

National Gunfire Index



Traditional measures of gun violence—homicides, shootings involving injury—grossly underestimate the true scope of daily gun violence in America.

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Top 4 Findings

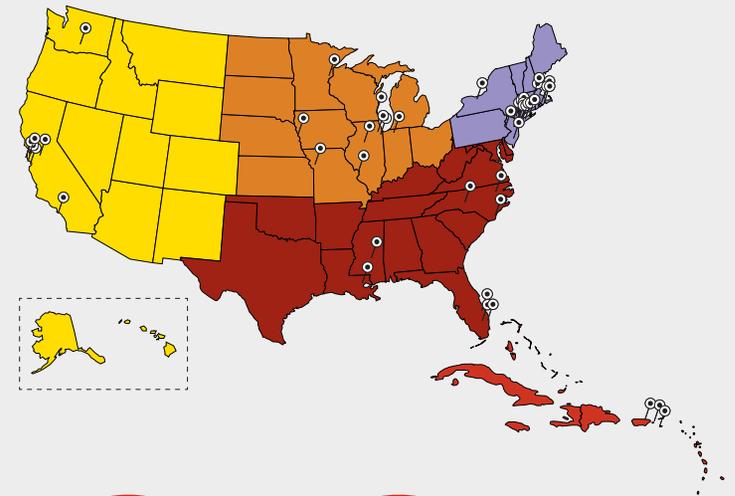
SST, Inc.™ aggregated the gunshot data from 47 cities out of all those we monitor in the U.S.

Top Finding #1

We reviewed and published 33,975 separate incidents of gunfire in 2014.

That's 105¹ gunfire incidents per day, or 4.4 incidents every hour in just the portions of the 47 cities that contributed ShotSpotter data to this analysis.. That compares to more than 11,000 homicides committed with a firearm each year in the entire United States of America—30 per day, or 1.3 homicides every hour.

The scope and magnitude of gunfire in the U.S. is much greater than that which is measured only in terms of homicides and gunshot wounds.



¹ Adjusted for the actual number of days of coverage (323 per city)

Top 4 Findings

Top Finding #2

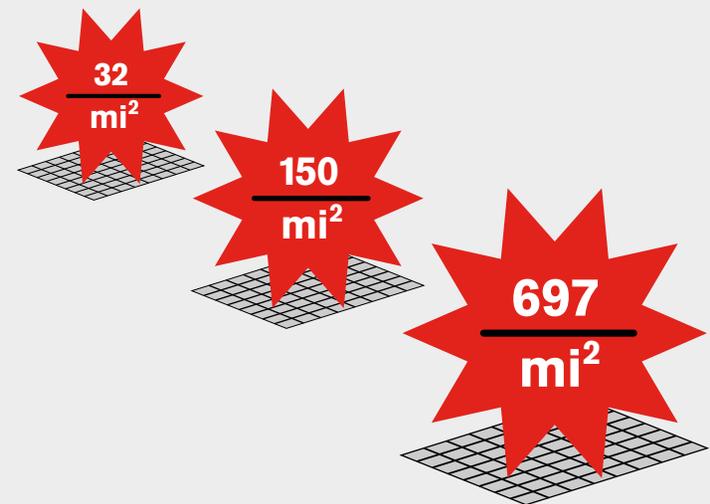
In 2014, the rate of gunfire² in areas where ShotSpotter was deployed varied widely:

Minimum: 32 incidents per square mile

Median: 150 incidents per square mile

Maximum: 697 incidents per square mile

Minimum, Median and Maximum rates of gunfire incidents per square mile in our 2014 Analysis:



² Rate of gunfire = number of gunfire incidents per square mile, per year.

Top 4 Findings

Top Finding #3

Gunfire is down in the cities we were able to compare 2013 to 2014.

We did a comparative analysis on a sample area of 28 cities across the U.S. that had consistent ShotSpotter coverage in both 2013 and 2014³.

That comparative analysis revealed 23,683 confirmed gunshot incidents in 2013 and 19,443 in 2014 **in the exact same sample area**, showing that illegal gunfire has dropped significantly in ShotSpotter-covered areas.



³ The 28 cities used in our comparison included 102.84 square miles of urban America. The median coverage area was 3.04 square miles.

Top 4 Findings

Top Finding #4

In our sample of 28 cities where ShotSpotter was deployed, the median reduction in gunfire rates in 2014 was 28.8%.

93% or 26 of the 28 cities saw reductions in their rates of gunfire⁴,
43% or 12 of the 28 cities saw reductions greater than 30%,
25% or 7 of the 28 cities saw reductions greater than 40%.



⁴ Rate of gunfire = number of gunfire incidents per square mile, per year.

Gunfire Comparison of 2013 and 2014

A comparative analysis was done on the exact same 28 cities, year-over-year.

This comparison revealed 23,683 and 19,443 confirmed gunshot incidents (respectively), showing significant gunfire declines in the SST/ShotSpotter-covered areas of these cities.

A representative sample of twenty-eight cities where ShotSpotter® FlexSM was deployed during both years was used in this analysis.

- The 28 cities in our sample covered a total of 102.8 square miles.
- Only cities that had ShotSpotter Flex deployed for more than 4/5 of the year were included in this analysis.
- If a city's contracted coverage area expanded in 2014, the expanded area was not included in this comparison data.

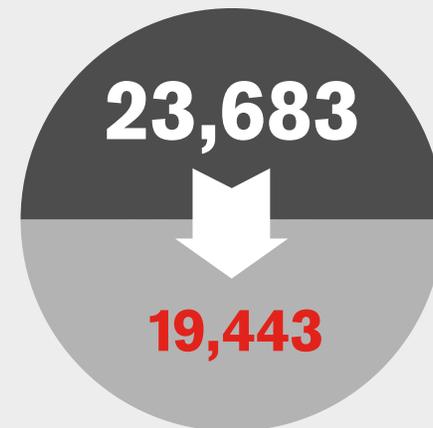


Gunfire Comparison of 2013 and 2014

Illegal gunfire has dropped significantly.

We did a comparative analysis, 2013 vs. 2014, on a sample area of 28 cities across the U.S. that had consistent ShotSpotter coverage in both years.

That “apples-to-apples” comparison revealed 23,683 and 19,443 confirmed gunshot incidents (respectively), that illegal gunfire has dropped significantly in ShotSpotter-covered areas.



Gunfire Comparison of 2013 and 2014

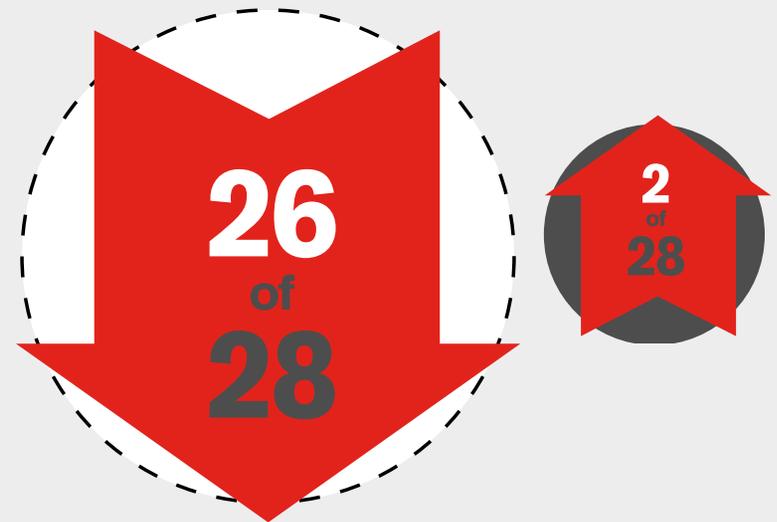
Gunfire rates have decreased significantly in almost all ShotSpotter cities.

Twenty six of the ShotSpotter cities in the 2014 to 2013 comparison saw reductions in gunfire.

Only two of the 28 cities saw increases.

On a city-by-city basis, **median reduction was 28.8%**.

Gunfire rates (incidents per mile) decreased between 4% and 58% in 2014 in those 26 ShotSpotter cities.



Gunfire Comparison of 2013 and 2014

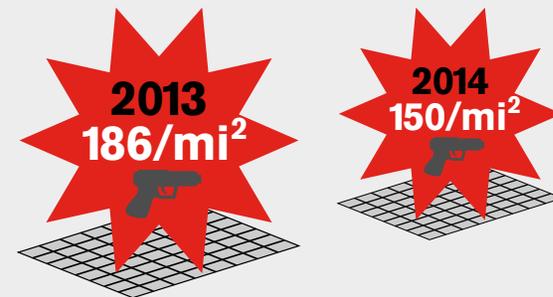
Gunfire rates have decreased significantly on a per square mile basis, in most regions.

The median number of gunfire incidents dropped from 186 gunfire incidents per square mile in 2013 to 150 gunfire incidents per square mile in 2014⁵.

The gunfire incident rates per square mile decreased in every region of the country except for the Caribbean.

The most significant percentage decrease was seen in the Northeast, where ShotSpotter also has the largest coverage area.

Gunfire incidents per square mile:



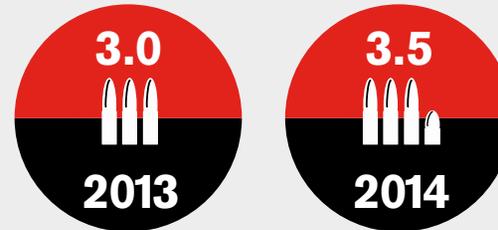
⁵ The median coverage area was 3.04 square miles per city.

Gunfire Comparison of 2013 and 2014

The average number of rounds fired per incident increased across the country.

The number of rounds fired per incident increased in every region of the country.

The 2013 average was 3.0 rounds per incident, while the 2014 average increased to 3.5 rounds per incident.

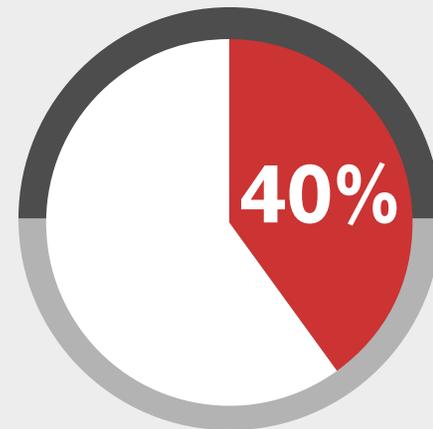


Gunfire Comparison of 2013 and 2014

Gunfire remains mostly concentrated on the weekends.

Almost 40% of gunfire in each year takes place on weekends.

(Note: A weekend is 6:00AM Friday morning –
5:59AM Sunday morning).



Perspectives

Intelligence-based Policing to Safeguard our Community.

“The Oakland Police Department is committed to reducing violent crime in our community. Protecting human life is our number one priority. The people of Oakland deserve to live in a city free from the constant threat of gun violence. We are dedicated to utilizing intelligence-based and effective policing strategies to create a safer Oakland.”

Gunfire Down
26.1%

Police Chief Sean Whent
Oakland, CA



Chief Ron Teachman
South Bend, IN

The Importance of Community Engagement.

“ShotSpotter alerts, which come in with precise location information, enable us to put officers on the scene quickly. Knowing the exact address where the gun was fired enables us to survey that neighborhood—we can knock on doors, check on residents, we can find out if anyone needs help.”

Preventing Gun Violence.

“ShotSpotter, as a key part of our approach to gun crime prevention, enables dispatchers to locate a call for service and dispatch the nearest officer, decreasing our response times, while supporting officer safety. We are committed to using all available resources to ensure the safety of every citizen.”

Gunfire Down
39.8%

Carl Riley
Director of Public Safety and Police, Plainfield, NJ

Aggressive “Best Practices” Help Reduce Crime, Prevent Gun Violence.

“We’ve implemented aggressive ‘best practices’ in an effort to provide public safety and to contribute to the quality of life for the citizens of the City of Springfield. We aim to establish a partnership between our citizens and police to enhance law enforcement, aid in the prevention of crime, and preserve the public peace.”

Gunfire Down
51.2%

Police Commissioner John Barbieri
Springfield, MA

Perspectives

Gun Violence is a Public Health Issue.

“For four years in a row, the number of homicides in New Haven has been steadily declining, from 34 in 2011 to 12 in 2014. That’s a pretty dramatic steady decline in crime from 2011 to last year. Surely there is more than one reason, but ShotSpotter was an important part of the overall approach that enables us to save lives in New Haven.”



Chief Dean Esserman
New Haven, CT

Integrating Technology to Ensure Citizens are Safe and Secure.

“Our strategy is a combination of engaging with our community and leveraging technology. We’ve seen a sharp drop in violent crimes since 2012 which is significant progress. We haven’t ‘crossed the goal line’ just yet, but I’m optimistic about the future.”

Gunfire Down 48%

Metro Chief Scott Thomson
Camden, NJ

Proactive Community Policing Reduces Violence and Random Gunfire.

“Although no single effort can be credited with reducing violence and random gunfire in East Palo Alto, we believe that a focused effort by the community and the police department using ShotSpotter data to make informed decisions were essential elements to the success in East Palo Alto.”

Gunfire Down 29%

Chief Albert Pardini
East Palo Alto, CA

Caring for our Community through Gun Crime Deterrence.

“As part of our efforts to reduce violent crime, especially relating to gun violence, ShotSpotter is used as a resource to deploy officers to locations of reported gunfire. Many times, officers arrive within minutes of a shooting, locate a victim, and are able to render aid until paramedics arrive; saving lives through advanced technology. In some incidents, due to a quick response, suspects are still on scene or within a short distance of the crime, and officers have made notable arrests.”



Police Chief Greg Suhr
San Francisco, CA

Cities

Cities in the SST, Inc. National Gunfire Index

SST's 2014 gunfire summary is based on the following superset of 47 cities:

Amityville, NY	Northeast	Hempstead, NY	Northeast	Riviera Beach, FL	South
Atlantic City, NJ	Northeast	Huntington Station, NY	Northeast	Rochester, NY	Northeast
Baton Rouge, LA	South	Jackson, MS	South	Rocky Mount, NC	South
Bell Gardens, CA	West	Kansas City, MO	Midwest	San Francisco, CA	West
Belle Glade, FL	South	Miami Gardens, FL	South	San Juan, PR	Caribbean
Bellport, NY	Northeast	Milwaukee, WI	Midwest	San Pablo, CA	West
Brentwood, NY	Northeast	Minneapolis, MN	Midwest	South Bend, IN	Midwest
Brockton, MA	Northeast	New Bedford, MA	Northeast	Springfield, MA	Northeast
Camden, NJ	Northeast	New Haven, CT	Northeast	St. Croix, USVI	Caribbean
Canton, OH	Midwest	Oakland, CA	West	St. Louis, MO	Midwest
Charlotte, NC	South	Omaha, NE	Midwest	St. Thomas, USVI	Caribbean
Chicago, IL	Midwest	Paterson, NJ	Northeast	Stockton, CA	West
East Chicago, IN	Midwest	Peoria, IL	Midwest	Wilmington, NC	South
East Palo Alto, CA	West	Plainfield, NJ	Northeast	Wyandanch, NY	Northeast
Fall River, MA	Northeast	Quincy, WA	West	Yonkers, NY	Northeast
Hartford, CT	Northeast	Richmond, CA	West		

At year end, ShotSpotter captured gunshot data on 215 square miles across America.

Cities

Sample Cities Used in Comparison of 2013 and 2014

When comparing 2013 gunfire data to 2014 gunfire data, twenty-eight (28) cities where ShotSpotter Flex was deployed during both years were used in this analysis⁶⁺⁷.

The 28 cities that make up the “apples to apples” comparison are:

Bellport, NY	Northeast	Kansas City, MO	Midwest	Rochester, NY	Northeast
Brentwood, NY	Northeast	Miami Gardens, FL	South	Rocky Mount, NC	South
Brockton, MA	Northeast	Milwaukee, WI	Midwest	San Francisco, CA	West
Camden, NJ	Northeast	New Bedford, MA	Northeast	Springfield, MA	Northeast
Charlotte, NC	Midwest	New Haven, CT	Northeast	St. Croix, USVI	Caribbean
Chicago, IL	Midwest	Oakland, CA	West	St. Louis, MO	Midwest
East Palo Alto, CA	West	Omaha, NE	Midwest	St. Thomas, USVI	Caribbean
Fall River, MA	Northeast	Paterson, NJ	Northeast	Wilmington, NC	South
Hartford, CT	Northeast	Plainfield, NJ	Northeast		
Hempstead, NY	Northeast	Quincy, WA	West		

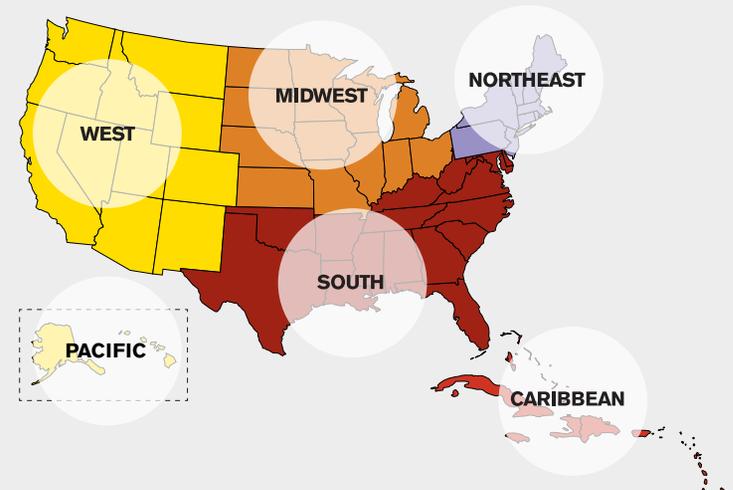
⁶ If a city was not using ShotSpotter Flex for more than 4/5 of either 2013 or 2014, that city was excluded from this analysis.

⁷ If a city's contracted coverage area expanded in 2014, the expanded area was not included in this comparison data.

Cities

ShotSpotter Coverage Regions

Coverage areas are not evenly distributed across the country. To illustrate the variability in coverage area size, we grouped cities within the sample along the four U.S. Census “Regions”. We added a single Caribbean region, for which the Census Bureau does not have a corresponding grouping, because the region constitutes a meaningful subset of ShotSpotter coverage areas.



Appendix

Methodology and Notes

1. The data in this Index is taken only from the areas covered by ShotSpotter systems. There is no assurance that conclusions drawn from this data will be valid outside the coverage areas.
2. The 2014 analysis in this report is based on 61 communities that had ShotSpotter Flex coverage (reviewed alerts) and were collecting data as of December 31, 2014.
3. 47 of the communities with at least 285 days of coverage in 2014 were used for a detailed study of 2014 gunfire data. 28 communities with at least 285 days of coverage in 2013 and 2014 and at least 50 gunfire incidents in 2013 were used for the detailed comparison of 2013 vs. 2014.
4. The average coverage area for the cities was 3.4 square miles in 2013 and 3.5 square miles in 2014.
5. Gunfire incidents for a year period were counted if the local time in the time zone of their occurrence was between 00:00:00 standard time (i.e., midnight) on January 1 and 23:59:59 daylight saving's time on December 31 (i.e., 1 second before midnight on January 1).
Incidents during the holiday periods of New Years and 4th of July are not counted in the statistics unless explicitly noted because of the prevalence of celebratory gunfire during those holiday periods and the fact that it is highly inconsistent with the normal pattern. The holiday periods are from December 30 to January 2 and from June 27 to July 9.
6. Gunfire per square mile rate calculations take into account growth in coverage areas that occurred in several communities during the reporting periods.
7. Some communities were not monitored by ShotSpotter for the entire 365 days of each reporting year but were monitored by ShotSpotter for enough of the year that it made sense to include them in the report. The inclusion of these areas demands that the days of non-coverage must be accounted for, especially for those calculations involving gunfire incidents per square mile.
The simplest method is to calculate gunfire incidents per square mile for the actual days with coverage and assume that this value represents the entire year. But this method may be inaccurate because of seasonal variation. The gunfire rate for the non-covered days may not be the same as the covered days.
The solution is to impute the number of gunfire incidents for those days for which there was no coverage using a regression-based imputation method, taking account known information about incident rates for the community and trends over time.
8. Imputation of incidents data is done only for gunfire rates for communities that have coverage data for more than 285 days (about 4/5 of the non-holiday part of a year) in both 2013 and 2014. Communities with less than 285 days were not used in the gunfire rate calculations, leaving 28 communities for the 2013 to 2014 comparisons and 47 communities for 2014 alone, out of the 61 total communities used in the rest of the Index. This method was cross-checked using cities with two full years of data, comparing actual data to imputed values for simulated missing values. The average difference by city between the gunfire rates using imputed values vs. using actual values was only 2.2%, showing that imputation can be relied upon to give accurate results.
9. Incidents were counted only after formal qualification and operational use of ShotSpotter data by the client agency began, even if gunfire or other incidents were detected previously. Incidents were counted as gunfire if they were classified as Single Gunfire, Multiple Gunfire, or Possible Gunfire by SST-certified review personnel. All other incident types (fireworks, firecrackers, explosions unrelated to gunfire, transformer explosions, thunder, lightning, helicopters, etc.) were excluded from all statistics presented in this report. Gunfire incidents not reviewed by SST-certified review personnel are also excluded.
10. ShotSpotter data does not remain static, as information and adjustments are often made several days or weeks after initial detection (as forensic evidence is analyzed, cases are investigated, etc.). This report takes into account the most accurate and recently-available information.
11. Square mileage is measured on the basis of contractual coverage area. For each such area, the geographic area is defined as a polygon surrounding each coverage area. If the polygon coordinates are not available, the contracted area is used. In some cases, small areas within these coverage areas are intentionally excluded when gunfire is regularly expected in those specific locations (e.g. a legal outdoor shooting range or police practice range). Gunfire which takes place in those locations outside of authorized areas is still included in the tallies, but gunfire which takes place during permitted (expected) periods is not included.
Gunfire incidents occurring outside the immediate vicinity of the contracted coverage areas were excluded from the study.
12. When the Friday, Saturday and Sunday gunfire totals are compared to the rest of the week, a day is defined as starting at 06:00:00 local time and extending to 05:59:59 the next morning. For example, early 02:05 Sunday morning is counted as Saturday night.
13. Individual hours of the week and days of the week were calculated on a local time basis.

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More Information about SST and ShotSpotter can be found at www.SST-Inc.com or www.ShotSpotter.com. The full 2013 National Gunfire Index can be downloaded at www.ShotSpotter.com/ngi. You can also follow SST and ShotSpotter solutions on Twitter, YouTube, Facebook, and LinkedIn.

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