

How Can Acoustic Gunshot Detection Systems Help Law Enforcement?

[How can acoustic gunshot detection systems help law enforcement?](#) originally appeared on [Quora](#) - the place to gain and share knowledge, empowering people to learn from others and better understand the world.

Answer by [Jennifer Doleac](#), founder of the Justice Tech Lab and an Assistant Professor of Public Policy and Economics at the University of Virginia, on [Quora](#):

The main purpose of acoustic gunshot detection systems (AGDS) — which detect gunfire incidents and triangulate their precise locations — is to allow police to get to the scene of gunfire faster than they would have if they had to rely on 911 calls (which might never come). If AGDS reduces police response times, and increases the likelihood that police show up to scenes of gunfire incidents, it could have several outcomes:

1. **Increase the probability that people who fire guns in urban areas get caught.** This could happen if police are better able to collect evidence (like shell casings, which can then be entered into NIBIN) or interview witnesses at the scene, or in some cases if they're able to catch the gunman before he leaves the scene.
2. **Decrease gun violence.** If gunmen are more likely to get caught, this should take serial offenders off the streets more quickly, and deter others from using guns in areas covered by AGDS.
3. **Displace gun violence to other neighborhoods.** Of course, it's possible that criminals learn that the cops show up quickly when they fire a gun on this street corner, but not if they move five blocks to the east. In that case, we might see gun violence shift from areas covered by AGDS to areas not covered.
4. **Save more gunshot victims.** If police can respond to gunfire incidents more quickly, they may also be able to get medical help for any victims more quickly. This could save lives.

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5. **Improve relationships between police and community residents.** In many violent neighborhoods, residents don't call 911 when they hear gunfire because they don't trust the police to help. But many police officers would note that they can't demonstrate they care unless people call them. AGDS allows police to go to neighborhoods where gunfire was detected and have positive interactions with community members — for instance, knock on doors to ask if everyone's okay — without waiting for a phone call.
6. **Collect high-quality data on gunfire.** A major challenge in studying gun violence (and crime in general) is that reporting rates are often very low, particularly in neighborhoods where residents don't trust the police. This makes it difficult to accurately measure the effects of local policies on gun violence. If we want to reduce gun violence, we need better, more complete data. AGDS data are the full universe of gunfire incidents in a covered area, with precise timestamps and geocodes. This is very useful to researchers, as well as to community members who want to understand violent crime patterns in their communities.

These are all *potential* benefits of AGDS. What are the actual benefits? We have no idea. There has been no rigorous evaluation of AGDS on outcomes 1–5. The benefits associated with outcome 6 — better data — depend on having *access* to the data. Unfortunately, the main AGDS provider, ShotSpotter, writes in its contracts with cities that the firm (not the city) owns the data. This means that unlike crime data, these data are not public record. Police departments aren't allowed to share the data with researchers, journalists, or community members. Many departments are fine with that, as releasing the data could make them look bad (AGDS typically detects far more gunfire than was previously reported). But it means that many communities are not benefiting from this improvement in data quality.

Punchline: As of right now, it is unclear what communities are getting for their money when investing in acoustic gunshot detection systems. Residents should insist on evaluation and data ownership when paying for this technology.

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