

**A CLEAR VIEW
WALL PENETRATING TECHNOLOGY**

By

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The Command College Futures Study Project is a FUTURES study of a particular emerging issue of relevance to law enforcement. Its purpose is NOT to predict the future; rather, to project a variety of possible scenarios useful for strategic planning in anticipation of the emerging landscape facing policing organizations.

This journal article was created using the futures forecasting process of Command College and its outcomes. Defining the future differs from analyzing the past, because it has not yet happened. In this article, methodologies have been used to discern useful alternatives to enhance the success of planners and leaders in their response to a range of possible future environments.

Managing the future means influencing it—creating, constraining and adapting to emerging trends and events in a way that optimizes the opportunities and minimizes the threats of relevance to the profession.

The views and conclusions expressed in the Command College Futures Project and journal article are those of the author, and are not necessarily those of the CA Commission on Peace Officer Standards and Training (POST).

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One could argue there is nothing more precious than life itself. Whether it is a man or woman, adult or child, rich or poor, who is to say any one life is more valuable than another? Now put yourself in the position of a law enforcement supervisor; at the scene of a critical incident, giving a command to shoot or don't shoot. All the training in the world may not lessen the psychological effect this decision may have on the involved parties. But what if that particular critical incident could have a different outcome? What if there was technology available that could potentially avoid a lethal confrontation and also ensure the safety of officers? The theory of providing law enforcement with any and all tools that may provide an extra degree of knowledge and effectiveness seems so logical, that surely there certainly can't be an argument against it.

When and how to use force is one of the most difficult and controversial decisions a police officer will make in the course of his or her duties. It is imperative that law enforcement agencies attempt to stay current with trends and technology, to ensure both public safety and the safety of their officers. A critical life-altering decision made in a matter of seconds and often without complete information, can have serious and far-reaching consequences.

The days of busting in the door and rushing in may be over. This approach of rushing in has lost its edge. Shy of an active shooter situation, police have begun to rethink tactics and re-evaluate policies and procedures. Statistics show violence towards law enforcement officials is on the rise. In the field of law enforcement, the possibility of officer injury and death is all too

real. In the decade between 1996 and 2005, more than a half million (566,626) officers were assaulted in the line of duty. In that same period, 575 officers were killed—19 of them during tactical situations involving barricaded offenders, hostage-taking, and high-risk entry. These situations involve the riskiest of conditions for law enforcement, and consequently, many agencies have specially trained emergency response teams (ERTs) or special weapons and tactics (SWAT) teams to handle them (Levine, Mike, March 22, 2011).

The FBI's Law Enforcement Officers Killed and Assaulted Program reported that between 1980 and 2009, there was a 57 percent rise in the number of ambush killings of police officers. The number of firearm-related police fatalities in 2012, is already on track to surpass last year's figure. According to the National Law Enforcement Officers Memorial Fund (NLEOMF), as of June 11, 28 officers have been killed by gunfire this year, compared with 20 over the same period last year. Given the rise in violence it's definitely time to consider other options. The issue is perhaps most graphically exemplified in the facts of one of the deadliest incidents in recent memory.

Four officers from the Oakland Police Department were killed, and another of its officers was injured during a traffic stop and related tactical situation on March 21, 2009. Shortly after 1 p.m., a 40-year-old sergeant, who had 18 years of law enforcement experience, advised he was making a traffic stop. An officer, who had 10 years of law enforcement experience, had just cleared a traffic stop one block away and drove to the sergeant's location. The lone occupant of the vehicle the sergeant had stopped presented false identification. The sergeant and officer were walking toward the vehicle on the driver's side when the occupant of the vehicle opened fire with a handgun through the open window on the driver's side. Although both officers were wearing body armor, each was fatally struck by the gunfire. The victim officers were transported to a

local hospital where they succumbed to their injuries. A SWAT team was assembled to search for the suspect, who had fled from the scene. At 3:02 p.m., the tactical team entered the apartment of the suspect's sister, where they had tracked him. As a 43 year old sergeant with 13 years of law enforcement experience and a 35 year old sergeant with 9 years of law enforcement experience entered the apartment; they were shot by the suspect with a 7.62x39 mm semiautomatic rifle. Both victim sergeants were wearing body armor, and both were shot fatally in the head. The suspect retreated to a rear bedroom. As a 33-year-old sergeant, who had 11 years of law enforcement experience, entered that room, he was shot in the front upper torso/chest above his protective vest. He was transported to a local hospital where he was treated and released. The other sergeants were transported to the hospital where they were pronounced dead. The 26-year-old suspect, who had an extensive criminal history and had a parolee at large warrant against him, was shot and killed during the incident (Van Derbeken, Demian Bulwa and Carolyn Jones, March 22, 2009).

Deadly confrontations of this type emphasize a need for police to rethink their tactics. The future potential of Wall Penetrating Technology and devices of this sort will become a viable tool to keep both officers and the community safe. Fire departments in this country have been using different versions of Wall Penetrating Technology (WPT) for years on search and rescue missions. These devices display visual penetration through wood, plaster, brick and reinforced concrete. WPT uses sound waves at a particular frequency and a series of algorithms in the computer software to capture images through a wall or door and create 3D images (Science Daily July 2007). With WPT, Law Enforcement, especially Special Weapons and Tactics Teams (SWAT), have another tool which provides the ability to locate suspects through walls, and can potentially reduce the number of violent confrontations.

One device, the RADAR Flashlight, was designed to detect the respiration of a human subject behind a wall, door or an enclosed space with non-conductive walls. The use of the system as a foliage penetration radar has also been explored. The RADAR Flashlight will detect the body movement of a subject at longer ranges than those at which the respiration signature can be detected when the subject is stationary. Total body motion presents a much larger Doppler modulated radar cross section than the small respiration induced movement of the chest wall. In prior use with the military, this device enabled soldiers (during live fire situations) to determine if a wounded soldier was alive before risking a corpsman's life to treat him.

Another device, the CPR3, is a handheld device used for the detection of human beings behind walls or other solid obstacles. The device is designed for situations where the need to ascertain information regarding human movement behind solid structures is required. The lightweight waterproof robust nature and compact portable design allows for quick and easy deployment in any environment and can be operated with just one hand (Ackerman, Spencer, October 2010). This device enables better tactical decision making in many operational scenarios. Its potential uses include: Tactical Entry/Assault – alert operators to the presence of potential threats; Hostage Recovery – quickly determine which spaces are occupied; Search & Rescue - speed up search by only focusing on spaces with living presence; Breaching – avoid unwanted casualties by optimal placement of charges. It is critical incidents and high-risk situations such as these that make the potential of Wall Penetrating Technology so significant and timely.

Two expert panels were convened to study the issue of using WPT in law enforcement tactical situations. The first panel met in September 2011 to study the potential trends related to the implementation and use of WPT. The panel felt the most significant issues related to the

topic were concerns regarding the right to privacy, the reliability of WPT in critical incidents, and ways to fund the acquisition of WPT. A second panel of tactical experts was gathered in April, 2012 to further discuss and to lend comments on the prospective outcomes of WPT use by the police based on the previous panel's discussion.

Panel members from both groups were genuinely interested in the military studies and the current capability of WPT. All panelists concurred that, although there were obstacles to overcome, the need for some form of penetrating tracking technology was critical. Additionally, they noted a specific benefit of WPT to provide additional intelligence to an Incident Commander to afford the safest decision possible in a critical incident. Both panels were unanimous in the thought that any money invested upfront for WPT could ultimately save lives and mitigate adverse outcomes from possible lawsuits. Although a potentially invaluable tool to law enforcement, the panels noted three concerns for an agency contemplating its adoption. These were issues related to privacy of the individual, search and seizure, and the cost to acquire and employ WPT for local law enforcement agencies.

Modern technology in the hands of the police can raise fear in the public mind concerning the erosion of privacy rights. The use of WPT, where the police can "see" inside a structure, is a technology some might feel is too intrusive to use without legal constraints. Christopher A. Miles, from the division of U.S. Department of Homeland Security's Science and Technology states "Through the Wall Technology raises significant privacy issues and many have questioned whether it violates a person's Fourth Amendment right against unreasonable search and seizure, however, this is only the tip-of-the-iceberg on the use of high-tech surveillance versus privacy debate" (Miles, Christopher, and October 2007).

Some could say it's only the beginning, as a stampede of science-fiction-type spying

devices runs headlong into the fact that such equipment is becoming an increasingly common tool for law enforcement. In other words, science fiction has become science reality. High-Tech military equipment, developed to use against America's enemies, is now being used against America's citizens. Although the right to privacy is an age old issue, the police should rightfully be allowed to use technologies that have the potential to save lives each time they are employed. That does not mean, however, that the concerns regarding privacy will remain a constant point of contention in its early applications.

Privacy Rights and Search and Seizure are closely related when discussing the use of WPT. Does it violate a person's Fourth Amendment right against unreasonable search and seizure? In some situations, it would constitute an unreasonable search of a home unless a warrant with probable cause had been issued. The primary exception would be in emergency or exigent conditions. A search is reasonable, and a search warrant is not required, if all of the circumstances known to the officer at the time would cause a reasonable person to believe that entry or search was necessary to prevent physical harm to the officer or other persons, the destruction or concealment of evidence, the escape of a suspect, and if there was insufficient time to get a search warrant. In other words in tactical situations involving barricaded offenders and hostage-taking situations in which there is not sufficient time to obtain a search warrant it is fairly reasonable to assume that the use of WPT technology would prevent physical harm to an officer or other person.

Continued testing of WPT may lead to a practical, functional product for the military, which will influence future use in law enforcement. Grant funding is an option to offset costs in the development of WPT. If WPT purchases were placed on the authorized federal equipment list this would allow the purchase with federal grant funds (Homeland Security Monies).

Many agencies already share special weapons teams and equipment. The shared expense of this technology with neighboring jurisdictions would reduce the expenditure for each agency involved. The potential to share resources in disaster relief operations could additionally attract law enforcement and fire to collaborate in the pursuit of federal funding. As the military continues to conduct feasibility studies of the through the wall technology products, their capability and reliability will be determined. DARPA (Defense Advanced Research Projects Agency) has a major program under way called Visibuilding, which is developing further technologies for sensing people and objects in buildings (Dr. Joseph Dureck September 2008). A key component of this project is making technology useful during a range of operations—from pre-mission planning to find which buildings should be searched, through post-mission analysis to find hidden objects or people. The more prevalent the technology becomes within the Military and Law Enforcement, the greater the interest from private vendors to enter the market ultimately reducing the price.

In today's world, the use of Wall Penetrating Technology will provide law enforcement an advantage to diminish the devastating effects of violent confrontations with criminals or other bent on taking a life. There is a definite need and an obligation for continued research in this area of technology to reduce the number of violent encounters between law enforcement and those who may perpetrate violence.

Reflect back on the tragedy of the deadly Oakland incident. Four officers killed, a fifth injured, and the devastating effects on family and friends left behind. Of the 68 firearm-related fatalities nationally last year, 10 were officers participating in search warrants or multi-agency raids, high-risk activities closely related to the building entry in Oakland. As McCarthy said, "Deadly confrontations underscore a need for police to rethink tactics. The days of knocking

down doors in drug cases should be over. Given what's going on now you have to consider other options". (McCarthy, Patrick, January 11, 2012)

Statistics like these illustrate the necessity for future technology, and the need to change the lethal outcomes we now see. Providing law enforcement with any additional tool so they are better prepared, is without question the smartest and safest option. Wall Penetrating Technology is an instrument for police that would assist in their pursuit of protecting public safety as well as their own. There is nothing more precious than life itself; most would agree it's priceless. WPT is one more way we can protect it.

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