



**Police Equipment and
Community Safety Ordinance
Impact Statements**

ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

Introduction	2
M4 rifle/Patrol Rifle	3
Penn Arms 40MM Single Launcher	8
Milkor LTL Multi-Launcher	13
FN 303 Launcher & FN Pava Impact Projectile	19
Oleoresin Capsicum Spray.....	24
Chlorobenzylidene Malononitrile and Oleoresin capsicum	27
Remington 700 Rifle	32
ReconRobotics Recon Scout XT Robots.....	35
Andros Remotec HD-1 Hazardous Duty Robot	38
Light/Sound Diversionary Device	41
Long Range Acoustic Device	45
36" Batons	48
Mobile Command Vehicle.....	52
Barret Model 99	54
Appendix	58

INTRODUCTION

On May 11, 2021 the Berkeley City Council passed Ordinance NO. 7,760-N.S., the Police Equipment and Community Safety Ordinance. Section 2.100.020 of the ordinance mandates an impact statement for certain equipment that the Berkeley Police Department possesses. An impact statement is defined in section 2.100.020 (C) and is a publicly released written document that includes the following details for each equipment:

- 1) Description
- 2) Purpose
- 3) Fiscal cost
- 4) Impact
- 5) Mitigation
- 6) Alternatives
- 7) Third Party Dependence

An impact statement for each of the following equipment has been authored by subject matter experts in their respective fields:

- M4 rifle/Patrol Rifle
- Penn Arms 40MM launcher
- Milkor LTL multi-launcher
- FN 303 Launcher & FN Pava rounds
- Oleoresin capsicum (OC spray)
- Chlorobenzylidene Malononitrile and Oleoresin capsicum (tear gas)
- Remington 700 Rifle
- ReconRobotics Recon Scout XT Robots
- Andros Remotec HD-1 Hazardous Duty Robot
- Light/sound distraction device
- Long Range Acoustic Device (LRAD)
- 36" batons
- Mobile Command Vehicle
- Barret Model 99

Impact statements were compiled in this report in a prioritized ranking for the Police Accountability Board to consider in determining the order in which to perform its review per the Police Equipment and Community Safety Ordinance.

M4 Rifle and Associated Ammunition

(1) **Description:**

A. **Background:**

The “M4” was developed and produced for the United States government by Colt Firearms and was based off of the original Armalite Rifle (AR) patent purchased by Colt in 1959. Although Colt owned the trademarked name of “M4”, a number of other manufacturers offer M4-like firearms under various model names. The M4 and its variants fire 5.56×45mm NATO (and .223 Remington) ammunition, and are a gas-operated, magazine-fed firearm with a barrel length ranging from 11.5” to 16”.

The current Berkeley Police Department (BPD) rifle ammunition used is the .223 Remington, a rimless, bottlenecked rifle cartridge. The round was developed in 1957 by Remington Arms and Fairchild Industries. The .223 Remington is considered one of the most popular cartridges and is currently used by a wide range of semi-automatic and manual-action rifles as well as handguns. While the military uses the similar 5.56x45 NATO cartridge, BPD uses the more common and often regarded civilian cartridge of .223 Remington for all training and duty uses.

Currently, BPD uses two different kinds of .223 Remington ammunition: 55 grain FMJ (full metal jacket) for training purposes and 62 grain soft point for duty purposes. This is done for several reasons.

1. FMJ ammunition is cheaper to purchase. While many agencies use the same ammunition for training and duty use, the department saves a significant amount of money by using FMJ ammunition for training.
2. The observed performance between the two rounds is negligible for training purposes. Officers can use the FMJ ammunition in a training course and see no difference in operation and performance versus using 62 grain soft point duty ammunition.
3. The 62-grain soft point ammunition has been shown to have less over penetration and over travel compared to FMJ ammunition.

This means that rounds fired are less likely to hit unintended targets.

B. Quantity:

The Berkeley Department currently owns and maintains 96 rifles.

Quantity of rifle ammunition fluctuates significantly depending on training attended, including the standard basic police academy, officer assignments, and yearly mandate training cycles. For example, most police academy recruits are required to bring approximately 1,000 rounds to the basic POST approved academy. Most academies have a 16-24-hour rifle training course. The training is required for all officers who are issued a rifle and mandates between 800 and 1,200 rounds. As such, the inventory at the Berkeley Police Department fluctuates significantly depending on how many officers are attending state mandated training and can range from 10,000 round (our current inventory) to less than 1,000 rounds (our anticipated inventory at the end of December after scheduled department training in November.)

C. Capability:

The M4 pattern rifle is used only in situations when a potential life-threatening situation exists. While a pistol is the common firearm used by police in these dangerous situations, the M4 patterned rifle has numerous advantages over it. The ability to shoulder the rifle, coupled with the rifle's lengthened barrel and ammunition, result in higher accuracy and lessens the chance of officers missing the intended target. Additionally, due to the design of the rifle's bullet, the round is less likely to over penetrate commercial and residential walls should the officer miss the intended target. The rifle is also easier to use compared to a pistol because of the bullet's low recoil. Finally, as the rifle can be adjusted and customized, it can be configured to accommodate officers of any stature (hand size, strength, etc.).

The .223 Remington cartridge, depending on the weight of the bullet, 55 grain or 62 grain, travel at approximately 3,000 feet per second and 2,700 feet per second respectively. The round is highly regarded as having a high degree of consistency and accuracy, which is why it is the most common rifle round used in Law Enforcement around the world.

D. Lifespan:

Due to the rifle's ability to be maintained by department armorers, these rifles have a relatively long-life span if properly maintained. However, the design has

changed little in the last 60 years and we can expect new variations and designs to become the new industry standard in the coming years.

Like all ammunition, if kept cool and dry, ammunition lifespan can exceed ten years. Due to BPD's and State mandates on training, the majority of ammunition is cycled through within a year of purchase.

E. Use:

Used in the defense of life or great bodily injury to potential victims of violent crimes, general public, and officers.

F. How it Works:

The M4 patterned rifle works the same as a majority of all modern firearms. When the trigger is pressed, a firing pin strikes the primer of a bullet loaded into the chamber of the rifle. The ignited primer ignites gun powder contained in the bullet which pushes the bullet down the barrel and out the muzzle. As the bullet travels down the barrel, gas from the ignited powder also escapes from the muzzle. Some of that gas is recycled back into the chamber of the firearm which causes the firearm to cycle its action and load another bullet. From there the process repeats with each pull of the trigger.

The .223 Remington cartridge is made up of several parts, primarily the primer, casing, gunpowder, and bullet. The bullet is seated into the front or opening of the casing. Gunpowder is placed between the bullet and the interior of the casing and a primer is seated in the rear part of the casing. When the trigger of a firearm is pulled, it releases the hammer, which strikes the firing pin, driving it forward. The firing pin collides with the rear of the cartridge, where the primer is seated, which ignites the primer. The spark from the primer ignites the gunpowder. Gas converted from the burning powder rapidly expands in the cartridge. The expanding gas forces the bullet out of the cartridge and down the barrel with great speed. The rifling in the barrel causes the bullet to spin as it travels out of the barrel. The bullet's speed and escaping gases produce a "bang."

After the bullet exits the barrel, the spent casing which housed the bullet, gunpowder, and primer are ejected from the firearm.

(2) Purpose:

The M4 patterned rifle and associated ammunition is intended as a means to safely stop a lethal threat. While a pistol is the firearm that all officers are minimally

equipped with, the rifle is an ancillary firearm for situations where increased distance and accuracy are needed to safely resolve the situation.

(3) Fiscal Cost:

A. Initial Cost:

Rifle prices, like other firearms, will range depending on current market demand and availability. While M4 rifles purchased several years ago cost between \$1,000 and \$1,200 a piece, current rifles cost between \$1,400 and \$1,600. It should be expected that these prices will fluctuate and likely increase over time.

Ammunition costs fluctuate with the costs of components (brass, primers, gunpowder, and bullets) and supply/demand. Current costs for .223 Remington range from \$0.50 to \$0.75 a round for training ammunition (55 grain) and \$1.25 to \$1.50 a round for duty ammunition (62 grain).

B. Cost of Use:

Cost of use for all firearms should be based on the ammunition used in training and on duty. This will fluctuate based on whether the rifle is issued to a patrol officer, a firearms instructor, or a Special Response Team member as each assignment has different training requirements.

C. Cost of Potential Adverse Effects:

Adverse effects of improper use of a firearm are not calculable. It could lead to the loss of life or serious injury. Additionally, the improper use could result in civil liabilities.

D. Annual and Ongoing Costs:

See section B. above, these costs are determined based on the rifle's assignment.

E. Training Costs:

Every officer that is authorized to carry a rifle on duty must attend a 16-hour CA POST approved rifle instruction course before being authorized to carry the rifle on duty. This course may be administered by Berkeley Police Firearm Instructors or by other POST approved agencies. Tuition for the CA POST approved class is dependent on the hosting agency. If conducted in house the cost only includes the officer's hourly wage, range fee, and ammunition costs (all vary). Outside agencies charge between \$25 to \$500 depending on the range location and duration (some classes are 32-hours while POST only requires 16-hours.)

Additionally, all officers issued a rifle receive specific 8-hour rifle training every two years by POST certified BPD firearm instructors.

Typical round count for such classes range between 800 rounds and 1200 rounds per student. Additionally, all officers issued a rifle receive specific 8-hour rifle training every two years by a BPD firearm instructor which constitutes an additional 500 or so rounds per officer.

F. Maintenance and Storage Costs:

Maintenance costs vary depending on use over time. Traditionally, various springs and pins need to be replaced every five years and may cost between \$3 and \$30 per rifle. Other parts such as the barrel and bolt need replaced around ten years and range between \$150 and \$300 per rifle.

There are no costs associated with maintenance or storage of ammunition. All ammunition is stored in a climate-controlled room in the Berkeley Police Department.

G. Upgrade Costs:

Upgrade costs and Maintenance cost are synonymous due to the consistent design and lack of changes of the rifle over the last 60 years. Improvements in technology and new designs may be an additional cost but we can't predict what those will be at this time.

Should advancements be made in ammunition manufacturing, those upgrade costs are unknown at this time.

(4) Impact:

The Berkeley Police Department is committed to preserving and protecting human life and welfare. The M4 patterned rifle, which fires the .223 Remington cartridge, is a superior firearm to stop a lethal threat compared to the issued pistols to police officers, in that officers equipped with this firearm shoot less rounds, fire more accurately, and are less likely to fire errant rounds. Highly volatile and violent incidents, such as a hostage situation, can be more safely and efficiently resolved with a rifle.

The M4 patterned rifle, and the accompanying .223 Remington cartridge it fires, is intended as a tool to increase the safety and welfare of citizens and officers alike. Potential negative impacts include larger entry and exit wounds than from handgun bullets, more body tissue destruction; emotional trauma to vulnerable and/or minor bystanders; and potential litigation costs.

(5) **Mitigations:**

Per Policy 300, “Deadly force may only be used when it is objectively reasonable that such action is immediately necessary to protect the officer or another person from imminent danger of death or serious bodily harm.

Officers shall not use deadly force if it is objectively reasonable that alternative techniques will eliminate the imminent danger and ultimately achieve the law enforcement purpose with less risk of harm to the officer or to other persons.”

(6) **Alternatives:**

There are no suitable alternatives to the M4 rifle for the intended purpose. The M4 rifle is a law enforcement standard across the US and other countries due to its reliability, ease of use, ease of maintenance, and increased accuracy over other options.

There are no suitable alternatives to the .223 Remington cartridge, as the current BPD M4 rifle is designed for that particular cartridge. The .223 Remington cartridge is a law enforcement standard across the US and other countries due to its reliability, availability, and increased accuracy over other options.

(7) **Third Party Dependence:**

Berkeley Police Department armorers are trained and capable to handle any and all issues related to the maintenance or repair of the M4 rifles. Additionally, BPD firearm instructors are fully certified by state and private training institutes to fully educate and train BPD officers. No third party is required for maintenance, repair, or instruction.

All ammunition purchased by BPD, like all equipment, is dependent on Third Party vendors. Vendor stock and availability is outside BPD control or management. Once ammunition is purchased and in BPD custody there is no additional need for Third Party assistance.

Penn Arms 40mm Single Launcher

(1) **Description:**

A. **Background:**

The 40mm impact projectile was developed as an alternative to the 12-gauge bean bag round and other more indiscriminate less lethal options. Early 12-gauge bean bag round designs had somewhat unpredictable flight patterns and could

cause significant unwanted injury. The 40mm foam baton round was developed as a direct fire projectile designed to minimize the risk of unintended injuries. Currently, the Berkeley Police Department utilizes the CTS 4557 foam baton projectile and the Penn Arms L-140 single shot launcher.

B. Quantity:

The Berkeley Police Department currently owns and maintains 20 Penn Arms less lethal launchers.

C. Capability:

The Penn Arms single launcher is capable of firing a single projectile out to a maximum manufacturer recommended range of 45 meters. The Penn Arms 40mm projectiles are direct fire with a pliable “sponge” tip designed to mold to the body. The projectiles are about the size of a large egg. Upon impact, the projectile transfers kinetic energy to the body to gain pain compliance. Large muscle groups such as the upper legs or lower abdomen are approved target areas unless a higher level of force is justified. This level of force is considered to be similar to that of a baton strike.

D. Lifespan:

The manufacturer expected lifespan is about 10 years depending on use and regular maintenance.

E. Use:

The Penn Arms 40mm single launcher is designed to reduce the potential for a violent confrontation. Less lethal projectiles are less likely to result in serious bodily injury or death and can be used to de-escalate a potentially deadly situation.

Pursuant to Cal. Pen. Code § 13652, kinetic energy projectiles shall not be used to disperse any assembly, protest, or demonstration except as provided below.

Kinetic energy projectiles shall only be deployed by a peace officer that has received training on their proper use by the Commission on Peace Officer Standards and Training for crowd control if the use is objectively reasonable to defend against a threat to life or serious bodily injury to any individual, including any peace officer, or to bring an objectively dangerous and unlawful situation safely and effectively under control, and only in accordance with all of the following requirements:

(1) De-escalation techniques or other alternatives to force have been attempted, when objectively reasonable, and have failed.

(2) Repeated, audible announcements are made announcing the intent to use kinetic energy projectiles and the type to be used, when objectively reasonable to do so. The announcements shall be made from various locations, if necessary, and delivered in multiple languages, if appropriate.

(3) Persons are given an objectively reasonable opportunity to disperse and leave the scene.

(4) An objectively reasonable effort has been made to identify persons engaged in violent acts and those who are not, and kinetic energy projectiles are targeted toward those individuals engaged in violent acts. Projectiles shall not be aimed indiscriminately into a crowd or group of persons.

(5) Kinetic energy projectiles and chemical agents are used only with the frequency, intensity, and in a manner that is proportional to the threat and objectively reasonable.

(6) Officers shall minimize the possible incidental impact of their use of kinetic energy projectiles on bystanders, medical personnel, journalists, or other unintended targets.

(7) An objectively reasonable effort has been made to extract individuals in distress.

(8) Medical assistance is promptly provided, if properly trained personnel are present, or procured, for injured persons, when it is reasonable and safe to do so.

(9) Kinetic energy projectiles shall not be aimed at the head, neck, or any other vital organs.

(10) Kinetic energy projectiles shall not be used by BPD solely due to any of the following:

(A) A violation of an imposed curfew.

(B) A verbal threat.

(C) Noncompliance with a law enforcement directive.

F. How it works:

The Penn Arms 40mm single launcher is a double action, break open less lethal launcher. The launcher is capable of firing a single 40mm projectile. When fired, the hammer strikes the munition primer which ignites gun powder in the primer insert. Expelled gases propel the projectile through the rifled barrel. The projectile has a rear plastic portion called the ogive which catches the barrel rifling and provides spin. The spin provides a greater degree of accuracy and eliminates any potential the projectile will tumble when exiting the barrel.

The projectiles utilized by the Berkeley Police Department are the CTS 4557 40mm sponge baton round. The CTS 4557 has a maximum effective range of 45 meters. The tip of the projectile is a pliable rubber material which molds to the body upon impact. The projectile travels at an estimated 240 feet per second which is slower than the FN 303 projectile. However, the larger mass, about 60 grams, creates more kinetic energy upon impact which is similar to that of a baseball thrown by a pitcher. The additional kinetic energy becomes important when the suspect has on thick or layered clothing or demonstrates a high pain tolerance.

The Penn Arms single launcher is a basic design making it easy to operate and maintain.

(2) Purpose:

The purpose of kinetic energy impact projectiles, commonly referred to as “less lethal” is to preserve life, minimize the use of force and allow time for de-escalation. Less lethal projectiles allow the user to maintain a safe distance from a subject who is armed and/or demonstrates the intent to be violent. The ability to maintain a safe distance – while still providing a level of control over the subject – allows officers to employ de-escalation techniques, request additional resources and develop a plan to safely resolve the situation with the least amount of risk.

Violent or armed confrontations are inherently dangerous to all those involved. Officers are required to make split second judgments in circumstances that are tense, uncertain and rapidly evolving. An Officer’s threat perception of a person who is in close proximity as opposed to a person who is at a distance of 20 yards is naturally different. A person in close proximity intent on violence has the ability to immediately utilize personal body weapons, a bludgeoning device or cutting

instrument. The immediacy requires the Officer to react instantly and there is a greater potential that a higher level of force will be needed.

On the other hand, a person at a distance of 20 yards may not be perceived as having the immediate ability to violently attack the Officer. The person must first close the distance before certain weapons can be utilized. This fact may allow the Officer time to decide the most appropriate course of action, such as the use of a “less lethal” projectile.

The projectiles are designed to provide a high level of accuracy which minimizes the risk of unwanted impacts. The ability to apply force from a distance reduces the potential for violent confrontation and aides in reducing the level of force needed to safely resolve a conflict.

Additionally, it has been our experience that a 40mm projectile impact will almost always resolve a violent confrontation with 1 or 2 applications. The larger projectile produces more kinetic energy than the FN 303, which may require several applications to gain compliance.

Since 2015, there have been 31 incidents where Officers utilized less lethal applications. These applications have potentially prevented higher-level uses of force.

(3) Fiscal Cost:

A. Initial Cost:

Less lethal prices, like other equipment, varies depending on market demand and availability. The most recent Penn Arms purchased by the department cost \$815.00 each.

B. Cost of Use:

Cost for Penn Arms single launcher use should be based on the projectiles used in training and on duty. This will fluctuate based on department trainings, projectile availability and events that unfold in the city and surrounding region.

C. Cost of Potential Adverse Effects:

Adverse effects from improper use of less lethal are not calculable. Improper use could lead to serious bodily injury or death.

D. Annual and Ongoing Costs:

See section B above

E. Training Costs:

Every officer authorized to deploy a less lethal launcher must pass a certification course administered by a Berkeley Police Department Firearms Instructor. The certification class consists of classroom, range qualification and scenario application if the venue allows. This class is largely handled in house thus the cost only includes staff time, range fees, and projectile costs which all vary.

F. Maintenance and Storage Costs:

Maintenance costs vary depending on use. Generally, various springs and pins need to be replaced every 5 years which can cost \$3 to \$30.

G. Upgrade Costs:

There are no foreseeable upgrade costs. The Penn Arms single launcher has few working parts and is of a simple design.

(4) Impact:

The main function of a less lethal device is to preserve the sanctity of human life. The Berkeley Police Department is committed to reducing the potential for violent confrontations. Less lethal projectiles, when used properly, are less likely to result in serious bodily injury or death and can be used to de-escalate a potentially deadly situation. A less lethal application is an acknowledgment a given situation has the potential to elevate to lethal force and the Officers determined a less lethal application is not only objectively reasonable and objectively necessary, but hopefully the minimal amount of force needed to safely resolve the incident.

The Penn Arms single launcher, with its high level of accuracy can be utilized in a large violent group confrontation to specifically target those who are committing acts of violence on other members of the group, involved persons, or law enforcement personnel. It allows a more immediate action to stop a violent assault, overcome their resistance, and aid in the attempt to safely take them into custody. This tool does not require officers to overcome a hostile crowd to stop a violent assault.

Potential adverse impacts, especially from close-range use or injuries to the head or neck, include permanent injury and death.¹

¹ 1 Haar RJ, Iacopino V, Ranadive N, et al, Death, injury and disability from kinetic impact projectiles in crowd control settings: a systematic review, BMJ Open 2017;7:e018154. doi: 10.1136/bmjopen-2017-018154

(5) **Mitigation:**

Per Policy 300, “In all cases where physical force is used, officers shall use a minimum amount of force that is objectively reasonable, objectively necessary, and proportional to effectively and safely resolve a conflict.” All uses of force require documentation that is completed by the supervisor in a use of force report and reviewed by the Chain of Command. Furthermore, all deployments of equipment outlined in the Police Equipment and Community Safety Ordinance are documented according to the reporting requirements as mandated in the ordinance.

Per Policy 303, “Officers are not required or compelled to use approved projectiles in lieu of other reasonable tactics if the involved officer determines that deployment of these projectiles cannot be done safely. Circumstances appropriate for deployment include, but are not limited to, situations in which: (a) The suspect is armed with a weapon and the tactical circumstances allow for the safe application of approved projectiles. (b) The suspect has made credible threats to harm him/herself or others. (c) The suspect is engaged in riotous behavior or is throwing rocks, bottles or other dangerous projectiles at people and/or officers. (d) There is probable cause to believe that the suspect has already committed a crime of violence and is refusing to comply with lawful orders.”

The Berkeley Police Department also trains a recommended range of 3 to 30 meters. Berkeley Police Firearm Instructors recommend a minimum standoff of 3 meters to reduce the potential for unintended injury at a closer distance. The 30-meter maximum recommended range is intended to reduce the possibility of an unintended impact area if the suspect moves or the projectile trajectory begins to deteriorate.

Each officer is trained to aim for large muscle groups, such as the thigh or buttocks area, and avoid areas that may cause serious injury. The department also equips each launcher with a red dot optic. The optic greatly increases an officer’s ability to target approved impact areas.

(6) **Alternative:**

The Penn Arms single launcher is one of three less lethal options the Berkeley Police Department possess that allow officers to address a potentially violent confrontation from a distance. All three (Penn Arms single launcher, Milkor LTL multi-launcher, and FN303) are viable options that have different strengths and weaknesses. The Penn Arms single launcher and the Milkor LTL multi-launcher operate very similarly and use the same projectile. The Penn Arms single launcher is smaller and easier to carry; however, the Penn Arms single launcher is capable of holding only one projectile

while the Milkor LTL multi-launcher is capable of holding six projectiles. The projectiles used by the Penn Arms single launcher and Milkor LTL multi-launcher are larger which results in more kinetic energy transferred compared to the projectiles used in the FN303; however, the FN303 holds 15 projectiles and is capable of launching it at a faster rate.

An alternative that the Berkeley Police Department does not possess is the TASER. The TASER allows an officer to maintain distance but limits the range to about 15 to 25 feet. Furthermore, the TASER requires two prongs (barbs) to penetrate the subject's clothing to be effective and if that is not accomplished the TASER will have no effect. Additionally, the TASER is not an approved less lethal device for the department.

(7) **Third Party Dependence:**

The Berkeley Police Department armorers are trained and capable of handling all issues related to the repair or maintenance of the Penn Arms single launcher. Additionally, Berkeley Police Department Less Lethal Instructors are fully certified by state and private training institutes to educate and train BPD officers. No third party is required for maintenance, repair, or instruction.

Milkor LTL Multi-launcher

(1) **Description:**

A. **Background:**

The 40mm impact projectile was developed as an alternative to the 12-gauge bean bag round and other more indiscriminate less lethal options. Early 12-gauge bean bag round designs had somewhat unpredictable flight patterns and could cause significant unwanted injury. The 40mm foam baton round was developed as a direct fire projectile designed to minimize the risk of unintended injuries. Currently, the Berkeley Police Department utilizes the CTS 4557 foam baton projectile and the Milkor LTL multi-shot launcher.

B. **Quantity:**

The Berkeley Police Department currently owns and maintains 2 Milkor LTL less lethal launchers. One Milkor launcher is assigned to the Berkeley Special Response Team.

C. Capability:

The Milkor LTL is capable of firing six 40mm projectiles before reloading is necessary. The Milkor LTL 40mm projectiles are direct fire with a pliable “sponge” tip designed to mold to the body. The projectiles are about the size of a large egg. Upon impact, the projectile transfers kinetic energy to the body to gain pain compliance. Large muscle groups such as the upper legs or lower abdomen are approved target areas unless a higher level of force is justified. This level of force is considered to be similar to that of a baton strike.

D. Lifespan:

The manufacturer expected lifespan is about 10 to 15 years depending on use and regular maintenance.

E. Use:

The Milkor LTL multi-shot launcher is designed to reduce the potential for a violent confrontation. Less lethal projectiles are less likely to result in serious bodily injury or death and can be used to de-escalate a potentially deadly situation.

Pursuant to Cal. Pen. Code § 13652, kinetic energy projectiles shall not be used to disperse any assembly, protest, or demonstration except as provided below.

Kinetic energy projectiles shall only be deployed by a peace officer that has received training on their proper use by the Commission on Peace Officer Standards and Training for crowd control if the use is objectively reasonable to defend against a threat to life or serious bodily injury to any individual, including any peace officer, or to bring an objectively dangerous and unlawful situation safely and effectively under control, and only in accordance with all of the following requirements:

(1) De-escalation techniques or other alternatives to force have been attempted, when objectively reasonable, and have failed.

(2) Repeated, audible announcements are made announcing the intent to use kinetic energy projectiles and the type to be used, when objectively reasonable to do so. The announcements shall be made from various locations, if necessary, and delivered in multiple languages, if appropriate.

(3) Persons are given an objectively reasonable opportunity to disperse and leave the scene.

(4) An objectively reasonable effort has been made to identify persons engaged in violent acts and those who are not, and kinetic energy projectiles are targeted toward those individuals engaged in violent acts. Projectiles shall not be aimed indiscriminately into a crowd or group of persons.

(5) Kinetic energy projectiles and chemical agents are used only with the frequency, intensity, and in a manner that is proportional to the threat and objectively reasonable.

(6) Officers shall minimize the possible incidental impact of their use of kinetic energy projectiles on bystanders, medical personnel, journalists, or other unintended targets.

(7) An objectively reasonable effort has been made to extract individuals in distress.

(8) Medical assistance is promptly provided, if properly trained personnel are present, or procured, for injured persons, when it is reasonable and safe to do so.

(9) Kinetic energy projectiles shall not be aimed at the head, neck, or any other vital organs.

(10) Kinetic energy projectiles shall not be used by BPD solely due to any of the following:

(A) A violation of an imposed curfew.

(B) A verbal threat.

(C) Noncompliance with a law enforcement directive.

F. How it works:

The Milkor LTL multi-shot launcher utilizes a spring actuated cylinder allowing it to fire 6 individual 40mm projectiles. When fired, the hammer strikes the munition primer which ignites gun powder in the primer insert. Expelled gases propel the projectile through the rifled barrel. The projectile has a rear plastic portion called the ogive which catches the barrel rifling and provides spin. The spin provides a greater degree of accuracy and eliminates any potential the

projectile will tumble when exiting the barrel. The spring assisted cylinder automatically turns and loads the next projectile.

The projectiles utilized by the Berkeley Police Department are the CTS 4557 40mm sponge baton round. The CTS 4557 has a maximum effective range of 45 meters. The tip of the projectile is a pliable rubber material which molds to the body upon impact. The projectile travels at an estimated 240 feet per second which is slower than FN 303 projectile. However, the larger mass, about 60 grams, creates more kinetic energy upon impact which is similar to that of a baseball thrown by a pitcher. The additional kinetic energy becomes important when the suspect has on thick or layered clothing or demonstrates a high pain tolerance.

The benefit to the Milkor LTL is its ability to provide a quick follow up less lethal application, if necessary. The Milkor holds 6 projectiles while the Penn Arms launcher only holds one. Reloading the Penn Arms single launcher can be time consuming and requires the officer to briefly change focus from the suspect to the reload procedure. The Milkor LTL on the other hand, allows the officer to maintain focus on the suspect and assess whether a follow up application is necessary. This ability is significant when the suspect is advancing, attempting to flee, or demonstrates a high pain compliance threshold.

(2) Purpose:

The purpose of kinetic energy impact projectiles, commonly referred to as “less lethal” is to preserve life, minimize the use of force and allow time for de-escalation attempts. Less lethal projectiles allow the user to maintain a safe distance from a subject who is armed and/or demonstrates the intent to be violent. The ability to maintain a safe distance – while still providing a level of control over the subject – allows officers to employ de-escalation techniques, request additional resources and develop a plan to safely resolve the situation with the least amount of risk.

Violent confrontations are inherently dangerous to all those involved. Officers are required to make split second judgments in circumstances that are tense, uncertain and rapidly evolving. An Officer’s threat perception of a person who is in close proximity as opposed to a person who is at a distance of 20 yards is naturally different. A person in close proximity intent on violence has the ability to immediately utilize personal body weapons, a bludgeoning device or cutting instrument. The immediacy requires the Officer to react instantly and there is a greater potential that a higher level of force will be needed.

On the other hand, a person at a distance of 20 yards may not be perceived as having the immediate ability to violently attack the Officer. The person must first close the distance before such weapons can be utilized. This may allow the Officer time to decide the most appropriate course of action, such as the use of a “less lethal” projectile.

The “less lethal” projectiles utilized by the Berkeley Police Department are generally considered discriminate versus indiscriminate uses of force. The projectiles are designed to provide a high level of accuracy which minimizes the risk of unwanted impacts. The ability to apply force from a distance reduces the potential for violent confrontation and aides in reducing the level of force needed to safely resolve a conflict.

Additionally, it has been our experience that a 40mm projectile impact will generally resolve the violent confrontation with 1 or 2 applications. The larger projectile produces more kinetic energy than the FN 303, which may require several applications to gain compliance.

Since 2015, there have been 31 incidents where Officers utilized less lethal applications. These applications have potentially prevented higher-level uses of force.

(3) Fiscal Cost:

A. Initial Cost:

Less lethal prices, like other equipment, varies depending on market demand and availability. The most recent Penn Arms purchased by the department cost \$3950.00 each.

B. Cost of Use:

Cost for the Milkor LTL launcher use should be based on the projectiles used in training and on duty. This will fluctuate based on department trainings, projectile availability and events that unfold in the city and surrounding region.

C. Cost of Potential Adverse Effects:

Adverse effects from improper use of less lethal are not calculable. Improper use could lead to serious bodily injury or death.

D. Annual and Ongoing Costs:

See section B above

E. Training Costs:

Every officer authorized to deploy a less lethal launcher must pass a certification course administered by a Berkeley Police Firearm Instructor. The certification class consists of classroom, range qualification and scenario application if the venue allows. This class is largely handled in house thus the cost only includes the officer's hourly wage, range fees, and projectile costs which all vary.

F. Maintenance and Storage Costs:

Maintenance costs vary depending on use.

G. Upgrade Costs:

There are no foreseeable upgrade costs.

(4) Impact:

The main function of a less lethal device is to preserve the sanctity of human life. The Berkeley Police Department is committed to reducing the potential for violent confrontations. Less lethal projectiles, when used properly, are less likely to result in serious bodily injury or death and can be used to de-escalate a potentially deadly situation. A less lethal application is an acknowledgment a given situation has the potential to elevate to lethal force and the Officers determined a less lethal application is not only objectively reasonable and objectively necessary, but also the minimal amount of force needed to safely resolve the incident.

The Milkor LTL launcher, with its high level of accuracy and 6 projectile capacity, can be utilized in a large violent group confrontation to specifically target those who are committing acts of violence on other members of the group, involved persons, or law enforcement personnel. It allows a more immediate action to stop a violent assault, overcome their resistance, and aid in the attempt to safely take them into custody. It also allows officers to prevent a more indiscriminate use of force, such as entering the group or crowd, to take a subject into custody.

Potential adverse impacts, especially from close-range use or injuries to the head or neck, include permanent injury and death.²

(5) Mitigation:

Per Policy 300, "In all cases where physical force is used, officers shall use a minimum amount of force that is objectively reasonable, objectively necessary, and proportional to effectively and safely resolve a conflict." All uses of force require

² Haar RJ, Iacopino V, Ranadive N, et al, Death, injury and disability from kinetic impact projectiles in crowd control settings: a systematic review, *BMJ Open* 2017;7:e018154. doi: 10.1136/bmjopen-2017-018154

documentation that is completed by the supervisor in a use of force report and reviewed by the Chain of Command. Furthermore, all deployments of equipment outlined in the Police Equipment and Community Safety Ordinance are documented according to the reporting requirements as mandated in the ordinance.

Per Policy 303, "Officers are not required or compelled to use approved projectiles in lieu of other reasonable tactics if the involved officer determines that deployment of these projectiles cannot be done safely. The safety of hostages, innocent persons and officers takes priority over the safety of subjects engaged in criminal or suicidal behavior. Circumstances appropriate for deployment include, but are not limited to, situations in which: (a) The suspect is armed with a weapon and the tactical circumstances allow for the safe application of approved projectiles. (b) The suspect has made credible threats to harm him/herself or others. (c) The suspect is engaged in riotous behavior or is throwing rocks, bottles or other dangerous projectiles at people and/or officers. (d) There is probable cause to believe that the suspect has already committed a crime of violence and is refusing to comply with lawful orders."

The Berkeley Police Department also trains a recommended range of 3 to 30 meters. Berkeley Police Firearm Instructors recommend a minimum standoff of 3 meters to reduce the potential for unintended injury at a closer distance. The 30-meter maximum recommended range is intended to reduce the possibility of an unintended impact area if the suspect moves or the projectile trajectory begins to deteriorate.

Each officer is trained to aim for large muscle groups, such as the thigh or buttocks area, and avoid areas that may cause serious injury. The department also equips each launcher with a red dot optic. The optic greatly increases an officer's ability to target approved impact areas.

(6) Alternative:

The Milkor LTL multi-launcher is one of three less lethal options the Berkeley Police Department possess that allow officers to address a potentially violent confrontation from a distance. All three (Penn Arms single launcher, Milkor LTL multi-launcher, and FN303) are viable options that have different strengths and weaknesses. The Penn Arms single launcher and the Milkor LTL multi-launcher operate very similarly and use the same projectile. The Penn Arms single launcher is smaller and easier to carry; however, the Penn Arms single launcher is capable of holding only one projectile while the Milkor LTL multi-launcher is capable of holding six projectiles. The projectiles used by the Penn Arms single launcher and Milkor LTL multi-launcher are larger which results in more kinetic energy transferred compared to the projectiles

used in the FN303; however, the FN303 holds 15 projectiles and is capable of launching it at a faster rate.

An alternative that the Berkeley Police Department does not possess is the TASER. The TASER allows an officer to maintain distance but limits the range to about 15 to 25 feet. Furthermore, the TASER requires two prongs (barbs) to penetrate the subject's clothing to be effective and if that is not accomplished the TASER will have no effect. Additionally, the TASER is not an approved less lethal device for the department.

(7) **Third Party Dependence:**

The Berkeley Police Department armorers are trained and capable of handling most issues related to the repair or maintenance of the Milkor LTL launcher. In the event of a catastrophic malfunction, the Milkor LTL will need to be sent to the manufacturer for repair. To date, there have been no significant repairs needed to the Milkor LTL. Additionally, Berkeley Police Department Less Lethal Instructors are fully certified by state and private training institutes to educate and train BPD officers. No third party is required for regular maintenance, repair, or instruction.

FN 303 and FN Pava Impact Projectile

(1) **Description:**

A. **Background:**

The FN 303 was developed in 2003 by Fabrique Nationale de Herstal as a less lethal option. The FN 303 is based on a concept developed by Monterey Bay Corporation. The development team consisted of designers and researchers from two paintball related companies. The FN 303 uses compressed air to propel a .68 caliber projectile similar to that of most manufactured paintball guns.

B. **Quantity:**

The Berkeley Police Department currently owns and maintains 8 FN 303 less lethal launchers.

C. **Capability:**

The FN 303 is capable of firing 15 projectiles out to a maximum manufacturer recommended range of 50 meters. The FN 303 projectiles are direct fire and designed to fragment upon impact to prevent penetration injury. Upon impact, the projectile transfers kinetic energy to the body to gain pain compliance. Large

muscle groups such as the upper legs or lower abdomen are approved target areas. This level of force is considered to be similar to that of a baton strike.

D. Lifespan:

The manufacturer expected lifespan is about 10 years depending on use and regular maintenance.

E. Use:

The FN 303 is designed to reduce the potential for a violent confrontation. Less lethal projectiles are less likely to result in serious bodily injury or death and can be used to de-escalate a potentially deadly situation.

Pursuant to Cal. Pen. Code § 13652, kinetic energy projectiles and chemical agents shall not be used by BPD to disperse any assembly, protest, or demonstration except as provided below.

Kinetic energy projectiles and chemical agents shall only be deployed by a peace officer that has received training on their proper use by the Commission on Peace Officer Standards and Training for crowd control if the use is objectively reasonable to defend against a threat to life or serious bodily injury to any individual, including any peace officer, or to bring an objectively dangerous and unlawful situation safely and effectively under control, and only in accordance with all of the following requirements:

- (1) De-escalation techniques or other alternatives to force have been attempted, when objectively reasonable, and have failed.
- (2) Repeated, audible announcements are made announcing the intent to use kinetic energy projectiles and chemical agents and the type to be used, when objectively reasonable to do so. The announcements shall be made from various locations, if necessary, and delivered in multiple languages, if appropriate.
- (3) Persons are given an objectively reasonable opportunity to disperse and leave the scene.
- (4) An objectively reasonable effort has been made to identify persons engaged in violent acts and those who are not, and kinetic energy projectiles or chemical agents are targeted toward those individuals engaged in violent acts. Projectiles shall not be aimed indiscriminately into a crowd or group of persons.

(5) Kinetic energy projectiles and chemical agents are used only with the frequency, intensity, and in a manner that is proportional to the threat and objectively reasonable.

(6) Officers shall minimize the possible incidental impact of their use of kinetic energy projectiles and chemical agents on bystanders, medical personnel, journalists, or other unintended targets.

(7) An objectively reasonable effort has been made to extract individuals in distress.

(8) Medical assistance is promptly provided, if properly trained personnel are present, or procured, for injured persons, when it is reasonable and safe to do so.

(9) Kinetic energy projectiles shall not be aimed at the head, neck, or any other vital organs.

(10) Kinetic energy projectiles or chemical agents shall not be used by BPD solely due to any of the following:

(A) A violation of an imposed curfew.

(B) A verbal threat.

(C) Noncompliance with a law enforcement directive.

F. How it works:

An air reservoir attaches to the FN 303 through an air hose coupler and provides pressure through compressed air. When fired, the compressed air drives a piston that pushes the .68 caliber projectile through the barrel at approximately 280 feet per second. For comparison, the FN projectile is the size of a paintball and the velocity is the same as a commercially manufactured paintball gun.

The projectiles are 8.5 grams in weight and utilize a polystyrene fin stabilized body with a non-toxic forward payload to aid in stability and accuracy. The projectile will deliver approximately 24-foot pounds of kinetic energy at the muzzle which is about double the kinetic energy of most paintball guns. Most paintballs have a mass of 3 grams while the FN 303 projectile has a mass of 8.5 grams which increases the kinetic energy produced.

Available projectiles are impact, impact + non-permanent marking, impact + permanent marking, and impact + PAVA (0.5% PAVA/Oleoresin Capsicum).

The impact + PAVA projectile is intended to be direct fired at an individual. In addition to delivering pain through kinetic energy upon impact, the PAVA projectile will deliver a secondary chemical irritant, which is the Oleoresin Capsicum (O.C.) payload. Oleoresin Capsicum generally causes irritation/burning at the application site, irritation to the eyes, and coughing. According to the National Institute of Health, the effects of O.C. power exposure tend to resolve on their own within 30 minutes.

Pain is highly subjective and other circumstances, such as heavy clothing, may render the impact ineffective. The application of a secondary chemical irritant may assist in gaining compliance and successfully resolving a potentially violent incident with the minimal amount of force necessary.

(2) **Purpose:**

The purpose of kinetic energy impact projectiles, commonly referred to as “less lethal” is to preserve life, minimize the use of force and allow time for de-escalation attempts. Less lethal projectiles allow the user to maintain a safe distance from a subject who is armed and/or demonstrates the intent to be violent. The ability to maintain a safe distance – while still providing a level of control over the subject – allows officers to employ de-escalation techniques, request additional resources and develop a plan to safely resolve the situation with the least amount of risk.

Violent confrontations are inherently dangerous to all those involved. Officers are required to make split second judgments in circumstances that are tense, uncertain and rapidly evolving. An Officer’s threat perception of a person who is in close proximity as opposed to a person who is at a distance of 20 yards is naturally different. A person in close proximity intent on violence has the ability to immediately utilize personal body weapons, a bludgeoning device or cutting instrument. The immediacy requires the Officer to react instantly and there is a greater potential that a higher level of force will be needed.

On the other hand, a person at a distance of 20 yards may not be perceived as having the immediate ability to violently attack the Officer. The person must first close the distance before such weapons can be utilized. This may allow the Officer time to decide the most appropriate course of action, such as the use of a “less lethal” projectile.

The “less lethal” projectiles utilized by the Berkeley Police Department are generally considered discriminate versus indiscriminate uses of force. Discriminate projectiles are designed to provide a high level of accuracy which minimizes the risk of unwanted impacts. The ability to apply force from a distance reduces the potential for violent confrontation and aides in reducing the level of force needed to safely resolve a conflict.

Since 2015, there have been 31 incidents where Officers utilized less lethal applications. These applications have potentially prevented higher-level uses of force.

(3) **Fiscal Cost:**

A. **Initial Cost:**

Less lethal prices, like other equipment, varies depending on market demand and availability. The most recent FN 303s purchased by the department cost \$800.00 each.

B. **Cost of Use:**

Cost for FN 303 use should be based on the projectiles used in training and on duty. This will fluctuate based on department trainings, projectile availability and events that unfold in the city and surrounding region.

C. **Cost of Potential Adverse Effects:**

Adverse effects from improper use of less lethal are not calculable. Improper use could lead to serious bodily injury or death. Only trained officers are authorized to use the FN 303.

D. **Annual and Ongoing Costs:**

See section B above

E. **Training Costs:**

Every officer authorized to deploy a less lethal launcher must pass a certification course administered by a Berkeley Police Firearm Instructor. The certification class consists of classroom, range qualification and scenario application if the venue allows. This class is largely handled in house thus the cost only includes the officer’s hourly wage, range fees, and projectile costs which all vary.

F. **Maintenance and Storage Costs:**

Maintenance costs vary depending on use. Generally, O-rings need to be replaced every 3000 rounds and cost \$30 per kit.

G. Upgrade Costs:

The overall design of the FN 303 has changed little since its initial release in the early 2000s thus anticipated upgrade costs will be minimal.

(4) Impact:

The main function of a less lethal device is to preserve the sanctity of human life. The Berkeley Police Department is committed to reducing the potential for violent confrontations. Less lethal projectiles, when used properly, are less likely to result in serious bodily injury or death and can be used to de-escalate a potentially deadly situation. A less lethal application is an acknowledgment a given situation has the potential to elevate to lethal force and the Officers determined a less lethal application is not only objectively reasonable and objectively necessary, but also the minimal amount of force needed to safely resolve the incident.

The FN 303, with its high level of accuracy can be utilized in a large violent group confrontation to specifically target those who are committing acts of violence on other members of the group, involved persons, or law enforcement personnel. It allows a more immediate action to stop a violent assault, overcome their resistance, and aid in the attempt to safely take them into custody. It also allows officers to prevent a more indiscriminate use of force, such as entering the group or crowd, to take a subject into custody.

Potential adverse impacts, especially from close-range use or injuries to the head or neck, include permanent injury and death.³

(5) Mitigation:

Per Policy 300, "In all cases where physical force is used, officers shall use a minimum amount of force that is objectively reasonable, objectively necessary, and proportional to effectively and safely resolve a conflict." All uses of force require documentation that is completed by the supervisor in a use of force report and reviewed by the Chain of Command. Furthermore, all deployments of equipment outlined in the Police Equipment and Community Safety Ordinance are documented according to the reporting requirements as mandated in the ordinance.

Per Policy 303, "Officers are not required or compelled to use approved projectiles in lieu of other reasonable tactics if the involved officer determines that deployment of these projectiles cannot be done safely. The safety of hostages, innocent persons

³ Haar RJ, Iacopino V, Ranadive N, et al, Death, injury and disability from kinetic impact projectiles in crowd control settings: a systematic review, *BMJ Open* 2017;7:e018154. doi: 10.1136/bmjopen-2017-018154

and officers takes priority over the safety of subjects engaged in criminal or suicidal behavior. Circumstances appropriate for deployment include, but are not limited to, situations in which: (a) The suspect is armed with a weapon and the tactical circumstances allow for the safe application of approved projectiles. (b) The suspect has made credible threats to harm him/herself or others. (c) The suspect is engaged in riotous behavior or is throwing rocks, bottles or other dangerous projectiles at people and/or officers. (d) There is probable cause to believe that the suspect has already committed a crime of violence and is refusing to comply with lawful orders.”

The Berkeley Police Department also trains a recommended range of 3 to 30 meters. Berkeley Police Firearm Instructors recommend a minimum standoff of 3 meters to reduce the potential for unintended injury at a closer distance. The 30-meter maximum recommended range is intended to reduce the possibility of an unintended impact area if the suspect moves or the projectile trajectory begins to deteriorate.

Each officer is trained to aim for large muscle groups, such as the thigh or buttocks area, and avoid areas that may cause serious injury. The department also equips each launcher with a red dot optic. The optic greatly increases an officer’s ability to target approved impact areas.

(6) Alternative:

The FN303 launcher is one of three less lethal options the Berkeley Police Department possess that allow officers to address a potentially violent confrontation from a distance. All three (Penn Arms single launcher, Milkor LTL multi-launcher, and FN303) are viable options that have different strengths and weaknesses. The Penn Arms single launcher and the Milkor LTL multi-launcher operate very similarly and use the same projectile. The Penn Arms single launcher is smaller and easier to carry; however, the Penn Arms single launcher is capable of holding only one projectile while the Milkor LTL multi-launcher is capable of holding six projectiles. The projectiles used by the Penn Arms single launcher and Milkor LTL multi-launcher are larger which results in more kinetic energy transferred compared to the projectiles used in the FN303; however, the FN303 holds 15 projectiles and is capable of launching it at a faster rate.

An alternative that the Berkeley Police Department does not possess is the TASER. The TASER allows an officer to maintain distance but limits the range to about 15 to 25 feet. Furthermore, the TASER requires two prongs (barbs) to penetrate the subject’s clothing to be effective and if that is not accomplished the TASER will have

no effect. Additionally, the TASER is not an approved less lethal device for the department.

(7) **Third Party Dependence:**

The Berkeley Police Department armorers are trained and capable of handling regular maintenance and most repairs. In the event of a catastrophic failure, the device will be sent to the manufacturer for repair. To date there have been 2 devices that required manufacturer repair, both of which were under warranty.

Additionally, department firearm instructors are fully certified by state and private training institutes to educate and train BPD officers. No third party is required for maintenance, most repairs, or instruction.

OC (oleoresin capsicum) Spray

(1) **Description:**

A. **Background:**

For the purposes of this portion of the Impact Statement, OC (Oleoresin capsicum) will be referred to in the spray form as opposed to the aerosol canister form. First Defense manufactures different sizes of OC sprays. OC is the chemical agent that is most widely used amongst Law Enforcement (LE) and the general public. OC has a pungent and irritating pepper odor. It is classified as an inflammatory agent. Besides being effective on humans, OC based chemical agents usually work on animals as well. In a liquid form, OC can appear as a clear, amber, or heavy dark red solution depending on the manufacturer. It is mixed with several types of solutions which act as carriers.

B. **Quantity:**

Qty 23 – First Defense MK-9 OC spray (13- ounces)

Qty 178 – First Defense MK-3 OC spray (3 ounces)

Most of the MK-3 OC sprays are issued to and maintained by individual officers; however, a small amount of these sprays is stored in a secured equipment room as spares in case of damage or new personnel issue.

C. **Capability:**

The First Defense MK-3 OC sprays are standard issued to all police officers and are worn on the police officers' belt. It has an effective range of 10-12 feet. The

larger First Defense MK-9 OC sprays are 13 ounces and are used in violent crowd situations. It has an effect range of 18-20 feet.

The use of the First Defense OC spray can render a dangerous and violent situation safe without using a higher level of force.

D. Lifespan:

Aerosol products eventually lose pressure over time. The lifespan of both the MK-9 and MK-3 OC spray are dependent on how well the pressure in the can is maintained, but is recommended to be replaced after 5 years.

E. Use:

OC spray may be considered for use to bring under control an individual or groups of individuals who are engaging in or about to engage in violent behavior. OC spray should not, however, be used against individuals or group who merely fail to disperse or do not reasonably appear to present a risk to the safety of officers or the public.

As per City Council resolution (June 9, 2020), pepper spray or smoke for crowd control by employees of the Berkeley Police Department, or any outside department or agency called to respond to mutual aid in Berkeley, is prohibited during the COVID-19 pandemic, or until such time as the City Council removes the prohibition.

Pursuant to Cal. Pen. Code § 13652, chemical agents shall not be used to disperse any assembly, protest, or demonstration except as provided below.

Chemical agents shall only be deployed by a peace officer that has received training on their proper use by the Commission on Peace Officer Standards and Training for crowd control if the use is objectively reasonable to defend against a threat to life or serious bodily injury to any individual, including any peace officer, or to bring an objectively dangerous and unlawful situation safely and effectively under control, and only in accordance with all of the following requirements:

- (1) De-escalation techniques or other alternatives to force have been attempted, when objectively reasonable, and have failed.
- (2) Repeated, audible announcements are made announcing the intent to use chemical agents and the type to be used, when objectively reasonable to do

so. The announcements shall be made from various locations, if necessary, and delivered in multiple languages, if appropriate.

(3) Persons are given an objectively reasonable opportunity to disperse and leave the scene.

(4) An objectively reasonable effort has been made to identify persons engaged in violent acts and those who are not, and chemical agents are targeted toward those individuals engaged in violent acts.

(5) Chemical agents are used only with the frequency, intensity, and in a manner that is proportional to the threat and objectively reasonable.

(6) Officers shall minimize the possible incidental impact of their use of chemical agents on bystanders, medical personnel, journalists, or other unintended targets.

(7) An objectively reasonable effort has been made to extract individuals in distress.

(8) Medical assistance is promptly provided, if properly trained personnel are present, or procured, for injured persons, when it is reasonable and safe to do so.

(9) Chemical agents shall not be used by BPD solely due to any of the following:

(A) A violation of an imposed curfew.

(B) A verbal threat.

(C) Noncompliance with a law enforcement directive.

F. How it Works:

A person subjected to OC can expect heavy tearing due to a burning sensation, involuntary closing or blinking of the eyes, burning/stinging skin sensation, redness of the skin, irritation and burning of the nose, runny nose, salivation and burning sensation of the mouth, cough, gagging sensation, shortness of breath, temporary paralysis of the larynx (person unable to speak) and nausea (caused by shock, not the OC itself). A person may also feel disorientated, anxiety, and/or panic. A complete recovery usually takes place within 45-60 minutes depending on the level of exposure.

(2) **Purpose:**

There are a variety of situations where officers may use OC spray such as: self-defense, overcoming the resistance of a noncompliant individual, effecting an arrest, preventing escape, violent crowd or riot control (except as limited by the June 9, 2020 Council policy), barricade or hostage situations and dealing with dangerous animals.

(3) **Fiscal Cost:**

A. **Initial Cost:**

The MK-3 OC spray cost approx. \$19 per unit and the MK-9 OC spray costs approx. \$60 per unit. The manufacturer is Defense Technology and the Berkeley Police Department purchase each unit from Galls Police Supply or LC Action Police Supply. Purchases for these tools are made when inventory gets low which is typically determined by how many new officers are sworn in, as well as if they are utilized in dangerous situations.

B. **Cost of Use:**

The cost of each usage is unpredictable due to the unknown nature of crime, timelines of dangerous situations, and number of applications.

C. **Cost of Potential Adverse Effects:**

Adverse effects of improper use of OC spray are not calculable. It could lead to serious injury. Additionally, the improper use could result in civil liabilities.

D. **Annual and Ongoing Costs:**

See below cost of training.

E. **Training Cost:**

Training is conducted in the police academy and in-house by a Police Officer Standard Training (POST) certified Berkeley Police chemical agent training officer. The cost of training is staff time.

F. **Maintenance and Storage Costs:**

The majority of the MK-3 OC sprays are either stored within the Police Department or with each sworn police officer while they conduct official duties. All MK-9 OC sprays are stored in the basement. There are no additional storage costs or associated costs to transporting, maintain, or upgrade.

G. **Upgrade Costs:**

No upgrades exist for this equipment as of this report.

(4) **Impact:**

The physical effects of being subjected to OC may significantly reduce an individual's aggressive behavior. Reports have shown that the use of OC can reduce the amount of officer and arrestee injuries due to its effectiveness. Chemists assigned to the FBI Forensic Science Research and Training Center report no long-term health risks associated with the use of OC. The use of the MK-3 or MK-9 OC spray can render a dangerous and violent situation safe without using a higher level of force.

Potential negative impacts include serious bodily injury and litigation costs associated with them.

(5) **Mitigations:**

Law Enforcement Officers attend a Police Officer Standard Training (POST) approved academy before they enter into a Field Training Program and continue their training. During this academy they are taught about OC, how to deploy it, its effects, and the decontamination process. They are also subjected to OC to physically feel the effects themselves. After the academy, each officer is issued a MK-3 OC spray which they are to keep on their person while on duty. If deployed and when practical, medical personnel should be summoned for the affected person(s) per policy 303.

All uses of force require documentation that is completed by the supervisor in a use of force report and reviewed by the Chain of Command. Furthermore, all deployments of equipment outlined in the Police Equipment and Community Safety Ordinance are documented according to the reporting requirements as mandated in the ordinance.

(6) **Alternatives:**

Alternatives to utilizing OC sprays are tools such as expandable batons, less lethal launchers, and/or physical body weapons. The rationale to use OC spray depends on the circumstances of each individual incident and the individual officer involved in the incident. As mentioned above, reports have shown that OC spray may significantly reduce an individual's aggressive behavior which can minimize the amount of force necessary to apprehend that subject. Per our Use of Force policy (Lexipol 300), we shall use the minimal amount of force possible during each incident, thus making OC spray a valuable option.

(7) **Third Party Dependence:**

There is no third-party dependence for the First Defense OC spray. Once they are purchased, they are secured in their designated locations within the Police Department or with sworn police officers while they conduct official duties.

Chlorobenzylidene Malononitrile and Oleoresin Capsicum

(1) **Description:**

A. **Background:**

Chlorobenzylidene malononitrile (CS):

Chlorobenzylidene malononitrile (CS) is one of the most commonly used “tear gases” in the world. It can be liquid, gaseous, or solid substance intended to produce temporary discomfort through being vaporized or otherwise dispersed in the air. Law enforcement (LE) agencies have found this agent invaluable when faced with combative suspects, for crowd/riot control, and for alleviating barricaded subject situations. LE use it to help control individuals or groups without the need for a higher level of force. There are four different deployment methods of chemical agents (Aerosol - most commonly used by police departments, Fogging, Pyrotechnics, and blast expulsion). All methods of deployment can be affected by certain environmental and physical conditions (wind, rain, temperature, distance, and proximity to others). At standard daily temperatures and pressures, CS forms a white crystal with a low vapor pressure and poor solubility in water.

Oleoresin capsicum (OC):

For this portion of the Impact Statement, Oleoresin capsicum (OC) will be referred to in the aerosol canister form. OC is the chemical agent that is most widely used amongst Law Enforcement (LE) and the general public. OC has a pungent and irritating pepper odor. It is classified as an inflammatory agent. OC is mixed with several types of solutions which act as carriers.

B. **Quantity:**

Inventory for CS canisters:

Qty 6 – 5230 CS Canisters

Qty 24 – 6230 CS Canisters

Qty 20 – 5230B CS Baffled Canister (flameless)

Qty 17 – 5231 CS Tri-Phaser Canisters

Qty 21 – 4630 CS Muzzle Blast (used with 40 mm less lethal launcher)

Qty 4 – 4530 CS Impact Rounds (used with 40 mm less lethal launcher)

Qty 19 – 4330 CS Barricade Projectile Rounds (used with 40 mm less lethal launcher)

Inventory for OC canisters:

Qty 54 - 9440 OC Tear Ball

Qty 19 - 5440 OC Flameless

Qty 20 - 6340 OC Vaper

C. Capability:

CS aerosols with microscopic particles which are potent sensory irritants becoming attached primarily to moist mucous membranes and moist skin. Common effects are: coughing, increased mucous secretion, difficulty breathing, skin reactions, and excessive salivation. The onset of symptoms typically occurs within 20 to 60 seconds, and if the exposed individual is placed in fresh air these effects generally cease in 10 to 30 minutes.

A person subjected to OC can expect heavy tearing due to a burning sensation, involuntary closing or blinking of the eyes, stinging skin sensation, redness of the skin, irritation of the nose, runny nose, salivation, cough, gagging sensation, and shortness of breath. A person may also experience anxiety and panic. A complete recovery usually takes place within 45-60 minutes depending on the level of exposure.

Both CS and OC canisters can render a dangerous and violent situation safe without using a higher level of force.

D. Lifespan:

CS and OC canisters expire in approximately 5 years.

E. Use:

As per City Council resolution (June 9, 2020), the use of tear gas by employees of the Berkeley Police Department, or any outside department or agency called to respond to mutual aid in Berkeley, is prohibited.

Pursuant to Cal. Pen. Code § 13652, kinetic energy projectiles and chemical agents shall not be used to disperse any assembly, protest, or demonstration except as provided below.

Kinetic energy projectiles and chemical agents shall only be deployed by a peace officer that has received training on their proper use by the Commission on Peace Officer Standards and Training for crowd control if the use is objectively reasonable to defend against a threat to life or serious bodily injury to any individual, including any peace officer, or to bring an objectively dangerous and unlawful situation safely and effectively under control, and only in accordance with all of the following requirements:

(1) Deescalation techniques or other alternatives to force have been attempted, when objectively reasonable, and have failed.

(2) Repeated, audible announcements are made announcing the intent to use kinetic energy projectiles and chemical agents and the type to be used, when objectively reasonable to do so. The announcements shall be made from various locations, if necessary, and delivered in multiple languages, if appropriate.

(3) Persons are given an objectively reasonable opportunity to disperse and leave the scene.

(4) An objectively reasonable effort has been made to identify persons engaged in violent acts and those who are not, and kinetic energy projectiles or chemical agents are targeted toward those individuals engaged in violent acts. Projectiles shall not be aimed indiscriminately into a crowd or group of persons.

(5) Kinetic energy projectiles and chemical agents are used only with the frequency, intensity, and in a manner that is proportional to the threat and 37 | Page objectively reasonable.

(6) Officers shall minimize the possible incidental impact of their use of kinetic energy projectiles and chemical agents on bystanders, medical personnel, journalists, or other unintended targets.

(7) An objectively reasonable effort has been made to extract individuals in distress.

(8) Medical assistance is promptly provided, if properly trained personnel are present, or procured, for injured persons, when it is reasonable and safe to do so.

(9) Kinetic energy projectiles shall not be aimed at the head, neck, or any other vital organs.

(10) Kinetic energy projectiles or chemical agents shall not be used by BPD solely due to any of the following:

(A) A violation of an imposed curfew.

(B) A verbal threat.

(C) Noncompliance with a law enforcement directive.

(11) If the chemical agent to be deployed is tear gas, only a commanding officer at the scene of the assembly, protest, or demonstration may authorize the use of tear gas.

(2) **Purpose:**

There are a variety of situations where peace officers may in the past have used chemical agents such as: self-defense, overcoming the resistance of a noncompliant individual, effecting an arrest, preventing escape, violent crowd or riot control, barricade or hostage situations and dealing with dangerous animals. Such uses of tear gas are now prohibited by Berkeley law.

(3) **Fiscal Cost:**

A. **Initial Cost:**

The cost for CS canisters ranges from \$20.00 to \$39.00 per unit. The cost for OC canisters ranges from \$36.00 to \$44.00 per unit. The Berkeley Police Department prefers the use of the Combined Tactical Systems (CTS) chemical agents and we purchase them from LC Action Police Supply.

B. **Cost of Use:**

The cost of each proposed use is unpredictable due to the demand, unknown nature and timelines of dangerous crowd/riots situations, dangerous barricade situations, and hostage situations.

C. **Cost of Potential Adverse Effects:**

Adverse effects of improper use of OC and CS are not calculable. It could lead to serious injury. Additionally, the improper use could result in civil liabilities.

D. **Annual and Ongoing Costs:**

See below cost of training.

E. **Training Cost:**

When purchased, each unit is given an expiration date which typically falls within a 2-3-year range. Every 2-3 years, new chemical agents are purchased to honor the expiration dates. The expired agents are then used during annual trainings thus minimizing the overall cost. Training is conducted by a Police Officer Standard Training (POST) certified Berkeley Police chemical agent training officer. The cost of training is staff time.

F. Maintenance and Storage Costs:

The majority of agents are stored inside of a marked chemical agent room within the Police Department, in the Special Response Team vehicle, or in the rescue Vehicle. There are no additional storage costs. There are no associated costs to transporting, maintenance, or upgrades.

G. Upgrade Costs:

No upgrades exist for this equipment as of this report.

(4) Impact:

BPD is committed to preserving and protecting human life and welfare. These tools allow us to fulfill our commitment to our community.

Law Enforcement, under Penal Code 12403.1, is able to lawfully purchase, possess, or use chemical agents in the discharge of their duties. CS and/or OC canisters have been prominently used to resolve dangerous barricaded suspect situations and violent crowd control/riot situations.

Berkeley Police officers are trained to utilize time and distance to de-escalate dangerous barricaded situations in order to resolve each incident with minimal the use of force (per Use of Force Policy 300). In some circumstances when all other options are exhausted, CS and/or OC can be inserted into the structure in which the barricaded suspect is, denying access to certain areas inside. Unless exigent circumstances arise, all attempts to evacuate the structure are made prior to any deployment. When CS and/or OC are deployed into a structure the suspect may be forced outside allowing the situation to resolve safely with no use further use of force.

CS and/or OC chemical agents can be utilized to create order in dangerous crowd control/riot situations that have demonstrated violence or destruction. During these incidents, typically a clear and direct warning has been given to the crowd to disperse before the chemical agents are deployed. The ability to disperse crowds from a distance limits injury to Police Officers as well as damage to critical structures.

Severe injuries occur not infrequently from the use of CS and PC chemical agents, including to multiple body systems, with the majority to the skin, eyes, and cardiopulmonary system and may result in significant psychological symptoms and long-term disability.⁴

⁴ Rohini J. Haar, MD, MPH, and Vincent Iacopino, MD, PhD, Lethal in Disguise: The Health Consequences of Crowd Control Weapons, Physicians for Social Responsibility ,2016, p. 44.

(5) **Mitigations:**

Regarding the already mentioned impacts, the decision to utilize chemical agents (unless there are exigent circumstances) flows through the chain of command and ultimately makes its way to the Chief of Police and the City Manager. If there are exigent circumstances, the Field Commander makes the decision and then advises the Chief of Police as soon as practical. All uses of force require documentation that is completed by the supervisor in a use of force report and reviewed by the Chain of Command. Furthermore, all deployments of equipment outlined in the Police Equipment and Community Safety Ordinance are documented according to the reporting requirements as mandated in the ordinance.

With these procedures incorporated in BPD's policies, this mitigates many potential negative impacts. Per Policy 428 – First Amendment Assemblies - The Field Commander shall determine the type and quantity of chemical agents to be used. After use of chemical agents, the Field Commander shall re-evaluate the scene to determine if additional chemical agents are needed. Less-than-lethal munitions (40 mm CS impact rounds), chemical agents (including OC spray), and/or smoke shall only be deployed in crowd control situations as outlined in the Use of Force Policy. For planned events, inventories shall be conducted before and at the conclusion of the incident. Outside agency inventories shall also be tracked.

In addition to the mitigations in place, the Berkeley Police Special Response Team also receives annual training on the use of chemical agents, the effects, and the decontamination process. Per policy 303, when practical, medical personnel should be summoned for the affected person(s).

(6) **Alternatives:**

There are no direct alternatives for CS and OC. They are the industry's leading way to resolve barricaded suspects while reducing the likelihood of injury to the subject, community, and officers. Additionally, it is one of the only tools that allows officers to stop acts of violence or regain order during crowd control/riot situations. They are very distinct in nature and have direct purposes. The rationale to use CS or OC depends on the circumstances of each incident. The Berkeley Police Department shall use the minimal amount of force per our Use of Force Policy 300. The use of CS or OC allows the police personnel to maintain distance, giving officers more time to react and avoid a potential need for a higher level of force to safely resolve the situation.

(7) **Third Party Dependence:**

There is no third-party dependence for CS and OC chemical agents. Once they are purchased, they are secured in their designated areas and stay there until they are either used during incidents or training.

Remington 700 Rifle

(1) **Description:**

A. **Background:**

The Remington 700 is a series of bolt-action rifles designed in 1962 by the Remington Arms Company. The “700” designator is the generic name for multiple models of rifles with various parts, barrel lengths, stocks, etc. The Remington 700 rifle has long been used by law enforcement agencies and continues to be an industry standard for issued equipment. The Berkeley Police Department utilizes a custom Remington 700 action, chambered in the common .308-caliber round, with a 20” barrel and an Accuracy International chassis/stock. The rifle also includes a Nightforce 3-15x magnified optic and bipod.

BPD utilizes Hornady .308-caliber ammunition. This particular ammunition is specially designed for law enforcement applications due to its increased and consistent accuracy and performance.

B. **Quantity:**

The Berkeley Police Department Special Response Team (SRT) currently possesses six Remington 700 rifles, all configured in the same manner.

Currently, BPD has approximately 1,800 Hornady .308-caliber rounds. That quantity of ammunition fluctuates depending on supply from distributors and training schedules of those trained officers.

C. **Capability:**

The Remington 700 rifle, with the appropriate ammunition, training, and practice, is capable of consistent and highly accurate shooting out to a distance of approximately 500-yards.

The Remington 700 is intended to be used in emergency situations where there is a high potential for violence, where the need exists to put distance between officers and a specific individual, such as an armed hostage situation.

D. Lifespan:

The Remington 700 bolt-action rifles have an expected life span of 10-years if properly maintained.

E. Use:

Used in the defense of life or great bodily injury to potential victims of violent crimes, general public, and officers.

F. How it Works:

The Remington 700 is a manually operated rifle. It requires the officer to physically maneuver a handle to expel a spent cartridge and to load another unspent round of ammunition in order to fire a second round. When the trigger is pressed, a firing pin strikes the primer of a bullet loaded into the chamber of the rifle. The ignited primer ignites gun powder contained in the bullet which pushes the bullet down the barrel and out the muzzle. The officer must then pull a handle attached to the bolt to the rear, ejecting the spent cartridge. The officer then pushes the bolt forward, which picks up another bullet from the magazine, and closes the chamber, making the rifle ready to fire again.

(2) Purpose:

This rifle is to be used in the defense of life or great bodily injury to potential victims of violent crimes, general public, and officers. This rifle provides police with the benefit of adding distance to a volatile situation which can increase the safety for community members and officers. This rifle is an ancillary firearm for situations where increased distance and accuracy is needed to safely resolve the situation.

(3) Fiscal Cost:

A. Initial Cost:

The initial cost to purchase this rifle with its associated components is approximately \$10,000 dollars each. Their average life span is 10-years at which time it will likely need to be replaced.

B. Cost of Use:

Cost of use for all firearms should be based on the ammunition used in training and on duty. This will fluctuate based on training.

C. Cost of Adverse Effects:

Adverse effects and improper usage of a firearm are not calculable. It could lead to the loss of life or serious injury. Additionally, the improper use could result in civil liabilities.

D. Annual and Ongoing Costs:

If this rifle is not cared for or maintained well, then a potential financial adverse impact would be the premature purchasing of a replacement rifle or replacement parts. However, authorized and trained Berkeley Police armorers service and provide regular maintenance of the rifles. The cost of maintenance is staff time.

E. Training Costs:

The cost associated with training is the staff time, range fees, and cost of spent ammunition. SRT members train once a month and, on average, each member shoots approximately 50-rounds. Currently, there are only 4 members shooting at each training day. This equates to approximately 2,400 rounds of ammunition being fired per year. This does not include special training days or attendance to training schools/classes. A single box of 20-rounds costs approximately \$20-dollars or \$1 dollar per round.

F. Maintenance and Storage Costs:

Maintenance costs vary depending on use over time. Firing pins need to be replaced every 5 to 7 years. The maintenance cost associated with this rifle is minimal.

There are no costs associated with maintenance or storage of ammunition. All ammunition is stored in a climate-controlled room in the Berkeley Police Department.

G. Upgrade Costs:

Upgrade costs and maintenance cost are synonymous due to the consistent design. Improvements in technology and new designs may be an additional cost but we can't predict what those will be at this time.

Should advancements be made in ammunition manufacturing; those upgrade costs are unknown at this time.

(4) Impact:

The primary purpose of this rifle is to further SRT's goal of adding time and distance when dealing with a violent and dangerous individual(s). The rifle may allow SRT additional time by increasing the distance between law enforcement and the specific individual, thereby increasing the likelihood of a more peaceful resolution. Like all tools, it has a time and place for its intended operational efficacy.

(5) **Mitigations:**

Mitigating impacts from this tool's primary purpose is done through regular training. The training includes accuracy, decision making, scenarios, and various other training points. All uses of force require documentation that is completed by the supervisor in a use of force report and reviewed by the Chain of Command. Furthermore, all deployments of equipment outlined in the Police Equipment and Community Safety Ordinance are documented according to the reporting requirements as mandated in the ordinance.

(6) **Alternatives:**

The Remington 700 rifle is an industry standard tool used to deliver precision accuracy on an intended target. This tool can deliver accuracy and predictability through intermediate barriers like glass windows. It can be used at distances greater than any other tool currently possessed or authorized. No alternate tool or method would accomplish the same goal.

(7) **Third Party Dependence:**

These rifles are fairly simple in their design and operation. They do require regular maintenance which is commonly performed by each individual member. BPD Armorers are also capable of performing additional maintenance. If an issue arises which is beyond the scope of our Armorers we would seek professional assistance from the manufacturer. However, the need for this is very rare.

ReconRobotics Recon Scout XT

(1) **Description:**

A. **Background:**

The Recon Scout XT is a throwable micro-robot manufactured by ReconRobotics for use in law enforcement applications. The Recon Scout XT enables officers to obtain instantaneous video footage and audio within indoor or outdoor environments. Designed to withstand repeated drops onto concrete, the Recon Scout XT robot can be thrown into hazardous situations (hostage rescue, barricaded subjects, natural disasters, etc.) in order to allow officers to quickly and safely make informed decisions when seconds count.

B. **Quantity:**

The Berkeley Police Department has two Recon Scout XT throwable robots, both purchased in 2010.

C. Capability:

The Recon Scout XT robot is designed to be able to crawl over a variety of terrain, clearing obstacles up to 2" (5 cm) tall. It could be thrown into hazardous situations, indoor and outdoor, and provide live audio and video feed back to the controller.

D. Lifespan:

Both Recon Scout XT robots are over 10 years old and ReconRobotics have developed and manufactured more advanced robots. ReconRobotics have stopped manufacturing certain parts for the Recon Scout XT, so the lifespan is dependent on what parts need to be replaced.

E. Use:

The Recon Scout XT robot may be deployed to help police officers safely view potentially dangerous environments before entering them.

F. How it Works:

The Recon Scout XT robot has a cylindrical body with a finned-wheel at either end of its body, and is stabilized by a rubber "tail". It measures approximately 6 ½" wide, and each wheel is about 5" in diameter (fin to fin) and weights just over one pound (1.2 lbs.). The Recon Scout XT robot sends digital video and audio back to an Operator Control Unit (OCU; controller with a screen and joystick), which allows the officer to control the robot, which provides a live feedback containing audio and visual feeds. The Recon Scout XT robot does not record audio or video footage; there is no data storage capability.

(2) Purpose:

The Recon Scout XT robot is intended to safely provide police officers valuable information during high-risk, rapid evolving situations via real-time audio and video footage. It can be driven a distance away from the OCU, creating space between the officer and potential danger, thus decreasing the likelihood of injury to those involved in the event, or even a violent encounter between police officers and a dangerous subject. This asset furthers our commitment to the sanctity of life by offering time and distance in critical incidents.

(3) Fiscal Cost:

A. Initial cost:

The initial cost for the Recon Scout XT robot was about \$12,500 per unit (2010 cost).

B. Cost of Use:

There is no “per use” cost of this equipment. The Recon Scout XT is powered by a rechargeable battery.

C. Cost of Potential Adverse Impacts:

The likelihood of adverse impacts due to the use of the Recon Scout XT robot is low – it is small, lightweight and is not likely to injure persons or damage personal property when deployed; however, there is a small chance that the Recon Scout XT robot might cause damage to personal property when deployed (thrown) into a structure. Due caution is used when it becomes necessary to throw, rather than place, the robot into a structure.

D. Annual and Ongoing Cost:

There are no ongoing or annual costs associated with the use of the Recon Scout XT robot. Being that it is battery operated, there is a nominal cost associated with charging the Recon Scout XT robot’s batteries, and the batteries of the OCU. The Recon Scout XT robot is fairly simple to operate, thus there is no cost associated with training officers in its use. There are no costs with transportation or storage of the Recon Scout XT robot. While there are newer models of this robot available, there does not appear to be any upgrades available for the Recon Scout XT. The Recon Scout XT robot has been damaged on occasion, and there are costs associated with repair. But generally, the Recon Scout XT robot is robust and does not need regular repair.

E. Training Cost:

The Recon Scout XT robot is user friendly and simple to operate. Training is conducted by Berkeley Police personnel familiar with the operations and procedures of the Recon Scout XT robot. The cost of training is staff time.

F. Maintenance and Storage Costs:

There are no annual or storage costs.

G. Upgrade Costs:

There are no upgrades available at the time of this report.

(4) Impact:

The Recon Scout XT robot is used to safely gather information in situations where it may be dangerous to expose an officer, or officers, to gather the same information. Putting officers in such unknown, tense situations has the potential to create violent encounters, or otherwise place officers in unnecessary peril and danger that might

otherwise be avoided by the use of a tool like the Recon Scout XT robot. The Recon Scout XT robot is not likely to have a negative impact on the welfare or safety of the public as its role is to gather real-time information during high-risk incidents such as hostage or potentially life-threatening situations. The Recon Scout XT robot is likely to improve the welfare and increase the safety of the public through its ability to gather real-time information and feed it back to police officers. The Recon Scout XT robot does not have the capability to record or store data.

(5) **Mitigations:**

The use of the Recon Scout XT robot is limited to sworn police officers, and guided by field supervisors (Lieutenants and Sergeants). Procedurally, the Recon Scout XT robot is used when exigent circumstances exist (hostage situation, barricaded subject, natural disaster necessitating rescue, etc.) and real-time information is necessary to safely and effectively resolve the situation. The robot does not record or store data.

(6) **Alternatives:**

Unmanned aerial vehicles (UAV) are an alternative to robots such as the Recon Scout XT robot. However, the Berkeley City Council has prohibited the Berkeley Police Department from using UAVs. They are not constrained by obstacles on the ground and provide far superior perspective and situational awareness; at times, obstacles halt the Recon Scout XT robot's movement. There are several other robots on the market, however, the Recon Scout XT robot is compact, lightweight (weighing in at just over a pound), very maneuverable, and can easily be carried by an officer. It can also be introduced into structures by throwing it through any opening – an option not possible with other robot models.

(7) **Third Party Dependence:**

The Recon Scout XT robot does not currently rely on a third-party company or vendor for its use or maintenance. Should maintenance or parts be required beyond the scope of the members of the Berkeley Police Department, the robot would be sent to ReconRobotics for service.

Andros Remotec HD-1 Hazardous Duty Robot

(1) **Description:**

A. **Background:**

The Andros Remotec HD-1 Hazardous Duty Robot, hereinafter referred to as Remotec HD-1 robot, was designed to support a wide range of missions in demanding environments. The Remotec HD-1 robot is capable of lifting up to 125

pounds, tracked articulators stair climbing, and has an integrated Talisman radio system for a stronger radio wave connection between the controller and the robot.

Remotec has served explosive ordinance disposal units, hazardous materials units, and other first responders as a provider of mobile robotic systems for application into a variety of undesirable, hazardous and potentially life-threatening environments. The Remotec HD-1 robot allows individuals to approach hazardous devices to examine and manipulate the device without putting people in harm's way.

B. Quantity:

The Berkeley Police Department Bomb Squad has one robot, the Remotec HD-1 robot.

C. Capability:

Remotec HD-1 robot is used in situations where a potential life-threatening situation exists and is too hazardous for a bomb technician to approach in person. The Remotec HD-1 robot is also used to survey an area prior to a bomb technician approaching a scene to check for trip wires and ascertain a good approach path. The Remotec HD-1 robot has three cameras and audio monitoring that stream live video and audio back to the control module; however, it is unable to record and does not have any data storage capabilities. It has several attachment mounting options as well. The Remotec HD-1 robot also has the ability to carry a variety of tools. Some of the tools are:

- 1) A spike to break glass and access vehicles or homes with potential explosive devices inside
- 2) An X-ray mount in order to remotely X-ray suspected explosive devices.
- 3) Percussion actuated non-electric disruptors which are smooth barrels that are filled with water and fired at high speed with a blank shotgun round to open backpacks, suitcases, and packages from a distance
- 4) A hook with cutting blades that are used to cut backpack straps, ropes, etc.
- 5) PAN rounds containing various fills, from sand to slugs, in order to open sturdier packages made from metal or other hard covers.
- 6) Electrical connections to connect explosives that can be detonated remotely and from a safe distance.

D. Lifespan:

The Remotec HD-1 robot has an expected life span of 10 years. It is currently 13 years old and has begun exhibiting issues. The Remotec HD-1 robot weighs just over 200 lbs. and has been near multiple explosions over the years and crossed a variety of off-road terrain

E. Use:

Used to examine and possible destroy hazardous materials such as an explosive device.

F. How it Works:

The Remotec HD-1 robot is piloted by a bomb technician into a hazardous area to locate, examine, and render suspicious packages and explosive devices safe by utilizing a variety of attachable tools.

(2) Purpose:

The Remotec HD-1 robot is used as a means to approach hazardous situations where a potentially lethal threat such as an explosive device exist. The Remotec HD-1 robot allows for the examination and manipulation of an object or potential explosive device without unnecessarily putting a bomb technician's life at risk.

(3) Fiscal Cost:

A. Initial Cost:

Procured in 2008 for \$214,496 including on-site training through a UASI Grant. (64,292-N.S.)

B. Cost of Use:

None. The robot is electric and operated through the City's electricity for charging.

C. Cost of Potential Adverse Effects:

The Remotec HD-1 robot interacts with inanimate objects. However, should it encounter a package that explodes, it could potentially destroy the robot and damage other property.

D. Annual and Ongoing Costs:

There is no annual cost. Maintenance of the Remotec HD-1 robot is conducted by Berkeley Police Bomb Technicians.

E. Training Costs:

Berkeley Police Bomb Technicians are trained during regular bomb squad training sessions and maintain their skills through training scenarios. The cost of training is limited to staff time.

F. Maintenance and Storage Costs:

Remotec offers occasional maintenance and upkeep workshops free of charge.

G. Upgrade Costs:

There are no costs for upgrades as the company has stopped manufacturing the robot and any applicable upgrades.

(4) Impact:

The Remotec HD-1 robot is used by the Berkeley Police Department Bomb Squad as a means to examine a potentially explosive device in order to keep the community safe. Since April 2020, the Berkeley Police Department Bomb Squad has responded to 14 incidents. The impact of the Remotec HD-1 robot has been to reduce and minimize the danger posed by calls of possible explosive devices to the Berkeley Police Department's Bomb Technicians.

(5) Mitigations:

The Remotec HD-1 robot is used in situations where a hazardous device exists. In these situations, the area is always evacuated in order to ensure community safety.

(6) Alternatives:

The Remotec HD-1 robot is 13 years old and there has been significant development in technology. There are several alternatives that are far superior than our current Remotec HD-1; Mark V-A1 robot developed by Remotec Andros, Caliber Flex developed by ICOR Technology, Digital Vanguard-S developed by Med-Eng and T7 and T4 developed by L3Harris Technologies. These are alternatives that have newer and better technology and capabilities than the Remotec HD-1 robot.

(7) Third Party Dependence:

Remotec representatives are the only ones used to diagnose and maintain complex issues on the robot that cannot be done in-house. Since it is proprietary technology, Remotec may void warranties on any repairs made by outside vendors or by untrained personnel. Therefore, all complex issues with the Remotec HD-1 robot must be repaired by Remotec.

Light/Sound Diversionary Device

(1) **Description:**

A. **Background:**

Light/Sound Diversionary devices also known as distraction device, flashbang, light/sound and noise/flash devices have been available for approximately 40 years and are a safe and effective tool for Law Enforcement (LE) to use during challenging tactical incidents. The device will be referred to a diversionary device throughout this document.

B. **Quantity:**

Qty 50 - CTS 7290 Diversionary Device

C. **Capability:**

When a diversionary device is deployed they create a loud noise, heat and brilliant light and create an effective diversion. They can create psychological and physiological effects such as: hearing a loud noise beyond that of everyday living, seeing a short bright light, and feeling of a change in atmospheric pressure. These effects may disorient/confuse subjects for a short time giving tactical teams the ability to apprehend that subject without using a higher level of force.

D. **Lifespan:**

The lifespan of the CTS 7290 Diversionary Device is 5 years.

E. **Use:**

The use of a diversionary device is to create a diversion in order to facilitate entry and enable arrest. Circumstances justifying the use of a diversionary device may include, but not limited to barricaded subject or hostage situations and high-risk search warrants services.

F. **How it Works:**

The main charge of a modern diversionary device typically contains flash powder which is sometimes called photoflash powder. Upon initiation, this chemical compound causes the device to deflagrate (not detonate). The powder mixture is rapidly changed into gases that expand outward reaching upwards to 3,800 times the original volume of the charge itself. This process releases the desired effects of loud noise, bright light and the feeling of atmospheric pressure. Flash powder is typically made up of an oxidizer and some type of fuel. The oxidizer is needed to initiate and sustain the flash powder's rapid combustion. This is required since sufficient oxygen cannot be obtained from just the surrounding air.

(2) **Purpose:**

The purpose of a diversionary device is to create a reactionary gap of a person by temporarily disorienting them. This gap gives tactical teams an opportunity to apprehend a suspect while using the minimal amount of force possible. They can also be used to safely invoke a response or redirect the attention of subjects who are either feigning injury, ignoring police commands or are unresponsive while posing a threat to the public.

(3) **Fiscal Cost:**

A. **Initial Cost:**

Diversionary Devices cost approximately \$45 per unit and are purchased through LC Action Police Supply. Purchases for these tools are made when inventory becomes low, based upon critical incident usage and Special Response Team trainings that incorporate live devices.

B. **Cost of Use:**

The cost of each proposed use is unpredictable due to the unknown nature and timelines of dangerous barricade situations, critical incident, and hostage situations. The devices may be stored inside of the Police Department, in the Special Response Team Vehicle, or in the rescue vehicle. There are no additional storage costs. There are no associated costs for transporting, maintenance, training, or upgrades.

C. **Cost of Potential Advert Effects:**

Adverse effects of improper use of a diversionary device are not calculable. It could result in serious injury. Additionally, the improper use could result in civil liabilities.

D. **Annual and Ongoing Costs:**

See below training cost.

E. **Training Cost:**

Only trained and qualified personnel are permitted to deploy diversionary devices. These trained Berkeley Police officers are typically members of the Berkeley Police Department Special Response Team who receive monthly training which includes training in the deployment of diversionary devices. The cost of training is staff time.

F. Maintenance and Storage Costs:

The majority of diversionary devices are stored inside of a room in the basement within the Police Department. There are no additional storage costs. There are no associated costs to transporting, maintenance, or upgrades.

G. Upgrade Costs:

No upgrades exist for this equipment as of this report.

(4) Impact:

The Berkeley Police Department is committed to preserving and protecting human life and welfare. These tools allow us to fulfill our commitment to our community.

Diversionary Devices may be utilized in many situations to include potentially dangerous barricaded subject situations, hostage situations, and critical incidents. Some criteria considered prior to a deployment is dependent upon whether the suspect is a dangerous felon, causes a life-threatening situation and/or other unique incidents where it appears to be a reasonable method in which to resolve the situation. When deployed appropriately these devices can assist in safely apprehending suspects and resolving high risk critical incidents with minimal or no injuries to suspects and/or officers.

(5) Mitigations:

Since Diversionary Devices are considered low explosives, there are several protocols in place to mitigate possible negative results (i.e. minor or major injuries).

Only trained and qualified personnel are permitted to deploy diversionary devices; typically, members of the Special Response Team who receive constant training regarding the deployment, effects, and post deployment protocols.

Pre-deployment concerns are typically gathered and evaluated, such as:

- The number of people at a location and the individual location of suspects within the structure.
- Evaluation if there are children or elderly people present
- An evaluation of the suspect's mental and physical conditioning
- Evaluation of the building/room layout

- Possible combustible/flammable substances present
- Lighting conditions

When a diversionary device is deployed, the officer shall utilize a helmet, hearing protection, eye protection, body armor, and nomex (fire resistive) gloves.

If a diversionary device is used, a supervisor shall be notified, medical treatment/screening is conducted, and a collection of the deflagrated device is completed. Documentation utilizing the device serial number is recorded.

Per Policy 351 - Except in extreme emergencies (i.e., life-threatening situations), flash/sound diversionary devices shall not be used without prior authorization of the incident commander/on-scene supervisor. Whenever diversionary devices are carried by personnel in an actual situation or incident, that fact shall be noted in the after-action report or police report. In the event devices are deployed, the circumstances surrounding their deployment shall be fully described. The Chief of Police or his or her designee shall be responsible for reviewing any deployment of diversionary devices to ensure that policy was followed. Diversionary devices are registered by serial number with the Bureau of Alcohol, Tobacco, and Firearms (ATF). Typically, the police department's purchase of new devices is reported directly (by case-lot serial numbers) to ATF by the device manufacturer via ATF Form 5. The National Firearms Act requires the police department to notify ATF upon the use/expenditure of diversionary devices. A Special Response Team member shall be responsible for submitting written notification to ATF when all devices listed on a single ATF form 5 have been used/expended.

(6) Alternatives:

A possible alternative to a diversionary device (flashbang) is the Tactical Electronic Distraction Device (T.E.D.D.) which emits 2600 lumen light and high pitched 120 decibel sound to disorientate subjects. This could be a good tool as it is not a low explosive however it has its negative aspects as well:

- There is no feeling of atmospheric pressure, limiting the desired momentary physiological effect.
- A suspect could pick up and throw the device at potential victims and at police officers. The currently used diversionary devices are too hot to attempt this.

- In certain circumstances, a suspect could potentially steal the device during an escape.
- The individual cost per unit is approx. \$200 which is much more than a diversionary device
- This device is significantly less effective in disorienting subjects compared to a diversionary device.

(7) **Third Party Dependence:**

There is no third-party dependence for Diversionary Devices with the exception of communication with ATF of the purchase. Once they are purchased, they are secured within their designated locations where they are stored until they are either used during incidents or training.

Long Range Acoustic Device (LRAD)

(1) **Description:**

A. **Background:**

The Long-Range Acoustic Device (LRAD) is a high intensity directional acoustical array for long range, crystal clear notification system. The use of the LRAD is for communications.

B. **Quantity:**

The Berkeley Police Department possesses 2 Long Range Acoustic Devices (LRAD) speakers. One is an LRAD 450XL and the other is an LRAD 100X.

C. **Capability:**

Both of these speakers are able to focus sound in directional pattern allowing the user to make sound audible over distances much greater than conventional public address speakers. The LRAD 450XL is the larger of the two and designed to either be used in a fixed location or mounted on a vehicle to make it portable. It has a usable range of approximately 1 mile. The LRAD 100X is smaller and more portable. It can be carried or mounted to a person's chest for mobility or mounted to a vehicle. Its range is approximately 1/3 of a mile. Both of these systems allow for clear long-range communication, they are also able to play recorded messages.

D. Lifespan:

The lifespan for both LRADs is 25 years.

E. Use:

The LRADs are used to communicate with the community during natural disasters, crowd management and control situations, or when other forms of communications are ineffective or inoperable to unequivocally communicate messages from Police or Fire and safely resolve uncertain situations where communicating with the public is paramount.

F. How it Works:

The LRADs are essentially a long-range speaker or long-range megaphone and operates as such.

(2) Purpose:

The LRADs are designed for clear long-range communication. The LRAD's ability to communicate over a long distance is far superior to any megaphone or Public Address (PA) system mounted to a police vehicle. Additionally, LRAD's may be used to:

- Communicate lifesaving information to residents during disasters
- Communicate to large crowds during parades, festivals, concerts and sporting events
- Establish safety zones and perimeters
- Control traffic congestion
- Conduct Special Response Team operations
- Broadcast a dispersal order
- Communicate during hostage and barricaded subject situations
- Announce and serve high risk warrants
- Communicate to protesters
- Communicate to persons threatening suicide who are in an inaccessible location
- Conduct search and rescue operations

The ability to communicate with the public in a large area increases the safety of all members of the public and law enforcement. It allows everyone in a given area to know what is being communicated, gives more situational awareness to everyone in a given area and allows people to know where to go or not to go.

(3) **Fiscal Cost:**

A. **Initial Cost:**

The LRAD 450XL and the LRAD 100X were purchased in 2018. The total cost for both LRADs, rechargeable battery packs and accessories was \$49,999.

B. **Cost of Use:**

There is no cost associated with each use of the LRADs. The systems run on batteries or can plug into a vehicle.

C. **Cost of Potential Adverse Effects:**

Adverse effects of improper use of the LRADs are not calculable. It could lead to hearing loss. Additionally, the improper use could result in civil liabilities.

D. **Annual and Ongoing Costs:**

BPD has not incurred any additional cost to date for this equipment.

E. **Training Costs:**

Training is conducted by Berkeley Police personnel who are trained in the use and procedures of the LRAD. The cost to train is staff time.

F. **Maintenance and Storage Costs:**

There are no maintenance or storage costs for this equipment.

G. **Upgrade Costs:**

No upgrades exist for this equipment as of this report.

(4) **Impact:**

The Berkeley Police Department is committed to ensuring the safety of our community. Having the ability to communicate efficiently and effectively in different situations is crucial in providing potentially life-saving information to the public. The LRAD provides BPD personnel the ability to communicate long distances to people that are in a given area, inside structures, or barricaded inside a structure. The LRAD is very effective any situation involving communicating information to large crowds, or entire communities.

Over shorter distances, LRAD signals are loud enough to cause pain in the ears of people in their path. If used improperly they can cause permanent hearing damage,

including tinnitus or hyperacusis, to intended targets, bystanders, and police officers.⁵ Improper use may also result in litigation costs.

(5) **Mitigations:**

LRAD are capable of producing a high pitched “deterrent tone” that is designed to disperse a potential threat. This “deterrent tone” does have the ability to cause hearing damage. BPD Policy 707 strictly prohibits any member of BPD from using the LRAD as a weapon. Additionally, the LRAD can only be deployed at the direction of a Watch Commander or Incident Commander and may only be used by personnel specifically trained in the use of the LRAD.

(6) **Alternatives:**

BPD is not aware of any other sound speakers that are able to clearly communicate over long distances of up to 1 mile.

(7) **Third Party Dependence:**

To date, BPD has not depended on any third party for the use or maintenance of this equipment.

36” Baton

(1) **Description:**

A. **Background:**

The Berkeley Police Department issues a knurled grip, polycarbonate, fixed-length straight baton for crowd control purposes. The baton is 36” long and 1.25” in diameter and weighs about 1.64 pounds. Polycarbonate is a thermoplastic, which means it is durable, resistant to splintering and heat.

B. **Quantity:**

In 2017, BPD purchased 175 polycarbonate 36” batons to replace aging wood batons of the same purpose. Additional polycarbonate batons were purchased over the past four years to ensure all sworn police officers as well as trained reserve police officers are equipped with the 36” baton. BPD possesses approximately 195 - 36” polycarbonate batons. Most of these batons are issued to and maintained by individuals. However, a small amount of these batons is stored in a secure equipment room as spares in case of damage or new personnel issue.

⁵ Tyler Tracy, “Long Range Acoustic Devices (LRAD) and Public Safety,” Acentech, August 10, 2020, at <https://www.acentech.com/resources/2020/08/long-range-acoustic-devices-lrad-and-public-safety/>.

C. Capabilities:

The 36" baton is carried in a "baton ring" on an officer's belt just as any other baton. It is used as a safety tool and is a means for officers to defend themselves in certain crowd control or riot situations. Trained officers may employ particular applications of force with their 36" batons when directed by their chain of command. The 36" baton is the desirable baton in a crowd control situation as it is 7" longer than the standard 29" baton. The longer baton creates more distance between the officer and others, which is critical when dealing with violent or aggressive crowds.

D. Lifespan:

The manufacturer provides a lifetime repair or replacement guarantee.

E. Use:

The 36" baton is a less-lethal force tool and is intended to be used in crowd control situations in close quarters, where officers may defend an attack, or when engaging in physical contact with combative or aggressive crowd members. The 36" baton is only used for crowd situations.

F. How it Works:

There are a number of appropriate blocking or striking techniques an officer may use when force is justified and the decision is made to use the 36" baton to effectively gain control of a person or situation. The use of the baton requires the officer to continually monitor and assess effectiveness of any delivered strikes. The reason this type of force is administered is to stop a person's attack, threat or resistance, with the goal to place them under lawful arrest for their actions.

(2) Purpose:

The 36" baton is a less-lethal tool that may be used when a crowd becomes aggressive, hostile or violent. It is the most effective individual tool of choice when officers are in formation and engaged in crowd control duties.

When officers are deployed to maintain, disperse, or protect others from a violent crowd or civil disobedience, it is imperative that they have an adequate safety zone to protect themselves or others. The 36" baton provides officers additional distance from a potential threat than the standard issue 29" baton.

When the baton is used to strike a subject, kinetic energy transfer occurs. Kinetic energy is the energy of motion. The amount of translational kinetic energy which an object has depends upon two variables: the mass of the object and the speed of the

object. The desired effect is for the officer to apply a baton strike with the necessary energy to stop the threat as quickly and safely as possible. By targeting the large muscle areas of the arms or legs with sufficient kinetic energy, motor and sensory nerves can be affected. When the nerves are affected this will create momentary muscle dysfunction or pain, which will allow the officer the ability to gain control of the subject, while minimizing the possibility of long-term injury to the subject.

The head, neck, throat, spine, heart, kidneys and groin should not be intentionally targeted except when the person's conduct is creating an immediate threat of serious bodily injury or death to an officer or any other person as outlined in policy 303 and 300.

(3) Fiscal Cost:

A. Initial Cost:

The cost of the Monadnock MP36 2004 36" polycarbonate baton with knurled grip was \$53.00 per baton in September 2017. After tax, \$10,132.94 was spent for the purchase of 175 batons. The department placed an additional order for 20 batons in December 2019. It is anticipated that the cost of the baton will fluctuate a few dollars based on supply and demand over time.

B. Cost of Use:

The only cost associated with use that of ongoing departmental training to ensure officers are proficient in authorized baton techniques.

C. Costs of Potential Adverse Impacts:

Adverse effects from improper use of the 36" baton cannot be anticipated. Improper use could lead to serious bodily injury or death. Additionally, the improper use could result in civil liabilities.

D. Annual and Ongoing Costs:

There is no additional annual or ongoing cost associated with the 36" baton.

E. Training costs:

Training on the applications of the batons are conducted at the police academy. Police Office Standard Training (POST) requires "arrest and control" training every 2 years which includes portions of baton training. This training is conducted in-house by POST certified defensive tactics instructors.

F. Maintenance and Storage Costs:

There are no associated costs to transporting, maintenance, or upgrades.

G. Upgrade Costs:

No upgrades exist for this equipment as of this report.

(4) Impact:

Per Policy 300, “The Berkeley Police Department’s highest priority is safeguarding the life, dignity, and liberty of all persons. The Department is committed to accomplishing this mission with respect and minimal reliance of the use of force by using rapport-building communication, crisis intervention, and de-escalation tactics before resorting to force.”

At times, it may become necessary for police officers to use force in crowd control situations to move a crowd, stop violent behavior, overcome resistance or make a lawful arrest. Officers have been trained that they must do everything possible to avoid unnecessary uses of force, and minimize the force that is used, while still protecting themselves and the public. When deemed necessary, use of the 36” baton may be used as a tool to strike a person, create a barrier or used in formation in order to move a crowd in a certain direction. The use of the baton may cause discomfort, pain, blunt trauma and has the potential to cause serious injury. Their use is subject to the totality of the circumstances, proper training, department policy, as well as federal and state law.

Officers who use the 36” baton are trained to continuously assess each situation where force is used and only use the force that is reasonably necessary and proportional to respond to the threat or resistance to effectively and safely resolve the incident.

(5) Mitigations:

Per Policy 300, “In all cases where physical force is used, officers shall use a minimum amount of force that is objectively reasonable, objectively necessary, and proportional to effectively and safely resolve a conflict.”

Per Policy 303, “Only officers who have successfully completed department-approved training in the use of any control device are authorized to carry and use the device. Control devices may be used when a decision has been made to control, restrain or arrest a subject who is violent or who demonstrates the intent to be violent, and the use of the device appears reasonable under the circumstances. When reasonable, a verbal warning and opportunity to comply should precede the use of these devices. When using control devices, officers should carefully consider potential impact areas in order to minimize injuries and unintentional targets.”

Every officer who carries a 36” baton has been trained how to properly carry the equipment, it’s intended use, target areas and non-target areas. Large muscle groups such as the upper legs or lower abdomen are approved target areas and areas to be avoided at the groin and head. When a baton strike is directed at an intended target area and the subject moves simultaneously, it is possible for the officer to unintentionally strike a non-target area. Officers are trained to consider the placement of baton strikes, and to immediately render medical aid to the subject as soon as it is safe to do so.

All uses of force require documentation that is completed by the supervisor in a use of force report and reviewed by the Chain of Command. Furthermore, all deployments of equipment outlined in the Police Equipment and Community Safety Ordinance are documented according to the reporting requirements as mandated in the ordinance.

(6) **Alternatives:**

The alternatives to the 36” crowd control baton are the 29” standard issue baton and collapsible 26” Rapid Containment Baton (RCB). The standard issue baton and RCB are shorter in length and require officers to be closer to the person they are engaging, thereby increasing the risk of injury to the officer and the person. A longer baton provides an officer with more distance which creates a small safety zone and allows the officer time to react and assess the situation before making use of force decisions.

(7) **Third Party Dependence:**

There is no requirement for a third-party service provider to issue the 36” crowd control baton. Berkeley Police Department Defensive Tactics Instructors provide in-house training on the proper use of the baton.

Mobile Command Vehicle

(1) **Description:**

A. Background

The Berkeley Police Department owns one Mobile Command Vehicle (MCV). Our MCV is a 2003 Freightliner MT55. This vehicle’s most common use is as a commercial delivery vehicle. Our 2003 Freightliner MT55 was converted into a MCV by adding desktop work stations, additional police radios and emergency lighting. The MCV is 30’ long and has a gross vehicle weight (GVW) of approximately 23,000 pounds.

B. Quantity:

The Berkeley Police Department owns 1 MCV.

C. Capability:

The MCV is a mobile office that provides shelter and may be used as a mobile command and communication center.

D. Lifespan:

This vehicle is approximately 20 years old and is at the tail end of its serviceable lifespan. All emergency vehicles need to be completely dependable and vehicles of this age start to lose dependability as old parts start to fail without warning. The modern versions of this type of vehicle are typically converted motorhomes.

E. Use:

This vehicle is used as a mobile command post for large scaled events.

F. How it Works:

This vehicle operates and drives like other vehicles.

(2) Purpose:

This vehicle may be used as a mobile command post for any larger scaled events or as a communications center in the event the communications center in the Public Safety Building is inoperable. Some examples of large-scale events include Solano Stroll, Juneteenth, 4th of July, critical incidents or natural disasters.

(3) Fiscal Cost:

A. Initial cost:

The initial cost of the MCV (2003 Freightliner MT55) was \$230,800.

B. Cost of Use:

The cost of use is the cost of fuel from the City Corporation Yard.

C. Cost of Potential Adverse Effects:

Adverse effects of improper use of the MCV are not calculable, but is the same as improper use of any vehicles. The improper use could result in civil liabilities.

D. Annual and Ongoing Costs:

There is no annual or ongoing cost associated with this vehicle. Maintenance of the vehicle is conducted by the City's Corporation Yard.

E. Training Costs:

Training is conducted in-house by Berkeley Police personnel who are trained in the operation of the vehicle. The training cost is staff time.

F. Maintenance and Storage Costs:

There are no storage costs and maintenance would be conducted by the City of Berkeley Corporation Yard.

G. Upgrade Cost:

The MCV is almost 20 years old and upgrades would involve replacing different parts of the vehicle. This work would be conducted by the City of Berkeley's Corporation Yard. The cost would be staff time plus the cost of any necessary parts.

(4) Impact:

The MCV is used as a command post for any large scaled event. It works as a mobile central location where resources can stage and be deployed from. It provides the police department with on-site command, supplying a control and communications hub that is needed for large community events, or critical incidents such as natural disasters in order to maintain public safety. The deployment or appearance of certain armored vehicles may escalate tension, provoke fear, prevent clear communication, or increase distrust.

(5) Mitigations:

The MCV shall only be operated by trained personnel that have demonstrated proficiency in the operations of this vehicle per Berkeley Police Department Policy 811.

(6) Alternatives:

The MCV is almost 20 years old. Current MCV from other agencies are large mobile homes converted into MCVs.

(7) Third Party Dependence:

All maintenance is completed through the Cities Corp Yard so there is no dependence on a third party.

Barrett Model 99 Rifle

(1) Description:

A. **Background:**

The Barrett Model 99 rifle is a single shot bolt-action 50-caliber rifle first introduced in 1999. It is intended to be used in emergency situations where there is a high potential for violence.

B. **Quantity:**

Berkeley Police Department Special Response Team (SRT) currently possess 1 (one) of these rifles and is not looking to purchase any others.

Currently BPD has approximately 100 Summit Ammunition .50-caliber BNG rounds.

C. **Capability:**

This rifle is used only in situations where a potential life-threatening situation exists. The length of the rifle's barrel coupled with the ammunition result in precision accuracy. This rifle is capable of disabling any vehicle engine block because of the large caliber round.

D. **Lifespan:**

This rifle has been in our possession for almost 15-years and we expect it to last for an additional 20 years or more considering how in-frequently it's used.

E. **Use:**

This rifle is used primarily in emergency situations where a life-threatening situation exists, necessitating a vehicle to be disabled.

F. **How it Works:**

This is a bolt-action rifle that fires one round at a time and needs to be reloaded by hand after each round. The Barrett Model 99 rifle works similar to all modern bolt-action rifles. When the trigger is pressed, a firing pin strikes the primer of a bullet loaded into the chamber of the rifle. The ignited primer ignites gun powder contained in the bullet which pushes the bullet down the barrel and out the muzzle. The operator pulls the bolt back, ejecting the spent cartridge. The operator then loads another bullet into the breach, pushes the bolt forward, and closes the chamber, making the rifle ready to fired again.

(2) **Purpose:**

The Barrett rifle is a firearm that may be used to stop a vehicle which poses a lethal threat to the public, or to disable a vehicle which presents a threat to the safety of another person(s) by its continued use. There are vehicle disabling tools that may disable vehicles by slowly deflating the tires; however, even with tires deflated a vehicle has the ability to operate and remain a threat to the public. Furthermore, these tools must be hand deployed and, in most circumstances, require officers to expose themselves to deadly threats. The Barrett rifle creates the ability to effectively disable vehicles instantaneously from a distance away.

(3) **Fiscal Cost:**

A. **Initial Cost:**

The Barrett Model 99 50-caliber rifle has a retail cost of approximately \$12,500 dollars. The Department of Justice provided the Barrett rifle to the Berkeley Police Department on 04/04/2007. There was no initial cost related to BPD taking possession of it.

B. **Cost of Use:**

The costs associated with its proposed uses is in the expenditure of its ammunition. The ammunition has a retail cost of approximately \$6 dollars per bullet; \$60 for a box of 10 and \$600 for a case of 10 boxes, plus shipping and handling. We currently possess 100 rounds of BMG ammunition.

C. **Cost of Potential Adverse Effects:**

Adverse effects of improper use of a firearm are not calculable. It could lead to the loss of life or serious injury. Additionally, the improper use could result in civil liabilities.

D. **Annual and Ongoing Costs:**

The annual cost of the equipment is minimal and includes ammunition expenditure, cleaning equipment, and possibly replacing the optics at some point in the future.

E. **Training Costs:**

The cost associated with training is the staff time, range fees, and cost of spent ammunition.

F. Maintenance and Storage Costs:

Maintenance costs vary depending on use over time and will vary. There are no costs associated with maintenance or storage of ammunition. All ammunition is stored in a climate-controlled room in the Berkeley Police Department.

G. Upgrade Costs:

Improvements in technology and new designs may be an additional cost but we can't predict what those will be at this time.

Should advancements be made in ammunition manufacturing; those upgrade costs are unknown at this time.

(4) Impact:

The Berkeley Police Department is committed to preserving and protecting human life and welfare. The Barrett rifle is a firearm the department would primarily use to stop a vehicle which poses a lethal threat to the public or used to disable a vehicle that presents a threat to the safety of another person(s) by its continued use.

The Barrett rifle is intended as a tool to increase the safety and welfare of community members and officers alike.

The Barrett rifle has minimal or no impact on civil rights or civil liberties as it will only be deployed in very specific situations, by very select members of the SRT. This is not a piece of equipment that is carried by an officer on routine patrol, and is highly unlikely that any members of our community would ever see this equipment due to its very selective use in the most critical of instances.

(5) Mitigations:

Only four BPD members are authorized to utilize this rifle. Authorized members are trained in its use as well as the very specific and limited circumstances where this equipment would be utilized.

(6) Alternatives:

There is no other alternative tool or asset available that could accomplish the same goal of this rifle. An alternative rifle to the Barrett model 99 is a different rifle of equal capability, such as a Lapua .338 caliber rifle.

(7) Third Party Dependence:

These rifles are simple in their design and operation. They do require regular maintenance which is performed by an SRT Team Leader. If an issue arises which is

beyond the scope of our Armorers we would seek manufacturer assistance. However, the need for this is expected to be very rare.

Appendix:

Applicable Lexipol Policies Respective to Each Equipment

Policies are hyperlinked to the Berkeley Police Department Lexipol policy website.

M4 rifle/Patrol Rifle

- [Policy 300 \(Use of Force\)](#)
- [Policy 349 \(Tactical Rifle Operator Program\)](#)

Penn Arms 40MM launcher

- [Policy 300 \(Use of Force\)](#)
- [Policy 303 \(Control Devices and Techniques\)](#)
- [Policy 428 \(First Amendment Assemblies\)](#)

Milkor LTL multi-launcher

- [Policy 300 \(Use of Force\)](#)
- [Policy 303 \(Control Devices and Techniques\)](#)
- [Policy 428 \(First Amendment Assemblies\)](#)

FN 303 Launcher & FN Pava rounds

- [Policy 300 \(Use of Force\)](#)
- [Policy 303 \(Control Devices and Techniques\)](#)
- [Policy 428 \(First Amendment Assemblies\)](#)

Chlorobenzylidene Malononitrile and Oleoresin Capsicum (canister and spray)

- [Policy 300 \(Use of Force\)](#)
- [Policy 303 \(Control Devices and Techniques\)](#)

Remington 700 Rifle

- [Policy 300 \(Use of Force\)](#)
- [Policy 354 \(Precision Rifle\)](#)

ReconRobotics Recon Scout XT Robots & Andros Remotec HD-1 Hazardous Duty Robot

- [Policy 708 \(Robot Cameras\)](#)

Light/Sound Diversionary Device

- [Policy 353 \(Diversionary Device\)](#)

Long Range Acoustic Device

- [Policy 707 \(Long Range Acoustical Device\)](#)

36" batons

- [Policy 300 \(Use of Force\)](#)
- [Policy 303 \(Control Devices and Techniques\)](#)
- [Policy 428 \(First Amendment Assemblies\)](#)

Mobile Command Vehicle

- [Policy 811 \(Mobile Command Vehicle \(MCV\)\)](#)

Barret Model 99

- [Policy 300 \(Use of Force\)](#)
- [Policy 354 \(Precision Rifle\)](#)

