



St. Louis Metropolitan Police Department Surveillance Use Plan



SURVEILLANCE TECHNOLOGY:

Gunshot Detection Technology – ShotSpotter by SoundThinking

DESCRIPTION:

Information describing the surveillance technology and how it works, including product descriptions from manufacturers

SoundThinking's gunshot detection technology (also known as ShotSpotter) was implemented by the St. Louis Metropolitan Police Department in 2008. It serves as an acoustical technology that precisely locates the area where gunshots have been fired and provide near real time alerts/notifications. These notifications are received without a resident making a 911 call, increasing the police response to these types of incidents.

During the period of January 1st, 2022, and December 31st of 2023, the Saint Louis Metropolitan Police Department received 22,350 calls for ShotSpotter and since this technology runs 24 hours a day, the number of investigations related to the discharge of firearms are not dependent on the time of day (during low call volume). During the hours of 10:00 PM and 6:00 AM, where the numbers were expected to be significantly lower, the total number of calls received in the same reporting period was 10,423, representing 46.6% of total notifications received.

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 pattern of disturbance caused by the movement of energy travelling through the air as it propagates away from the source of the sound which 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.

Acoustic experts, who are located and staffed in ShotSpotter's 24/7 Incident Review Center ensure and confirm that the events are indeed gunfire. The acoustic experts can append the alert with other critical intelligence such as whether a fully automatic weapon was fired or whether there are multiple shooters. This entire process takes less than 60 seconds from the time of the shooting to the digital alert that is displayed onto the screen of a computer in the 911 Call Center or on the patrol's officers' mobile laptop.

For more information [How ShotSpotter Protects Your Community and Saves Lives](#)

PURPOSE:

What specific purpose(s) the surveillance technology is intended to advance?

The ShotSpotter technology increases response times to locations where gunshots have been fired and assist the Department with identifying areas with high incidents of discharging of firearms. This allows officers to recover evidence and locate victims of shooting to render aid immediately. In addition to increasing response times, it increases the frequency of responses to incidents when a firearm is discharged.

Residents in neighborhoods plagued with gunfire, often become desensitized, and do not contact police to respond because of the normalcy of the sound of gunfire. Prior to this technology, the agency depended on a resident calling



St. Louis Metropolitan Police Department Surveillance Use Plan



911 or being in the right place at the right time. As mentioned, the during a two-year period, ranging from January 1st, 2022, and December 31st of 2023, the Saint Louis Metropolitan Police Department received 22,350 calls for ShotSpotter Investigations.

AUTHORIZED USE(S):

For what specific capabilities and uses of the surveillance technology is authorization being sought, including amounts, to be acquired and deployed, expected geographic areas and durations, organizational partnerships, and Memorandums of Understanding (MOUs) and:

- 1) SLMPD is requesting the continued use of ShotSpotter for its acoustic technology ability.
- 2) SLMPD is requesting the continued use of 6.26 square miles with the anticipated 7.26 square miles to be completed within the coming months.
- 3) The technology will cover 7.26 square miles (currently covers 6.26 square miles). The areas covered are in Police Districts 1, 3, 4 and 6. The authorized use of this technology is based on a contract signed by the city. The original contract was signed in 2008. Due to this technology being subscription based, there is a termination clause within the signed contract that allows either party to end the contract under various circumstances.
- 4) There are no partnerships or MOUs with outside organizations for this technology. It is governed by the contract signed between SLMPD and ShotSpotter.

a) What legal and procedural rules will govern each authorized use, including where an application of Surveillance Technology requires a warrant?

This technology is used by the department as an investigative tool as part of an overall crime reduction strategy. It is used to assist in the implementation of strategies in various parts of the city as it relates to gunfire, and it is used by officers to locate evidence. The collection of this evidence helps connect cases and allows the department to focus on a few individuals who are responsible for discharging firearms and causing residents in our communities to feel unsafe.

The legal and procedural rules that govern each authorized use is based on the department policies and the executed contract. Access to the system is monitored using individual logins by each authorized user and there is no warrant needed to utilize this technology.

b) What potential uses of the surveillance technology will be expressly prohibited?

There is no prohibited uses of this technology based on the way the technology works.

It is important to note that these acoustic sensors do not record any telecommunications data such as cellular telephones, radio waves, microwaves nor is capable or gathering any contents of any electronic forms of communication.

c) How and under what circumstances will surveillance data that was collected, captured, recorded, or intercepted by the surveillance technology be analyzed and reviewed?



St. Louis Metropolitan Police Department Surveillance Use Plan



Data that is collected with this technology is reviewed by acoustic experts, located in ShotSpotter's 24/7 Incident Review Center. They ensure and confirm that the events are indeed gunfire. They can append the alert with other critical intelligence such as whether a fully automatic weapon was fired or whether there are multiple shooters.

This entire process takes less than 60 seconds from the time of the shooting to the digital alert showing up on a 911 Call Center workstation or on the patrol officers' mobile laptop.

DEPLOYMENT:

If the surveillance technology will not be uniformly deployed or targeted throughout the city, what factors will be used to determine the specific geographic targeting, and what measures will be taken to ensure such targeting is racially and economically neutral.

ShotSpotter technology is not uniformly deployed throughout the city. Requests from residents and alderpeople were taken into consideration for the initial placement of this technology, but the technology is deployed based on crime data in each area of the city.

The city is working with Professor Dennis Mares on a research project with the SLMPD on the use of ShotSpotter and its efficiency. This project is adding coverage to the Dutchtown and Mount Pleasant neighborhoods based on gun related crime data.

Deploying technology based on the crime data ensures that there is no targeting due to race or economics.

COST:

The fiscal impact of the surveillance technology, including costs of technology acquisition, operation, maintenance, personnel, and data storage, as well as all sources of funding and donations.

SoundThinking costs approximately \$70,000.00 per square mile. \$64,000 is paid through grant funding, \$130,000 is covered by the Police Foundation, and \$242,000 is funded by Civil Asset Forfeiture. All maintenance, storage, and equipment are covered by this cost.

DISCRIMINATORY IMPACT AVOIDANCE:

What specific, affirmative measures will be implemented to safeguard the public from the potential discriminatory impacts of the technology, including without limitation what measures will be used to avoid biases in surveillance targeting and data collection?

SoundThinking is deployed based on the concentration of crime. Our department regularly analyzes crime statistics to inform our decisions. The department has also held technology meetings in neighborhoods to educate residents on the use of technology. Deploying the technology this way ensures that police services are provided equally to the city as a whole and ensuring that all residents feel safe within their neighborhoods. SoundThinking improves police response in areas where residents are less likely to report instances of gunfire for fear of retaliation.

DATA COLLECTION:



St. Louis Metropolitan Police Department Surveillance Use Plan



What types of surveillance data will be collected, captured, recorded, intercepted, or retained by the surveillance technology?

Only audio data (soundwave patterns) are captured by the acoustic sensors and analyzed. The storage on the local sensor is limited to 30 hours. It is important to note that no electronic means of communication, such as cellular telephones, radios, microwave technology is captured, retained or analyzed by this technology.

What surveillance data may be inadvertently collected during the authorized uses of the surveillance technology, and what measures will be taken to minimize the inadvertent collection of data?

No additional data, other than audio data is collected. It should be noted that this technology does not intercept and/or listen personal conversations of citizens in public.

How inadvertently collected surveillance data is be expeditiously identified and deleted?

The collection of audio data by the acoustic sensors is automatic. All audio data is removed within 30 hours.

How the City Entity will ensure that, when it retains surveillance data, such retention will comply with the Missouri Records Retention Schedule?

The acoustic sensors capture soundwaves of gunshots and suspected gunshots. When three (3) or more sensors are triggered by detecting patterns in the soundwaves and the location can be determined, an event can be generated. Once the incident is created, the system sends a short audio snippet to the ShotSpotter Incident Review Center. The snippet has the gunfire and 1 second of audio prior to and after the gunfire to establish an ambient noise level. Audio snippets are typically only a few seconds long unless there is continuous gun fire.

Real-time notifications of gunfire incidents include the following data:

- Incident location (dot on map)
- Type of gunfire (single round, multiple round)
- Unique Identification Number (P number)
- Data and time of the muzzle blast (trigger time)
- Nearest address of the gunfire location
- Number of shots
- District identification
- Beat identification

The real-time notification also includes a link to the audio snippet, which is valid for 24 hours. No personally identifiable information is associated with a real-time notification.

DATA PROTECTION:

What safeguards will be used to protect surveillance data from unauthorized access, including encryption and access control mechanisms, and what protocols will be put in place to authorize access and monitor who has access?

SoundThinking – not the St. Louis Metropolitan Police Department- is responsible for determining the location(s) for installation of acoustic sensors(s) that detect gunshot-like sounds and obtaining permission from the premises owner/property manager/lessee. They make this determination to ensure the technology functions appropriately; however, SLMPD does determine the area to be covered in line with crime statistics.



St. Louis Metropolitan Police Department Surveillance Use Plan



SoundThinking utilizes multiple technology and policy protections to protect against audio surveillance:

- Sensors are placed high above the street typically on building or streetlights to avoid street level sounds and the microphones uses are not designed to capture conversations.
- The system is tuned to listen for loud, impulsive sounds that are gunshots or like gunshots (fireworks, car backfires) and takes no action on other sounds that would include street level sounds or human voices.
- The sensors store a limited amount of audio locally and that audio is automatically purged every 30 hours. Sensors are triggered and an incident created only when 3 or more sensors hear the same loud impulsive sound and can verify its location.

St. Louis Metropolitan Police Department personnel must abide by security terms and conditions associated with all computer systems of SLMPD, included those governing user passwords and logon procedures. SLMPD personnel must maintain confidentiality of information accessed, created received, disclosed, or otherwise maintained while on duty and may only disclose information to others, including other members of the SLMPD, as required in the execution of lawful duty.

SLMPD personnel are responsible for preventing third parties unauthorized access to information. Failure to adhere to the Department's Data Use Agreement, which is part of the executed contracts, may subject SLMPD personnel to disciplinary and/or criminal action. SLMPD personnel must confirm the identity and affiliation of individuals requesting information from the SLMPD and determine that the release of information is lawful prior to disclosure. Unauthorized access of any system will subject employees to administrative and potentially criminal penalties.

DATA RETENTION:

What rules and procedures will govern the retention and deletion of surveillance data, including how it will be ensured that the schedule for retaining and deleting aligns with the guidelines specified in RSMo 109.200-109.310 and how data collected by the City Entity as a result of the use of surveillance technology shall be stored in a manner such that it cannot be modified, destroyed, accessed or purged contrary to the Missouri Police Clerks Records Retention Schedule?

ShotSpotter technology automatically purges sensor audio every 30 hours.

If an incident is created and sent to ShotSpotter's Incident Review Center, the short audio snippet is stored permanently for evidentiary purposes as well as to train the machine learning model. SLMPD does not have direct access to the audio files retained by the company. Per the NYU's Policing Project recommendation, ShotSpotter only stores one second of pre- and post-incident audio. Refer to Privacy Audit & Assessment of ShotSpotter, Inc.'s Gunshot Detection Technology, Prepared by The Policing Project at NYU Law (July 2019), available at:

[Privacy Audit & Assessment of ShotSpotter, Inc.'s Gunshot Detection Technology - The Policing Project](#)

All surveillance information is retained in accordance with Missouri State Agency General Retention Schedule and Local Government Records Retention Schedules (RSMo 109.200-109.310).



St. Louis Metropolitan Police Department Surveillance Use Plan



Any information related to a crime, or an investigation of criminal activity must be maintained in accordance with the Schedule and preserved so it can be made available for discovery during the pendency of the case and any subsequent appeals as required of all Public Agencies in the Schedule.

SURVEILLANCE DATA SHARING:

If a city entity is seeking authorization to share access to surveillance technology or surveillance data with any other persons, city entities, or governmental entities, it shall detail:

a) Which persons, city entities, or other governmental entities will be approved for (i) surveillance technology sharing, and for (ii) surveillance data sharing?

SLMPD authorized personnel, as well as select members of strategic law enforcement partners such as the City of St. Louis Office of Violence Prevention and ATF, have access to ShotSpotter alerts through the application under the executed agreement with ShotSpotter.

b) How much sharing is necessary for the stated purpose and use of the surveillance technology?

No sharing is necessary for the stated purpose and use of the surveillance technology. Sharing may occur with other law enforcement entities, as a result of a criminal investigation or for the collective goal of reducing gun violence within the City of St. Louis.

c) How will it ensure any person, city entity, or governmental entity approved for access to the surveillance technology or surveillance data complies with the applicable Surveillance Use Plan and does not further disclose the surveillance data to unauthorized persons and entities?

No information is able to be downloaded or retained by any of the authorized SLMPD users. This does not prohibit mutual aid or assistance requests by other law enforcement agencies. All requests made from other law enforcement agencies are handled in accordance with all federal and state laws.

DEMANDS FOR ACCESS TO SURVEILLANCE DATA:

What legal standard must be met by government entities or third parties seeking or demanding access to surveillance data?

SLMPD personnel are responsible for preventing third parties unauthorized access to information, and the data is only shared with other law enforcement entities for the purpose of criminal investigations. Failure to adhere to the Department's Data Use Agreement may subject SLMPD personnel to disciplinary and/or criminal action.

SLMPD personnel must confirm the identity and affiliation of individuals requesting information from the SLMPD and determine that the release of information is lawful prior to disclosure. Unauthorized access of any system will subject employees to administrative and potentially criminal penalties.

TRAINING:

What training procedures will be implemented to ensure compliance with this ordinance, the Revised Code of the City of St. Louis, and applicable federal and state laws and regulations?



St. Louis Metropolitan Police Department Surveillance Use Plan



SoundThinking completed a comprehensive training program for both users and trainers of SLMPD. 24/7 ShotSpotter support is offered through an online chat feature, or SLMPD can call toll-free for phone support.

SoundThinking provided technical consulting, documentation, and training as required.

SoundThinking owns and maintains the acoustic sensors, therefore, there is no network, installation, or maintenance training needed for the agency.

Officers also receive training in Constitutional Policing during their Police Academy training to reduce the effects of implicit bias and to effectively serve the diverse communities within the City of St. Louis.

When there are changes in regulations around the use of the technology, the Academy will coordinate training for the entire department to ensure all members are provided the updated information.

AUDITING AND OVERSIGHT:

What mechanisms will be implemented to ensure the Surveillance Use Plan is followed, included what independent or non-independent persons or entities will be given oversight authority, and what legally enforceable sanctions will be put in place for violations of the Plan?

The ShotSpotter platform for SLMPD is managed by the Commander of the Crime Control Strategies, who holds a rank of Lieutenant Colonel.

Compliance with all SLMPD Policies and Procedures is monitored by the Bureau of Professional Standards.

COMPLAINTS:

What procedures will be put in place by which members of the public can register complaints or concerns, submit questions about the deployment or use of a specific surveillance technology, and how the city entity will ensure each question and complaint is responded to in a timely manner?

Complaints about surveillance technology can be made to the Civilian Oversight Board using the Joint Citizen Complaint Form which can be located [here](#).

Residents are also able to make comments about surveillance technology by contacting the Citizens Service Bureau (314) 622-4800.