The Bill Blackwood
Law Enforcement Management Institute of Texas

The Taser as a Practical Alternative to Traditional Less Lethal Weapons for a Tactical Team in Close-Quarter Combat

An Administrative Research Paper
Submitted in Partial Fulfillment
Required for Graduation from the
Leadership Command College

By
Michael R. Hansen

Conroe Police Department
Conroe, Texas
October 2006

TABLE OF CONTENTS

ABSTRACT

Is the Taser a viable, valuable and preferred alternative to more traditional less lethal weapons by tactical teams during close quarter combat situations? The Taser although surrounded in controversy is believed to be a viable alternative to the more traditional less lethal weapons found in use today. It may be difficult for a team commander to gather the support or documentation needed to justify such a program, with the controversy, to a superior. The research for this paper was on two levels. The first level was to compare the Taser directly to the more traditional or perceived to be more traditional less lethal weapons in areas of effectiveness, deployment, cost, training and public controversy. Secondly, using a multiple choice survey, tactical teams were asked about their experiences with the Taser compared to the other listed weaponry. It was found that the Taser compares favorably in most categories, specifically effectiveness, deployment and training and was in line with other less lethal weapons in cost and controversy. In fact, the effectiveness of the Taser is so far ahead of all the other weapons, that is was deemed worth the additional costs associated with implementation as well as the assumption of the potential controversy.

INTRODUCTION

Law enforcement and specifically ‘tactical teams’ are often slow to change or deviate from established procedures and equipment. Whether it is the fear of something new or concern for potential liability issues, change is often difficult for many. Such has been the case with the use of the Taser by tactical teams involved in close-quarter combat situations. Although much of law enforcement has seemed to accept the technology with fervor in recent times, tactical teams must prepare advanced training curriculum before the newer technology can be implemented. Associated with this training is the cost of manpower resources (overtime expense and time spent away from regular training) that occur when scheduling teams of officers as well as equipment (Tasers and cartridges) and materials (targets, handouts and other supplies) used during training. A tactical team must be convinced that the efforts and costs are justifiable.

There are several questions that face tactical teams trying to decide whether or not to add Tasers to their inventory of less-lethal weapons. For example, is the Taser a viable and valuable alternative to the more established, traditional less-lethal weapons? It is believed that the Taser is superior to traditional less-lethal devices and weapons. Is the Taser being used by tactical teams with success? It is believed that tactical teams that are using the Taser are now choosing to do so in-lieu of traditional less-lethal weapons or devices. Is the achieved success worth the additional expense? It is believed that tactical teams that are using the Taser will maintain that the results are well worth the added expense of the unit, materials, training and implementation.

This study will begin with a description of the Taser and more common traditional less-lethal weapons. Included in this section are the traditional weapons found in most force continuums. The research topic will begin with hands-on force on force, chemical agents, batons and other striking devices, beanbag and similar type projectiles, ending with the capture net. The

costs, benefits and weaknesses associated with each weapon or device will be compared to that of the Taser.

Tactical teams from across the nation will be polled as to their experiences with the Taser and how it compared to their use of more traditional weaponry. It is believed that the poll will indicate that tactical teams that have adopted the use of the Taser will report favorable results. However, it is believed that the majority of the teams that respond will indicate that they have not yet incorporated the Taser as a primary less-lethal device.

It is believed that should these findings be proven, more tactical teams will begin the processes associated with purchase, training and implementation of the Taser as an alternative to more traditional (less-lethal) devices in close-quarter combat instances. Subsequently, tactical teams would have a means of subduing combative suspects at close range with less opportunity for an incapacitating injury to the suspect or Officer.

REVIEW OF LITERATURE

Light mounted weapons were found as far back in history as on German rifles in World War II (Law, 1997). We saw them again in the 70's on the rifles of some high profile national terrorist groups such as the Symbionese Liberation Army (SLA) (Science, 2005). A good idea? Absolutely. However, it was not until the 1990's when law enforcement and specifically tactical teams embraced the concept in a widespread fashion. Thus, is the case with the Taser.

The technology and concept behind the Taser came out in 1974 by Jack Cover. According to the co-founder and president of Taser International Tom Smith, Mr. Cover was a fan of Victor Appleton's Tom Swift series of books. The word Taser originated from one of these books and stands for **T**homas **A**. **S**wift **E**lectric **R**ifle (Gardner, 2004). Rick and Tom Smith (brothers) teamed with Mr. Cover to refine the technology. It was originally designed for

use by airline personnel to thwart hijackings, but has passed into use by law enforcement agencies as an alternative to… choke holds (Kornblum & Reddy, 1989, p. 434). It is an effective, close-range weapon that does not depend on damage or destruction of tissue or organs to be effective (Kornblum & Reddy, 1989, p. 436). In the 1990's they developed the non-firearm version that uses nitrogen as the propellant rather than black powder (Taser, 2005).

The Taser, available today, utilizes a high-voltage, low-amperage electrical charge to disrupt the normal electrical, communication signals from the attacker's brain (Harris, 2005). The voltage is passed through two small electrodes fired from and attached with thin wires to the device. The described range of the Taser is a maximum of twenty-one (21) to thirty-five (35) feet. However, the optimum range is listed as seven to ten feet (2000 Taser, 2000, p. 12).

Today's Taser differs from the first generation stun guns due to the actual disruption of muscle control. The original stun guns were more on the line of "cattle prods" that worked on pain compliance rather than muscle disruption. Explained in an article in Taser (2003):

> Muscles, over-stimulated by the electrical energy, are stunned and the target usually capitulates under the discomfort of the stun effect. These 7-Watt systems have had an effectiveness rating varying from 33% to 86%. Highly motivated individuals or people under the influence of narcotics that numb the normal human pain-response mechanism can maintain an ability to fight through the effects of these first generation weapons.
>
> (p. 4)

In today's Taser, the attacker is reportedly unable to control the movement of his muscles and may become confused, unbalanced and temporarily paralyzed (Harris, 2005). Taser currently markets two units for regular law enforcement use, the M26 and X26 versions. The X26 is the most recent upgraded version with a basic price of $799.95. The M26 basic cost is $399.95. The costs associated with the cartridges run from $16.97 for a standard cartridge used

in training to $21.97 for the enhanced clothing penetration version (Thomas, 2003). There are additional costs associated with batteries, holsters and other accessory items.

The Taser requires training to properly deploy. The training consists of familiarity with the weapon including proper loading, aiming and firing techniques. Acceptable target areas are important for the safe operation. Additional training concerning tactical deployment and immediate response to the suspect after deployment should be included. Tactical teams would require advanced training as tactics would be tuned to match the newer capabilities. Finally, policy and procedural guidelines should be implemented and reviewed.

Taser International suggests that potential users feel the effects of the device. In fact, they require that all instructors experience it and master instructors must actually be shot with the probes and feel the full five-second effect for certification. Using these guidelines, a department must comment considerable funding toward training and re-training of users considering the cost of replacement cartridges. Most of Taser's sales come from selling dart cartridges that reload the device (DeFalco, 2005). Finally, there is the controversy surrounding not only the technology, but also the company itself. In November 2005, the American Civil Liberties Union (ACLU) published a report stating; "Based on our study, we find that the many law enforcement agencies in the state have policies that can lead to the misuse of Taser." (p. 3).

In an April 2005 press release, Amnesty International stated, "Taser related deaths in the United States and Canada have hit triple digits growing from 74 in November 2004 to 103." They further conclude, "that there is widespread abuse of Tasers that, in some cases, constitutes ill-treatment and torture" (Amnesty International, 2005).

The National Association for the Advancement of Colored People (NAACP) has publicly criticized local agencies throughout the nation such as a November, 2004 article in the Seattle

Post, Washington “We have a problem with the rush to tase and ask questions later, said Shelly Secreast, with the NAACP’s Seattle chapter (Le & Castro, 2004). In Austin, the NAACP recognizes the positive twist that the use of the Taser should reduce instances of deadly force. However, they continued with “the NAACP has called for a moratorium on the weapon’s use” citing possible long-term effects (Smith, 2005).

The League of United Latin-American Citizens (LULAC) has also criticized the use of Tasers. The Houston LULAC director Sylvia Gonzales states her concern, “It always seems that the minorities are the first to get a taste of something like this.” (Smith, April 2005). Furthermore, there are government agencies also investigating Tasers. The Department of Justice, as well as the Arizona Attorney General’s Office, are investigating the safety of the units. During this time, the U.S. Securities and Exchange Commission was investigating what Taser International described as “company statements regarding the safety” of the company’s products (Cusac, 2005).

In December of 2005, Taser International announced that they had received notice from the U.S. Securities and Exchange Commission that the staff:

> has completed the previously announced investigation into TASER International's disclosures concerning the medical safety of the TASER device; and certain accounting and disclosure issues. The Staff further advised that it has determined that at the present time it will not recommend that the Commission institute any enforcement proceedings as to any of these matters. (Tuttle, 2005, n.p)

Other less lethal weapons have been the brunt of such criticism. “Law enforcement and related industries faced similar problems with pepper spray deaths in the past, yet they weathered the storm with far less controversy. What’s the difference? Credibility” (Ijames, 2005).

Between obvious abuse by certain law enforcement officers and perceived irregularities in the way Taser International has conducted their business, the public's confidence is slipping. "Some [now] question our motives, intent and in some cases even our honesty" (Ijames, 2005).

High profile incidents that cast the law enforcement profession in a negative light have increased the public's skepticism. Those events, as well as in increased use of handheld video cameras by citizens have contributed to jurors holding law enforcement officers increasingly accountable for personal injuries, deaths and civil fights violations. The trend of disbelieving the police also appears to have led to swifter and larger pretrial settlements (Hougland, Mesloh, & Henych, 2005, p. 26). The issues of cost, training and on-going controversy are considerations for agencies as well as for tactical teams contemplating the technology. The agency or tactical team must decide whether the benefits over more traditional less-lethal weapons are worth addressing these issues, possibly publicly.

An alternative to less-lethal devices in close-quarter situations is the use of force on force, hands-on or rushing techniques. These techniques require the officer to physically touch, grab, knock down or tackle the suspect. This places both officer and suspect at great risk of injury and further escalation of the situation. Physical LTL [Less Than Lethal] force, which generally involved trying to wrestle the subject and sometimes relied on the element of surprise, tended to place police at the highest level of risk (Homant & Kennedy, 2000, p. 167). Often, it takes a number of officers to effect the techniques.

To be effective, officers should train regularly in the various techniques. Training posses additional safety concerns. Training should eventually be conducted at full speed. This can easily result in injury to the officers as well as the trainers or roll players. Since there are no devices used in these techniques, the cost of training is minimal. Once adequate safety

equipment such as pads, mats and various training aids such as videos and proper attire are acquired repetitive purchases would be based solely upon replacement needs.

There could be controversy when these techniques are used for a variety of reasons. The sheer number of officers required for a speedy, effective resolve will appear to be excessive to the untrained, uninformed eye. There will probably be injuries to both suspect and officers due to the amount of force required. The suspect will be subjected to pain compliance. The more the suspect resist, the greater the chance of injury to all. Effectiveness is often based upon the physical and mental capabilities of the suspect. One of high motivation or under the influence of a pain numbing controlled substance would be more apt to continue resistance when confronted with this technique.

The use of “holds” involving the neck area has been forbidden in many jurisdictions as the chance for severe injury or even death is great. These “sleeper holds” would limit the supply of blood flow to the brain by compressing the carotid artery. If used properly, the hold is effective and rapid. Unfortunately, too many incidents of improper training or use have resulted in a choke hold rather than the carotid hold. Stopping the ability to breathe is more likely to result is severe injury.

Chemical agents such as OC spray, CN and CS gas have long since been tools by both law enforcement and the military. Chloroacetophenone (CN) gas and Orthochlorobenzalmalononitrile (CS) gas have been around since the 1960’s and 1950’s respectfully. Oleoresin Capsicum (OC) was developed in the 1980’s. Oleoresin is the industrial extraction of the dried ripe fruits of capsicums (hot chili peppers) and contains a complex mixture of highly potent organic compounds (Zarc, 2005). Pepper spray causes the inflammation of mucous membranes, resulting in immediate closing of the eyes, sneezing,

coughing, and burning sensation of the skin. Its effects may last up to 60 minutes (Zarc-Vexor, 2004).

Unlike the burning sensation and irritation to the respiratory systems as was experienced in the earlier versions of "tear gas", OC spray reportedly produces the involuntary closing of the eyes. While those with great determination or under the influence of narcotics may be able to withstand the pain associated with CN and CS, they should not be able to combat the effects of OC. However, as many experienced law enforcement officers can attest, OC is not as effective as we would like. External factors such as wind and rain can disperse the gas. Eyeglasses, facemasks, hands and collars of clothing can divert the agent from reaching the face (Petty, 2004, p. 9).

Gas may be deployed by use of hand held aerosol, continuous discharge or blast dispersion grenades. In addition, gas can be deployed using 37/38mm, 40mm and 12 gauge launchers (Federal Laboratories, 1999, pp. A-36-A37, B1-B11, B14-B22). The use of chemical agents typically exposes the officers to at least a lesser contact. Tactical teams may utilize gas masks that will reduce or eliminate the effects of the gas. The use of such masks will obstruct the vision and can reduce communications. The use of gas may contaminate the areas in which they are used. The use of any of these devices allows and in some cases even suggests the Officer be beyond arms length during the deployment. Chemical agents will require the suspect, potentially Officers and/or nearby citizens to decontaminate. It may be simply facing a breeze and allowing the agent to dissipate, flushing with cold water or may even require medical treatment.

Handheld aerosol dispersion methods range from around $15 for the 3-ounce personal carry size to the larger 12-ounce for greater dispersements in both volume and distance for $44.

The hand tossed grenade is in the $35 range while the launched gas varies from 12 gauge rounds for around $5 to the 40mm liquid CS ferret round at $25. The launchable rounds will also require a deployment devise at either a 12 gauge shotgun in the $250 range to a single shot 37/38mm launcher at $499.95 to the 40mm multi-launcher at nearly $2200. Beyond force on force and chemical devices, law enforcement has often used hand held impact weapons such as wood batons, ASP® baton, flashlights, PR-24 side-handled baton and Kubotans.

Like force on force, the use of these weapons requires the officer to be near arms length from the suspect. The suspect is impacted with the weapon until compliance is achieved. The techniques use pain as the motivator. If a suspect is under the influence of a narcotic or mentally incapacitated the strikes may not be effective. A suspect under this kind of condition could continue to resist or attack even with broken bones. The cost of the equipment would range from less than $10 for a variety of Kubotans to over $60 for an ASP® baton. The weapons are reusable and there are no regular reoccurring costs.

Training should be, but often is not recurring. Many agencies will require initial training to discuss policy, strike points, liability issues and care of equipment. However, few require training beyond the initial course or certification. Like force on force, training is inexpensive. Beyond the initial safety equipment there are no reoccurring purchases associated with training baring damaged or worn items.

Another series of devices that will allow deployment from a distance is the use of beanbag, rubber pellet or ball, wood baton or other similar type rounds. They are commonly referred to as specialty impact munitions. This weaponry was engineered in the 1960s and described by Ijames (2005):

> Unprecedented urban violence caused Lyndon Johnson to create a blue ribbon commission to study crime, law enforcement, and the administration of justice in America. One of the committee's most significant recommendations was for the development of non-lethal weapons, which lead to a variety of "less lethal" technology concepts including the TASER™, CN based Chemical Mace™, and extended range impact projectiles such as the "bean bag". (n.p.)

With few exceptions, these are fired from the same launching devices described in chemical agents/munitions. Munitions such as the rubber pellet rounds, wood or rubber baton rounds and the rubber ball round may be used in a skip fire application. A skip fire technique utilizes the projectile as pain compliance tool against the lower extremities of the target suspect. They can perform successfully from 1 yard to 50 yards. Performance will vary depending on angles of deflection and surface material and density (e.g. grass vs. concrete) (Federal, 1999, p. C-12). Ranges under 15 feet may not allow adequate distances for intended deflection (Federal, 1999, p. C-12).

Most, however, are designed for direct fire applications. In this application, a distance of less than ten (10) feet [requires] extreme caution due to the high possibility of a fatal outcome (Federal, 1999, p. C-12). From ten (10) to twenty (20) feet, avoid the head, neck, spleen, liver and kidney areas. At distances of twenty (20) to forty (40) feet, the target area should be center mass (Federal, 1999, p. C-12).

These munitions are designed to provide compliance through pain and blunt force. Items such as the 12-gauge beanbag will provide up to 120 foot/pound of force. The 40mm sponge round can provide up to 160 foot/pounds. This has been described as being hit by a 95mph fastball. The trauma should cause a suspect to fall, drop a weapon or generally become

compliant. A subject may actually believe that they have been shot from the immense pain, flash and sound of the weapon being fired. Shinder, Belotto & Sloman (1999) explain:

> the mental attitude of the subject will determine whether [and how] they react to being hit. [When a suspect attempting to commit suicide by being shot by police was] hit with the beanbag, [his] mental conditioning told [him he] had been shot, therefore [he] fell down. [He] didn't know it was beanbags [he'd] been hit with; [he] thought it was real ammo. With our 2 other subjects [that were not effected by the beanbag round], they were fighters. They had no intentions of being killed. Therefore, when hit with the beanbag they just got mad and fought back. (n.p.)

Like the weapons before, someone with a high pain tolerance whether naturally or from consumed narcotics, well developed abdominal mussels, wearing of very thick clothing, obesity or as just described with the right mindset can resist the effects of these devices. The use of these munitions has not been without their share of controversy. While still in its infancy, the use of such devices was hindered when in 1971 a 14-year-old boy in New Mexico was killed from a shot to the chest (Ijames, 2005). In 1997, the Ottawa-Carleton regional police agreed to stop using beanbag shotgun in late February [1997] after a man died shortly after being struck by one of the weapon's projectiles (Blue Line, 1997).

The wood baton round is described as lethal from its use in April 1972, when Francis Rowntree, an 11-year old Catholic boy, was shot in the head by a British soldier at close range in Belfast. The wooden round was soon replaced by a new development, which was commonly called the rubber bullet (Wikipedia, 2005).

The rubber bullet has also been linked to lethal results. The instructions for firing the round indicated that it should be fired at the ground so as to ricochet into the target. When fired

directly, the round could, and did, cause serious injury. Seventeen people have died as a direct result of, or due to injuries sustained by, these rounds in Northern Ireland since 1969 (Wikipedia, 2005). Some types of rubber bullets used by police to restrain unruly protesters kill and maim too often to be considered a safe method of crowd control, new research concludes (Ross, 2002). An inmate who was left brain-dead after being shot with a rubber projectile by a prison guard died from his injuries, according to an autopsy report released yesterday (AP-Bakersfield, 2005).

Training is critical to the successful operation. The officer must avoid the critical areas of the body such as head, neck, spleen, liver and kidney. To be proficient, there must be recurring training and qualification. The costs of the rounds vary from around $6 for the 12-gauge beanbag to $25 for a 40mm blue sponge impact round. The 40mm training rounds are around $20 each.

Along with the less widely accepted forms of less-lethal munitions include the use of water cannons, sticky foam and the capture net. Water cannons are used primarily to disperse large crowds. Mounted on a vehicle, there must be ample available water supply for the effective use of this instrument. The force of the water will drive suspects away from the area. The duration and effective distance is short. It is an effective weapon, but expensive and not very mobile. It is used most frequently for trio control (Kornblum & Reddy, June 3, 1989, p. 435). Sticky foam is delivered from a specially developed dispenser that is carried in a shoulder sling. When fired, it ejects the sticky foam form the dispenser's cylinder (Zarc-Sticky 2004). This can easily become lethal should the foam be sprayed in the subject's face causing suffocation. Although the foam is non-toxic, the solvents that unstuck the subject are potentially toxic and so far not totally safe and effective solvent has been found (Zarc-Sticky 2004).

The Capture Net can be deployed from its single use, one-shot launcher or by using a 37mm launcher. The Net advertises a thirty (30) foot range. From zero to five (5) feet is blunt force. Once deployed the net surrounds a suspect who becomes entangled. The officer or officers then must physically restrain the suspect using traditional techniques (ALS). Foster-Miller Inc. of Waltham, MA is reportedly developing a variety of non-lethal nets that can be hand-deployed or fired from 37mm grenade launchers. The anti-personnel system [originally consisted] of three versions: Sticky Net, a net containing a nontoxic adhesive coating making escape nearly impossible; Snare Net, a personnel entanglement net; and Sting Net, which employs a high-voltage pulse generator to quickly immobilize armed combatants and other highly dangerous individuals (Hausman, 2003). Only the Snare Net version appears to be still available at the time of this paper. In 1995, Foster-Miller, Inc was awarded a grant for almost $200,000 for the development of the "snare net." According to NIJ (1995):

> a nonlethal net deployment module will be developed to enhance the safety and practicality of an existing projectile-delivered antipersonnel snare net system. The net is designed to entangle and incapacitate fleeing offenders or in a standoff situation those armed with a hand-held weapon (not a gun). (n.p.)

There is limited documentation on the use of capture nets. In a recent email, Sergeant Paul Wassill of the Durham Regional Police Service of Ontario, Canada sites several areas of concern from his experience with this apparatus. These include the limited range - 15 feet, the weighted projectiles that carried the net were unreliable and could cause serious injury should they strike the suspect, could not be quickly reloaded, could not be deployed effectively indoors or in confined spaces and finally, the suspect could easily remain combative and in possession of a weapon even if entangled in the net (Wassill, 2005).

Training not only in the operation of the weapon, but in the actions of Officers after a successful deployment would be required. Training should also include tactics to be used to extract the suspect from the net and/or disarming while maintaining control. Training in these tactics would be difficult to simulate. The cost of the units range from around $50 for the 37mm version to $90 for the single use launcher (Kirchofer, 1999).

METHODOLOGY

The question to be addressed in this paper is if the Taser is a viable, valuable and preferred alternative to more traditional (less lethal) devices that are probably already in the inventory of tactical teams during close quarter combat. It is believed that the Taser is a superior tool and technique to the more traditional less lethal weapons. It is further believed that the Taser compares favorably to the other mentioned tools on a variety of levels. The first task of this research will be to acquire information on the more traditional weapons. Sources will include the author's personal experience as well as a review of published accounts, technical manuals, vendors and the Internet.

A survey will be sent to 1200 members of the FBI's National Academy Association. This survey will be sent via email through an address established by the Association for that purpose. Membership in this association is restricted to those attending the FBI's National Academy in Quantico, VA. Attendees are typically leaders and managers of state and local police, sheriffs' departments, military police organizations, and federal law enforcement agencies. Participation is by invitation only, though a nomination process. Participants are drawn from every state in the union, from U.S. territories, and from over 150 foreign nations (FBI). As stated, membership has no geographic limitations. They represent departments of all sizes and democratic classes.

The multiple choice survey will have the respondent pick from comparable factors such as the size of the Department and tactical team, current less lethal munitions in use and their experience and other issues with the Taser. The survey will be sent on two occasions to maximize the response. Another request for information will be sent later in the program to address issues involving the capture net. There is very little documentation available through normal media resources on this topic. The survey results will be compiled into three categories representing the three agency sizes listed on the survey; small 1-50, medium 51-150 and large >150. The survey results will be calculated via an Excel worksheet to demonstrate either support or to challenge the hypothesis.

FINDINGS

From the initial surveys distributed, there were 73 responses or a return rate of 6.08%. The returns adequately represented the departments in size. Approximately 40% each medium and large departments and slightly more than 20% smaller departments were represented. In addition, it was not only Departments using Tasers that responded. More than 35% surveyed respondents reported that they were not using Tasers and over 6% did not have tactical teams in place. This provides a broad aspect on this topic. The request sent later in the program (to address issues involving the capture net) produced only six responses with only two having experience. This is a minuscule .005% response. However, this did serve to confirm the belief that using a Taser is not a commonly accepted alternative.

The chart illustrated below will compare the Taser with the more perceived traditional less lethal weapons. The comparison was made on several levels. First and foremost is reliability to perform. Not the individual weapon, but the technology behind that weapon. The chart assumes that the weapon has been properly deployed in each case. In each case all things

are assumed equal. The method of deployment, costs, training aspects and perceived controversy surrounding each weapon were also compared. The purpose was to determine if the capabilities of the Taser were worth the perceived additional cost and acceptance of the public controversy.

	Reliability	**Deployment**	**Cost**	**Training**	**Controversy**
Taser	Uses muscle disruption. Reportedly effective near 100% Range 0'-35' – Optimal 7'-10'	Using handheld device similar to familiar handgun	$399-$799 for device and $17-$22 per use	Already familiar weapon. Minimal instruction required. Typically wants Officer to feel effects	High
Force on force, hands-on	Effective with enough manpower. Can easily lead to injuries of Officers and suspects. Range – arms length	Depends upon situation	Minimal	Advance recurring training	High if injuries are sustained. High if viewed by uniformed public
Chemical Agents	Not always effective. Highly motivated or on narcotics could resist. Weather, glasses, hands may deflect spray Range – 3'- 6'	Handheld spray canister. Familiar to most	$15 - $44	Typically requires Officer to feel effects	High initially. Now, generally accepted.
Chemical Agents	Not always effective. Highly motivated or on narcotics could resist. Weather, glasses, hands may deflect spray	12 gauge shotgun or 37/38mm or 40mm launcher	Shotgun $250 Launcher $499-$2200 and $5-$25 per use	Shotgun is a familiar weapon to most. Launcher would require additional, intensive training. Both should require recurring qualifications.	High initially. Now, generally accepted.
Impact Weapons	Depends upon pain compliance. Highly motivated or on narcotics could resist. Range – arms length	Handheld	$10-$60	Requires advanced recurring training.	Still high as video incidents are a media favorite

Impact Weapons	Depends upon pain compliance. Highly motivated or on narcotics could resist. Some depend upon blunt force to be effective. This may lead to injury. Range 10' – 40'	Shotgun or 37/38mm or 40mm launcher	Shotgun $250 Launcher $499-$2200 and $5-$25 per use	Shotgun is a familiar weapon to most. Launcher would require additional, intensive training. Both should require recurring qualifications.	Still high as recent deaths bring it to media's attention
Capture Net	Entraps suspect. Does not force compliance. Suspect may continue to resist and/or refuse to surrender weapon. Range 5'-30'	Single use launcher or 37mm round	Single use launcher $90 or Launcher $499-$2200 and $60 per use	Launcher would require additional, intensive training. Both should require expensive recurring qualifications. Additional training in response to entrapped suspect.	None as few Departments currently posses or utilize it.

Judging reliability of the less lethal weapons requires focus on the technology surrounding the deployment and intended outcome. The Taser's technology is based upon the electrical impulses disrupting the body's ability to control muscle function. It should work regardless of the suspect's physical abilities, mental motivation or capacity. It should work regardless of environmental conditions, number of immediately available officers or possible surrounding obstructions or impediments. The range varies from an impact weapon to 35 feet. The Taser is definitely considered a close quarter combat weapon.

Force on force is only effective if there is enough manpower to assure its effectiveness. Each situation would be different. Perhaps one officer is enough and perhaps five officers are not. Force on force is dependent upon either physical overpowering or pain compliance of the suspect. Obviously a close quarter combat weapon or technique.

Chemical agents are not effective on all suspects. Most chemical agents rely upon pain compliance. The spray should cause pain to the eyes, nose, throat and contacted skin. It should produce copious amounts of tearing and involuntary closing of the eyes. However, those highly

motivated or under the influence may easily disregard the effects of chemical agents and continue to actively resist or ignore commands. In addition, the deployment of chemical agents may be hindered due to weather conditions such has heavy wind or rain or if the suspect were wearing eyeglasses, a mask or even a towel over the face. The suspect could even reduce the effects by deflecting the spray with hands or other obstacle. There is the additional time involved in decontamination of the suspect. Spraying within less than 3 feet os discouraged as damage to the eyes may occur. Most sprays have a maximum range of around 6 feet. This is considered a close quarter combat weapon.

Impact weapons, both handheld and launched typically rely upon pain compliance. A few will also inflict blunt force that should be a deterrent to resisting suspects. Like chemical agents, those highly motivated or under the influence may easily disregard the effects of chemical agents and continue to actively resist or ignore commands. The handheld version requires the Officer to be almost within arms length. Those of strong physical conditioning and/or martial arts training are more likely to repel the advancement of officers attempting to deploy handheld weapons. Handheld impact weapons are obviously close quarter combat weapons. The use of 12 gauge and launched versions is discouraged within 10 feet of the suspect. It would not be a recommended procedure for a close quarter combat situation.

The capture net is designed to stop a suspect by wrapping them in the deployed net. It assumes that once entangled, the suspect will capitulate. However, a suspect that does not surrender will force the officers to use another described less lethal weapon or technique to not only take the suspect into custody, but remove them from the net as well. The net lists a range of 30’ and states that from 0’-5’ it is a “blunt force” weapon. As advertised, it could be considered a close quarter combat device.

The Taser stands out as the most effective or reliable alternative in close quarter combat situations with a reported near 100% efficiency rating. There is less outside influences on the successful operation. It should be effective regardless of the mental or physical condition of the suspect. It should be effective regardless of the number of immediately available officers. And, it is less likely to cause lasting injury and has no decontamination requirement. The Los Angeles Police Department reports in those instances in which it did not work, several reasons can be advanced, the most important one probably being poor contact between the barb and the target. Also, the charge delivered to the target can be below the level required to freeze the subject because the batteries have run down or there is some other electrical problem (Kornblum & Reddy, June 3, 1989, p. 438).

The Taser is deployed using one of two currently available devices. The first is a duplicate of the very familiar Glock handgun. The second is a smaller version that is still based upon the techniques used to fire a handgun. Both versions activate a laser targeting light when the safety is removed to assist in target acquisition. The officer simply puts the laser on target and pulls the trigger. The weapon will fire the darts and activates the electrical charge for five seconds. The officer can reactivate the electrical charge by pulling the trigger again if necessary. Reloading is quickly accomplished with the removal and replacement of a cartridge on the end of the weapon.

Force on force and handheld impact weapons deployment is based upon the amount of force being confronted. The amount and duration of the force is dependent upon the number, training and physical and mental conditioning of the officers. The handheld chemical agent is dispersed through a small canister that is familiar with most modern day law enforcement officers. The officer holds the canister at arms length pointing toward the suspect while

depresses the triggering mechanism. Targeting is established by moving the canister while firing to assure contact in the facial region. The officer can depress the triggering mechanism as long as the canister contains the propellant.

The launched versions of gas and impact weapons will require the use of a shotgun or 37/38mm or 40mm launcher. These are typically shoulder-fired weapons. The gas is designed for firing through walls, windows or doors or when a more distance shot is necessary. The impact weapons are designed for direct or indirect fire at the suspect or suspects. Reloading is easily accomplished and the necessity of secondary firings is anticipated.

The capture net is deployed using a single shot, preloaded, non-reloadable weapon or through a 37mm launcher. The 37mm version is reloadable and a secondary firing would only be necessary should the initial munition fail.

Force on force and handheld impact weapons followed by handheld chemical agents are the easiest to deploy. Again, this is assuming that the officers are proficient in the use of these tactics. There is no reloading effort or need to carry additional equipment or rounds. Force can easily be increased should the threat increase. The Taser does seem to be the leader in the weapons that require a triggering mechanism. Although chemical agents do not require reloading to continue operation, the Taser's targeting mechanism is far superior thereby reducing the need for reloading.

The cost of the Taser varies from $399 to $799 depending on which current version is purchased. The cost of firing the weapon ranges from approximately $17 for a training round to $22 for the extra long probes used against thick cold weather clothing. Force on force costs is minimal for deployment. There are more likely costs associated with medical treatment and time off due to injuries.

Handheld chemical agents are inexpensive as well. Prices Range from $15 for a small multi-use canister that could be worn on a duty belt to $44 for the larger 12oz size used by Tactical Teams and riot control officers. Handheld impact weapons have a minimal initial cost. An inexpensive Kubotan should cost less than $10 to over $60 for an ASP® baton. Other than damage replacement there is no recurring cost.

Launched chemical agents and impact weapons begin with the cost of the launching device. A shotgun would cost around $250 while a 37mm single shot launcher could cost as much as $499. A 40mm multi-launcher capable of firing up to six rounds before reloading could cost as much as $2200. The cost of rounds begins around $5 for a shotgun round to $25 for a 40mm round. The capture net has two currently available versions. The single shot, non-reloadable version is $90 apiece. There is also a 37mm version for approximately $60 per round, plus the cost associated with the purchase of the launcher as previously described.

Like deployment, force on force and hand held impact weapons have minimal costs associated. Next are handheld chemical agents that will allow multiple deployments on single canisters. Shotgun deployed rounds are less expensive than the Taser in both initial equipment purchase and “per use” cost. The cost of the Taser is in line with the cost associated with 37/38mm and 40mm launchers. The cost of “per use” is also in line with chemical agents and impact weapons fired from these launchers.

Training in the use of the Taser would be minimal compared to some of the other weapons. It uses a familiar deployment device based upon a handgun. Targeting is similar to that of a normal handgun as well, relating to targeting “center mass.” Taking the weapon from holster to targeting is the same as a standard officer’s handgun. The familiarity of the weapon will assist the officer in the proper deployment in a time of hurried response. Training that

would be less handgun oriented would be in the area of policy restrictions. There are also some departments that require the officer to feel the effects of the Taser. This training is obviously less pleasant and still controversial within the law enforcement community. Training can become costly at $17 per round.

Force on force and hand held impact weapons should require recurring training. Techniques are learned and easily lost if not practiced. Techniques are not used in the "heat of the moment" unless they become a part of the officers regular training routine. The cost of training is minimal. The cost associated with handheld chemical agents is also minimal. There is an inert training canister that could be used for targeting drills. Some departments still require an officer to be sprayed with real chemical agent to experience the effects. This training is also unpleasant, occasionally causes eye injury and is often the center of debate within the law enforcement community. Munitions utilizing the shotgun or launchers should require regular qualifications beyond the initial training. Each is capable of major injuries if targeting is less than accurate. Again, training and qualifications can become quite costly.

The capture net is the most difficult to offer training. Although the deployment of the net can easily be trained and mastered, the response after deployment is more difficult. It is difficult to simulate a highly combative suspect without risk of injury to officers or role player. The cost per round would make many scenarios using the capture net cost prohibitive.

Force on force, handheld chemical and impact weapons remain the least expensive to train. However, training on force on force and impact weapons should be part of a regular, frequent training scenario to be effective. Shotgun and launched munitions should require recurring qualifications to lessen the likelihood of injury from a missed target. The Taser is the

easiest new technique to train as it follows basic handgun curriculum that modern day law enforcement officers are familiar.

Finally, the issue of controversy regarding the Taser was addressed. There is so much public debate and media against the Taser that it is often difficult for a Department head to become a part of the attention. Like most of the traditional less lethal weapons, the Taser's controversy often stems from abuse at the hands of law enforcement. The technology seems to be sound. The problems may lie in the implementation of the technology. Even today, the more traditional less lethal devices are the topic of public debate when the use results in the death or severe injury to a citizen. This can and does occur even if the death is ultimately linked to some other cause such as a previous medical condition or drug overdose. Granted, some of the controversy surrounding Taser is associated with the operation of the company instead of the technology. However, anything that keeps the Taser in the news will just add to the uncertainty of the citizens and ultimately the Departments wishing to introduce the technology in their respective jurisdiction. With this information, the Taser does appear to be a viable and valuable alternative to the more traditional less lethal weapons.

The last part of the question had to do with the preference of tactical teams to use the Taser of the other less lethal devices. To address this question the results of the surveys are reviewed. By far, the vast majority of the respondents have tactical teams. In fact, 93% have a tactical team of some size. A very strong 75% of the tactical teams are using currently using the Taser as one of their less lethal weapons. In fact, more than half listed the Taser as their primary less lethal device.

When asked about any delay in the acceptance of the device, most sited the cost rather than the controversy being the factor. However, over 70% of the respondents stated that the

advantage achieved from the use of the Taser was worth the cost associated. One response stated that they had found bean bags to be ineffective. They borrowed a Taser from a neighboring agency and were pleased with the result. Another respondent stated that nothing works 100% of the time, but the Taser is close. A third reported; The Taser is more effective in close quarters and is less cumbersome. It is obvious from the results of the survey and added responses that the Taser is a preferred less lethal weapon by tactical teams in close quarter combat situations.

CONCLUSIONS

Should the Taser be considered a viable alternative to other more traditional or perceived more traditional less lethal weapons during close quarter combat? Is the Taser more effective? Is the Taser a better value? These are the questions that a tactical team commander must decide before committing time and expense to add another device to the team's inventory. If the equipment does not add to the team's efficiency it will not be worth the investment. If the equipment is cost prohibitive to utilize or train properly, it will not be an asset.

It is believed that the Taser is worth the cost associated with purchase, training and implementation. It is believed that tactical teams that have implemented the device agree that the investment was worth the cost. It is further believed that the Taser is becoming a preferred alternative to the more traditional less lethal weapons. The findings were based on two forms of research. The first was a comparison of the Taser to the more traditional weaponry. It was found that on most levels the Taser was the preferred technology. The Taser was shown to be the most reliable. It was the easiest new technology to teach and learn. It was in line with several other traditional weapons in cost associated with supply and training. It was also shown that the controversy surrounding the Taser is not unlike other traditional less lethal weapons. Much of the controversy centers on the abuse of the technology rather than the technology itself.

The second area of research was a survey of Tactical Teams? It was discovered that the majority of the respondents were already using Tasers on their Tactical Teams. In fact, it is being used by 75% of the Teams that responded and was the preferred less lethal device in 76% of those. These findings do support the hypothesis that the Taser is a viable, valuable and preferred alternative to more traditional less lethal weapons when used by Tactical Teams in close quarter battle. Again, these findings were based upon a survey that was sent to 1200 members of the FBI National Academy Association. There were only 73 respondents to the survey. The findings are from those 73 respondents. This was after two separate requests requesting such information.

Ideally, this study will assist tactical team commanders in providing support for the introduction of the Taser into their arsenal of less lethal weapons. As controversy surrounding the Taser mounts, it can still be shown to be a reliable alternative that should reduce both officer and suspect injuries when used properly.

REFERENCES

ACLU Nebraska. (2005, November). *Taser Use by Nebraska Law Enforcement Agencies: The case for policy reform*. Retrieved November 17, 2005, from http://www.aclunebraska.org/ACLU%20Taser%20study.pdf

ALS Technologies. *Nonlethal Entanglement Technology System (NETS*). ALS Technologies, Bull Shores, AR. Retrieved December 13, 2005, from http://www.ozarkmtns.com/less-lethal/distract.htm

AP-Bakersfield. (2005, March 10). *Autopsy Says Inmate Died From Rubber Bullet Impact.* San Diego Union Tribune. Retrieved December 13, 2005, from http://www.signonsandiego.com/uniontrib/20050310/news_1n10inmate.html

Amnesty International. (2005, April 1) *Taser Related Deaths Hit Triple-Digits as Manufacturer (TASR) Grossly Exaggerates the Number of Lives Saved by Tasers. Amnesty International Documents 103 Taser Related Deaths and Disputes Claims that Tasers Have Saved 6,000 Lives*. Retrieved November 17, 2005, from: http://www.amnestyusa.org/stoptorture/document.do?id=1E588837194B6F6385256FD60068C20A

Blue Line. (1997, April). *Force Agrees to Stop Using Weapon.* Blue Line – Canada's National Law Enforcement Magazine. Retrieved December 13, 2005, from http://www.zarc.com/English/news/bluelinedef_tecbeankill.html

Cusac, A. M. (2005, April). *The trouble with tasers*. *The Progressive*, 69(4), 22.

DeFalco, B. (2005, November 7). *Taser to offer stun gun cameras*. Canoe Network. Retrieved November 15, 2005, from http://cnews.canoe.ca/CNEWS/TechNews/NewStuff/2005/11/07/1296426-ap.html

FBI. *The FBI National Academy*. U.S. Federal Government, U.S. Department of Justice. Retrieved December 26, 2005, from http://www.fbi.gov/hq/td/academy/na/na.htm

Federal Laboratories (1999, May). *Product Catalog and Specification Manual*. Federal Laboratories, Jacksonville, Fl.

Gardner, D. (2004, November 1). *Talking About Taser*. The Motley Fool. Retrieved November 15, 2005, from http://www.fool.com/news/commentary/2004/commentary04110102.htm

Harris, T. (2005). *How Stun Guns Work*. How Stuff Works. Retrieved November 15, 2005, from http://electronics.howstuffworks.com/stun-gun.htm

Hausman, R. (2003). *New, Non-lethal Technologies Offer More Options to Police*. Second Amendment Foundation, Bellevue, WA. Retrieved December 13, 2005, from http://www.saf.org/pub/rkba/general/haus220.html

Homant, R., & Kennedy, D. (2000, June). Effectiveness of less lethal force in suicide by cop incidents. *Police Quarterly, 3,* 153-171.

Hougland, S., Mesioh, C., & Henych, M. (2005, March). Use of force, civil litigation, and the taser: one agency's experience. *FBI Law Enforcement Bulletin, 74,* 24-30

Ijames, S. (2005, May 14). *Taser today: controversy, credibility & control considerations*. PoliceOne.Com. Retrieved July 21, 2005, from http"/www.policeone.com/pc_print.asp?vid=100546

Ijames, S. (2005, August 29). *In defense of the 12-gauge "bean bag" round*. PoliceOne.Com. Retrieved December 13, 2005, from http://policeone.com/writers/columnists/SteveIjames/articles/118328/

Kirchofer, T. (1999, October 10*). "Webshot" could give police new weapon to net criminals*. Justice Technology Information Network.

Kornblum, R.N., & Reddy, S.K. (1991). Effects of the taser in fatalities involving police confrontation. *Journal of Forensic Sciences, 36,* 434-448.

Law, R. (1997, June 19). *Maschinenpistole 43/sturmgewehr 44*. Arsenal of Dictatorship Retrieved December 18, 2005, from http://www.geocities.com/pentagon/2833/heer/infantry/mp43stg44/mp43stg44.html

Le, P. C., & Castro, H. (2004, November 30). *Police are too quick to grab for taser's power, say critics*. Seattle Post-Intelligencer retrieved November 17, 2005, from http://seattlepi.nwsource.com/local/201700_taser30.html

Meyer, G. (1992). Nonlethal weapons vs. conventional police tactics: assessing injuries and liabilities. *The Police Chief,* 10-18.

Meyer, G. (1992). Nonlethal weapons: where do they fit. *Journal of California Law Enforcement, 26,* 53-58.

NIJ – National Institute of Justice. (1996, January). *NIJ awards in fiscal Year 1995*. U.S. Department of Justice Office of Justice Programs National Institute of Justice Washington, DC. Retrieved December 13, 2005, from http://www.ncjrs.org/txtfiles/nijaw95.txt

Petty, C. S. (2004, February). *Deaths in police confrontations when oleoresin capsicum is used*. US Department of Justice. Retrieved December 8, 2005, from http://www.innovations.harvard.edu/cache/documents/4705.pdf

Ross, E. (2002, May 24). *Blunt and penetrating injuries caused by rubber bullets during the israeli-arab conflict in october, 2000: a retrospective study*. The Lancet 359 (9320). Retrieved December 13, 2005, from http://www.mindfully.org/Health/2002/Rubber-Bullets-Israeli-Arab25may02.htm

Science Fair Project Encyclopedia. (2005, November 1). *Patty Hurst*. All Science Fair Projects.com. Retrieved December 18, 2005, from http://www.all-science-fair-projects.com/science_fair_projects_encyclopedia/Patty_Hearst

Shinder, D., Belotto, A., & Sloman, D. (1999, April). *LESS THAN LETHAL? When is it appropriate to use alternatives to deadly force?* SURVIVE-L Electronic Newsletter. Retrieved December 13, 2005, from http://frontpage.dallas.net/~shinder/SurviveL/April1999/survive0499.htm

Smith, J. (2005, April 8). *APD* Tightens taser policy. *The Austin Chronicle*. Retrieved November 17, 2005, from http://www.austinchronicle.com/issues/dispatch/2005-04-08/pols_naked9.html

Smith, J. (2005, July 29). Tasers helped reduce use of force, apd report says. *The Austin Chronicle*. Retrieved November 17, 2005, from http://www.austinchronicle.com/issues/dispatch/2005-07-29/pols_feature5.html

Taser. (2000). Advanced Taser, M-Series, Operating Manual. *Taser International M-Series, Operating Manual.*

Taser. (2003). X26 Operating Manual, Version X. *Taser International X-26, Operating Manual.*

Taser International. (2005). *Corporate history, taser devices saves lives every day*. Taser, International. Retrieved November 15, 2005, from http://www.taser.com/about/history.htm

Thomas Publishing Company. (2003, May 28). *Taser international, inc. extends ammunition product line with new xp cartridge*. Retrieved November 15, 2005, from http://news.thomasnet.com/fullstory/23201/3282

Wikipedia. (2004, November 4). *Rubber bullet*. Wikipedia, The Free Encyclopedia Retrieved December 13, 2005, from http://en.wikipedia.org/wiki/Rubber_bullet

Zarc. (2005). *Cap-stun oc products - oleoresin capsicum*. Zarc International, Inc. Retrieved December 8, 2005, from http://www.zarc.com/english/cap-stun/tech_info/oc/

Zarc-Sticky. (2004). *Sticky foam*. Zarc International, Inc. Retrieved December 13, 2005, from http://www.zarc.com/English/non-lethal_weapons/sticky_foam.html

Zarc-Vexor. (2004). *Vexor – oc first aid*. Zarc International, Inc. Retrieved December 8, 2005, from http://www.vexor.com/government/OC_about.html

APPENDIX 1

Appendix 1 is a blank copy of the survey that was used to gather information for this paper.

See attached.

The Taser as it Compares to Traditional Less-Lethal Weapons in Tactical Team Situations

1. How many sworn Officers in your agency?
☐ 1-50 ☐ 51-150 ☐ 151 or more

2. Are Tasers issued to your regular Patrol (non-tactical team) units?
☐ Supervisors only ☐ Supervisors & Officers ☐ Not issued to Patrol

3. How many Officers are on your tactical team?
☐ 1-10 ☐ 11-20 ☐ 21 or more ☐ No tactical team

4. How many Officers on your tactical team have been trained to utilize the Taser?
☐ 0 ☐ 1-10 ☐ 11-20 ☐ 21 or more

5. What less-lethal devices does your tactical team possess, train and are truly prepared to utilize? (check all that apply)
☐ Taser ☐ Baton/other impact ☐ 36/40 mm sponge, wood, etc. rounds
☐ Chemical Spray ☐ Pepper Ball rounds ☐ 12 ga. Beanbag
☐ Capture Net ☐ Other: _____

6. Is the Taser considered a primary less-lethal device for your tactical team?
☐ Yes ☐ No

7. Is the Taser regularly deployed with the tactical team?
☐ Yes ☐ Only in certain instances ☐ No

8. Has your tactical team used the Taser in an actual incident (other than training)? If so, what were the results?
☐ Yes-favorable ☐ Yes-unfavorable ☐ Yes-mixed results ☐ Not used

9. Has your tactical team used the Taser in an actual incident (other than training) where a traditional less-lethal device would have been used prior to the deployment of the Taser? If so, what were the results as compared to what would have been expected with the traditional less-lethal device?
☐ Yes-favorable ☐ Yes-unfavorable ☐ Yes-mixed results ☐ Not used

10. Was there a delay in acceptance and distribution of the Taser by your tactical team and/or administration? Why? (check all that apply)

☐ Cost ☐ Controversy surrounding it ☐ Not enough documentation
☐ Content with traditional devices ☐ Concern of training / being shocked
☐ There was no delay ☐ Other: _____

11. If your tactical team is using the Taser, do you believe the benefit to your team to be worth the costs associated with purchasing, implementation and training?

☐ Yes ☐ No ☐ Not using Tasers

12. Please provide any other thoughts or comments on how the Taser compares to more traditional less-lethal devices in tactical team situations.

_____

13. Name: _____ Position: _____
Agency: _____