



Shot Spotter

Assessing the effectiveness of ShotSpotter
in combating gun violence.

Key Takeaways

- ShotSpotter does not address known shooting incidents in Chicago.
 - Only 1% of shooting incidents ended in a ShotSpotter arrest.
- ShotSpotter arrests are not primarily related to gun violence.
 - 50% are gun possession, 32% are non-gun related, and only 19% are related to gun violence.
- ShotSpotter gun violence cases are less serious crimes.
 - 76% of ShotSpotter gun violence convictions are class 4 or lower, compared to only 20% of non-ShotSpotter gun violence convictions being class 4 or lower.

About ShotSpotter

What is ShotSpotter?

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- ShotSpotter is a gunshot detection system that sends gunshot alerts to police to combat gun violence.
- Chicago's current contract with ShotSpotter began on 8/20/2018, and after two extensions, is currently set to expire in 5 months on 2/16/2024.
- Current ShotSpotter contract is \$49 million, averaging out at \$11 million per year.
- For every 63 ShotSpotter alerts, only 1 arrest is generated.

*Alert data ends 8/29/2023

ShotSpotter Background

- ShotSpotter is a gunshot detection system from the company Sound Thinking.
- ShotSpotter was created to help police combat gun violence.
- ShotSpotter uses microphones installed in 12 out of 22 Chicago police districts to listen for gunshots.
 - Once ShotSpotter confirms a gunshot, police are dispatched to the projected gunshot location.
- Chicago's current ShotSpotter contract began on 8/20/2018 and, after two extensions, is currently set to expire on 2/16/2024.
- The current ShotSpotter contract costs \$48,902,823.31.

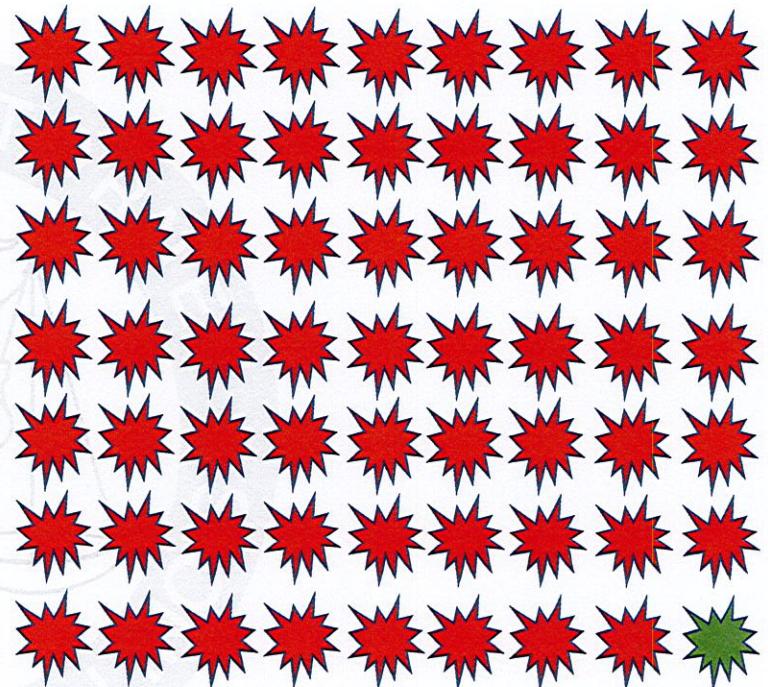
ShotSpotter Rollout

- The earliest installation of ShotSpotter was in October 2012.
- The most recent district was added in May 2018, 3 months before the current contract began.
- ShotSpotter is not installed in districts 1, 12, 14, 16, 17, 18, 19, 20, 22, and 24.

Rollout Month	Districts
October 2012	3, 7, 8, 11
May 2017	15
June 2017	9
October 2017	6, 10
January 2018	4
March 2018	25
April 2018	5
May 2018	2

ShotSpotter Alerts

- Since 8/20/2018, there have been 160,400 ShotSpotter Alerts*
- In that same time, ShotSpotter has led to 2,543 arrests.
- Resulting in 1 arrest for every 63 alerts.



*Alert data ends 8/29/2023

ShotSpotter and Shooting Incidents

How is ShotSpotter impacting shootings?

How Is ShotSpotter Impacting Shootings?

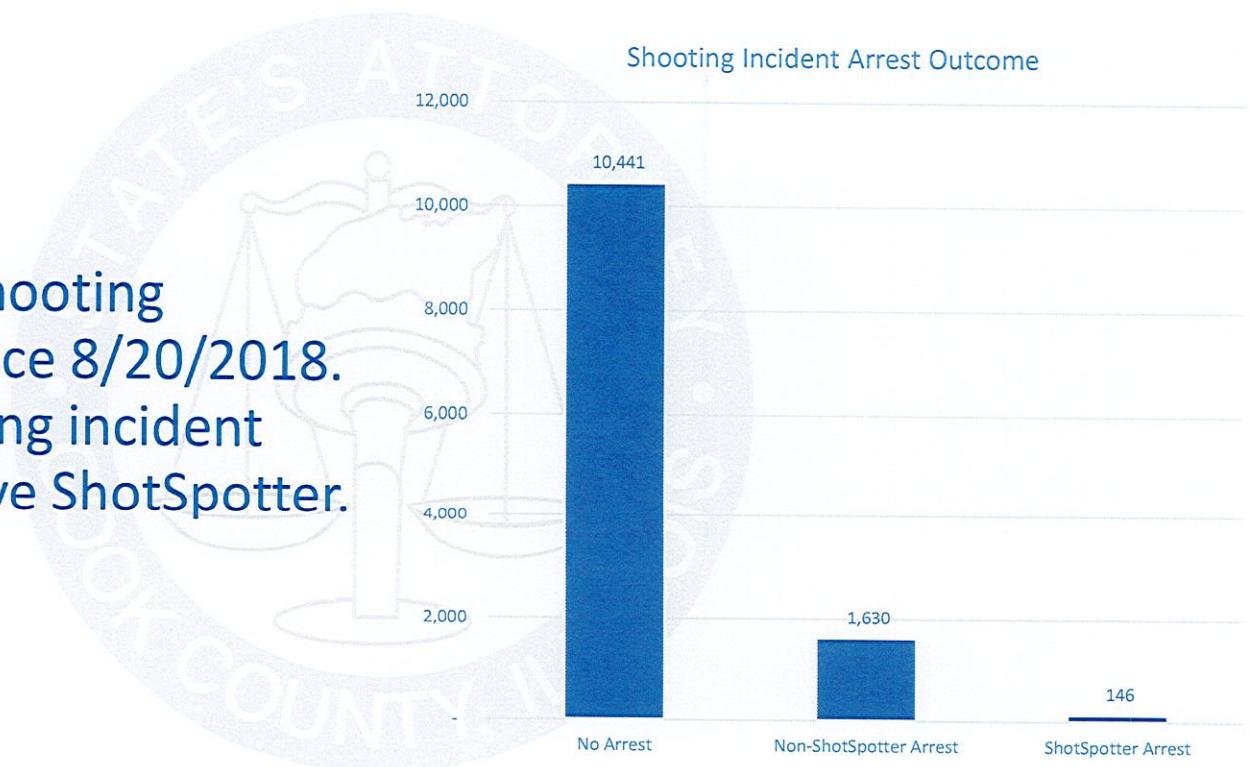
- ShotSpotter is not making a significant impact on shooting incidents.
 - Only 1% of shooting incidents end in a ShotSpotter arrest.
- ShotSpotter is not making up a meaningful portion of shooting incident arrests.
 - 92% of shooting incident arrests are not related to ShotSpotter.
- ShotSpotter costs Chicago \$217,368.42 per ShotSpotter shooting incident arrestee so far.

ShotSpotter Does Not Have Significant Impact in Shooting Incidents

- A shooting incident is defined as a crime reported where a person was shot.
- Since 8/20/2018, there have been 12,217 shooting incidents in ShotSpotter districts.
 - In this period, ShotSpotter led to 146 arrests or 1% of shooting incidents.
- 194 individuals were arrested from ShotSpotter's 146 shooting incident arrests.
- As of 10/20/23, the cost per shooting incident arrestee is \$217,368.42.

ShotSpotter Arrests Are Not a Meaningful Portion of Shooting Incident Arrests

There were 1,776 shooting incident arrests* since 8/20/2018.
92% of these shooting incident arrests do not involve ShotSpotter.



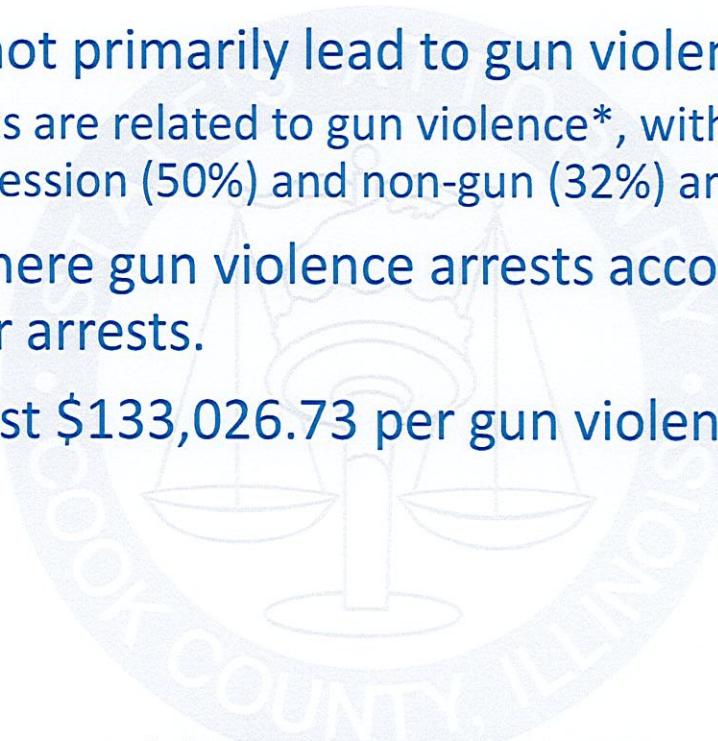
*In ShotSpotter districts (2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 15, 25)

ShotSpotter Arrest Analysis

What type of arrests is ShotSpotter leading to?

What Type Of Arrests is ShotSpotter Leading To?

- ShotSpotter does not primarily lead to gun violence arrests
 - Only 19% of arrests are related to gun violence*, with the remaining split between gun possession (50%) and non-gun (32%) arrests.
- There is no year where gun violence arrests accounted for more than 22% of ShotSpotter arrests.
- ShotSpotter has cost \$133,026.73 per gun violence felony conviction**.



*Besides leading to arrests of shooting incidents, ShotSpotter can lead to arrests related to gun violence, but not related to a shooting incident

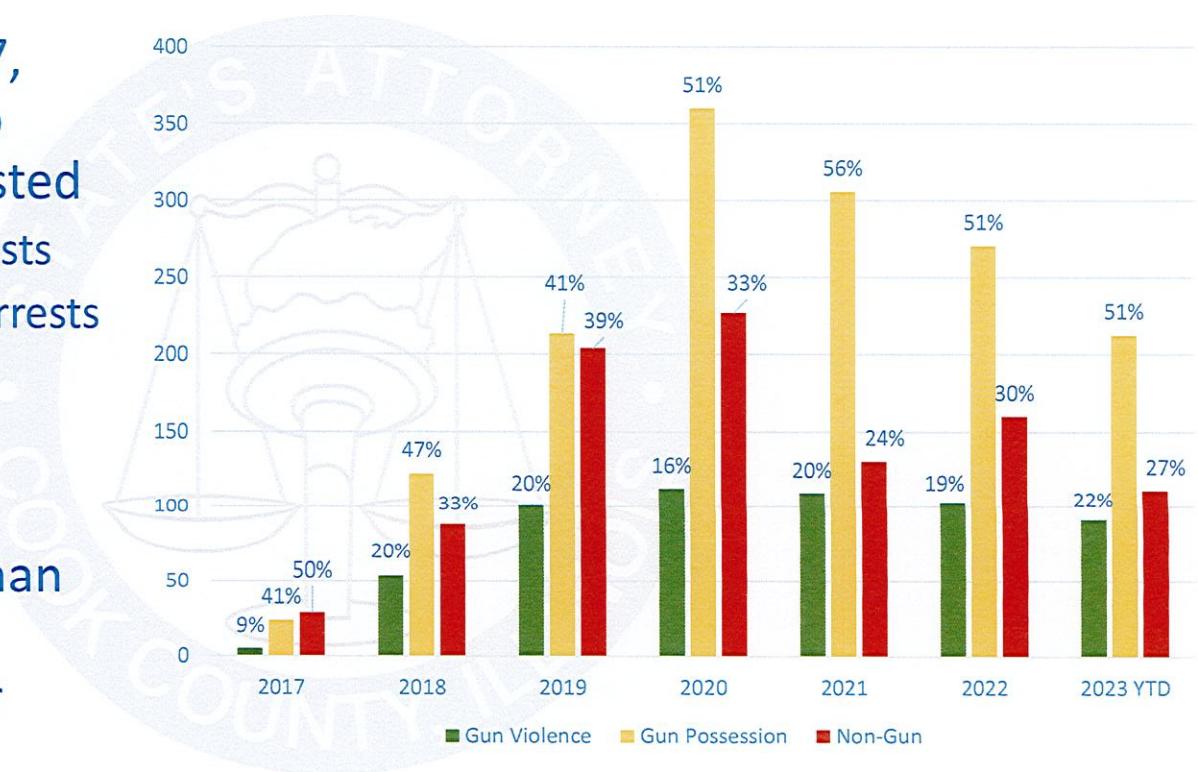
**This assumes that all pending cases will end in conviction

ShotSpotter Arrest Categories

- Gun Violence: Arrests where the accused allegedly used a gun illegally.
 - Ex: Homicide, Reckless Discharge, Armed Robbery
- Gun Possession: Arrests where the accused allegedly possessed a gun illegally, but not accused of using it.
 - Ex: UUW, Illegal Possession of Firearms and/or Ammo
- Non-Gun: Arrests that fall in neither of the above categories.
 - Ex: Narcotics Possession, Driving Violations, Active Warrant, Obstruction

Category Distribution

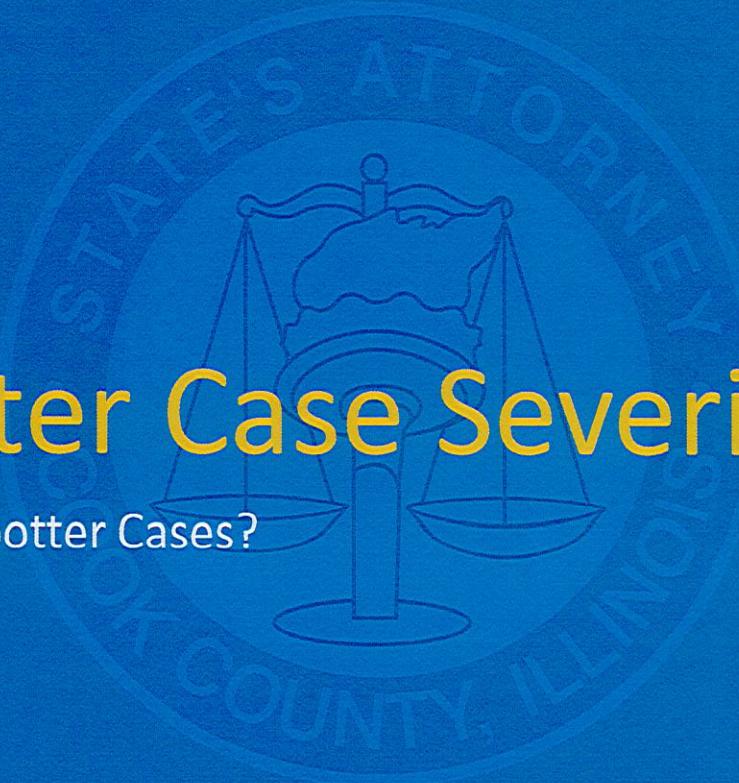
- Since the start of 2017, ShotSpotter has led to 2,842 individuals arrested
 - 19% gun violence arrests
 - 50% gun possession arrests
 - 31% non-gun arrests
- So far, gun violence arrests have not accounted for more than 22% of ShotSpotter arrests in a single year



Gun Violence Arrest Cost

- ShotSpotter has led to 207 individuals being convicted of felony gun violence crimes, with an additional 110 individuals facing felony gun violence charges.
- Based on the \$49 million contract, ShotSpotter has cost the following:
 - The cost per ShotSpotter arrestee is \$14,837.96
 - The cost per ShotSpotter gun violence arrestee is \$77,375.18
 - The cost per ShotSpotter gun violence conviction is \$133,026.73*

*Assuming all pending cases end in conviction – the actual ShotSpotter gun violence conviction rate is 88%



ShotSpotter Case Severity

How serious are ShotSpotter Cases?

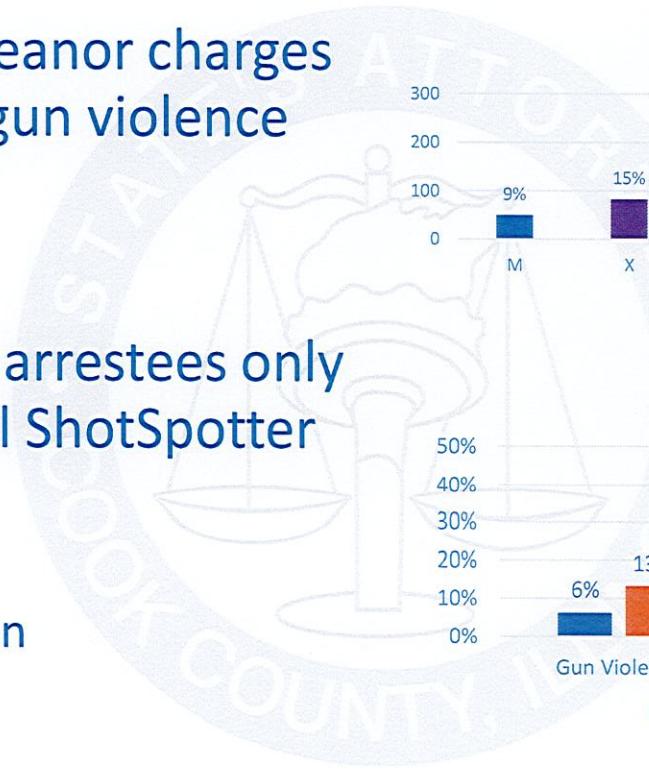
How Serious Are ShotSpotter Cases?

- Most ShotSpotter arrests are for probationary (class 3, 4, and misdemeanors) crimes.
 - Only 6% of arrestees face non-probationary (class M, X, 1, and 2) gun violence charges.
- 2/3 of gun violence arrestees face class 4 or below charges.
- ShotSpotter convictions are less serious than non-ShotSpotter convictions.
 - 76% of ShotSpotter gun violence convictions are class 4 or below, whereas only 24% of non-ShotSpotter gun violence convictions are class 4 or below
- The cost per non-probationary gun violence conviction is \$337,355.78*

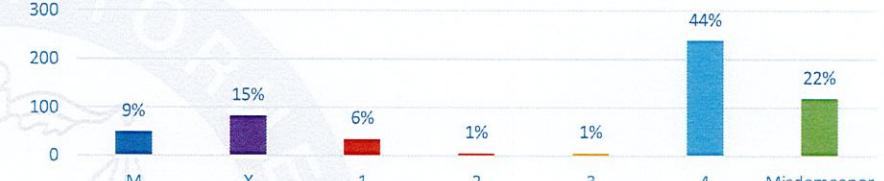
*Assuming all pending cases end in non-probationary conviction – the actual ShotSpotter non-probationary gun violence conviction rate is 83%

Most ShotSpotter Arrests Are Not Severe

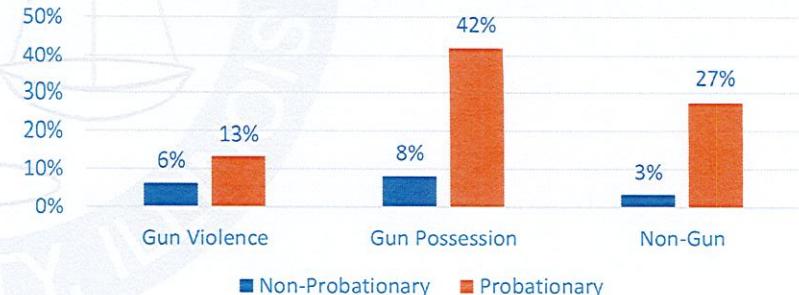
- Class 4 or misdemeanor charges represent 66% of gun violence arrestees.



Gun Violence Arrest by Class



Arrest Severity by Category



Reckless Discharge Accounts For Most Gun Violence Arrests

- Over 1/3rd of gun violence arrests are for reckless discharge.
- Reckless discharge and aggravated assault make up almost half of gun violence arrests.

Top 10 Gun Violence Arrest Statute Descriptions				
Statute Description	Class	#	%	
RECKLESS DISCH FIREARM - ENDANGER	4	200	37%	
AGG ASSAULT/USE DEADLY WEAPON	A	59	11%	
MURDER - FIRST DEGREE	M	49	9%	
AGG BATTERY/DISCHARGE FIREARM	X	41	8%	
RECKLESS CONDUCT	A	32	6%	
AGGR DISCHARGE FIREARM - OCCUPIED VEHICLE	1	28	5%	
AGG ASSAULT/DISCHARGE FIREARM	4	20	4%	
RECKLESS DISCHARGE FIREARM - PASSENGER	4	17	3%	
AGG DISCHARGE FIREARM - VEH/SCH	X	14	3%	
ARMED VIOLENCE/CATEGORY I	X	13	2%	

Felony Gun Violence Case Convictions

- ShotSpotter's gun violence convictions are less severe than non-ShotSpotter gun violence convictions.
- 76% of ShotSpotter gun violence convictions are class 4 charges or misdemeanor
- 65% of non-ShotSpotter gun violence convictions are for non-probationary convictions
- Most Non-ShotSpotter convictions are class X charges.

Conviction Class	ShotSpotter	Non-ShotSpotter
M	0%	2%
X	5%	28%
1	5%	16%
2	9%	18%
3	3%	11%
4	45%	16%
Misdemeanor	31%	8%

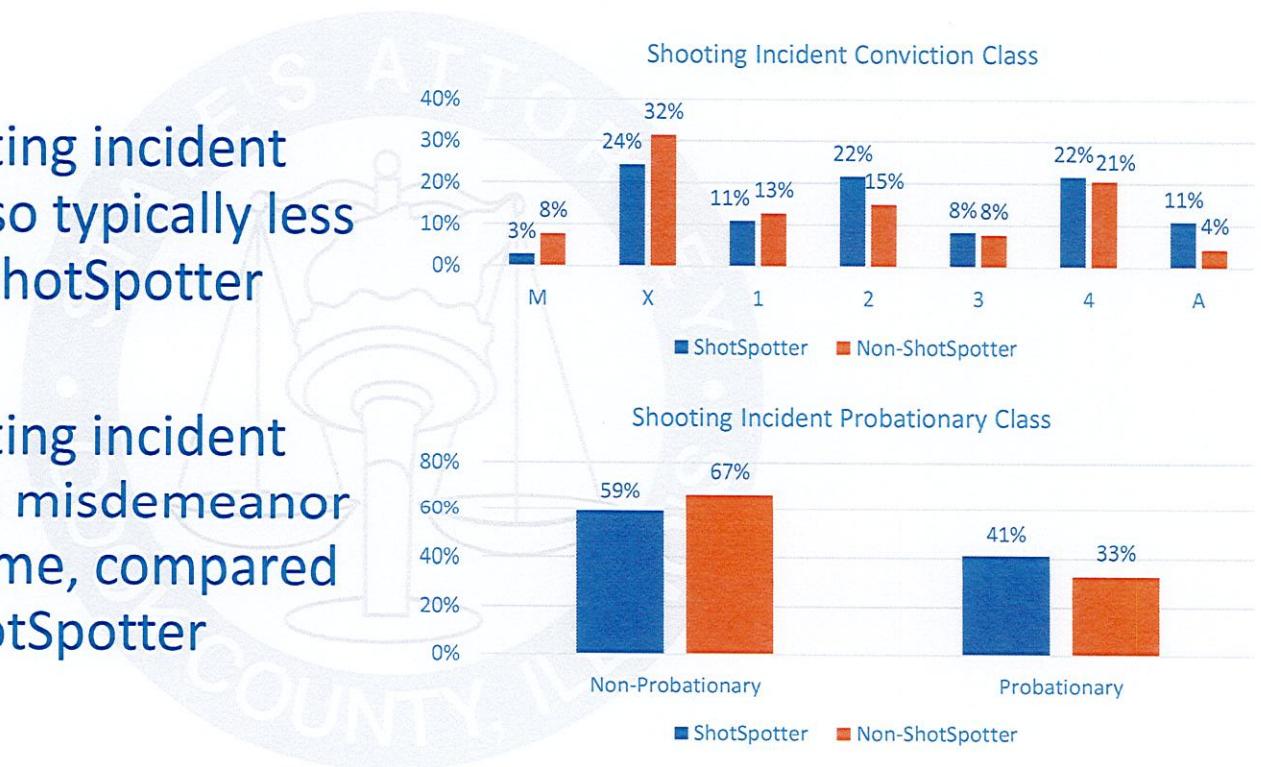
Severe Gun Violence Conviction Cost

- ShotSpotter has led to 43 defendants who have been convicted of a non-probationary gun violence crime, as well as an additional 82 defendants facing non-probationary gun violence charges since the contract started.
- So far, ShotSpotter has cost Chicago \$337.355.78 per non-probationary gun violence conviction*.

*Assuming all pending cases end in non-probationary conviction – the actual ShotSpotter non-probationary gun violence conviction rate is 83%

Felony Gun Violence Case Convictions for Shooting Incidents

- ShotSpotter shooting incident convictions are also typically less severe than non-ShotSpotter counterparts.
- ShotSpotter shooting incident convictions end in misdemeanor plea 11% of the time, compared to 4% for Non-ShotSpotter



Shooting Incident Conviction Cost

- ShotSpotter shooting incident arrests have led to 37 felony convictions, with 43 more defendants facing felony charges.
- The cost per shooting incident conviction is \$527,118.41*
- 22 ShotSpotter shooting incident convictions are from non-probationary charges, with 37 shooting incident facing non-probationary charges.
- The cost per shooting incident non-probationary conviction is \$714,736.83**

*Assuming all pending cases end in conviction – the actual ShotSpotter shooting incident conviction rate is 82%

**Assuming all pending cases end in conviction without a class reduction – the actual ShotSpotter Non-probationary shooting incident conviction rate is 78%

Conclusion

ShotSpotter is an expensive tool that provides a minimal return on investment to the prosecution of gun violence.

