


**CITY AND COUNTY OF SAN FRANCISCO  
BOARD OF SUPERVISORS  
BUDGET AND LEGISLATIVE ANALYST**

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**POLICY ANALYSIS REPORT**

**To:** Supervisor Sandra Fewer  
**From:** Budget and Legislative Analyst's Office   
**Date:** October 18, 2017  
**Re:** Costs of Implementing Conducted Energy Devices

**SUMMARY OF REQUESTED ACTION**

Your office requested that we evaluate the one-time and annual costs to the City and to the San Francisco Police Department to implement conducted energy devices.

*For further information about this report, contact Severin Campbell at the Budget and Legislative Analyst's Office.*

**Project Staff:** *Reuben Holober and Severin Campbell*

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**Costs of Proposed Conducted Energy Device Use by SFPD**

Conducted Energy Devices (CEDs), better known by the brand name Taser, are used by over 17,000 law enforcement agencies throughout the United States. The most common form of CEDs shoots darts connected to wires, delivering an electrical charge that causes involuntary muscle contractions and pain. CEDs became popular to law enforcement in the late 1990s and early 2000s as a “less-lethal” weapon alternative to firearms and batons.

The San Francisco Sheriff's Department began using CEDs in 2002. The San Francisco Police Department (SFPD) has evaluated but never implemented the use of CEDs. After several officer involved shootings in recent years, the SFPD solicited the Department of Justice Office of Community Oriented Policing Services (COPS) to assess SFPD's policies and practices. One of the recommendations made by COPS was that the City “should strongly consider deploying” CEDs. Since the publishing of the report in 2016, Chief William Scott has requested use of CEDs to assist in de-escalating situations that would otherwise require a higher level of force and in reducing injuries to subjects and officers. SFPD drafted a CED use policy, which was reviewed and commented on by the Police Officers Association, Department of Public Health, and the Office of Citizen Complaints. The Police Commission will decide whether or not CEDs are adopted by SFPD.

This report looks specifically at the one time and annual costs to the City and the SFPD to implement CEDs.

## Equipment Costs

### *Cost of Purchasing CEDs*

The San Francisco Sheriff's Department purchased X26P Tasers for \$2,326 per weapon. This cost includes the gun, four-year warranty, holster, 25 cartridges, and three batteries.

According to the draft SFPD CED policy, only SFPD officers who had successfully completed the department's use-of-force policy and Crisis Intervention Team training would be issued CEDs. As of the writing of this report, approximately 705 SFPD officers had completed the Crisis Intervention Training. If all SFPD officers were received Crisis Intervention Training, approximately 1,971 officers (the minimum staffing level required in the City's Charter) could be issued CEDs. To purchase 705 units would cost \$1,640,126, and to purchase 1,971 units would cost \$4,585,374.

### *Cost of Automated External Defibrillators (AEDs)*

The draft SFPD CED policy calls for the department to ensure that automated external defibrillators (AEDs) are readily available in department vehicles in the police districts. According to SFPD staff, the department's patrol vehicles are currently equipped with defibrillators, which have a useful life of eight years. According to the documents provided to the Budget and Legislative Analyst during the 2017 budget review, SFPD has a fleet of 340 patrol vehicles. SFPD currently uses Philips FRx AEDs, which cost \$1,559 each. Including replacement pads, a pediatric key, and replacement battery, the total cost is \$1,892 per unit. The total estimated cost to supply all 340 vehicles when the current defibrillators reach the end of their useful life is \$643,280, as shown below.

<b>Item</b>	<b>Cost</b>
Philips FRx AED	\$1,559
Replacement Pads	56
Pediatric Key	108
Replacement Battery	169
<i>Total Cost per Unit</i>	<i>\$1,892</i>
Total Cost for 340 Units	\$643,280

## Costs Associated with CED Implementation

### *Cost of Testing Weapons*

According to one report<sup>1</sup>, three options for testing on new CED units exist: (1) sending the weapons to an outside testing laboratory; (2) creating an in-house testing laboratory; and (3) purchasing standalone test equipment and deploying them in facilities around the City.

According to the report:

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<sup>1</sup> Answers provided by Leonesio Consulting to questions posed by the Bar Association of San Francisco

- (1) sending weapons to an outside facility would cost approximately \$500-\$1200 per weapon;
- (2) creating a testing laboratory would cost about \$100,000, with an annual maintenance cost of \$5,000, and the addition of four positions; and
- (3) purchasing standalone testing devices would require 25-30 units at a cost of \$15,000-\$20,000 per unit.

We estimate that the testing costs for:

- An outside facility would range from \$352,500 to \$876,000 for 705 units, and \$985,500 to \$2,365,200 or 1,971 units;
- In-house testing laboratory would have one time costs of \$100,000 and annual costs of approximately \$720,000 for maintenance and four Criminalist positions; and
- Standalone testing devices would range from \$375,000 to \$600,000.

#### *Cost of CED Training*

The San Francisco Sheriff's Department uses training provided by Axon, the Taser manufacturer. The Sheriff's Department has eight certified instructors, who provide internal training for the department. Considering that SFPD is about 2.5 times larger than the Sheriff's Department, it would likely need about 20 certified instructors. The initial instructor course with Axon costs \$435 per instructor, and the re-certification costs \$225 per instructor every two years. The total cost for training 20 instructors would be \$8,700 for initial training and \$4,500 for re-certification every two years.

According to SFPD staff, the department would likely incorporate required training for CED into existing training costs. However, we estimated the cost of initial and recertification training that is specific to CED use. The cost of user end training would depend on the number of staff trained, their ranks, and the number of hours of training and required backfilling. The SFPD draft CED policy requires CED users to undergo Crisis Intervention Team (CIT) training. There are currently 705 sworn personnel who have undergone CIT training. This includes 562 Officers, 123 Sergeants, 14 Lieutenants, 4 Captains, and 2 Commanders. The Sheriff's Department requires four hours of training per user. SFPD's draft policy requires users to undergo CED training, but does not specify the number of hours required. While the Sheriff's Department requires four hours of initial certification training, some police departments require up to eight hours of initial certification training.

SFPD may not backfill uniform staff who are attending training with overtime. However, because these uniform staff are not available for police duties, we have calculated the cost of overtime as an indicator of their time not assigned to police duties. Assuming that all sworn Crisis Intervention Team trained personnel receive four hours of training, the cost to backfill overtime for all positions would be \$199,491. If SFPD required eight hours of training, the cost would be \$398,982, as shown below.

Rank	Number in CIT	Hourly Base Pay	Hourly OT Pay	Backfilling All Positions	
				4 Hours	8 Hours
Officers	562	\$41.53	\$62.29	\$140,022	\$280,045
Sergeants	123	67.00	100.50	49,446	98,892
Lieutenants	14	76.54	114.81	6,429	12,858
Captains	4	96.71	145.07	2,321	4,642
Commanders	2	106.01	159.02	1,272	2,544
Total	705			\$199,491	\$398,981

The SFPD draft CED policy requires annual proficiency training. Four hours of recertification training every year would be an estimated \$199,491.

#### *Other Implementation Costs*

Other implementation costs include:

- Training for uniform staff who supervise CED use or conduct Use of Force evaluations, which is required by the SFPD's draft CED policy;
- Training for use of defibrillators. SFPD would need to develop a training and certification policy. As SFPD already has AEDs in several of its vehicles and facilities, this training may already be provided to officers through the Continuing Professional Training First Aid/CPR course.
- Cost of oversight of CED use. CED use oversight may be incorporated into the current process for reviewing use of force and officer performance. Whether or not additional staffing or resources are needed is unknown at this time.

While these are potential new costs to the SFPD to implement use of CEDs, these costs cannot be quantified at this time.

#### *Cost of Data Collection and Storage*

SFPD has implemented a data storage system as part of the implementation of body worn cameras; implementation of CEDs would not result in additional data storage costs. Officer time would be required to write CED use reports, although each CED use may have precipitated a different use-of-force if CEDs were unavailable, requiring a report.

#### **Impact of CED Use**

##### *Frequency of Use*

It is difficult to predict the number of anticipated CED deployments per year, but a review of available data from other large West Coast police departments gives a possible range.

<b>Agency and Year</b>	<b>Number of CED Incidents</b>	<b>Estimated Population</b>	<b>Number of Residents per CED Incident</b>
Fresno PD (2015)	77	518,503	6,734
Los Angeles PD (2016)	573	3,976,000	6,936
Portland PD (2014)	73	619,334	8,484
Oakland PD (2016)	46*	420,000	9,130
San Diego PD (2015)	121	1,391,000	11,496
Average			8,556

*\*Oakland PD did not have data available for the full year. It reported 23 incidents over a six month period of May through October 2016, so it is estimated that there were about 46 incidents throughout the year. Population is estimated for the year with CED usage data.*

The selected cities had a range of 6,734 to 11,496 residents per CED incident, with an average of 8,556. Given San Francisco’s current estimated population of 870,887, it would be reasonable to expect SFPD to use CEDs in approximately 76-129 incidents per year, with an average of 102 per year.

### *Hospital Costs*

SFPD’s draft CED policy requires officers to request emergency medical personnel to respond to the scene of CED activation, who would then transport subjects to a local hospital. The San Francisco Fire Department charges \$1,642 for EMS transport to the hospital. Department of Public Health emergency room rates in FY 2017-18 are \$525 for basic care and \$1,571 for a higher level of care (the FY 2017-18 emergency room rates cover five levels of care); the average for the first two levels of care is \$1,048. Total transport and emergency room costs would be approximately \$2,690 per incident. Estimated costs for transport and emergency room visits would range from approximately \$204,440 for 76 incidents to \$347,129 for 129 incidents, with an average cost of \$274,380.

EMS Transport Cost	\$1,642
Average Level I and Level II Emergency Room	\$1,048
<i>Estimated Transport and Emergency Room Cost per Incident</i>	<i>\$2,690</i>
Expected Number of Annual Incidents	102
Estimated Annual Transport and Emergency Room Cost	\$274,380

### **Risks of CED Use**

The Stanford Criminal Justice Center, which is part of Stanford University Law School, prepared a report for the Berkeley City Council in 2015 on CEDs<sup>2</sup>, which identified workers compensation and litigation costs as two costs that could potentially result from the use of CEDs. We were not able to identify reliable

<sup>2</sup> “Report on Electronic Control Weapons (ECWs)”, submitted to the City of Berkeley by the Stanford Criminal Justice Center, June 2015.

sources of information on these costs. However, one study from 2009<sup>3</sup> found that CED sites were associated with improved safety outcomes for police officers, including reductions in injuries and reductions in injuries requiring medical attention.

#### *Risk of Lawsuits*

A report by Reuters on August 22, 2017, documented 1,005 deaths in the United States following encounters with police in which CEDs were used, either on their own or as part of a larger use-of-force incident. Reuters found that 442 wrongful death lawsuits have been filed from deaths following CED use, most of which were filed against police departments and the municipalities. In more than 60 percent of resolved cases, the municipality paid a settlement or judgment. While many settlements are confidential, Reuters identified \$172 million in payouts due to wrongful death lawsuits.

We were not able to identify the number of lawsuits related to CED use that did not result in deaths.

Because of the many variables that can lead to injury or death from CED use, and because reliable data on lawsuits due to injury or death is not available, we cannot estimate the potential litigation costs to the City from use of CEDs. In writing its policy, SFPD drew upon best practices recommended by the Police Executive Research Forum. If SFPD routinely follows these practices, it could reduce the risk of CED misuse and resulting injuries and death and reduce the City's litigation risk.

#### **Summary of Costs**

The table below shows a range of low and high ends costs of implementing CEDs, both on a one-time basis and annually.

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<sup>3</sup> "Comparing safety outcomes in police use-of-force cases for law enforcement agencies that have deployed Conducted Energy Devices and a matched comparison group that have not: a quasi-experimental evaluation", submitted to the National Institute of Justice by the Police Executive Research Forum, September 2009.

	<b>Low Estimate</b> (Based on Purchase and Testing of CEDs for 705 Officers)	<b>High Estimate</b> (Based on Purchase and Testing of CEDs for 1,971 Officers)
<b>One Time Costs</b>		
CED Equipment	\$1,640,126	\$4,585,374
Defibrillators	643,280	643,280
Testing	352,500	2,365,200
Instructor Training	8,700	8,700
Officer Training	199,491	398,981
<b>Total One-Time Costs</b>	<b>\$2,844,097</b>	<b>\$8,001,535</b>
<b>Annual Costs</b>		
Instructor Recertification Training *	2,250	2,250
User Recertification Training	199,491	398,981
Emergency Room Visits	204,440	347,010
<b>Total Annual Costs</b>	<b>\$406,181</b>	<b>\$748,241</b>

*\*Ongoing Instructor Training is estimated to cost \$4,500 every two years, so the estimated average annual cost is \$2,250.*

The City could incur additional unquantified costs for additional training and oversight, as noted above, and for litigation resulting from injury or death due to CED use by police officer.