Appendix K

New York Microstamping Viability RFI

NEW YORK STATE | Division of Criminal Justice Services

KATHY HOCHUL
Governor

ROSSANA ROSADO
Commissioner

Request for Information (RFI) DCJS-25-01
New York State Division of Criminal Justice Services
Microstamping Viability

RFI Timeline and Contact Information	
RFI Released	February 13, 2025
Closing Date for Respondent Questions	March 13, 2025
Responses to Respondent Questions Posted (Estimated)	March 20, 2025
RFI Response Due Date	April 17, 2025, by 5:00PM (ET)
Agency Contact: Respondents must direct all questions and communications in writing to DCJSProcurement@dcjs.ny.gov and include "RFI DCJS 25-01' in the subject line.	

PURPOSE OF THE RFI

Pursuant to Chapter 205 of the Laws of 2022, the Division of Criminal Justice Services ("DCJS or Division") must "engage in and complete an investigation to certify the technological viability of microstamping-enabled pistols;" as a part of this investigation, "live-fire testing evidence" shall be included.

In furtherance of the aforementioned requirements, DCJS is issuing the instant Request for Information (RFI) in order to obtain information from subject matter experts (including but not necessarily limited to firearms manufacturers, forensic laboratories, firearms experts, and potential qualified vendors), relating to microstamping technology.

This RFI is for informational and planning purposes only, is not a solicitation of actual bids, and no contract will be awarded as a result. A firm or organization's response to the RFI—or lack thereof—will have no impact on the evaluation of responses to any subsequent solicitations and does not preclude a vendor from bidding on a future solicitation. Responders are advised that the State will not pay for any information or administrative costs incurred in response to this RFI; all costs associated with responding to this RFI will be solely at the responders' expense.

DCJS expressly reserves the right to utilize any and all ideas submitted in the responses received unless covered by legal patent or proprietary rights, which must be clearly noted in the vendor's response to the RFI.

BACKGROUND INFORMATION

In June 2022, the New York State Legislature passed, and Governor Hochul signed into law legislation requiring DCJS to review current microstamping technology for pistols (S4116A/ A7926A). Executive Law Section 837-W authorizes DCJS to engage in an investigation of microstamping technology, using, as part of that investigation, live-fire testing evidence. Upon completion of the investigation, DCJS must either certify or decline to certify that microstamping-enabled pistols are "technologically viable."

Should DCJS certify viability, various provisions of law will be triggered:

- Within 365 days of certification – DCJS shall establish performance standards, qualifying criteria, and testing protocols for the examination and verification of microstamping-enabled pistols
- Within 2 years – DCJS shall establish and implement verification processes for microstamping-enabled pistols and their components
- Within 2 years – DCJS shall establish processes and standards for training and licensure of entities to service microstamping-enabled pistols and their components
- Within 2 years – DCJS shall designate a body to service pistols and their components to ensure all pistols sold by a New York State firearms dealer possesses microstamping technology

- 4 years from certification – section 265.10 of the Penal Law will become effective, making it unlawful for a firearms dealer to sell any semiautomatic pistol that is not certified as microstamping-enabled

Upon enactment of the law, DCJS commenced its investigation into the viability of microstamping-enabled pistols by convening a working group within its Office of Forensic Services. This working group continues to collect and review the scientific and other literature on this topic, and to meet with the various stakeholders to gather perspectives and information needed for its review and ultimate determination. In furtherance of this task, DCJS sought and secured additional funding in the FY 2023-2024 budget to ensure an appropriate scope of review.

To facilitate the completion of its investigation, DCJS and the working group, through this RFI, are primarily seeking (a) information from stakeholders about the standards and processes needed to determine the technological feasibility and viability of microstamping-enabled pistols, and (b) the provision of microstamping-enabled firearms by owners of such technology for use by state experts in live-fire testing.

DCJS'S RESERVED RIGHTS

The Division reserves the right to:

1. Reject any or all responses received to the RFI;
2. Withdraw the RFI at any time, at the agency's sole discretion;
3. Amend the RFI after its release with appropriate notice to all RFI respondents;
4. Seek clarifications and revisions of responses;
5. Utilize any and all ideas submitted in the responses received; and
6. Request to meet with respondents.

RESPONDENT QUESTION AND ANSWER PERIOD

Respondents may submit questions about this RFI via email by [insert date] to: **DCJSProcurement@dcjs.ny.gov** and include "RFI DCJS-25-01" in the subject line.

Submissions should include affiliation name, contact person, telephone number and email address.

Responses to these questions will be posted on or around March 20, 2025, on the Division's website.

RFI SUBMISSION REQUIREMENTS

Please submit your responses to this RFI to: **DCJSProcurement@dcjs.ny.gov** before the due date identified on Page 1. Please include in the subject line "Response to RFI DCJS-25-01". Hard copies will not be accepted.

Information in addition to the prescribed questions is welcome. However, pre-printed marketing material and cost information **should not** be included in your response and will not be considered if provided.

DCJS is especially interested in hearing feedback from the following firms, organizations, or individuals:

- firearms manufacturers
- forensic laboratories
- forensic experts
- firearms experts and
- potential qualified vendors.

INFORMATION REQUESTED

- Criteria for determining the feasibility of microstamping technology for (a) new firearms and (b) to the extent different, the retrofitting of existing firearms. Such information may include, but need not be limited to, information regarding:
    - The efficacy of any current technology – the degree to which any technology provides forensic utility, and what lab technology is required to provide forensic utility
    - The durability of any existing technology– a technology's repeatability under real-world firing conditions, its useful life, conditions that would affect useful life
    - The potential for defeatability and existence of any current technology measures for preventing tampering either as integral to the microstamping technology or standalone
    - Any other information relative to criteria for determining feasibility (e.g., International Organization for Standardization standards)
- Criteria for determining the viability of microstamping technology for (a) new firearms and (b) to the extent different, the retrofitting of existing firearms. Such information may include, but need not be limited to, information regarding:
    - The scalability of any technology – the ability of a given technology to be produced at the magnitude of production lines
    - The cost effectiveness of any technology – what added cost would implementation of a given technology add to the manufacturing cost/consumer cost

- The universality of any technology – whether a specific technology accounts for the range of pistol types in the marketplace, different calibers and types of ammunition, and to the extent one technology does not, the extent to which another or others are able to cover the entire range

- Any other information relative to criteria for determining feasibility (e.g., International Organization for Standardization standards)

- Technology available for live-fire testing evidence: Such information may include, but need not be limited to, information regarding:

  - Do you possess or otherwise control any firearms (including prototypes) that you believe to be microstamping-enabled within the meaning of the microstamping statute referenced above?

  - Please describe any such firearm(s) to the best of your ability, including its make, model, and serial number.

  - Please describe the microstamping technology used on any such firearm(s), including:

    - what component part is its microstamping component,
    - describe what firearms the microstamping component is compatible with,
    - information about the effectiveness of the microstamp across a range of firearms,
    - what process is used to equip that component to produce a microstamp,
    - when the microstamp is produced, what type(s) of unique alphanumeric or geometric code does the microstamp feature, and
    - data or other literature about the live testing including its utility and limitations, including, risk of degradation, durability and longevity of various makes/models, ease of intentional tampering, feasibility, lasting forensic utility.

  - Please identify the person or entity that equipped such firearm to produce a microstamp.

  - Please state whether you are authorized, willing, and able to present such firearm(s) to DCJS and the State Police for independent live-fire testing and other evaluation in connection with the State's technological viability investigation.

- Assessment of the methodology and results of the appended "2024 Microstamping Viability Report," issued by the State of New Jersey Office of the Attorney General.

- Other Considerations – Provide general comments or suggestions related to the proposed project.

FREEDOM OF INFORMATION LAW ("FOIL") AND RFI RESPONSES

The purpose of New York State's Freedom of Information Law (FOIL), which is contained in NYS Public Officers Law, Sections 84-90, is to promote the public's right to know the process of governmental decision making and to grant maximum public access to governmental records.

Thus, a member of the public may submit a FOIL request for disclosure of the contents of the responses submitted to the State in response to this RFI. The responses of respondents may be subject to disclosure under FOIL. However, pursuant to Section 87(2)(d) of the Public Officers Law, a State agency may deny access to those portions of responses which "are trade secrets or submitted to an agency by a commercial enterprise or derived from information obtained from a commercial enterprise and which if disclosed would cause substantial injury to the competitive position of the subject enterprise." Please note that FOIL has specific instructions for identifying material that an entity claims is exempt from disclosure under FOIL because the information is trade secrets, which if disclosed would cause substantial injury to the competitive position of the respondent.

Please also note that information which you may claim as proprietary, copyrighted or rights reserved is not necessarily protected from disclosure under FOIL.

If there is information in your response which you claim meets the definition set forth in NYS Public Officers Law Section 87(2)(d), please inform us in a letter accompanying your response.

RESPONDING TO THIS REQUEST FOR INFORMATION

Responses to this Request for Information must be received by April 17, 2025, at 5:00PM (ET). RFI submissions may be submitted electronically to DCJS via email at DCJSProcurement@dcjs.ny.gov. Responses will be used to inform this DCJS project.

APPENDIX

- Authorizing legislation
- New Jersey Office of the Attorney General Request for Information (RFI) for Availability of Microstamping-enabled Firearms
- New Jersey Office of the Attorney General Microstamping Viability Report

Appendix L

Massachusetts Chiefs of Police Association Letter

ORGANIZED
NOVEMBER 3, 1887

INCORPORATED
MAY 2, 1949

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CHIEF MICHAEL J. BRADLEY, JR. (RET.)
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In Unity There Is Strength

April 22, 2025

Senator Michael Moore
Representative Kate Lipper-Garabedian
Special Legislative Commission on Emerging Firearm Technology
State House
24 Beacon Street
Boston, MA 02133

RE: Written Testimony Regarding Personalized Firearms & Microstamping Technology

Chairpersons and Members of the Commission:

On behalf of the Massachusetts Chiefs of Police Association, we thank you for the opportunity to submit testimony regarding the potential implementation of personalized firearms and microstamping technology in the Commonwealth.

Personalized Firearms

Personalized, or "smart," firearms—designed to operate only when held by an authorized user—are frequently cited as a potential tool to prevent unauthorized use, including suicides, accidental discharges, and the misuse of stolen firearms. While these objectives are commendable, the current state of this technology raises significant concerns that warrant caution before pursuing legislative mandates.

Firearms intended for home or personal defense must be reliable in high-stress, life-threatening scenarios. Many lawful gun owners express valid concerns regarding the operational reliability of biometric or RFID-based smart guns. These systems can fail due to battery issues, sensor errors, or interference from environmental conditions. Moreover, households may include multiple responsible adults who require immediate access to a firearm—functionality that smart guns may not adequately support.

In contrast, firearm safes—many of which now include biometric access—provide secure and rapid means of access without compromising reliability.

These devices are readily available at accessible price points and are already mandated by Massachusetts law, which requires all firearms to be stored securely when not in use. We believe that education and incentives to promote secure storage practices, rather than mandates for emerging and unproven technologies, will yield more immediate and reliable results in preventing unauthorized firearm use.

We further recommend expanding public awareness campaigns, such as those led by the International Association of Chiefs of Police (IACP), including high-profile efforts like their public service announcement featuring Shaquille O'Neal. MCOPA anticipates the release of additional IACP materials on firearm safety in the coming months.

Microstamping Technology

Microstamping, which involves engraving a unique code on the firing pin to leave an identifiable imprint on cartridge casings, has been discussed as a tool for tracing firearms used in crimes. While this concept shows theoretical promise, it remains scientifically unproven and operationally impractical for widespread implementation at this time.

Currently, no U.S. jurisdiction has fully implemented a functioning microstamping mandate. Challenges include durability of the microstamp, degradation with repeated firing, and the ease with which firing pins can be replaced or altered. Additionally, any such mandate in Massachusetts would be of limited effectiveness, as over 60% of crime guns recovered in the Commonwealth originate from out-of-state sources.

Even in optimal conditions, microstamping would only link a casing to the last lawful purchaser, which does little to aid investigations when the firearm is stolen—common in cases involving violent crime. Furthermore, manufacturers would face logistical burdens in assigning unique identifiers to each firearm without knowing its ultimate destination. For Massachusetts to implement microstamping effectively, it would require an expansive tracking infrastructure and coordination across the entire supply chain—challenges that are both costly and unproven.

Current Tools in Use

Importantly, Massachusetts law enforcement agencies already have access to proven and effective forensic tools. The National Integrated Ballistics Information Network (NIBIN), managed by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), enables law enforcement to match cartridge casings from crime scenes with those test-fired from seized firearms. The Massachusetts State Police Firearms Identification Section and the Boston Police Firearms Analysis Unit contribute regularly to NIBIN, generating over 200 actionable investigative leads annually.

Additionally, ATF's eTrace system facilitates the tracing of firearms to their last known legal purchaser and is integrated with NIBIN to support a broader Crime Gun Intelligence (CGI) framework. The enactment of Chapter 135 of the Acts of 2024, which mandates the use of

eTrace, NIBIN, and a statewide crime and suicide gun database under M.G.L. c. 140, § 131Q, reinforces Massachusetts' leadership in crime gun intelligence and tracing technology.

Conclusion

Massachusetts consistently ranks among the states with the lowest levels of gun violence—thanks in part to its robust and balanced approach to firearm regulation. The MCOPA supports continued research into emerging technologies such as personalized firearms and microstamping. However, given the current limitations and unanswered questions surrounding their efficacy, reliability, and feasibility, we respectfully oppose any legislative mandate requiring their adoption at this time.

Instead, we urge the Commission to consider alternative strategies, including public education, voluntary incentives for research and development, and investments in existing technologies already proving effective in criminal investigations.

We appreciate the opportunity to offer this testimony and remain available for any questions the Commission may have.

Respectfully submitted,

The Massachusetts Chiefs of Police Association, Inc.

By and through:

Michael J. Bradley, Jr.

Chief Michael J. Bradley, Jr. (Ret.)
Executive Director

William G. Brooks, III

Chief William G. Brooks, III (Ret.)
MCOPA Firearms Committee Member

Appendix M

Everytown for Gun Safety Letter

EVERYTOWN
FOR GUN SAFETY

June 11, 2025

Rep. Kate Lipper-Garabedian and Sen. Michael Moore, Co-Chairs
Special Legislative Commission on Emerging Firearm Technology
Massachusetts State House
24 Beacon St.
Boston, MA 02133

Everytown has long been passionate about the promise of microstamping technology, and has worked with other states to codify a microstamping mandate. As thought leaders and advocates in the gun safety movement, Everytown has consulted with policymakers for many years about the potential for this breakthrough technology to increase dramatically the number of gun crimes law enforcement can solve and the number of shooters they can interdict. Everytown encouraged and worked with lawmakers on microstamping laws in New York,New Jersey and California and has published research papers on microstamping, including a recent piece about the history and development of the technology, state legislative requirements, and the gun industry's failure to adopt microstamping to date.[1] Massachusetts is well-positioned to be the next state to lead the country by passing a law in 2026 requiring all handguns to have microstamping technology installed before they are sold in the Commonwealth.

The importance of microstamping

The use of microstamping would far exceed the capabilities and efficacy of the ballistic tracing technology currently used by law enforcement. Everytown writes with considerable expertise in the area of crime gun tracing, having toured multiple Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) facilities and multiple state police tracing centers over several years. Everytown is very familiar with both the high value and the significant limitations of the ATF's National Integrated Ballistics Information Network (NIBIN), which helps law enforcement trace recovered ballistic evidence on a daily basis. NIBIN has been heavily used since its inception in 1997—its databases contain 6.5 million pieces of ballistic evidence[2]—and yet it can only help law enforcement identify spent cartridge casings at a crime scene if the gun in question was used in an earlier incident and casings from the earlier incident were submitted to the NIBIN database at the time. This is quite a lot of contingency, and indeed NIBIN hits are relatively rare: there have been 151,000 hits in the program's 26-year history, or one hit for every 43 pieces of

[1] Everytown for Gun Safety, "Why Does the Gun Industry Oppose Microstamping?" October 10, 2024, available at https://smokinggun.org/report/why-does-the-gun-industry-oppose-microstamping/.
[2] Bureau of Alcohol, Tobacco, Firearms and Explosives, National Integrated Ballistics Information Network Factsheet. 2024, available at https://www.atf.gov/resource-center/docs/undefined/nibinfactsheetfy24508cpdf/download.

evidence in the database. What's more, a NIBIN hit doesn't guarantee that the crime scene evidence will be linked to a particular gun, but rather a successful hit will often simply link the evidence to the earlier incident—which may remain an unsolved crime. By contrast, a single microstamped casing recovered at a crime scene can quickly lead to a positive identification of the gun that fired it, because microstamped codes are unique and will be paired directly with firearm serial numbers. Unlike with traditional ballistics technology, every time authorities recover a microstamped casing, they have the potential to solve a crime immediately—regardless whether the gun was involved in prior incidents.This is a powerful advantage over the status quo.

Microstamping represents a major evolution in forensics that will dramatically improve law enforcement's capacity to solve gun crimes.

Microstamping is already viable technology

Everytown is highly confident that microstamping technology is not only feasible, but already exists and is indeed ready for use immediately across the full range of pistol caliber types. Existing technology can microstamp a unique code onto a firing pin, and once installed in a firearm, the firing pin will transfer the code onto a cartridge casing when the gun is fired. Everytown has followed the development of this technology closely and has seen demonstrations of microstamping machines and microstamped firing pins in person at the New Hampshire headquarters of TACLABS, the original microstamping pioneers.

Currently, to our knowledge only TACLABS has developed and possesses the operating equipment that is immediately ready for microstamping implementation. The Commission is fortunate to have Todd Lizotte, the leader of TACLABS, as a member; his expertise in this area is unmatched. Though he can explain the process in great detail, in simple terms, it involves removing a firing pin from a firearm and using a machine—such as the IFM1050 Microstamping System—to imprint a unique microstamp sequence.[3] TACLABS has relayed to Everytown that its machine can handle firing pins for all pistol models currently on the market; the machine operator would only have to swap out minor parts to make it compatible with all 80 types of firing pins and can do so within moments. They have also stated that this machine takes approximately one minute to imprint one pin. TACLABS describes their equipment as "a turnkey machine tool solution to firearm manufacturers to incorporate microstamping technology within their firearms."[4] It is a great advantage and head start for the legislative and implementation process in Massachusetts to have the foremost expert in this technology already involved.

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[3] TACLABS, Microstamping Manufacturing, available at https://tac-labs.com/forensics/home/what-is-microstamping/microstamping-manufacturing/.
[4] TACLBS, Products, available at, https://tac-labs.com/forensics/microstamping-services/.

And indeed, available evidence suggests that this technology performs with flying colors. According to a formal analysis by TACLABS, their technology is able to make a positive identification of a firearm's code with over 96% accuracy from a single piece of evidence, a figure that not only builds upon current methods but in fact is remarkably valuable and far exceeds any threshold for establishing mere viability.[5] In their analysis, they performed a series of tests in which they fired four rounds using a test firing pin—and then determined a combined accuracy score that integrated identification results from two, three, and four of those spent casings. After integrating at least two of the casings, the accuracy improved to 99%.

The potential defeatability of this technology is minimal. The vast majority of pistol purchasers and users would not be able to identify a firing pin, let alone remove or replace a firing pin—meaning the Commonwealth should expect that the vast majority of pistols sold after any mandate comes into effect will remain microstamping-enabled. To be sure, a person with gunsmithing skills would know how to remove a firing pin from a pistol. But this type of gunsmithing takes a significant amount of technical expertise, much more so than any skill needed to, for example, deface a serial number on an existing firearm. And yet while defacing a serial number can generally be accomplished by a non-expert, it is in fact quite rare that crime guns are altered in this fashion.[6] Efforts to defeat the microstamping mandate will likely be few and far between, though any statute addressing a microstamping requirement should take this potential risk into account by prohibiting and punishing such alteration as a crime.

Massachusetts should mandate microstamping

Following California and New York, Massachusetts should codify a requirement that all pistols sold in the Commonwealth be equipped with microstamping technology. The ideal legislation would help bring this revolutionary technology to Massachusetts rapidly through a series of successive steps. The first step for a Massachusetts statute would be to establish statewide standards for the creation, examination, and certification of microstamping-enabled components, followed by the establishment of a licensing system for gunsmiths, firearm dealers, and other businesses who wish to engage in the business of creating or servicing microstamp-enabled firearms.[7] Gunmakers can opt to install this technology in the manufacturing process; if they do

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[5] Orest P. Ohar and Todd E. Lizotte, "Extracting Ballistic Forensic Intelligence: Microstamped Firearms Deliver Data for Illegal Firearm Traffic Mapping,," available at https://csgv.nonprofitsoapbox.com/storage/documents/LIZOTTE%20RESEARCH%20PAPER%20AUGUST%202009.pdf.

[6] Bureau of Alcohol, Tobacco, Firearms and Explosives, Crime Guns Recovered and Traced Within the United States and Its Territories, available at https://www.atf.gov/firearms/docs/report/nfcta-volume-ii-part-iii-crime-guns-recovered-and-traced-us/download.

[7] New Jersey, California, and New York required initial certification of the viability of the technology as part of their laws. Because they have now established that the technology is indeed viable, Massachusetts can move directly establishing standards as the first step.

not, after-market vendors can perform the installation prior to sale. Like New York and California, Massachusetts should be prepared to require the State Police to be equipped to service these components directly if a stopgap is necessary. With this prerequisite infrastructure in place, the law would require that all semi-automatic pistols sold in Massachusetts be microstamp-enabled.

A possible timeline would be that two years from the date of enactment, a suitable state agency (such as the Executive Office of Public Safety and Security (EOPSS)) would establish the performance standards and testing protocols to be used to certify microstamp-enabled pistols and components; second, the state would, no later than three years following the law's enactment, take steps to help ensure the technology is commercially available, even in the event major manufacturers continue their refusal to integrate it into their manufacturing process.

The first step would be the establishment of a verification process by which manufactures of firearms or firearm components could submit their products for verification of their microstamping capability. The second step would be the creation of a licensure system for businesses and individuals who wish to engage in the business of creating and servicing microstamping components. The third step would be ensuring that the State Police are capable of servicing semi-automatic pistols to be microstamp-enabled.

Finally, only after the completion of the steps above, the bill would create a new mandate to go into effect for licensed firearms dealers, prohibiting them from selling, offering for sale, or otherwise transferring any semi-automatic pistol unless that pistol has been verified as microstamp-enabled.

Implementation of microstamping: How it works in practice

There are two potential avenues for any handgun to be microstamp-enabled at the point of sale, with technology installed either at the time of manufacture or post-manufacture:

> (1) A firearms manufacturer will integrate the microstamping firing pins into their manufacturing process so that pistols shipped to and sold in Massachusetts at retail will already be equipped with the technology; the manufacturer can thus provide any verification (which again should be included in any potential statute) that the pistols it has manufactured are microstamping-enabled and ready for sale; or
>
> (2) A state and federally licensed firearms dealer will purchase inventory from a manufacturer that is not yet equipped with microstamping technology; the dealer will manually remove the firing pins from those pistols and ship them to a state-certified

> vendor or a state lab. That vendor or state lab will imprint each firing pin with a unique microstamp and ship the firing pins back to the dealer. The dealer will then reinsert the firing pins back into the pistols, officially log the unique firing pin code and link it with the firearm's serial number for all record-keeping purposes, and provide the verification (a vital part of a state statute) that those firearms are microstamping-enabled pistols ready for sale.

If done at the manufacturing level, Massachusetts should have an official roster of the models verified as being microstamp enabled; this could be added to the existing firearms rosters maintained by the Firearm Control Advisory Board. Massachusetts should require EOPSS to promulgate rules and regulations as to both forms of the verification process.

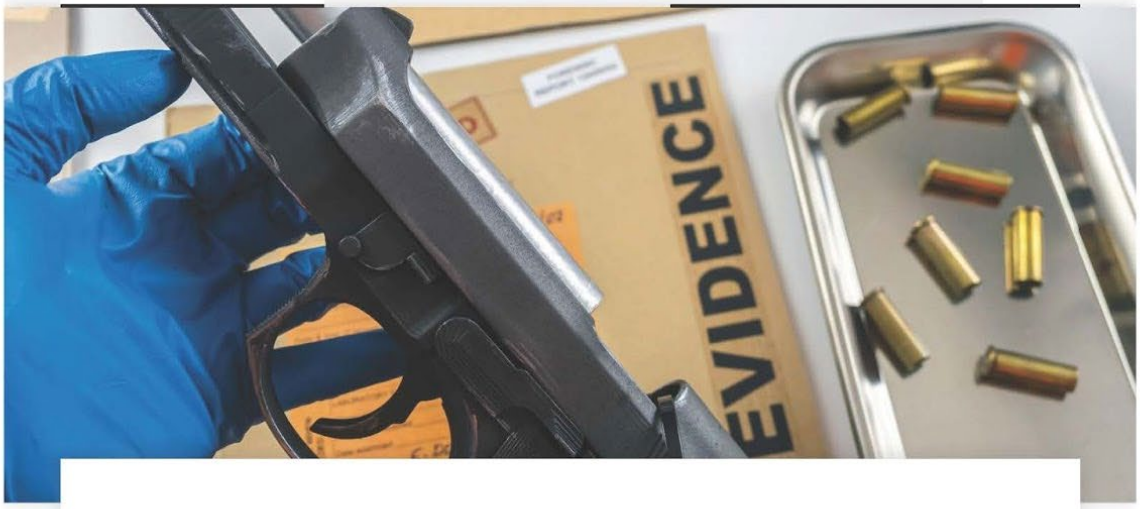
Everytown appreciates the opportunity to offer this information relevant to microstamping. The technology is indeed viable as of this writing and has been viable for many years; gunmakers have simply refused to adopt it voluntarily, repeatedly failing to update their designs in a manner that would prioritize public safety. Massachusetts should join the list of states that are now forcing the issue, ensuring that all new semiautomatic pistols purchased in the state will be microstamp-enabled, whether or not gunmakers equip the firearms at the time of manufacture.

Sincerely,

Jonas Oransky
Senior Director, Legal
Everytown for Gun Safety

Appendix N

Hopkins Bloomberg Public Health Magazine Article



FEATURES

Firearm Forensics on Trial

Defense attorneys appealing a murder conviction enlisted the expertise of statisticians to determine whether the field of firearm forensics is grounded in solid science. The answer? Not even close.

By Alexander Gelfand

One day last March, biostatistician Michael Rosenblum got an email from the chief attorney in the Forensics division of the Maryland Office of the Public Defender.

He was more than a little surprised.

Jeff Gilleran wanted to know if Rosenblum would assess the scientific validity of forensic firearms examination, a discipline better known as "ballistics" to fans of police procedurals like *CSI* and *Law & Order*.

"I initially thought, How could I help?" says Rosenblum, PhD.

It was an understandable response. A professor in Biostatistics, Rosenblum has spent the last 13 years developing improved statistical methods and free software for designing and analyzing clinical trials. His research has informed FDA guidance for designing COVID-19 treatment trials, and he's collaborated with clinical investigators to design trials to evaluate treatments for Alzheimer's disease and stroke.

Firearm examiners, meanwhile, are tasked with determining whether the bullets and cartridge cases found at a crime scene were fired from a suspect's gun. Most of them work in police department crime labs or for state or federal law enforcement agencies. Their job entails test-firing the gun in question and comparing the bullets and cartridge cases side-by-side under a microscope with the slugs and cartridge casings collected at the scene. They also serve as expert witnesses—typically for the prosecution—by testifying that the fired evidence found at the scene came from the suspect's weapon.

"It's deadly evidence," says Gilleran, who notes that juries, which tend to view any kind of forensic evidence as objective and scientific, rarely doubt a firearms examiner's testimony. "The bullets match the gun. The gun was found in the defendant's apartment. What else do I have to know as a juror?" he asks rhetorically.

'WE'RE NOT SCIENTISTS'

The number of cases involving forensic firearms evidence is hard to pin down, according to Jeff Salyards, PhD, a researcher with the Center for Statistics and Applications in Forensic Evidence. But the best source of data —a 2016 report by the federal Bureau of Justice Statistics—found that in 2014, publicly funded forensic crime labs completed some 154,000 requests for what is sometimes called "firearms/toolmarks" examination.

Gilleran and his colleague Molly Ryan explained to Rosenblum that they needed someone who could evaluate the quality of the studies that are cited in court.

"We're not scientists," Ryan says, "so we need help identifying the issues."

Initially, Gilleran simply told Rosenblum that he would be one of several scientists contributing to an amicus brief for the Supreme Court of Maryland, the state's highest court of appeals. (Filed by *amicus curiae*, or "friends of the court," an amicus brief is submitted by third parties who are not directly involved in a case but seek to offer information in support of one side or the other.)

"Trying to establish scientific validity is something I think about all the time," Rosenblum says.

Only later would Rosenblum learn that the brief was being filed on behalf of Kobina Ebo Abruquah, who had already spent a decade in prison for the shooting death of Ivan Aguirre-Herrera in 2012. Aguirre-Herrera's body was found in the house where both men lived in Riverdale Park, Maryland. At trial, a forensic firearms examiner testified that the bullets recovered from Aguirre-Herrera's body had been fired from Abruquah's gun. A jury found Abruquah, then 40, guilty of first-degree murder and the use of a handgun in the commission of a crime of violence. A judge sentenced him to life plus 20 years.

Abruquah's lawyers have appealed his conviction by questioning the scientific validity of the methodology used by firearms examiners and of the studies that support their conclusions.

"Trying to establish scientific validity is something I think about all the time," Rosenblum says. "This is part of my and my colleagues' everyday work to ensure that the research being done to evaluate new medical treatments is scientifically sound."

A LITANY OF FLAWS

In the case of firearms examination, establishing scientific validity turned out to be problematic. The central issue, Rosenblum explains, is that firearm examiners claim to be able to determine whether the bullets found at a

crime scene were fired from one particular gun and no other. Doing so, however, presupposes that every gun imprints a set of unique physical characteristics on bullets and cartridge casings during the firing process.

Yet as Rosenblum discovered, the notion that every single gun has a signature distinct from every other gun has not been established scientifically—nor has the ability of firearm examiners to reliably and accurately say that a bullet was fired from one gun to the exclusion of all others.

"There have been many studies of this, but each one is lacking in at least one important aspect ... to establish scientific validity," Rosenblum says.

Some of those deficiencies were first spelled out in a 2009 National Academy of Sciences report that criticized the scientific basis of a variety of forensic disciplines. (The sole exception was DNA testing, which grew out of biomedical science rather than law enforcement.) Arturo Casadevall, MD, PhD, chair of Molecular Microbiology and Immunology at the School and a former member of the National Commission on Forensic Science, says the NAS report was a "shock to the system." It led to an even more detailed 2016 critique by the President's Council of Advisors on Science and Technology.

Although both reports garnered pushback from prosecutors and law enforcement, they were eagerly taken up by defense attorneys—and prompted efforts by some forensics experts to put their field on more solid scientific footing. "Everyone that I have dealt with in the forensic community are good people who are really trying to do the right thing," says Casadevall.

Nonetheless, Rosenblum turned up a litany of flaws in the studies that prosecutors and ballistics experts use to support the practice. These range from inadequate sample sizes (most studies involve 30 to 40 guns, whereas the total number of firearms circulating the U.S. is estimated at approximately 400 million) to a lack of transparency and peer review (most have been published in trade journals, and data are rarely shared).

'IT'S NOT A REAL TEST'

Perhaps the most troubling issue had to do with the calculation of error rates, which indicate the likelihood that an examiner will correctly conclude

that a bullet did or did not come from a particular gun.

Current validation studies, most of which were conducted by forensic firearms experts themselves, report error rates ranging from 0 to 11.3%. (In their simplest form, these studies involve presenting examiners with a pair of bullets that have been fired under laboratory conditions from various guns, and asking them to determine whether the bullets came from the same gun or from different guns.)

But Rosenblum points out, the manner in which most validation studies have been conducted means that the true error rate remains unknown.

For example, the examiners who participate in such studies are typically permitted to reach three different conclusions: The two bullets were not fired from the same gun (exclusion); they were fired from the same gun (identification); or they can't tell (inconclusive). An inconclusive finding, Rosenblum says, clearly means that the examiner didn't reach the correct answer, since every pair of bullets must have been fired either from the same gun or from different guns. Yet most validation studies count inconclusives as correct or exclude them entirely.

Rosenblum compares the situation to one in which students taking the SAT were allowed to skip any question they couldn't answer. "It's not a real test; everyone will get a perfect score," he says. Indeed, when inconclusives are counted as incorrect, error rates suddenly climb as high as 93%.

The manner in which most validation studies have been conducted means that the true error rate remains unknown.

In previous testimony at trial, James Hamby, a forensic firearms examiner and expert witness for the state, contended that inconclusives should not be counted as errors.

"We're talking about a mechanical issue where bullets fly through the air, they hit bodies, they bounce off things," he said, implying that the damage to a given bullet could make it impossible to say with certainty whether it did or did not come from a particular weapon.

As the defense noted, however, while that may be the case in field work, it is not in validation studies, which use pristine samples fired under controlled

conditions.

What's more, one of the best-designed studies, known as Ames II, revealed that firearms examiners often reach different conclusions when presented with the same sets of bullets in several rounds of testing. Different firearms examiners, meanwhile, disagree with one another's conclusions 32% to 69% of the time. (When questioned about the Ames II study, Hamby professed not to know that it had in fact been designed to measure not only accuracy but also repeatability and reproducibility.)

FIREARM FORENSICS' FUTURE

Given these shortcomings, Rosenblum says he doesn't see how firearms examination could be used as a reliable source of evidence in a criminal trial—though he has begun thinking about how to improve the situation. Test samples, for example, could be randomly slipped into the workflow of forensic firearms examiners to assess their error rates, as is already done in the case of DNA testing. The number and types of guns could be increased. And validation studies could be modeled after clinical trial templates and subjected to peer review.

In the meantime, however, it's up to the courts to decide how to treat forensic firearms evidence—which is precisely why the amicus brief Rosenblum helped write, and that is signed by 12 other independent scientists including Casadevall, is so important.

Abruquah's lawyers drew heavily on it in oral arguments before the Supreme Court of Maryland in November. There is no deadline for the court to rule on it, but other lawyers can now cite the brief, providing them with a powerful tool for educating judges and juries about the current weaknesses of forensic firearms examination—and perhaps preventing other defendants from being convicted on the basis of evidence that may be considerably less trustworthy than its proponents suggest.

"It's important for Mr. Abruquah," says Gilleran. "But the importance of that brief goes way beyond this single case."

"Firearm Forensics on Trial" was published February 15, 2023.

This article appeared in the Spring/Summer 2023 issue of *Hopkins Bloomberg Public Health* magazine.

Share your thoughts

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Appendix O

Lizotte Unintentional Firearm Microstamps Memo

TACLABS

T. Lizotte
June 2025

Testimony to the Record

Several courts in the United States have expressed skepticism or placed limits on the admissibility of firearm and toolmark analysis, especially regarding claims that an expert can definitively match a bullet or casing to a specific firearm. These limitations stem from concerns about the scientific validity and subjectivity of the methodology, particularly following the 2009 National Research Council (NRC) report and the 2016 PCAST report on forensic sciences. Here are some key examples:

1. United States v. Green, 405 F. Supp. 2d 104 (D. Mass. 2005)

Court: U.S. District Court for the District of Massachusetts

Ruling: The court allowed the expert testimony but barred the expert from testifying that a particular bullet came from a particular gun "to the exclusion of every other firearm in the world."

Rationale: The court found that such claims were not scientifically justified, given the lack of standardized methods and validation studies.

2. United States v. Monteiro, 407 F. Supp. 2d 351 (D. Mass. 2006)

Court: U.S. District Court for the District of Massachusetts

Ruling: The court excluded the ballistics identification evidence due to insufficient documentation and validation.

Rationale: Emphasized that without proper documentation and peer review, the evidence does not meet Daubert standards.

3. United States v. Glynn, 578 F. Supp. 2d 567 (S.D.N.Y. 2008)

Court: U.S. District Court for the Southern District of New York

Ruling: The court allowed the expert to testify only to a "more likely than not" standard — not to absolute certainty.

Judge: Judge Rakoff was critical of the lack of scientific rigor and cautioned against overstating the reliability of the technique.

4. United States v. Williams, 506 F.3d 151 (2d Cir. 2007)

Appellate Court: U.S. Court of Appeals for the Second Circuit

Ruling: The court upheld the admission of toolmark evidence, but acknowledged ongoing questions about its scientific reliability, and noted that district courts may limit the scope of testimony.

5. United States v. Tibbs, No. 2016 CF1 19431 (D.C. Super. Ct. 2019)

Court: D.C. Superior Court

Ruling: The judge ruled that the firearm examiner could not testify to a match with "practical certainty".

Rationale: The opinion was heavily influenced by the PCAST report, which questioned the validity of subjective pattern-matching disciplines.

Context: Reports That Influenced These Decisions

2009 NRC Report: Found that firearm and toolmark analysis lacked a statistical or scientific basis for conclusive identifications.

TACLABS

T. Lizotte
June 2025

Testimony to the Record

2016 PCAST Report: Raised doubts about the validity and reliability of many forensic pattern-matching techniques, including firearms examination.

Summary

While most U.S. courts have not outright banned firearm and toolmark testimony, several have imposed limits on the certainty with which experts can express their conclusions. The trend is toward greater scrutiny, particularly when experts make claims of individualization (e.g., that a bullet came from a specific gun to the exclusion of all others).

The fact is firearm and tool mark analysis must evolve, Intentional Firearm Microstamping is that evolution, providing Firearm and Tool Mark Examiners tools to drive forensic intelligence which will be the shortest time to crime data point they will be able to recover, improving the chance to catch traffickers.

Appendix P

Berthiaume and Durant Dissenting Brief

Dissenting Policy Brief of Senator Peter J. Durant and Representative Donald Berthiaume

Subject: Microstamping Mandate Recommendation – Dissenting Analysis

Background

In July 2025, the Special Legislative Commission on Emerging Firearm Technology issued its report recommending that Massachusetts pursue legislation mandating "intentional firearm microstamping" on all newly registered semi-automatic handguns[1][2]. The majority's proposal is modeled on laws in California and New York, envisioning that once microstamping is deemed feasible, new handguns would be required to imprint a microscopic code (linked to the firearm's make, model, or serial number) onto each spent cartridge casing[3][4]. The Commission's goal is to give law enforcement a tool to trace firearms from shell casings alone, in hopes of raising the currently low clearance rate for gun crimes (only about half of U.S. gun crimes are solved)[5][6].

The undersigned, submit this dissenting brief to provide an alternate perspective. While recognizing the imperative to reduce gun violence, this analysis raises concerns about the proposed microstamping mandate's technological reliability, practical enforceability, legal sustainability, and cost implications. It draws on recent developments in California, New Jersey, and New York (2023–2025) to illustrate implementation challenges. This brief is structured in a formal policy format, aligning with the Commission report's style, and offers recommendations for a more prudent path forward.

Concerns with Microstamping Technology

Technological Reliability and Feasibility: The effectiveness of microstamping in real-world conditions remains unproven. *The evidence is mixed.* Even proponents acknowledge that the legibility of imprinted codes can vary widely. Limited studies show that the unique codes etched on firing pins are often illegible or incomplete under certain conditions, depending on the firearm type, ammunition used, and the number of rounds fired[7][8]. For example, a peer-reviewed study by a forensic examiner found that after installing a micro-engraved firing pin in 10 different pistols and firing each 10 times, only 54% of the casings bore fully legible codes; many imprint codes had at least one indecipherable character[9]. The engraving can wear down with high-volume use – after 1,000 rounds, the imprint on the firing pin tested remained mostly intact but was noticeably less sharp[10]. Such results underscore that microstamping may not consistently produce clear identifiers, especially over a firearm's service life. Notably, even incomplete or partial microstamps may not solve the problem – while law enforcement can sometimes assemble a full identifier from multiple partial stamps, this is far from guaranteed in typical crime scenes where only a few casings might be recovered[11][12]. In short, the technology's performance in ideal

laboratory settings may not translate to the chaotic conditions of actual gun crimes, casting doubt on its utility as a reliable crime-solving tool.

Enforceability and Evasion Concerns: Even assuming microstamping works as designed, determined criminals could easily defeat or evade the technology. Microstamping imprints can be intentionally defaced or removed with common household tools – a 2006 study demonstrated that a standard metal sharpening stone can effectively eliminate the identifying marks on a firing pin[13]. Such tampering would nullify the very tracing mechanism microstamping relies upon. The Commission's recommendation includes making it unlawful to alter or tamper with a microstamp on a firearm[14], but enforcing that is inherently challenging – by the time a crime gun is recovered (if it is recovered at all), a criminal could have long since swapped in an unmarked firing pin or filed off the engraving. Experience from law enforcement suggests that those planning crimes may simply switch to firearms that do not eject traceable casings (such as revolvers or stolen "legacy" semi-automatics) to avoid leaving evidence. Moreover, there is a risk of **misdirection**: Opponents of microstamping note the possibility of bad actors "salting" crime scenes with spent casings collected from shooting ranges to mislead investigators[15]. In such a scenario, police could be chasing false leads tied to unrelated firearms. These evasion tactics highlight a core concern: microstamping may be easily circumvented by offenders, undermining its intended benefit while still imposing significant burdens on lawful gun makers and owners.

Cost and Practicality for Manufacturers and Consumers: The mandate would require firearm manufacturers to significantly retool their design and production processes, the cost of which would inevitably be passed on to consumers and retailers. Microstamping is not as simple as laser-engraving a serial number onto a part; to function properly, the technology must be carefully engineered and optimized for each distinct firearm model, accounting for variations in firing pin designs, materials, and the dynamics of how different guns strike cartridges[16]. This is a costly and time-consuming undertaking that many manufacturers, especially smaller ones, may be unable or unwilling to absorb[16]. In effect, a microstamping requirement in Massachusetts could drive up the price of new handguns and even restrict their availability. We have a telling example in California: after that state's microstamping law took effect, no new handgun models were added to the California market for years because manufacturers avoided introducing products they could not sell without implementing an unproven technology[17]. By 2020, California's roster of approved handguns had nearly halved from its 2013 level, as gun companies pulled newer models out of the state rather than attempt costly compliance[17]. Massachusetts risks a similar outcome – a de facto ban on modern handgun models – if it imposes a requirement that no commercially-produced firearms currently meet[17]. This outcome not only burdens lawful gun purchasers (who would face higher costs or fewer choices) but could raise Second Amendment concerns by limiting access to common firearms (as discussed in the next section). Additionally, implementation will demand public expenditures: the Commission itself recognized that substantial funding would be needed for state agencies to develop forensic capabilities, databases, and regulatory

oversight for microstamping[18]. These costs – borne by taxpayers – should be weighed against the speculative benefits of the technology.

Efficacy in Reducing Crime: Finally, even if microstamping were perfectly implemented, its actual impact on gun crime is uncertain. The premise is that police will be able to trace shooting incidents to specific guns (and thus, presumably, to their owners). However, many firearms used in crimes are obtained illegally (stolen or trafficked) and are not used by their lawful, traceable owner. Matching a casing to a gun's serial number might lead investigators to an initial purchaser who long ago sold or lost the firearm, or whose gun was stolen – a scenario that does little to identify the shooter. Microstamping does not function as a GPS tracker or a deterrent to pulling the trigger; it provides a lead, at best, in post-crime investigations, and one that is only useful if not thwarted by the problems above. Traditional investigative methods (eyewitnesses, videos, informants, etc.) remain crucial. In short, the public safety return on a microstamping mandate is speculative, whereas the costs and risks – technological, economic, and constitutional – are tangible.

Legal and Constitutional Implications

Second Amendment Concerns: A statewide microstamping mandate could face serious constitutional challenges. In the wake of the U.S. Supreme Court's 2022 *Bruen* decision (which heightened scrutiny of gun regulations lacking historical precedent), courts have looked skeptically at novel firearm requirements. Notably, California's microstamping law – the very model for the Commission's recommendation – was blocked by a federal court in 2023 for likely violating the Second Amendment[19][20]. In *Boland v. Bonta* (March 2023), Judge Cormac Carney granted an injunction against California's roster rules that required new handguns to have microstamping (among other features). He found that the requirement infringed on the right to acquire firearms in common use, since "no firearm manufacturer in the world makes a firearm with this capability" and thus no new models had been added to California's handgun roster since 2013[21]. The court concluded that such a requirement had no historical analogue and imposed a substantial burden on Second Amendment rights[22][20]. This case is ongoing, but it signals a clear legal risk: if Massachusetts enacts a microstamping mandate, it could be swiftly challenged on similar grounds. The mandate might be characterized as an effective ban on new handguns (until technology catches up), which a court could view as an impermissible infringement on the right to keep and bear arms. Legislators should be mindful that any law making firearm access contingent on a technology that does not yet exist at scale may not survive judicial scrutiny[22].

Due Process and Enforcement Issues: There are additional legal considerations. Enforcing a microstamp mandate would likely entail new criminal penalties – not only for manufacturers or dealers who sell non-compliant guns, but also for individuals who "tamper with" or disable a microstamping mechanism[14][4]. While it is important to discourage willful circumvention, such provisions must be crafted carefully to avoid ensnaring lawful gun owners in criminal liability for routine maintenance or repairs. For instance, replacing a worn firing pin is standard firearm maintenance; under a strict law, an

individual could risk prosecution if the replacement pin is not engraved or if an engraved pin's imprint becomes unreadable over time. New Jersey's microstamping statute, for example, makes it a felony offense to intentionally remove or alter a microstamp on a firearm, with penalties of up to 3–5 years in prison[23]. Massachusetts would likely contemplate similar criminal penalties. This raises due process concerns about proving intent – was a missing imprint the result of a criminal act or normal wear and tear? The law must avoid presuming malfeasance where none exists. Furthermore, there is a risk that such laws could be applied unevenly or trigger constitutional vagueness challenges (e.g. what level of "damage" to a microstamp constitutes criminal tampering). These nuances underscore the complexity of writing and enforcing a fair microstamping requirement.

State Constitutional Context: Massachusetts' own constitution and jurisprudence on gun rights, while allowing for reasonable regulation, do not explicitly sanction a requirement that could de facto ban new handgun models. The Commonwealth's 2022 Gun Safety Act created this Commission to study microstamping but did not itself mandate the technology[24][25]. Any future legislation must be attentive to the balance between public safety objectives and constitutional rights. It is worth noting that the Commission's recommendation wisely conditions implementation on a determination of feasibility and viability by the Executive Office of Public Safety and Security (EOPSS)[3]. This indicates an understanding that an immediate mandate would be indefensible without proof the technology actually works. The dissent agrees with requiring robust proof of concept; however, as detailed above, even a *technically* viable microstamp system may not be *constitutionally* viable if it unduly restricts gun access or fails to align with historical regulatory traditions. In summary, the proposed microstamping mandate carries substantial legal risk – potentially embroiling the Commonwealth in protracted litigation and uncertainty, as seen in California – and could be struck down, which would delay or derail the very policy goals it seeks to achieve.

Comparative Legislative Experience (2023–2025)

Lessons from other jurisdictions highlight the implementation and feasibility issues surrounding microstamping mandates. Several states have moved ahead with microstamping laws in recent years, and their experiences inform this dissent:

- **California:** California was the first state to enact a microstamping requirement (passed in 2007, effective 2013), but *for over a decade the mandate largely existed on paper rather than in practice*. Gun manufacturers, faced with the requirement that any new handgun model sold in California incorporate microstamping, simply stopped introducing new models in the state – no new microstamp-compliant handgun was commercially offered, and thus no new handgun models were added to California's roster after 2013[17]. This stalemate led to multiple lawsuits and, effectively, a freeze on handgun innovation for California consumers[26]. In response, California amended its law in 2020 and again in 2023 to adjust the microstamping mandate. Most notably, Senate Bill 452 (2023) set a timeline to finally implement microstamping: it requires that, by January 1, 2028, all

semiautomatic pistols sold by dealers in California must be microstamp-enabled, *provided that* the California Department of Justice (CADOJ) certifies the technology is viable and available at reasonable cost[27][28]. The law directs CADOJ to develop standards and licensing for microstamping components and to determine by July 2027 whether compliant guns and engraving services are commercially available[28]. As a first step, in July 2025 California's Attorney General announced that state investigators have deemed microstamping technologically viable in laboratory testing[29]. The DOJ's study found that engraved firing pins "regularly leave legible microstamps" on cartridge cases, even after sustained firing, and that even partial stamps can yield investigative leads[30][31]. This determination satisfies the *first* condition for the 2028 mandate to take effect[29]. However, California still must verify the *second* condition – that microstamping-equipped guns and parts are actually available for consumers and manufacturers. To that end, the law prohibits selling any new pistol without microstamping after the deadline and makes it unlawful to modify a microstamp-enabled gun to disable the imprint[32]. California's experience thus far illustrates both the promise and the pitfalls of this policy: even with legal mandates, the technology's adoption has been extremely slow, essentially waiting on scientific viability and market availability to align. It took California nearly 15 years to reach a point of declaring microstamping workable in principle, and even now the full rollout is at least a few years away. The state's need to push the compliance date to 2028 and invest in further standards and oversight underscores how ambitious – and uncertain – a microstamping requirement truly is. Importantly, California's law remains under active judicial review (as noted above), meaning the entire framework could be upended by courts before it ever fully takes effect[33].

- **New York:** In June 2022, New York became one of the first states to follow California's lead, passing a microstamping law (Chapter 205 of 2022) amid a package of post-*Bruen* gun reforms[34]. New York's approach is cautious and phased. The law tasked the Division of Criminal Justice Services (DCJS) with conducting an extensive investigation into the "technological viability" of microstamping for pistols[35][36]. Only if DCJS certifies that microstamping is viable will the mandate kick in. Upon such certification, a multi-year implementation process is triggered: within one year DCJS must set performance standards for microstamped pistols, and within two years it must establish verification procedures and licensing for firms that will produce or service microstamping components[37][38]. Ultimately, four years after a viability certification, it will become unlawful for any licensed dealer in New York to sell a new semiautomatic pistol that is not microstamp-enabled[39]. In effect, New York built in a long lead time to avoid an immediate disruption to the gun market. As of early 2025, this process was still underway – DCJS had issued requests for information and was examining test data[40][41], but no certification of viability has yet been announced, and thus no microstamping mandate is currently in force in New York. Importantly, New York's law contemplates that multiple steps must

succeed before microstamping reaches the consumer level, reflecting an understanding that the technology and industry readiness remain nascent. It also empowers DCJS to pause or decline implementation if microstamping proves unworkable[42]. New York's deliberate approach highlights a key point: even jurisdictions in favor of microstamping recognize that any mandate must be predicated on demonstrable viability and cannot be rushed without risking serious problems. Massachusetts should take note of New York's measured, conditional strategy (and, ideally, improve upon it by addressing the underlying concerns detailed in this brief).

- **New Jersey:** New Jersey has also moved to explore microstamping, but with a notably different tactic focused on encouraging availability rather than imposing a blanket ban on standard firearms. In July 2022, New Jersey enacted a law (N.J. Rev. Stat. §2C:58-2.13 et seq.) directing the Attorney General to evaluate microstamping technology and certify if and when "microstamping-enabled firearms" become technologically viable and commercially available[43][44]. On February 28, 2024, New Jersey's Attorney General did issue a formal certification that microstamping is viable, based on testing of a prototype pistol with an engraved firing pin that successfully imprinted an 8-digit code on cartridge primers[45][46]. This certification triggered the next phase of New Jersey's law: firearm manufacturers may now submit models for evaluation by a state "microstamping examiner," and if a model is verified to meet performance criteria, it will be placed on a new "microstamp roster" of approved firearms[47]. Once the first make/model is certified and listed, New Jersey's mandate will kick in – but it is relatively limited in scope. Rather than outlawing non-microstamped guns, New Jersey will require that gun dealers carry at least one microstamp-enabled handgun in their inventory and display signage about the technology[48][49]. The law also provides a financial incentive: a purchaser of a microstamping-enabled firearm is entitled to an instant rebate of 10% of the price (up to $30)[50][49]. Moreover, similar to other states, New Jersey makes it a crime (third-degree felony) for anyone to intentionally tamper with or remove a microstamp on a firearm, in order to deter sabotage of the technology[23]. New Jersey's relatively incremental approach – essentially, introducing microstamped guns into the market and gauging consumer uptake – reflects an important reality: as of mid-2025, there are still no mass-produced, commercially available handguns with factory-installed microstamping. New Jersey could not force all new handguns to have a feature that no factory yet provides, so instead it aims to jump-start the market by certifying one and requiring it be stocked. Whether this will succeed remains uncertain. Early signs suggest lack of consumer interest in microstamped firearms; indeed, to date not a single firearm has been added to New Jersey's microstamp roster, because no manufacturer has come forward with a ready product. Industry experts and even state officials acknowledge that widespread adoption may be a long way off – New Jersey's law explicitly conditions its mandates on the technology being "commercially available," and observers note it is *"doubtful that the microstamp roster will be*

published anytime soon," given the nascent state of the technology[51]. New Jersey's experience thus far teaches that coaxing a new technology into the marketplace is slow and uncertain, and that mandates cannot simply conjure products into existence. It also shows an alternative policymaking philosophy: rather than immediately penalizing manufacturers or consumers for non-compliance, New Jersey chose to ease into microstamping with availability requirements and modest incentives. This contrasts with the harsher "ban-style" mandate attempted in California and contemplated (in a contingent way) in New York. Massachusetts may wish to consider whether a more incentive-driven, voluntary uptake model (as New Jersey is testing) makes sense, as opposed to a compulsory mandate – especially until the technology proves itself.

Summary of Other Jurisdictions: In sum, no U.S. jurisdiction has yet fully implemented a universal microstamping mandate, though several are in progress. California's stringent law stalled for years and is now being re-tooled with a delayed start date; New York's law is on hold pending proof of viability; and New Jersey's law stops short of a full mandate, instead taking incremental steps. It is also notable that the District of Columbia passed a microstamping requirement in 2009, but it was never put into effect and garnered little further attention until the recent state-level revival of the idea[52]. The fitful progress in these jurisdictions underscores the high degree of uncertainty and controversy surrounding microstamping. Massachusetts has the benefit of being able to study these examples in 2025 rather than acting in 2013 or 2022. The dissent urges the General Court to do so carefully. The patterns are clear: (1) the technology was not ready for prime time when first mandated, and it remains unproven in the field; (2) states have had to add significant caveats, delays, or alternative measures to avoid unworkable outcomes; and (3) legal challenges are a real possibility wherever mandates are too aggressive. These insights strongly counsel a more cautious approach than a blanket requirement on an unproven technology.

Recommendations

In light of the concerns and evidence presented, we respectfully offers the following recommendations as an alternative to the Commission's microstamping mandate proposal. These steps are designed to maintain the formal tone and objectives of an official policy brief, while better balancing innovation with practicality, and public safety with constitutional rights:

1. **Delay Any Legislative Mandate Pending Further Study and Real-World Evidence:** Massachusetts should not enact a microstamping requirement at this time. Instead, the legislature should authorize and fund a comprehensive feasibility study and possibly a pilot program in collaboration with law enforcement. This study (carried out by EOPSS or an expert independent panel) would rigorously test microstamping in diverse, real-world conditions – across various firearm makes, models, and ammunition types – to answer outstanding questions about reliability, durability, and traceability. Notably, the Commission's own recommendation

acknowledges the need for a feasibility and viability determination before implementation[53][3]. The dissent concurs but urges that this determination be more than a check-the-box exercise; it must be thorough and data-driven. The study should also examine the operational impact on crime-solving: for example, simulate how microstamped evidence would aid or complicate actual criminal investigations, and whether it leads to more solved cases in practice. Only after such analysis, and only if results demonstrate a clear benefit that outweighs the costs, should the General Court even consider moving toward a mandate. This "wait-and-evaluate" approach aligns Massachusetts with the prudent steps taken by New York (deliberate viability review) and New Jersey (market availability first), ensuring policy is guided by facts rather than optimistic theory.

2. **Prioritize Proven Crime-Gun Tracing Tools and Enforcement Measures:** Rather than investing all trust in microstamping, Massachusetts should bolster existing technologies and strategies that help solve gun crimes. This includes expanding the use of the National Integrated Ballistics Information Network (NIBIN), which analyzes ballistic markings on casings and bullets to link crimes involving the same firearm. While not as "high-tech" as microstamping, NIBIN and traditional forensic ballistics have a track record of generating leads when appropriately resourced. The state can fund upgrades to crime labs and training for analysts to maximize these tools. Additionally, focus should be placed on better enforcement of current gun laws: for instance, cracking down on straw purchasers and illegal firearms trafficking will ensure fewer crime guns are on the street (so that tracing the original owner – which microstamping aims to facilitate – actually leads to a culpable party). Massachusetts could also enhance record-keeping and reporting for crime guns (e.g., ensure timely entry of seized guns into federal eTrace systems). These measures directly address gun violence by using *known* effective methods, without the uncertainty of an unproven mandate. In essence, the Commonwealth should strengthen the foundations of gun-crime investigations now, which will pay dividends regardless of whether microstamping is introduced later. If and when microstamping does come online, it would complement – not replace – these fundamental practices.

3. **Foster Voluntary Innovation and Incentives Over Mandates:** The Legislature can encourage firearm manufacturers and owners to voluntarily explore microstamping technology through incentive-based programs, rather than an immediate compulsory law. For example, the state could establish a pilot partnership with manufacturers willing to develop microstamping in their products – offering tax credits, research grants, or recognition for any company that produces a commercially viable microstamped firearm for the Massachusetts market. On the consumer side, the state might consider rebate programs or tax exemptions for any Massachusetts resident who purchases a microstamp-enabled firearm (similar to New Jersey's 10% rebate incentive)[49]. By creating a *market pull* for the technology, Massachusetts could help stimulate the development and availability

of microstamped guns organically. If the technology truly holds promise, manufacturers should respond to these incentives by bringing a product to market. Conversely, if uptake remains nonexistent, that itself is instructive – it may indicate that the technology is not ready or is not valued by consumers. In either case, an incentive-driven approach avoids punishing law-abiding gun owners or retailers. It would gauge real demand and practicality before any broad mandate. This approach aligns with the principle that complex technological solutions fare better when phased in cooperatively, not forced under threat of penalty. Massachusetts has successfully used incentives in other policy areas (for instance, encouraging renewable energy adoption); a similar model could be applied here to balance innovation with liberty.

4. **Ensure Any Future Requirements are Narrowly Tailored and Include Safeguards:** If Massachusetts eventually proceeds with microstamping legislation, it must be crafted with careful safeguards to mitigate the risks identified. The dissent recommends that any such law explicitly condition implementation on multiple tangible benchmarks: (a) at least one or more major manufacturers must have a certified microstamp-equipped handgun *in production* and for sale to the public at a reasonable price; (b) independent testing (not just by the patent-holder or a single laboratory) must validate that the firearms consistently produce legible codes under normal use; and (c) the state's ballistic laboratories must be fully prepared (with equipment, training, and protocols in place) to analyze microstamped evidence. Additionally, the law should incorporate a grace period and automatic review – for example, if after a certain number of years the mandate is not yielding demonstrable improvements in crime solving, or if it has led to unintended consequences (like a significant reduction in available handgun models), the requirement should sunset or be re-evaluated. To avoid unfairly criminalizing good-faith gun owners and gunsmiths, the law must clearly define allowable maintenance: replacing a broken firing pin or other component should be permissible so long as it is done through licensed channels that ensure the microstamp is preserved or re-engraved. In line with this, the state should establish certified microstamping servicers (as even the Commission recommended[54]) so that compliance does not become an undue burden on individual owners. Finally, Massachusetts should coordinate with other states and federal authorities on establishing *uniform standards* for microstamping (e.g., format of codes, placement, database integration) to prevent a patchwork of requirements that manufacturers cannot reasonably meet. A future Massachusetts microstamping statute, if any, must be narrowly tailored to survive constitutional scrutiny – focusing on newly manufactured firearms (not retrofitting existing guns people already own), including exemptions for law enforcement and legacy collectibles, and providing waivers or extensions if the technology proves temporarily infeasible. By integrating these safeguards, the Commonwealth would ensure it is not overreaching and that it remains flexible in response to real-world outcomes.

5. **Monitor Outcomes in Other States Before Full Adoption:** Given that California, New York, and New Jersey are actively experimenting with microstamping implementation, Massachusetts should take advantage of the learning opportunity this presents. Rather than rushing to be next, the state can observe and analyze how these jurisdictions progress over the next couple of years (which will coincide with the timeline of the feasibility studies and initial rollouts in those places). Key metrics to monitor include: the number of microstamping-enabled models that actually reach the market, the rate of adoption by gun buyers, the incidence of microstamp evidence being used to solve crimes, and any unintended negative effects (such as fewer gun models available or legal challenges filed). For example, if by 2026 California's labs are struggling to read microstamps or if no manufacturers have stepped up to produce compliant guns, that would be a red flag. Conversely, if New Jersey's softer mandate results in even one widely sold microstamped firearm, that could validate aspects of the technology. Massachusetts should remain engaged with these states' law enforcement and forensic communities, exchanging data and experiences. By the time any Massachusetts law would go into effect (if pursued), we would have the benefit of empirical evidence from these early adopters. This iterative, evidence-based approach is prudent when dealing with emerging technology that has significant public policy ramifications. Simply put, Massachusetts should not be a test case when others are already in that role – it should be the jurisdiction that learns from others' tests.

Conclusion

This dissenting brief respectfully urges caution on the issue of firearm microstamping. The majority of the Special Commission has recommended moving forward with a mandate, hopeful that it "offers a compelling possibility" for solving more gun crimes[55]. Our position is that *possibility is not enough*. The Commonwealth must ensure that any major firearm technology mandate is supported by *probability* – the probability that it will work as intended, that it will be enforceable, that it will withstand constitutional scrutiny, and that its benefits will outweigh its costs and risks. At present, microstamping falls short on several of these counts. There is no question that the goal behind microstamping – improving law enforcement's ability to trace crime guns and hold perpetrators accountable – is laudable. However, good intentions do not guarantee good results. As detailed above, the technology faces significant reliability issues, can be thwarted with ease by bad actors, and remains virtually absent from the marketplace despite years of legal mandates elsewhere. The experiences of California, New York, and New Jersey serve as cautionary tales that microstamping is not a plug-and-play solution and that premature mandates can backfire.

Massachusetts has always been a leader in thoughtful gun policy. In that spirit, the dissent recommends a more measured, fact-driven approach: continue to study and test microstamping, strengthen existing investigative tools in the meantime, and encourage

voluntary adoption once the technology is truly ready. This path will protect the public without jeopardizing the rights of law-abiding citizens or the vitality of the lawful firearms market. It will also shield the Commonwealth from avoidable legal battles and fiscal expenditures on a system that may not deliver. Ultimately, the Commonwealth's priority should be effective solutions to gun violence – solutions that are grounded in evidence and respect constitutional limits. If microstamping can meet that bar, it will have earned its place. Until then, Massachusetts should focus on strategies that we *know* save lives and solve crimes, while keeping a watchful eye on the evolution of this promising but as-yet unproven technology.

Sources Cited:

- Massachusetts Special Legislative Commission on Emerging Firearm Technology – Final Report (July 22, 2025)[1][2][5][6][53][3][4][54].
- Commission Report Appendix / State Law Summaries[29][28][32][33].
- Duke Center for Firearms Law – Analysis of *Boland v. Bonta* (April 2023)[19][21][22][20].
- The Trace – "What Is Microstamping, and Can It Help Solve Shootings?" (Jan. 2023)[7][8][13][15][26][34][56].
- National Shooting Sports Foundation (NSSF) – Microstamping Fact Sheet (2022)[16][57][11][58].
- New Jersey Attorney General – Microstamping Viability Certification Announcement (Feb. 28, 2024)[45]; New Jersey Statutes §2C:58-2.13 et seq. and 2024 NJ AG Report[43][46][48][51].
- California Department of Justice – Press Release on Microstamping Viability Report (July 18, 2025)[30][31].
- New York DCJS – Microstamping RFI and Executive Law §837-w (2022)[37][39].
- NewJerseyGunLawyers.com – "Microstamping Guns in NJ" (2023)[23].

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[1] [2] [3] [4] [5] [6] [14] [18] [24] [25] [28] [29] [32] [33] [53] [54] [55] 07-22-2025 - DRAFT - Emerging Firearms Tech Commission report.pdf

file://file-LfyFrxuTQHZ4Bq2yPLUQmt

[7] [8] [9] [10] [13] [15] [26] [34] [49] [52] [56] What Is Microstamping, and Does It Work to Solve Shootings?

https://www.thetrace.org/2023/01/microstamping-gun-bullets-new-york/

[11] [12] [16] [57] [58] nssf.org

https://www.nssf.org/wp-content/uploads/2022/09/NSSF-factsheet-Microstamping-22upd.pdf

[17] [19] [20] [21] [22] Litigation Highlight: Federal Judge Strikes Down California Law Requiring Certain Safety Features for Handguns | Duke Center for Firearms Law

https://firearmslaw.duke.edu/2023/04/litigation-highlight-federal-judge-strikes-down-california-law-requiring-handguns-to-have-certain-safety-features

[23] Microstamping Guns in NJ | Does NJ Trace Firearms used in Crimes

https://www.newjerseygunlawyers.com/blog/microstamping-guns-in-new-jersey/

[27] [30] [31] Attorney General Bonta Releases Report, Finds Firearm Microstamping Technology Viable | State of California - Department of Justice - Office of the Attorney General

https://oag.ca.gov/news/press-releases/attorney-general-bonta-releases-report-finds-firearm-microstamping-technology

[35] [36] [37] [38] [39] [40] [41] [42] criminaljustice.ny.gov

https://www.criminaljustice.ny.gov/pio/vendor/NYS%20DCJS%20Microstamping%20RFI.pdf

[43] [44] [46] [47] [48] [50] [51] NEW JERSEY ATTORNEY GENERAL CERTIFIES THAT MICROSTAMPING TECHNOLOGY IS VIABLE | Renzulli Law Firm

https://renzullilaw.com/new-jersey-attorney-general-certifies-that-microstamping-technology-is-viable/

[45] What Is Microstamping, and How Does It Work? | Everytown

https://www.everytown.org/what-is-microstamping-and-how-does-it-work/