

**Congress of the United States**  
**Washington, DC 20515**

May 14, 2024

The Honorable Joseph V. Cuffari  
Inspector General  
U.S. Department of Homeland Security  
245 Murray Lane, SW  
Washington, DC 20528

Dear Inspector General Cuffari:

Several recent reports have cast substantial doubt on the accuracy and effectiveness of the “ShotSpotter” gunshot detection system and have raised serious questions about its contribution to unjustified surveillance and over-policing of Black, Brown, and Latino communities. Through the Urban Area Security Initiative (UASI) grant program, the Department of Homeland Security (DHS) provides funding to localities to deploy the ShotSpotter system. We request that the DHS Office of Inspector General (OIG) investigate DHS’s spending of taxpayer dollars on ShotSpotter, including potential violations of Title VI of the Civil Rights Act of 1964, which prohibits recipients of federal financial assistance from discriminating based on race, color, and national origin.

ShotSpotter is marketed as an acoustic gunshot detection system that purportedly allows law enforcement to accurately detect gunshot incidents. According to SoundThinking — ShotSpotter’s publicly traded manufacturer and marketer — ShotSpotter is “a network of acoustic sensors that can detect, locate, and alert police to nearly all gunshot incidents.”<sup>1</sup> Specifically, “ShotSpotter uses an array of acoustic sensors that are connected wirelessly to ShotSpotter’s centralized, cloud-based application to reliably detect and accurately locate gunshots using triangulation. Each acoustic sensor captures the precise time and audio associated with impulsive sounds that may represent gunfire. This data is used to locate the incident and is then filtered by sophisticated machine algorithms to classify the event as a potential gunshot.”<sup>2</sup>

This technology, in turn, purportedly brings many benefits to the communities that deploy it. SoundThinking maintains that ShotSpotter “enable[es] fast, precise response, improved evidence collection, and stronger police-community relations.”<sup>3</sup> In particular, law enforcement can

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<sup>1</sup> ShotSpotter FAQs, What is ShotSpotter?, <https://www.soundthinking.com/law-enforcement/leading-gunshot-detection-system/>.

<sup>2</sup> ShotSpotter FAQs, How does ShotSpotter Work?, <https://www.soundthinking.com/law-enforcement/leading-gunshot-detection-system/>.

<sup>3</sup> ShotSpotter® Gunshot Detection Impact on Public Safety, <https://www.soundthinking.com/shotspotter-public-safety-results/>.

“[r]ecover more shell casings with precise location of shots fired;” “[l]ocate more witnesses;” “[i]dentify shooters faster;” and thereby “[d]isrupt the shooting cycle.”<sup>4</sup>

Importantly, SoundThinking bills the ShotSpotter system as “highly accurate at detecting outdoor gunshots.”<sup>5</sup> SoundThinking touts that “[f]rom 2019-2021 the system had a 97% aggregate accuracy rate across all of [its] customers, including a very small false positive rate of less than 0.5% of all reported gunfire incidents.”<sup>6</sup> As SoundThinking puts it, this makes ShotSpotter effectively a “digitized 911 call for gunshots that is faster and more accurate than our 50+ year old emergency call system.”<sup>7</sup>

DHS, through the UASI grant program, has for years provided substantial funding to localities to deploy the ShotSpotter system. In Massachusetts alone, “UASI has funded almost a decade of contracts for gunshot detection technology with ShotSpotter in Cambridge, Chelsea, Somerville, and Boston.”<sup>8</sup> Since 2012, according to city records, Boston has spent more than \$4 million on ShotSpotter.<sup>9</sup> Elsewhere, municipalities across the country have used UASI funds for the ShotSpotter system. One study found that “[t]hrough an analysis of UASI funding in Los Angeles, Boston, New York City, and Chicago . . . cities spend millions of UASI dollars on contracts with surveillance corporations” such as ShotSpotter.<sup>10</sup>

But recent reporting has raised serious questions about ShotSpotter’s accuracy, effectiveness, and contribution to the unjustified surveillance and over-policing of minority communities. A 2022 investigation by the Associated Press “found the system can miss live gunfire right under its microphones, or misclassify the sounds of fireworks or cars backfiring as gunshots.”<sup>11</sup> According to the Associated Press investigation, “[t]he company’s methods for identifying gunshots aren’t always guided solely by the technology. ShotSpotter employees can, and often do, change the source of sounds picked up by its sensors after listening to audio recordings,

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<sup>4</sup> Improve Evidence Collection and Feed Your NIBIN Program, <https://www.soundthinking.com/law-enforcement/leading-gunshot-detection-system/>.

<sup>5</sup> ShotSpotter FAQs, How accurate is SoundThinking’s ShotSpotter gunshot detection solution?, <https://www.soundthinking.com/law-enforcement/leading-gunshot-detection-system/>.

<sup>6</sup> *Id.*

<sup>7</sup> Gun Violence is an Epidemic. 80% of Shootings are NEVER called in, <https://www.soundthinking.com/law-enforcement/leading-gunshot-detection-system/>.

<sup>8</sup> Urban Area Security Initiative (UASI) 101: How the Department of Homeland Security’s counterterrorism grant program supercharges policing in our communities, Surveillance Resistance Lab, <https://surveillanceresistancelab.org/wp-content/uploads/UASI-101-Organizer-Guide-2023.pdf> (last visited Apr. 29, 2024).

<sup>9</sup> Julie Lee, *Boston Police Records Show Nearly 70 Percent of ShotSpotter Alerts Led to Dead Ends*, ACLU Massachusetts (Apr. 8, 2024), <https://data.aclum.org/2024/04/08/boston-shotspotter/>.

<sup>10</sup> Alli Finn et al., *DHS is Open for Business*, Action Center on Race & the Economy (ACRE), LittleSis, MediaJustice, and the Surveillance, Tech, and Immigration Policing Project at the Immigrant Defense Project, [https://acrecampaigns.org/wp-content/uploads/2022/12/DHS-OPEN-FOR-BUSINESS\\_FINAL.pdf](https://acrecampaigns.org/wp-content/uploads/2022/12/DHS-OPEN-FOR-BUSINESS_FINAL.pdf) (last visited Apr. 29, 2024).

<sup>11</sup> Garance Burke et al., *How AI-powered tech landed man in jail with scant evidence*, AP (Mar. 5, 2022), <https://apnews.com/article/artificial-intelligence-algorithm-technology-police-crime-7e3345485aa668c97606d4b54f9b6220>.

introducing the possibility of human bias into the gunshot detection algorithm. Employees can and do modify the location or number of shots fired at the request of police, according to court records. And in the past, city dispatchers or police themselves could also make some of these changes.”<sup>12</sup>

Massachusetts has experienced these kinds of problems with ShotSpotter. In 2019, only 4 out of 22 ShotSpotter activation alerts in Cambridge corresponded with confirmed shooting events — “a false positive rate of about 82 percent.”<sup>13</sup> And according to a study just last month by the American Civil Liberties Union Massachusetts (ACLU), a review of more than 1,300 Boston Police Department (BPD) reports showed that “in nearly 70 percent of ShotSpotter alerts, police found no evidence of gunfire. In one case, ShotSpotter was set off by a piñata at a birthday party.”<sup>14</sup> Indeed, records from the BPD “indicate that over 10 percent of ShotSpotter alerts flagged fireworks, not weapons discharges.”<sup>15</sup>

The ShotSpotter system’s ineffectiveness has consequences for law enforcement, community response, and the prevention of gun violence. A 2021 study from the *Journal of Public Health* found “that implementing ShotSpotter technology has no significant impact on firearm-related homicides or arrest outcomes” and that “[p]olicy solutions may represent a more cost-effective measure to reduce urban firearm violence.”<sup>16</sup> Another study from the MacArthur Justice Center at Northwestern University concluded “that more than 90% of ShotSpotter alerts lead police to find no evidence to corroborate gunfire when police arrive at the location ShotSpotter sent them: no shooting, no shell casings, no victims, no witnesses, no guns recovered.”<sup>17</sup>

But beyond the question of ShotSpotter’s effectiveness are concerns about discrimination, civil rights violations, and the system’s impact on policing practices and minority communities. According to SoundThinking, “police departments tell the company where they want ShotSpotter coverage, but the company keeps the precise locations of the sensors secret.”<sup>18</sup> Nonetheless, a WIRED analysis of leaked ShotSpotter sensor locations — accepted as “true” by Tom Chittum, senior vice president of forensic services at SoundThinking— found that, in aggregate, “nearly 70 percent of people who live in a neighborhood with at least one SoundThinking sensor

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<sup>12</sup> *Id.*

<sup>13</sup> Vivekae M. Kim, *Eyes and Ears in Cambridge*, Harvard Crimson, Fifteen Minutes (Oct. 10, 2019), <https://www.thecrimson.com/article/2019/10/10/shot-spotter/>.

<sup>14</sup> Julie Lee, *Boston Police Records Show Nearly 70 Percent of ShotSpotter Alerts Led to Dead Ends*, ACLU Massachusetts (Apr. 8, 2024), <https://data.aclum.org/2024/04/08/boston-shotspotter/>.

<sup>15</sup> *Id.*

<sup>16</sup> Mitchell L. Doucette et al., *Impact of ShotSpotter Technology on Firearm Homicides and Arrests Among Large Metropolitan Counties: a Longitudinal Analysis, 1999–2016*, J. Pub. H. (Apr. 30, 2021), <https://wpln.org/wp-content/uploads/sites/7/2022/02/Doucette-Impact-of-ShotSpotter-Technology-on-Firearm-Homici.pdf>.

<sup>17</sup> *ShotSpotter creates thousands of unfounded police deployments, fuels unconstitutional stop-and-frisk, and can lead to false arrests*, MacArthur Justice Center, <https://endpolicesurveillance.com/> (last visited Apr. 29, 2024).

<sup>18</sup> Spencer Buell, *Local officials are scrutinizing ShotSpotter gunshot detection system anew: ‘What exactly have we been doing here?’*, Boston Globe (Apr. 3, 2024), [https://www.bostonglobe.com/2024/04/03/metro/shotspotter-scrutiny-somerville/?p1=BGSearch\\_Overlay\\_Results](https://www.bostonglobe.com/2024/04/03/metro/shotspotter-scrutiny-somerville/?p1=BGSearch_Overlay_Results).

identified . . . as either Black or Latine.”<sup>19</sup> Almost three-quarters of those neighborhoods were majority nonwhite, with the average household earning slightly more than \$50,000 annually.<sup>20</sup>

Data from the leaked sensor locations showed that “[i]n Boston, ShotSpotter microphones are installed primarily in Dorchester and Roxbury, in areas where some neighborhoods are over 90 percent Black and/or Latine.”<sup>21</sup> Elsewhere at the local level, the results were the same. “Winston-Salem, North Carolina, for example, is approximately 43 percent white, but only 13 percent of the residents who live in areas that have at least one ShotSpotter device installed identify as white . . . . In Fort Myers, Florida, roughly 19 percent of the population is Black; in block groups with at least one sensor, however, approximately 41 percent of the population is Black.”<sup>22</sup> Similarly, the MacArthur Justice Center Report found that “[i]n Chicago, ShotSpotter is only deployed in the police districts with the highest proportion of Black and Latinx residents. ShotSpotter deployments are concentrated only in those neighborhoods.”<sup>23</sup>

The result of this disproportionate deployment is unjustified surveillance and over-policing of these neighborhoods. The ACLUM found that “ShotSpotter alerts have also contributed to wrongful arrests and increased police stops, almost exclusively in Black and brown neighborhoods.”<sup>24</sup> These records, which detailed incidents from 2020 through 2022, “include several cases where people in the vicinity of an alert were stopped, searched, or cited — just because they happened to be in the wrong place at the wrong time.”<sup>25</sup> Consequently, because “ShotSpotter devices in Boston are predominately located in Black and brown neighborhoods, its alerts increase the funneling of police into those neighborhoods, even when there is no evidence of a shooting.”<sup>26</sup> ACLUM went on to note that “[t]his dynamic exacerbates the cycle of over-policing of communities of color and increases mistrust towards police among groups of people who are disproportionately stopped and searched.”<sup>27</sup>

Likewise in Chicago, according to the MacArthur Justice Center, the Chicago Office of Inspector General “found a link between ShotSpotter deployments and stop-and-frisk. Over 18

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<sup>19</sup> Dhruv Mehrotra & Joey Scott, *Here Are the Secret Locations of ShotSpotter Gunfire Sensors*, WIRED (Feb. 22, 2024), <https://www.wired.com/story/shotspotter-secret-sensor-locations-leak/>.

<sup>20</sup> *Id.*

<sup>21</sup> Julie Lee, *Boston Police Records Show Nearly 70 Percent of ShotSpotter Alerts Led to Dead Ends*, ACLU Massachusetts (Apr. 8, 2024), <https://data.aclum.org/2024/04/08/boston-shotspotter/>.

<sup>22</sup> Dhruv Mehrotra & Joey Scott, *Here Are the Secret Locations of ShotSpotter Gunfire Sensors*, WIRED (Feb. 22, 2024), <https://www.wired.com/story/shotspotter-secret-sensor-locations-leak/>.

<sup>23</sup> *ShotSpotter creates thousands of unfounded police deployments, fuels unconstitutional stop-and-frisk, and can lead to false arrests*, MacArthur Justice Center, <https://endpolicesurveillance.com/> (last visited Apr. 29, 2024).

<sup>24</sup> Julie Lee, *Boston Police Records Show Nearly 70 Percent of ShotSpotter Alerts Led to Dead Ends*, ACLU Massachusetts (Apr. 8, 2024), <https://data.aclum.org/2024/04/08/boston-shotspotter/>.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

months, it found more than 2,400 stop-and-frisks linked to ShotSpotter,” but that was “likely to be a significant undercount because of poor Chicago Police Department record-keeping.”<sup>28</sup>

This cycle of frequently false shooting reports that lead to increased interactions between minority community members and law enforcement has had negative implications for the court system as well. The Associated Press investigation found that “reports prepared by ShotSpotter’s employees have been used in court to improperly claim that a defendant shot at police, or provide questionable counts of the number of shots allegedly fired by defendants.”<sup>29</sup> Consequently, “[j]udges in a number of cases have thrown out the evidence.”<sup>30</sup>

As the ACLUM aptly summed up all this evidence: “Coupled with the high error rate of the system, BPD records indicate that ShotSpotter perpetuates the over-policing of communities of color, encouraging police to comb through neighborhoods and interrogate residents in response to what often turn out to be false alarms.”<sup>31</sup> Specifically, “[i]n the nearly 70 percent of cases where ShotSpotter sent an alert but police found no evidence of gunfire, residents of mostly Black and brown communities were confronted by police officers looking for shooters who may not have existed, creating potentially dangerous situations for residents and heightening tension in an otherwise peaceful environment.”<sup>32</sup>

For all these reasons, cities across the country are abandoning ShotSpotter. In February 2024, Chicago Mayor Brandon Johnson announced that the city would not renew its ShotSpotter contract. There, according to Mayor Johnson, ShotSpotter “played a pivotal role” in the March 2021 fatal police shooting of 13-year-old Adam Toledo, when police responded to a ShotSpotter report of shots fired.<sup>33</sup> Chicago’s contract with ShotSpotter will now expire in September 2024, with a two-month transition period to follow.<sup>34</sup> Elsewhere, cities including Canton, OH; Charlotte, NC; Dayton, OH; Durham, NC; Fall River, MA; and San Antonio, TX have all decided to end their use of ShotSpotter.<sup>35</sup> As Mayor Jasiel Correia of Fall River, Massachusetts

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<sup>28</sup> *ShotSpotter creates thousands of unfounded police deployments, fuels unconstitutional stop-and-frisk, and can lead to false arrests*, MacArthur Justice Center, <https://endpolicesurveillance.com/> (last visited Apr. 29, 2024).

<sup>29</sup> Garance Burke et al., *How AI-powered tech landed man in jail with scant evidence*, AP (Mar. 5, 2022), <https://apnews.com/article/artificial-intelligence-algorithm-technology-police-crime-7e3345485aa668c97606d4b54f9b6220>.

<sup>30</sup> *Id.*

<sup>31</sup> Julie Lee, *Boston Police Records Show Nearly 70 Percent of ShotSpotter Alerts Led to Dead Ends*, ACLU Massachusetts (Apr. 8, 2024), <https://data.aclum.org/2024/04/08/boston-shotspotter/>.

<sup>32</sup> Garance Burke et al., *How AI-powered tech landed man in jail with scant evidence*, AP (Mar. 5, 2022), <https://apnews.com/article/artificial-intelligence-algorithm-technology-police-crime-7e3345485aa668c97606d4b54f9b6220>.

<sup>33</sup> Diba Mohtasham, *Chicago will drop controversial ShotSpotter gunfire detection system*, NPR (Feb. 15, 2024), <https://www.npr.org/2024/02/15/1231394334/shotspotter-gunfire-detection-chicago-mayor-dropping>.

<sup>34</sup> Courtney Spinelli et al., *City, agrees to extend ShotSpotter contract through Sept. 2024*, WGN9 (Feb. 16, 2024), <https://wgntv.com/news/chicago-news/city-soundthinking-agree-to-shotspotter-contract-extension-through-sept-2024/>.

<sup>35</sup> Letter from Kade Crockford et al., ACLUM, to Somerville City Council (Mar. 14, 2024), [https://www.aclum.org/sites/default/files/aclum\\_shotspotter\\_letter\\_march\\_2024.pdf](https://www.aclum.org/sites/default/files/aclum_shotspotter_letter_march_2024.pdf).



explained: “It’s a costly system that isn’t working to the effectiveness that we need it to work in order to justify the cost.”<sup>36</sup> Fall River Police Chief Al Dupere amplified that ShotSpotter “had reported too many false alarms of gunfire while missing actual shots-fired incidents in Fall River.”<sup>37</sup>

Last fall, these and other concerns prompted the Electronic Privacy Information Center (EPIC) to file a petition with the U.S. Department of Justice asking it to investigate whether any DOJ funds were being used for contracts with SoundThinking. In particular, EPIC asked DOJ to determine whether grant funds originating from DOJ spent on ShotSpotter complied with Title VI of the Civil Rights Act of 1964. As EPIC explained Title VI’s implication in ShotSpotter spending:

Title VI prohibits recipients of federal financial assistance from discriminating based on race, color, and national origin. Title VI’s prohibition “applies to intentional discrimination as well as to procedures, criteria or methods of administration that appear neutral but have a discriminatory effect on individuals because of their race, color, or national origin.” Title VI may be violated where “a predominantly minority community is provided lower benefits, fewer services, or is subject to harsher rules than a predominantly nonminority community.” It also may be violated where a recipient of federal financial assistance relies on biased assumptions about certain individuals and groups to determine how and when to apply particular procedures or methods.<sup>38</sup>

These same concerns apply with equal force to DHS’s funding of ShotSpotter through the UASI grant program. They strongly militate in favor of your office investigating whether DHS has appropriate policies to ensure that UASI’s funding for ShotSpotter does not facilitate violations of Title VI.

For all the preceding reasons, we respectfully request that you open an investigation in DHS’s funding of the ShotSpotter system to determine whether it is an appropriate use of taxpayer dollars, including the critical question of whether such funding may lead to Title VI violations.

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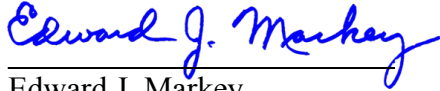
<sup>36</sup> Brian Fraga, *After Too Many Shots Missed, Fall River, Mass., Ends Deal with ShotSpotter*, Herald News (Apr. 23, 2018), <https://www.govtech.com/public-safety/after-too-many-shots-missed-fall-river-mass-ends-deal-with-shotspotter.html>.

<sup>37</sup> *Id.*

<sup>38</sup> Letter from Ben Winters, EPIC Senior Counsel, et al., to Attorney General Merrick Garland (Sept. 27, 2023), <https://epic.org/wp-content/uploads/2023/09/EPIC-DOJ-23-09-27-Title-VI-Petition-ShotSpotter.pdf> (citing and quoting 42 U.S.C. § 2000d; Civil Rights Requirements- A. Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d et seq., U.S. Dep’t of Health & Hum. Servs., <https://www.hhs.gov/civil-rights/for-individuals/special-topics/needy-families/civil-rights-requirements/index.html>).

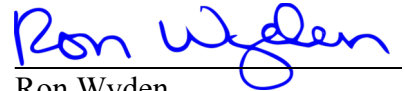
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May 14, 2024  
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Sincerely,



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Edward J. Markey  
United States Senator



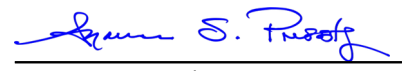
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Ron Wyden  
United States Senator



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Elizabeth Warren  
United States Senator



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Ayanna Pressley  
Member of Congress