from-the-tennessee-highway-patrol/

Abstract: The IACP recognized the Tennessee Highway Patrol with the Commercial Vehicle Enforcement Award in 2005 and 2014. The Highway Patrol has been a leader in innovative commercial vehicle enforcement strategies. In this article, Colonel Tracy Trott, head of the Highway Patrol, provided best practices and lessons learned.

***Commercial Motor Vehicle Awareness Training Guide* (Federal Motor Carrier Safety Administration, 2011)**

Website Link: https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/CMV-Awareness-Training-Guide.pdf

Abstract: The FMCSA provides this Training Guide to provide law enforcement officers with the safety and enforcement information for handling crashes and traffic enforcement involving commercial vehicles and buses. The Guide also provides information on the FMCSA training course available from officers from state, local and county law enforcement agencies.

***Fast Five Checklist for Large Truck and Bus Enforcement* (FMCSA and IACP, undated)**

Website Link: http://dnn9ciwm8.azurewebsites.net/large-trucks-and-buses

Abstract: The Federal Motor Carrier Safety Administration and the IACP collaborated on this checklist to assist police officers when conducting enforcement on large trucks and buses.

***Large Truck and Bus Traffic Enforcement Training* (FMCSA, 2016)**

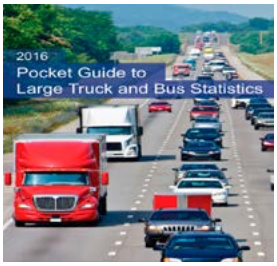
Website Link: https://www.fmcsa.dot.gov/national-training-center/large-truck-and-bus-traffic-enforcement

Abstract: This FMCSA website provides information on the Large Truck and Bus Traffic Enforcement Training program. Developed by the National Training Center in collaboration with law enforcement, the training is designed to enhance officers' knowledge about the dangers of unsafe driving by large trucks and buses. The training is available free to all law enforcement agencies and officer, and formatted to be delivered either on line, as a one hour, instructor-led training or divided into short segments for delivery during roll-call.

***Regular Traffic Enforcement Can Play a Crucial Role in Defining Commercial Vehicle Safety* (Jack Van Steenburg, 2014)**

Website Link: https://www.policechiefmagazine.org/regular-traffic-enforcement-can-play-a-crucial-role-in-defining-commercial-vehicle-safety/

Abstract: In this article, Jack Van Steenburg, Assistant Administrator and Chief Safety Officer, Federal Motor Carrier Safety Administration, provides information on the importance of daily traffic enforcement by police officers. The importance of changing commercial vehicle driver behavior is linked to the reduction of crashes and saving lives.



***Pocket Guide to Large Truck and Bus Statistics* (Federal Motor Carrier Safety Administration, 2016)**

Website Link: http://ntl.bts.gov/lib/59000/59100/59189/2016_Pocket_Guide_to_Large_Truck_and_Bus_Statistics.pdf

Abstract: The FMCSA Pocket Guide is a compilation of statistics from the overall state of the industry to enforcement activity. It also provides details on traffic violations and other incidents, the costs of crashes, and more.

***Saving Lives by Citing Truck and Bus Violations* (Stephen A. Keppler, 2011)**

Website Link: https://www.policechiefmagazine.org/saving-lives-by-citing-truck-and-bus-violations/

Abstract: In this article, Stephen A. Keppler, Executive Director, Commercial Vehicle Safety Alliance, describes the importance of the importance of traffic enforcement. The article also advocates raising the level of awareness on performance and driving behavior of those driving commercial vehicles and buses.

SECTION FOUR: EMERGING AND CRITICAL ISSUES

De-policing and Crime in the Wake of Ferguson: Racialized Changes in the Quantity and Quality of Policing Among Missouri Police Departments **(John A. Shjarback, David C. Pyrooz, Scotte E. Wolfe, and Scott H. Decker, 2017)**

Website Link: http://www.sciencedirect.com/science/article/pii/S0047235217301289

Abstract: This study explored whether police departments have engaged in "de-policing"—withdrawal from active police work—in response to unprecedented levels of negative attention, as well as the correlates of changes in police behavior.

Police Behavior During Traffic and Street Stops, 2011 **(Lynn Langton and Matthew Durose, 2011. Revised 2016)**

Website Link: https://www.bjs.gov/content/pub/pdf/pbtss11.pdf

Abstract: This Bureau of Justice Statistics report examines the characteristics and experiences of persons age 16 or older who were stopped by police during traffic and street stops, and their perceptions of police behavior and response during these encounters. It describes the outcomes of traffic and street stops by the reason for the stop; demographic characteristics of the persons stopped; race or Hispanic origin of the officers; and whether a ticket was issued, a search was conducted, or force was used. It also describes variations in perceptions of the police across characteristics and outcomes of traffic and street stops.

Preparing for a Future with Autonomous Vehicles **(Kevin Davis, 2016)**

Website Link: http://www.policechiefmagazine.org/preparing-for-a-future-with-autonomous-vehicles/?ref=8d4979dd5a2e9dff409434b4ad41d03e

Abstract: This Police Chief magazine article reports on the many evolving issues that a world with autonomous vehicles will bring to society. Kevin Davis, a Captain with the California Highway Patrol, discusses the key issues and the potential impact upon traffic safety and police leaders.

Procedural Justice: Voice, Neutrality, Respect and Trustworthiness. **(California Commission on Peace Officer Standards and Training (POST), 2016)**

Website Link: https://post.ca.gov/did-you-know-procedural-justice.aspx

Abstract: This three minute California Commission on Peace Officer Standards and Training (POST) training video emphasizes the four tenets of Procedural Justice: Voice, Neutrality, Respect, and Trustworthiness. These tenets are modeled by the officer during a traffic stop and conversation with the driver of the stopped vehicle. This video would serve as an excellent roll call or in-service training video for police officers.

Traffic Incident Management – TIM Training and Capacity Building Videos and Related Resources **(New Jersey Department of Transportation, 2017)**

Website Link: http://www.njtim.org/NJTIM/

Abstract: This website is hosted by the New Jersey Department of Transportation. It provides excellent information on Traffic Incident Management. Law enforcement officers can review the helpful training videos as well as review various resources and sign up for TIM training held in New Jersey.

Understanding and Applying Traffic Incident Management **(Joseph A. Farrow and Daniel G. Sharp, 2015)**

Website Link: http://www.policechiefmagazine.org/understanding-and-applying-traffic-incident-management/

Abstract: This Police Chief magazine article provides an excellent overview of the primary concepts of traffic incident management.

APPENDIX B: ASSOCIATIONS AND COMMITTEES

The following is a listing of the associated groups currently active in the traffic safety field, together with a brief description of their administrative organization and relationship.

A.L.E.R.T. International

Website Link: http://www.alertinternational.com/?s=A.L.E.R.T.+International

A.L.E.R.T. International is dedicated to the encouragement and correlation of research and development as well as the sharing of information, ideas and innovations in the area of emergency vehicle response operation. Additionally, A.L.E.R.T.'s mission is to provide assistance to states in establishing effective and defensible standards for employment and training of law enforcement officers in the field of emergency vehicle operations. Another aspect of the mission is the promotion of a positive, professional image of emergency response trainers.

American Association of Motor Vehicle Administrators (AAMVA)

Website Link: http://www.aamva.org/

Founded in 1933, AAMVA represents the state and provincial officials in the United States and Canada who administer and enforce motor vehicle laws. AAMVA's programs encourage uniformity and reciprocity among the states and provinces. The association also serves as a liaison with other levels of government and the private sector. Its development and research activities provide guidelines for more effective public service. AAMVA's membership includes associations, organizations and businesses that share an interest in the association's goals.

AAMVA has the **Law Enforcement Standing Committee** within the association. This committee inspires collaboration between law enforcement and Driver/Motor Vehicle Administrators to improve highway and public safety. The Committee has the following goals:

1. Increase law enforcement participation in AAMVA conferences, working groups, and other initiatives.
2. Provide and promote uniformity and consistency through the development of standards, model programs and best practices.
3. Promote the exchange of challenges and successes in implementing technologies, sharing information, and with other contemporary law enforcement issues.

The American Association of State Highway and Transportation Officials (AASHTO)

Website Link: http://www.transportation.org/

The American Association of State Highway and Transportation Officials (AASHTO) is a standards setting body which publishes specifications, test protocols and guidelines which are used in highway design and construction throughout the United States. AASHTO has the **Standing Committee on Highway Traffic Safety** within the Association.

Commission on Accreditation for Law Enforcement Agencies, Inc. (CALEA)

Website Link: http://www.calea.org

The Commission on Accreditation for Law Enforcement Agencies, Inc., (CALEA®) was created in 1979 as a credentialing authority through the joint efforts of law enforcement's major executive associations the International Association of Chiefs of Police (IACP); National Organization of Black Law Enforcement Executives (NOBLE); National Sheriffs' Association (NSA); and the Police Executive Research Forum (PERF). The purpose of CALEA's Accreditation Programs is to improve the delivery of public safety services, primarily by: maintaining a body of standards, developed by public safety practitioners, covering a wide range of up-to-date public safety initiatives; establishing and administering an accreditation process; and recognizing professional excellence.

Council of State Governments (CSG)

Website Link: http://www.csg.org/

Founded in 1933, The Council of State Governments is our nation's only organization serving all three branches of state government. CSG is a region-based forum that fosters the exchange of insights and ideas to help state officials shape public policy. This offers unparalleled regional, national and international opportunities to network, develop leaders, collaborate and create problem-solving partnerships. **The mission of the CSG is to champion** excellence in state governments to advance the common good.

Commercial Vehicle Safety Alliance (CVSA)

Website Link: http://cvsa.org/

The Commercial Vehicle Safety Alliance (CVSA) is a nonprofit association comprised of local, state, provincial, territorial and federal commercial motor vehicle safety officials and industry representatives. The Alliance aims

to achieve uniformity, compatibility and reciprocity of commercial motor vehicle inspections and enforcement by certified inspectors dedicated to driver and vehicle safety. The CVSA mission is to improve commercial motor vehicle safety and uniformity throughout the U.S., Canada and Mexico by providing guidance and education to enforcement, industry and policy makers.

Federal Highway Administration (FHWA)

Website Link: https://www.fhwa.dot.gov/

The Federal Highway Administration (FHWA) is an agency within the U.S. Department of Transportation that supports State and local governments in the design, construction, and maintenance of the Nation's highway system (Federal Aid Highway Program) and various federally and tribal owned lands (Federal Lands Highway Program). Through financial and technical assistance to State and local governments, the Federal Highway Administration is responsible for ensuring that America's roads and highways continue to be among the safest and most technologically sound in the world.

Federal Motor Carrier Safety Administration (FMCSA)

Website Link: https://www.fmcsa.dot.gov/

The Federal Motor Carrier Safety Administration's primary mission is to prevent commercial motor vehicle-related fatalities and injuries. Activities of the Administration contribute to ensuring safety in motor carrier operations through strong enforcement of safety regulations; targeting high-risk carriers and commercial motor vehicle drivers; improving safety information systems and commercial motor vehicle technologies; strengthening commercial motor vehicle equipment and operating standards; and increasing safety awareness. To accomplish these activities, the Administration works with Federal, State, and local enforcement agencies, the motor carrier industry, labor and safety interest groups, and others.

Governors Highway Safety Association (GHSA)

Website Link: www.ghsa.org

GHSA is a nonprofit organization representing the state and territorial highway safety offices that implement federal grant programs to address behavioral highway safety issues. GHSA provides leadership and advocacy for the States and Territories to improve traffic safety, influence national policy, enhance program management and promote best practices.

Institute for Highway Safety (IIHS) and Highway Loss Data Institute (HLDI)

Website Link: http://www.iihs.org/

The Insurance Institute for Highway Safety is an independent, nonprofit scientific and educational organization dedicated to reducing the losses – deaths, injuries and property damage – from crashes on the nation's roads. The Highway Loss Data Institute share and supports the IIHS mission through scientific studies of insurance data representing the human and economic losses resulting from the ownership and operation of different types of vehicles and by publishing insurance loss results by vehicle make and model.

International Association of Chiefs of Police (IACP)

Website Link: http://www.iacp.org/

The International Association of Chiefs of Police (IACP) is a professional association for law enforcement worldwide, representing more than 30,000 members in more than 150 countries. The IACP provides members with the opportunities to connect, participate, learn, advocate, and succeed.

The IACP has divisions, specific sections and policy councils, and committees. Some of these are focused upon traffic safety issues, such as the following:

- **Drug Recognition Expert Section (DRE).** The DRE section provides a unique opportunity for those professionals associated with drug recognition to share common management, training, administrative and practicing concerns.
- **Highway Safety Committee.** This committee studies and evaluates all matters pertaining to policies, practices, and standards of state and municipal policy organizations relating to traffic crash investigation, traffic records, traffic patrol, traffic law enforcement, organization and administration, and other highway safety functions that may be the responsibility of the membership of the IACP. Other key roles include making recommendations for the improvement of police traffic management and the promotion of highway safety; making recommendations to the Traffic Institute of Northwestern University relating to its traffic police training programs; and making recommendations of needed research projects essential to the optimum highway safety programs by police agencies.

  Within the Highway Safety Committee are several Programs and Subcommittees including the:

  - Enforcement Technologies Advisory Technical Subcommittee (ETATS);
  - Traffic Incident Management Subcommittee (TIMS)

- Traffic Officer Safety Subcommittee (TOPS)
- Technical Advisory Panel (TAP)

- **State and Provincial Police Directorate (S&P).** The IACP's Division of State & Provincial Police (S&P) has the responsibility of organizing, directing, coordinating, and promoting IACP programs relating to the needs of state and provincial police agencies. The division is a membership organization comprised of the 49 state law enforcement agencies and three provincial police agencies; the Royal Canadian Mounted Police (RCMP), Ontario Provincial Police, and Sureté du Québec.
- **State and Provincial Police Academy Directors (SPPADS).** SPPADS consists of the commanders and managers of the state and provincial police academies in the United States and Canadian provinces who operate training academies. SPPADS is committed to advancing the principles and competency of professional law enforcement instructors.
- **State and Provincial Police Planning Officers (SPPPOS).** This section consists of planners from the state and provincial agencies, including state police, highway patrols, and departments of public safety, comprising the IACP S&P Directorate. The group meets annually to discuss mutual issues affecting their agencies.
- **State Associations of Chiefs of Police (SACOP).** SACOP serves as the organizing body for the individual state associations of chiefs of police. SACOP also functions as the coordinating body between the state associations and the IACP membership as a whole, facilitating the exchange and dissemination of information related to a host of important topics in law enforcement.
- **Vehicle Crimes Committee.** This committee studies, considers, and determines the various methods and means by which vehicle crimes are committed, including the make and type of vehicles most commonly stolen; surveys, investigates, and evaluates the techniques and methods employed by the police and other agencies in solving and reducing the incidence of vehicle crimes cases; and disseminates pertinent that will reduce the incidence of this major crime.

Institute of Police Technology and Management (IPTM)

Website Link: http://iptm.unf.edu/

Established in 1980, the Institute of Police Technology and Management (IPTM) is a Direct Support Organization (DSO) of the University of North Florida. Headquartered in Jacksonville, Florida, IPTM is a self-supporting, not-for-profit organization. IPTM was created to provide management and traffic training to municipal, county, state, and federal law enforcement officers.

International Association of Directors of Law Enforcement Standards and Training (IADLEST)

Website Link: http://www.iadlest.org.

The International Association of Directors of Law Enforcement Standards and Training (IADLEST) is an international organization of training managers and executives dedicated to the improvement of public safety personnel. IADLEST serves as the national forum of Peace Officer Standards and Training (POST) agencies, boards, and commissions as well as statewide training academies throughout the United States. Within the Association there are specific projects related to traffic safety.

Mothers Against Drunk Drivers (MADD)

Website Link: http://www.madd.org/

Founded by a mother whose daughter was killed by a drunk driver, Mothers Against Drunk Driving® (MADD) is the nation's largest nonprofit working to protect families from drunk driving, drugged driving and underage drinking. MADD also supports drunk and drugged driving victims and survivors at no charge through local MADD victim advocates and a 24-Hour Victim Helpline 1-877-MADD-HELP.

National Conference of State Legislators (NCSL)

Website Link: http://www.ncsl.org/

NCSL is a bipartisan organization that provides state legislators and staffs with independent tools, information and resources to craft the best solutions to challenging problems, including traffic safety issues. The organization promotes policy innovation and communication among state legislatures and ensures representation in the federal system. NCSL has the Standing Committee on Law, Criminal Justice and Public Safety which concentrates on law enforcement and traffic safety concerns.

National District Attorneys Association's National Traffic Law Center (NTLC)

Website Link: http://www.ndaa.org/ntlc_home.html#

The National District Attorneys Association's National Traffic Law Center (NTLC) is a resource designed to benefit prosecutors, judges, law enforcement officers and others in the justice system. The mission of NTLC is to improve the quality of justice in traffic safety adjudications by increasing the awareness of highway safety issues through the compilation, creation and dissemination of legal and technical information, and by providing training and reference services.

National Law Enforcement and Corrections Technology Center (NLETC)

Website Link: https://www.justnet.org/law-enforcement/LE-tech-overview.html

A program of the National Institute of Justice (NIJ), NLETC is the conduit between researchers and criminal justice professionals in the field for technology issues. NLETC works with law enforcement and others to identify urgent and emerging technology needs, test commercially available technologies, and publish results-linking research with practice. NLETC concentrates on law enforcement technology specifically related to traffic safety such as license plate readers, unmanned aircraft systems (UAS) and body-worn cameras.

National Governors' Association (NGA)

Website Link: https://www.nga.org/cms/home.html

This organization consists of the governors of the 50 states, as well as those of the U.S. territories, and the premiers of the Canadian provinces and their top staffs. Members meet periodically to discuss issues of mutual concern among the states, and to support, propose, or endorse legislation in many areas, including criminal laws and highway safety.

National Highway Traffic Safety Administration (NHTSA)

Website Link: https://www.nhtsa.gov/

Through enforcing vehicle performance standards and partnerships with state and local governments, NHTSA reduces deaths, injuries and economic losses from motor vehicle crashes. NHTSA sets and enforces safety performance standards for motor vehicles and equipment, identifying safety defects, and through development and delivery of effective highway safety programs for State and local jurisdictions. NHTSA also has a high-visibility law enforcement effort, coordinated through the Law Enforcement Liaison (LEL) network, which provides effective and efficient delivery of traffic safety countermeasures.

National Organization of Black Law Enforcement Executives (NOBLE)

Website Link: http://www.noblenational.org

The National Organization of Black Law Enforcement Executives (NOBLE) serves as the conscience of law enforcement by being committed to Justice by Action. NOBLE has nearly 60 chapters and represents over 3,000 members worldwide that represent chief executive officers and command-level law enforcement officials from federal, state, county, municipal law enforcement agencies, and criminal justice practitioners. Headquartered in the Washington, D.C., area, NOBLE is comprised of African American command officers in law enforcement agencies.

National Safety Council (NSC)

Website Link: http://www.nsc.org/pages/home.aspx

The National Safety Council eliminates preventable deaths at work, in homes and communities, and on the road through leadership, research, education and advocacy. The NSC provides Defensive Driving Safety Training and Defensive Driving for Emergency Vehicle Operators, among other course offerings.

The National Safety Council also has the Alcohol, Drugs and Impairment Division. This Division tackles substance abuse and prescription drug issues and makes recommendations to combat the drinking and driving problem through legislation, education and other countermeasures. Refer to this website link: http://www.nsc.org/join/Pages/division-alcohol-drugs-and-impairment.aspx

National Sheriffs' Association (NSA)

Website Link: http://www.sheriffs.org/

The National Sheriffs' Association is a professional association dedicated to serving the Office of Sheriff and its affiliates through police education, police training, and general law enforcement information resources. NSA represents thousands of sheriffs, deputies and other law enforcement, public safety professionals, and concerned citizens nationwide. NSA has a Traffic Safety Department serving to perpetuate traffic safety issues, facilitate traffic safety program implementation, provide technical assistance to the office of sheriff and other agencies, and offer general support to the Office of Sheriff and the National Highway Traffic Safety Administration (NHTSA).

Northwestern University Center for Public Safety (NUCPS)

Website Link: https://sps.northwestern.edu/center-for-public-safety/

The Northwestern University Center for Public Safety has a long history of providing educational programs, advocacy and guidance on traffic safety topics. The IACP's Highway Safety Committee and the University have a cooperative partnership promoting excellence in traffic crash investigation, prevention and police management. The Northwestern University Transportation Library has the largest private collection of transportation, highway traffic control, highway safety and criminal justice literature in the United States.

APPENDIX C: ABBREVIATIONS AND ACRONYMS

Abbreviations and Acronyms

The following are some of the more prevalent acronyms used in traffic law enforcement, and their meanings:

ALR/ALS: Administrative License Revocation or Administrative License Suspension. This is referred to in the context of a state statute that permits a police officer to seize a license of a driver who refuses an alcohol test, or tests over the legal alcohol limit. The driver is given a temporary license and scheduled for a prompt administrative hearing before the state driver license agency. ALR/ALS does not replace criminal court action for driving while intoxicated. The purpose of ALR/ALS is to remove the hazard of the drinking driver from the road in a speedier fashion.

AAMVA: The American Association of Motor Vehicle Administrators.

AAMVANET: The American Association of Motor Vehicle Administrators' data services network contains the National Driver Register, Commercial Driver License Information Sys- tem, and other information of interest to licensing, title, regulatory, and law enforcement agencies.

AASHTO: The American Association of State Highway and Transportation Officials.

ABOC: Alcohol Breath Ignition Controller

ADTSEA: American Driver and Traffic Safety Education Association

ALR: Administrative license revocation

ALS: Administrative license suspension

AMA: American Medical Association

AMBER ALERT: A national protocol for the broadcast of in- formation on children who are suspected of having been kid- napped, including posting information about victims and suspects and their vehicles' descriptions on changeable highway warning signs.

BAC: Blood Alcohol Concentration. This is measured in driving- while-intoxicated cases. **BNICE:** A homeland security response describing the five leading threats: **B**iological, **N**uclear/radiological, **I**ncendiary, **C**hemical, and **E**xplosive.

BAIID: Breath Alcohol Ignition Interlock Devices.

BAT: Breath alcohol testing.

BUA: Buckle Up America

BrAC: Breath Alcohol concentration, used in DWI cases and measured in grams per 210 liters of breath (g/210L)

CARE: Combined Accident Reduction Effort. Operation CARE, a group of state police and highway patrol agencies which conduct unified and concentrated efforts in traffic law enforcement along interstate highways, particularly on holiday week- ends.

CDC: Center for Disease Control and Prevention

CDL: A Commercial Driver's License issued by a state entitling a person to operate a commercial motor vehicle which has a manufacturer's gross vehicle weight of 26,001 or more pounds; which is designed to carry 16 or more passengers, including the driver; or which carries hazardous materials. CDL holders in most states are subject to a loss of their CDL if, while driving a commercial vehicle, they have a BAC in excess of 0.04, and are subject to being removed from the road for up to 24 hours if found to have any alcohol in their system while operating a commercial vehicle.

CDLIS: The nationwide Commercial Driver's License Information System contains all commercial driver's license information, including driving histories of problem commercial drivers. It is typically on-line with Motor Carrier Safety Assistance Program (MCSAP) agencies in the various states.

CHEM-TREK: A 24-hour toll-free telephone service that pro- vides law enforcement and emergency response agencies with information for identifying hazardous materials involved in spills, and that recommends mitigation strategies. Chem-Trek is sponsored by the National Chemical Manufacturers' Association.

CLICK-IT-OR-TICKET: A NHTSA program that had its gene- sis in a statewide North Carolina effort and that consists of a concerted, multi-agency safety belt enforcement drive to in- crease safety belt usage through enforcement. Wherever utilized, the program has also resulted in the apprehension of a number of individuals for other serious driving offenses, as well as for criminal offenses, and in the detection of suspended and revoked drivers and persons wanted on criminal warrants.

CVSA: The Commercial Vehicle Safety Alliance.

CPSC: Consumer Product Safety Commission.

CSS: Child Safety Seats.

DARE: Drug Abuse Resistance Education, a copyrighted curriculum. The program, which trains police officers to

present anti- drug programs in public schools, was started by the Los Ange- les Police Department.

DOT: The U.S. Department of Transportation. Also applies to departments of transportation in various states, such as the Arizona Department of Transportation (ADOT) and the Pennsylvania Department of Transportation (PENNDOT).

DRE: A Drug Recognition Expert. Trained and certified in the IACP Drug Evaluation and Classification Program, a DRE is experienced in administering a battery of physical tests and in making clinical observations to suspected drug impaired drivers.

DDMP: Drinking Driver Monitor Program.

DEC: Drug Evaluation and Classification.

DMV: Department of Motor Vehicles.

DUI: Driving under the influence of alcohol or drugs, a criminal offense in most states and provinces. Known as DWI, driving while intoxicated or impaired, in some states.

DWI: Driving while intoxicated; the same as DUI.

DWS: Driving while [license] suspended.

EDR: Event Data Recorder.

EMS: Emergency Medical Services.

ETATS: The Enforcement Technologies Advisory Technical Subcommittee of the IACP's Highway Safety Committee. The Chair of the Highway Safety Committee appoints its members, who include Highway Safety Committee members; persons from the radar, lidar, and automated enforcement industries; a NHTSA representative; technical and scientific ad- visors and representatives of radar certification laboratories. The subcommittee develops standards for the initial testing and ongoing certification of automated enforcement devices such as radar, LIDAR, VASCAR, photo radar, and photo red light running cameras and recommends placement of such de- vices on the CPL (Consumer Products List).

EVOC: Emergency Vehicle Operator's Course. A curriculum developed by NHTSA, in cooperation with national police training professionals, to teach proper techniques for driving police and other emergency response vehicles under emergency conditions.

FARS: The Fatality Analysis Reporting System maintained by the National Highway Traffic Safety Administration (NHTSA). The system gathers data on all fatal traffic crashes in the United States through reports collected by state-level agencies.

FBINA: The Federal Bureau of Investigation's National Academy located at Quantico, Virginia. The academy offers a command training program for high-level officials of state and local law enforcement agencies, and police officials from foreign countries.

FEMA: The Federal Emergency Management Administration, located at Emmitsburg, Maryland, which provides federal emergency assistance at the scenes of catastrophes and national disasters, operates the National Fire Academy, and publishes the national model curriculum for first responders to hazardous materials incidents.

FHWA: The Federal Highway Administration in the U.S. Department of Transportation, which administers federal highway trust fund expenditures to the individual states, and which sets standards for the construction and maintenance of interstate highways.

FMCSA: Federal Motor Carrier Safety Administration, an organizational unit in the U.S. Department of Transportation, the mission of which is to prevent commercial vehicle related fatalities and injuries.

FMVSS: Federal Motor Vehicle Safety Standards as developed and adopted by the National Highway Traffic Safety Administration.

FOP: The Fraternal Order of Police, a national police organization sometimes involved in labor activities as a collective bargaining agent.

FRA: The Federal Railroad Administration, an organizational unit within the U.S. Department of Transportation that monitors the safe operation of railroads. It develops and enforces rail safety regulations, investigates crashes, manages rail safety and highway-rail grade crossing safety programs.

GCCI: Grade Crossing Collision Investigation, a highway-railroad grade crossing safety awareness program, coordinated through a national railroad safety program, Operation Lifesaver. GCCI provides one to three-day training classes, at no cost to the agency, tailored to specific law enforcement agency needs.

GDL: Graduated driver licensing

GHB: Gamma-Hydroxybutyrate. A sedative used both as a prescription sleep-aid and as a recreational intoxicant.

GHSA: The Governors' Highway Safety Association (formerly NAGHSR, the National Association of Governors' Highway Safety Representatives) consists of the Governor's Highway Safety Representative for each state and U.S. Territory and manages the federal pass-through highway safety grants from NHTSA in each state and territory.

HAZMAT: Hazardous materials, generally used in the context of hazardous materials regulatory enforcement.

HGN: Horizontal Gaze Nystagmus, which uses a phenomenon brought on by alcohol and other substances, to assist in deter- mining the blood alcohol level or drug impairment of suspected drunk drivers by examining the angle of onset of nystagmus, a jerking of the eyeballs.

HOS: hours of service

HSC: The Highway Safety Committee of the International Association of Chiefs of Police, Inc., which reports through the IACP's State and Provincial Police Directorate and takes the lead in researching highway and traffic safety issues for the IACP.

HVEE: High-Visibility Education and Enforcement.

IACP: The International Association of Chiefs of Police, Inc.

IACP NET: A password-protected electronic Web site operated by the IACP for its subscriber members. It facilitates the exchange of information and documents between law enforcement agencies throughout the world, at http://www.iacpnet.com

IADLEST: The International Association of Directors of Law Enforcement Standards and Training (POST).

ICS: Incident Command System, the system used by fire departments and police agencies to organize and implement emergency measures to mitigate major incidents.

IFTA: The International Fuel Tax Agreement, a compact consisting of states and provinces that recognize one another's fuel tax laws and providing for one-stop collection and uniform enforcement policies.

IIHS: Insurance Institute for Highway Safety

IMS: Traffic Incident Management System, an adaptation of ICS designed to mitigate the congestion resulting from traffic incidents, to provide prompt treatment of injured persons, and to restore the normal traffic flow as soon as practicable.

IPTM: The Institute of Police Technology and Management at the University of South Florida in Jacksonville, Florida, which conducts law enforcement training programs and which operates a radar testing laboratory.

ITE: The Institute of Transportation Engineers.

ITS: Intelligent Transportation Systems

IVHS: Intelligent Vehicle Highway Systems, a system of computerized hazard detection and warning, trip routing and other capabilities, which interfaces with on-board computers in vehicles equipped with on-board radar and electronic roadside warning beacons.

J. STANNARD BAKER AWARD: An annual award presented by the International Association of the Chiefs of Police and by the National Sheriffs' Association to state, county and local police officers and to private citizens who have made out- standing lifetime contributions to the field of traffic safety. The award is named after the founder of the Traffic Institute at Northwestern University. The IACP's Highway Safety Committee selects the local and state police, as well as the civilian, winners; and the National Sheriffs' Association selects the winners from among County Sheriffs' Offices.

LATCH: Lower Anchors and Tethers for Children.

MADD: Mothers Against Drunk Driving.

MCSAP: The Motor Carrier Safety Assistance Program, a system of federal funding of state agencies to assist the federal Motor Carrier Safety Administration in enforcing motor carrier safety and hazardous materials regulations at the state level.

MDMA: Methylenedioxymethamphetamine. A stimulant drug that is chemically related to mescaline and amphetamine and is used illicitly for its euphoric and hallucinogenic effects

MSF: Motorcycle Safety Foundation

MUTCD: The Manual of Uniform Traffic Control Devices, a publication of the Uniform Traffic Control Devices Committee, that lists and describes the state of the art in traffic sign- age, road markings, traffic lights and other traffic control devices.

MVC: Motor Vehicle Crash (or Collision).

MVOSS: Motor Vehicle Occupant Safety Survey.

NCHRP: National Cooperative Highway Research Program

NDLC: The National Driver License Compact, a program administered by AAMVA in which approximately 43 states participate.

NCSDR: National Center for Sleep Disorders Research

NCUTLO: National Committee on Uniform Traffic Laws and Ordinances

NDR: The National Driver Register, a NHTSA program linked by AAMVANET and maintained by the American Association of Motor Vehicle Administrators.

NHTSA: The National Highway Traffic Safety Administration, an organizational unit of the U.S. Department of Transportation which provides federal

grants to state pass-through agencies for the maintenance of innovative traffic safety programs, conducts research, and sets federal motor vehicle safety standards (FMVSS).

NIAAA: National Institute on Alcohol Abuse and Alcoholism (a branch of National Institutes of Health)

NIH: National Institutes of Health

NIST: The National Institute of Standards and Technology, formerly the National Bureau of Standards.

NMSL: National Maximum Speed Limit.

NRS: National Roadside Survey

NSA: The National Sheriffs' Association.

NSC: The National Safety Council.

NSF: National Sleep Foundation.

NTC: The National Troopers' Coalition.

NTSB: The National Transportation Safety Board, which investigates major transportation crashes and makes recommendations for improved transportation safety.

NUCPS: The Northwestern University Center for Public Safety (formerly the Traffic Institute at Northwestern University) in Evanston, Illinois, which conducts research and offers innovative traffic safety training programs, including courses for commanders of police department traffic bureaus and divisions.

ODPR: Office of Driver and Pedestrian Research.

OL: Operation Lifesaver, a nationwide, nonprofit public information and education program dedicated to reducing crashes, injuries and fatalities at highway-rail grade crossings.

OOT: Officer on the Train, a highway-railroad grade crossing safety awareness program coordinated through a national rail- road safety program, Operation Lifesaver. OOT places police officers aboard trains to radio traffic violations to other officers strategically located at or near grade crossings that have a history of traffic violations.

OPERATION PIPELINE: An enforcement effort along major highway corridors addressing criminal roadway interdiction of passenger and commercial motor vehicles.

OPUE: Occupant Protection Usage and Enforcement. A NHTSA program designed to provide police agencies with a model curriculum and programs to promote and enforce the use of safety belts and child safety seats.

OSHA: The Occupational Safety and Health Administration of the U.S. Department of Labor, which sets standards in many occupational safety areas, including the allowable emissions of police traffic radar devices.

OUI: Operating Under the Influence of Intoxicants.

OUIL: Operating Under the Influence of Liquor, a criminal charge similar to DWI or DUI.

PAS: Passive Alcohol Sensing.

PBT: A Preliminary Breath Test, usually accomplished by means of an electronic fuel cell device, or a balloon-style device that determines at roadside whether or not a driver has consumed alcoholic beverages, and to what extent. Various fuel cell devices have been approved by NHTSA according to standards developed by the IACP Highway Safety Committee's Technical Advisory Panel.

PI&E: Public Information and Education.

PMVI: Periodic Motor Vehicle Inspection, generally a statewide program for the safety inspection of vehicles either at state- owned inspection stations or licensed private stations. The number of states with PMVI has been decreasing over the years.

PSA: Public Service Announcement.

PSU: Primary Sampling Unit.

PTS: Police Traffic Services.

RID: Remove Intoxicated Drivers.

RSP: Ride Service Programs.

RSPA: The Research and Special Programs Administration of the U.S. Department of Transportation, which is responsible for promulgating the provisions of the Code of Federal Regulations pertaining to the transportation of hazardous materials.

SACOP: The State Associations of Chiefs of Police, a division of the IACP, consisting of a designated representative of the Po- lice Chiefs' Association of each state.

SADD: Students Against Driving Drunk.

SAFETYNET: Computerized nationwide data bank maintained by the Motor Carrier Safety Assistance Program for tracking commercial driver enforcement.

SBUL: Safety Belt Use Law.

SFST: Standardized Field Sobriety Testing, a model curriculum developed by the IACP's Highway Safety Committee and NHTSA for performing uniform and standardized roadside physical tests on suspected drunken drivers, based on medically approved techniques. The standardized tests consist of a walk and turn, one-legged stand, and horizontal gaze nystagmus.

STEP: Selective Traffic Enforcement Programs, targeted to the times of day, days of week, locations, and types of violations that cause crashes; an early form of directed patrol, but specifically devised for traffic enforcement.

SHSO: State Highway Safety Office.

TAP: The Technical Advisory Panel of the IACP that, in conjunction with NHTSA, sets and maintains SFST and DRE standards.

TIRF: Traffic Injury Research Foundation.

TITLE 49: Title 49 of the Code of Federal Regulations (CFR), which contains the regulations on the interstate transportation of hazardous materials.

TRB: Transportation Research Board.

TSC: Transportation Systems Center.

USDOT: U.S. Department of Transportation.

UTCD: Uniform Traffic Control Devices Committee, a group of primarily engineers who maintain and revise the National *Manual on Uniform Traffic Control Devices*.

UVC: The *Uniform Vehicle Code*, a model code that is maintained by a standing committee of experts, the National Committee on Uniform Traffic Laws and Ordinances.

VDP: Violator Directed Patrol.

VIN: Vehicle Identification Number

VMT: Vehicle Miles Traveled

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