BERKELEY CITY COUNCILMEMBER
TERRY TAPLIN
DISTRICT 2

To: Honorable Mayor and Members of the City Council

From: Councilmember Taplin

Subject: Budget Referral: SafeCity Connect Downtown Berkeley Pilot Program

RECOMMENDATION
Refer to the budget process $320,000 to fund a two-year public-private security camera program between SafeCity Connect (SafeCity) and the Downtown Berkeley Property-based Business Improvement District (PBID) for ten (10) locations. This public-private partnership will develop performance and compliance metrics pursuant to the City of Berkeley's Surveillance Ordinance, report on metrics regarding criminal activity clearance rates, deterrence and reduction of criminal activity, and develop privacy and transparency protocols to govern the management and implementation of its camera program.

FINANCIAL IMPLICATIONS
$320,000 over a two-year period in General Fund impact. The proposed public-private partnership realizes significant unit cost savings relative to prior budget allocations, with approximately $32,000 per location, including installation and maintenance, representing approximately a 60% lower unit cost.[1]
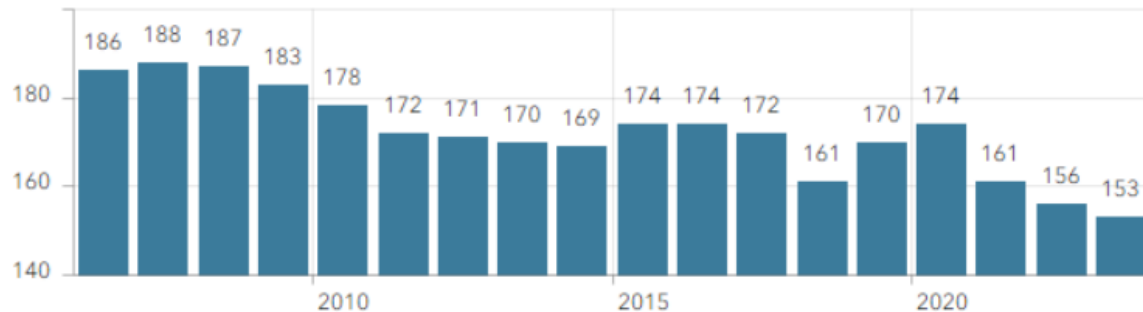
CURRENT SITUATION AND ITS EFFECTS
In 2023, Berkeley saw a significant increase in Violent Crimes (15%) and Property Crimes (9.7%), with an alarming 61.5% increase in Auto Theft and Arson, respectively. While shootings overall decreased, a 32% increase in Robbery was paired with a 5% increase of the share of robberies committed with a gun.

While the Berkeley Police Department continues with its recruitment effort, new sworn officers cannot be added quickly without the significant cost of attracting lateral hires, due to a highly competitive regional job market for law enforcement. This is reflected in BPD's latest staffing data, which has been unable to keep pace with the rising rates of crimes reported since 2020.

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[1] Oct. 12, 2021 Budget Referral: https://berkeleyca.gov/sites/default/files/documents/2021-10-12%20Item%2020%20Budget%20Referral%20Security%20Cameras%20-%20Rev%20Taplin.pdf

Sworn Staff
Annual Peak Staffing Levels

Source: BPD Annual Report, 2023

There is a preponderance of criminology literature supporting a strong link between clearance rates (a criminal investigation being solved with an arrest) and deterrence of future criminal activity, in particular as the perceived risk of sanction among potential criminal actors *changes* "through a process consistent with rational Bayesian updating" (i.e. relative changes are more salient than *absolute* level of perceived risk).[2] Cook et al (2019) have reported that a higher amount of hours investigating gun homicides appears to increase the clearance rate relative to non-fatal gun crimes.[3] It is thus reasonable to infer that more successful investigations can deter future criminal activities.

In 2022, the Berkeley Police Department saw only a 3% increase in clearance rates for Robbery and Auto Theft, and a 5% decrease in clearance rates for Burglary and Arson, likely reflecting historically low staffing levels in the Department. (2023 clearance data is not yet available.) However, security cameras have been effective in helping solve Part One crimes in Berkeley, particularly the homicide of Anthony Joshua Fisher in 2022.[4]

Public-private partnerships to leverage technology for public safety investigations and deterrence of criminal activities is a Strategic Plan Priority Project, advancing our goal to create a resilient, safe, connected, and prepared city.

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[2] Pogarsky, Greg & Loughran, Thomas. (2016). The Policy-to-Perceptions Link in Deterrence: Time to Retire the Clearance Rate. *Criminology & Public Policy. 15.* 10.1111/1745-9133.12241.

[3] See Attachment 3.

[4] Raguso, E. (2022, Mar. 9). Berkeley shooting victim dies, longtime drug dealer charged with murder. *Berkeleyside.* Retrieved from https://www.berkeleyside.org/2022/03/09/berkeley-homicide-seventh-street-drug-dealer-charged-murder

Budget Referral: SafeCity Connect

<div style="text-align: right">CONSENT CALENDAR
May 7, 2024</div>

BACKGROUND
The Downtown Berkeley Association has partnered with the San Francisco-based company SafeCity Connect to provide a cost estimate and implementation proposal for a public-private security camera program to provide BPD with additional resources to investigate and deter criminal activity.

As illustrated in BPD's 2023 Annual Report, Downtown Berkeley has the highest concentration of calls for service in the entire city by a wide margin. BPD also reconfigured its beat structure to a 14-beat map to provide shorter response times.

Budget Referral: SafeCity Connect
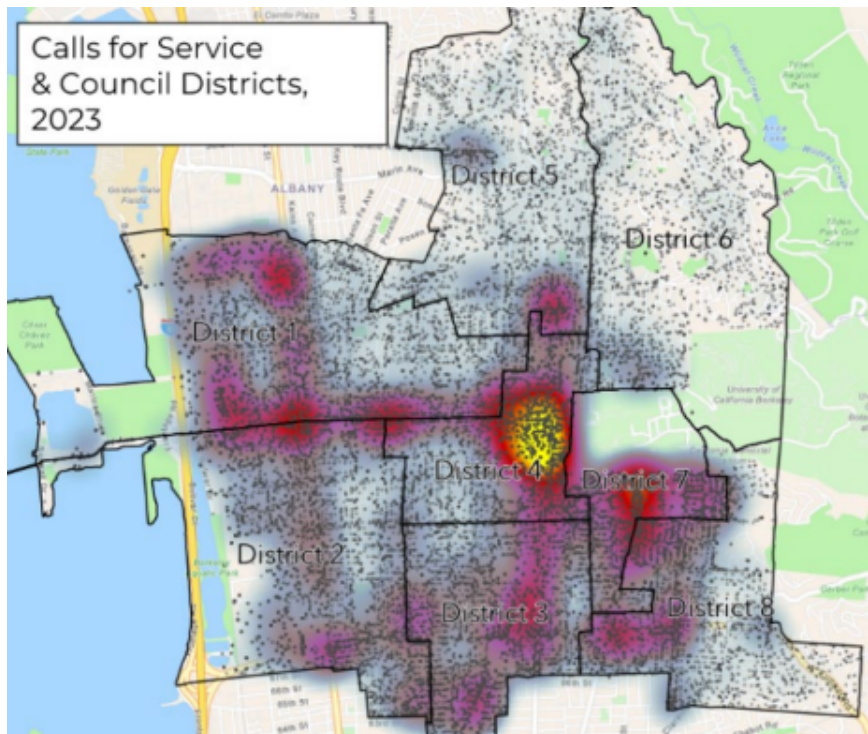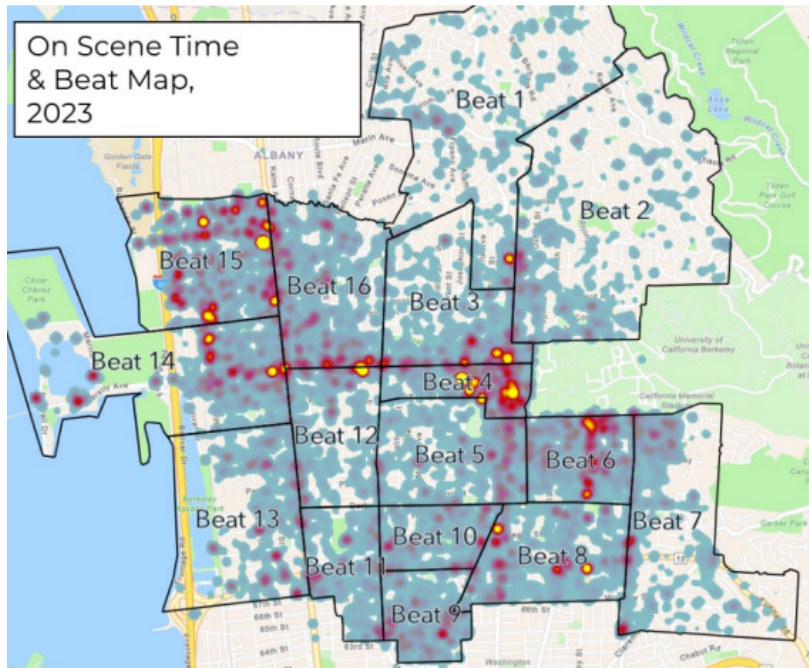
Source: Berkeley Police Department Annual Report, 2023

There are several benefits to this program, notably in unit costs and compliance, which can enable more efficient installation, operations, and maintenance, while still providing high-quality information for BPD criminal investigations.

First, as noted above, unit costs may be as much as 60% lower than security cameras allocated in previous budget cycles. Second, ensuring full compliance with the City of Berkeley's civil rights laws and privacy protections is an essential part of the program itself, in addition to robust community engagement (see Attachment 2).

On January 30, 2024, the Berkeley City Council passed a budget referral for six additional security cameras with additional policy considerations. Specifically:

> *2. Direct the City Manager to engage with the Police Accountability Board on this proposal and request their feedback to Council within 30 days of submission. The Council will take its comments into consideration during subsequent steps for final approval for purchase and installation of cameras at approved locations.*

> *3. Direct the City Manager to prepare targeted amendments to various pertinent surveillance technology reports and policies in order to provide extra transparency beyond what is explicitly required by the Berkeley Municipal Code and Berkeley Police Department Law Enforcement Manual.*

Budget Referral: SafeCity Connect   CONSENT CALENDAR
                                                      May 7, 2024

> *Security camera footage would be used solely in a manner consistent/compliant with existing ordinances and the Berkeley Police Department's existing use policies, as enumerated in the Berkeley Municipal Code, the Berkeley Police Department Law Enforcement Manual. The cameras are not intended and would not be used for continuous surveillance purposes. Cameras should ideally be compatible with those already in use at San Pablo Park under Contract Nos. 31900080 and 31900205 and those deployed at other intersections throughout the city.[5]*

The proposal provided to the Downtown Berkeley Association provides for policy development that is consistent with the policy aims expressed by City Council on January 30: :

> ***Policy Development:*** *Crafting clear, transparent policies in adherence to local and pertinent ordinances is critical.*
>
> *SafeCity Connect collaborates with you to develop bespoke video program policies, covering essential areas such as:*
>
> - *Video Usage: Deploying cameras strategically to enhance public safety and optimize personnel deployment.*
>
> - *Video Privacy: Guaranteeing video technology is used ethically, respecting everyone's right to privacy in sensitive areas.*
>
> - *Video Retrieval and Retention: Establishing protocols for secure access to footage and defining storage durations to manage the balance between quality, storage and privacy best practices.*

While the resulting policies would apply only to the SafeCity – Downtown Berkeley PBID and the management and implementation of its program and would not be developed, overseen, or implemented by the City, these provisions help ensure that the SafeCity policies would be consistent with City policy goals and priorities.

SafeCity Connect provides the following background on successful implementation in the San Francisco Bay Area so far, including in Downtown Oakland and Union Square in San Francisco (see Attachment 2):

As of 2024, SafeCity Connect had deployed and networked over 1,500 camera sensors as part of geographically focused, public-private, community programs throughout the San Francisco Bay Area region. The approximate area of coverage now spans over 100 City Blocks throughout 6 Community Benefit Districts.

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[5] January 30, 2024 City Council Meeting Minutes: https://berkeleyca.gov/sites/default/files/city-council-meetings/2024-01-30%20Annotated%20Agenda%20-%20Council.pdf

Budget Referral: SafeCity Connect

CONSENT CALENDAR
May 7, 2024

ENVIRONMENTAL SUSTAINABILITY AND CLIMATE IMPACTS
None.

CONTACT PERSON
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Attachments:
1: SafeCity Connect Program Proposal Cover Letter
2: SafeCity Connect Program Proposal
3: Cook et al (2019)
4: Berkeley Police Department Annual Report (2023)
5. Reimagining Public Safety: Commission on the Status of Women presentation (April 17, 2023)

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SafeCity Connect Downtown Berkeley
Phase 1 - Pilot Project

We are pleased to submit a comprehensive pilot project proposal for the SafeCity Connect Downtown Berkeley - Phase 1 initiative, aiming to develop and deploy a public-private camera program in one of the most vibrant merchant corridors. Our proposal outlines a detailed plan for rapid deployment, integration, operation, and potential expansion of the network, focusing on its primary use as an after-the-fact evidentiary tool for the Berkeley Police Department while fully aligning with the privacy guidelines and the Berkeley surveillance ordinance.

PROVEN TRACK RECORD

Our organization brings a proven track record from successful deployments in major Bay Area jurisdictions, including San Francisco and Oakland. These deployments have demonstrated the effectiveness of network-based cameras in providing quick and reliable evidence for law enforcement agencies, significantly aiding in crime-solving efforts. Our collaboration with local authorities and adherence to strict operating rules have ensured the privacy and civil liberties of the community are protected.

Union Square Business Improvement District (San Francisco, CA)

- **513** high-definition exterior cameras covering 27 city blocks of public space.
- **50** participating property owners including hotels, retailers, parking garages, commercial and multi-unit residential properties.
- **12** years of operation with hundreds of cases aided including organized retail crime, violent crime, traffic accidents, arson and property crime (including car break-ins and graffiti vandalism).
- In alignment with local CCSF COIT approved surveillance technology policies.

Successful evidentiary uses of SafeCity Connect camera programs:

- 52 Felony Counts, 7 indicted in Graffiti Case leading to 50% reduction
- 16 charged in "Rainbow Girls Crew" Ring
- 83% reduction in car break-ins at Sutter Stockton Garage
- Reckless driver was recording on social media
- Unprovoked Assault on a Homeless Man

RAPID DEPLOYMENT

The proposed network leverages rapid deployment technology and methodology, enabling swift installation on the exterior of privately owned buildings facing sidewalks and other public spaces. This strategy not only facilitates immediate operational capability but also minimizes visual and physical impact on the urban environment.

COST EFFECTIVENESS

In recognition of the evolving security needs and financial considerations, public-private camera networks offer a lower upfront and operating cost structure as compared to traditional Citywide video technology deployments. This approach ensures the project's sustainability and opens avenues for possible future expansion through public-private partnerships. Such collaborations could include co-funding arrangements with property owners, further enhancing the network's coverage and effectiveness.

OPEN PLATFORM

Moreover, the potential integration of SafeCity Connect public-private cameras into the City's own public camera technology presents a holistic and forward-thinking approach to urban safety. By combining resources and technologies, we can create a more complete operating system that amplifies the city's ability to protect its citizens and visitors.

FUTURE SCALABILITY

Our team is fully committed to working closely with the City of Berkeley, local businesses, and the community to ensure the successful implementation and operation of SafeCity Connect Downtown Berkeley - Phase 1. We are confident that this initiative will serve as a cornerstone for a safer and more secure downtown area, setting a benchmark for public-private safety collaborations.

We look forward to the opportunity to discuss our proposal in further detail and to answer any questions you may have. Thank you for considering our submission for this critical initiative.

Downtown Berkeley Association

 SafeCity Connect Program Proposal

PRESENTED TO:

John Caner, CEO

DATE:

March 25, 2024

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EXECUTIVE SUMMARY

Objectives

- Support Downtown Berkeley Safety Corridor Is broader efforts in creating a clean, safe, and economically vibrant environment for all.

- Contribute towards achieving greater public safety by providing forensic-grade evidence for after-the-fact investigatory use and a proven policy-based process.

- Raise awareness through community participation, outreach, and signage to help identify that video may be recorded in public places for everyone's protection.

Program Overview

- Tailored program designed to support the Clean and Safe initiatives in the area.

- Comprehensive coverage of public space for crime investigation and deterrence.

- High-definition forensic-grade video surveillance cameras with day and night capabilities.

- Protecting high traffic and high-risk areas, supported by crime data.

- End-to-end Managed Support Services and System Health Monitoring.

Investment

Please see Investment Overview page (p.5)

Impact

- Improved incident resolution with court-admissible forensic-grade evidence

- Increased community engagement around public safety and public-private collaboration

- Economic Development enablement through public safety

About SafeCity Connect

- Professional services firm specializing in design, development and management of public-private video surveillance networks

- 12+ years of private-public collaboration expertise

- Forensic video surveillance expertise with ex-CSI experts on staff

- Proactive technical support services driven by real-time system diagnostics

STATEMENT OF WORK

SafeCity Connect:

- Develop a camera program, complete with policies, procedures, and necessary operating tools.
- Provide a phased camera network deployment plan based on crime data, stakeholder input, and budget.
- Deploy a high-definition video camera network in designated locations according to approved system design.
- Provide ongoing technical support, training, maintenance, and program management services.

Downtown Berkeley Safety Corridor & Program Participants:

- Conduct community outreach for camera program adoption and installation coordination.
- Designate a responsible point of contact for program development and implementation.
- Adopt usage policies and procedures for the use of surveillance technology.
- Grant access to the designated and approved equipment installation locations.
- Provide power, network, and Internet connectivity (where applicable) and necessary space for all equipment and infrastructure pathways.

SafeCity Connect Downtown Berkeley

Phase 1 - Pilot Project

PROFESSIONAL SERVICES

Camera Program Development $50,000

SYSTEMS INTEGRATION

Phase 1 Camera Network Implementation $175,000
- 10 Participating locations
- 58 Camera Sensors

MANAGEMENT & SUPPORT - 2 Years

SafeCity Connect Support Services $95,000

GRAND TOTAL   **$320,000**

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PROGRAM IMPLEMENTATION PLAN

SafeCity Connect's proposal for a public-private camera program represents an innovative approach to enhancing public safety. By leveraging advanced technology and fostering collaboration between the city, its residents, and the private sector, this initiative promises to not only improve crime prevention efforts but also strengthen the bonds within the community. We look forward to partnering to realize a safer, more connected urban environment.

1. Needs Assessment and Strategic Planning

- Engage with CBD leadership, stakeholders, law enforcement, and community leaders to outline program goals.
- Conduct a comprehensive review of current safety systems, identifying gaps and opportunities for integration.

2. Program Development and Integration

- Collaborate with technology partners to design the program architecture, ensuring scalability and interoperability with existing city and CBD infrastructure.
- Integrate new systems with current infrastructure, prioritizing data security and user accessibility.

3. Training and Deployment

- Organize training sessions for personnel and community stakeholders, focusing on program utilization, data privacy, and safety protocols.
- Implement the program in phases, ensuring minimal disruption and maximizing user adaptability.

4. Launch

- Announce the program launch through targeted communication channels, highlighting its benefits and key features.
- Activate a comprehensive support network to assist users and address any operational concerns.

5. Ongoing Management and Support

- Continuously monitor program performance, utilizing feedback to drive improvements and adjustments.
- Provide enduring training and support to ensure the program's long-term success and community benefit.

Audit   >   Design   >   Implementation   >   Launch   >   Support & Analysis

SAFECITY CONNECT PLATFORM

SafeCity Connect is your comprehensive partner in deploying effective, community-driven safety solutions. Tailored to the unique needs of Business Improvement Districts (BIDs), SafeCity Connect encompasses a holistic approach, blending community engagement, customized policies, state-of-the-art technology, and a collaborative ecosystem. By embracing SafeCity's scalable infrastructure through a licensing agreement, BIDs can leverage a suite of tools and best practices designed to nurture and develop their SafeCity Programs.

Community Engagement: At the heart of a successful SafeCity Connect initiative is the endorsement and involvement of the community. We provide a suite of customizable outreach materials to ensure your program resonates with and is embraced by the community. From informative brochures explaining the SafeCity Connect mission to detailed maps highlighting safety hot spots and comprehensive guides on joining the program, every piece is designed to strengthen community ties and encourage active participation.

Contractual Framework: Our platform simplifies the complexity of public-private partnerships through ready-to-use Video Sharing Agreement templates. These agreements clarify the responsibilities of all parties, ensuring a seamless and efficient operation of the shared camera network.

Policy Development: Crafting clear, transparent policies in adherence to local and pertinent ordinances is critical. SafeCity Connect collaborates with you to develop bespoke video program policies, covering essential areas such as:

- Video Usage: Deploying cameras strategically to enhance public safety and optimize personnel deployment.
- Video Privacy: Guaranteeing video technology is used ethically, respecting everyone's right to privacy in sensitive areas.
- Video Retrieval and Retention: Establishing protocols for secure access to footage and defining storage durations to manage the balance between quality, storage and privacy best practices.

Operational Excellence: We provide guidance in setting up your Video Control Center, ensuring it becomes a cornerstone of community safety by facilitating secure access to live and recorded footage, and maintaining the integrity of evidence. Our operational procedures are designed to ensure compliance with policies and deliver efficient service to the community.

Advanced Technology Platform: Built on cutting-edge video forensic technology and adhering to Open Platform standards, SafeCity Connect offers unparalleled flexibility and integration. From camera selection to Video System Management (VMS) software and a comprehensive Camera Registry, our platform is engineered to function seamlessly as a unified system, without locking you into any proprietary technology.

SafeCity Connect is not just a platform; it's a commitment to community safety, operational clarity, and technological excellence. Partner with us to transform your BID into a safer, more connected community.

Forensic-Grade Camera Networks for Urban Safety

Implementing a robust urban camera network demands a strategic approach that ensures forensic-grade quality and effectiveness. This involves overcoming challenges such as optimal camera placement, environmental factors affecting visibility, and the need for clear, identifiable footage. Here's a streamlined guide to achieving a high-standard surveillance system:

Best Practices Adherence

Ensuring compliance with guidelines from reputable bodies like the Law Enforcement and Emergency Services Video Association (LEVA) lays the foundation for a trustworthy and effective surveillance system. These best practices serve as a benchmark for quality, reliability, and community respect in camera program operations.

Strategic Camera Placement

Effective surveillance requires a methodical approach to camera placement, focusing on:

- High-Risk Area Prioritization: Key locations with high crime rates or foot traffic should be covered comprehensively to maximize the network's deterrent and investigative capabilities.
- Community and Law Enforcement Collaboration: Engaging with stakeholders helps identify essential surveillance spots, ensuring the network aligns with both safety needs and community values.
- Leveraging Crime Data: Utilizing historical crime data informs camera placement decisions, aiding in crime prevention and strategic security planning.
- Integrating Private CCTV Systems: Coordinating with private entities extends camera network coverage, filling gaps in public monitoring efficiently.

Maintaining Forensic-Quality Standards

Achieving high-quality footage involves several considerations:

- Camera Placement: Cameras should be positioned to avoid obstructions and backlit conditions, optimizing the potential for capturing clear, usable images.
- Lighting: Adequate lighting, particularly in nighttime conditions, is crucial for maintaining image clarity. Surveillance areas must be well-lit, and cameras equipped to handle low-light conditions.
- Technological Advancements: Incorporating technology like facial recognition and motion detection enhances the network's utility. However, balancing technological capabilities with ethical considerations is essential to maintain privacy rights.

Continuous Improvement

A successful forensic-grade camera network necessitates ongoing evaluation and adaptation. Regularly assessing footage quality, system functionality, and coverage effectiveness ensures the surveillance network evolves to meet changing needs and technologies.

SAFECITY CONNECT SUPPORT CENTER

Establishing an "Always On" Service, Safety, and Security Environment

The SafeCity Connect Support Center provides a single point of administration, management, oversight, and control of camera networks.

Proactive system diagnostics and reporting provide complete end-to-end visibility system performance – down to the individual device level.

"

SafeCity Connect Managed Services and Performance Diagnostics provide end-to-end visibility of the entire system, reducing the risk of after-the-fact damage control caused by lack of insight on the true measures of surveillance system performance".

- **SYSTEM HEALTH MONITORING** – vital system performance indicators are monitored using proprietary real-time diagnostics suite of software designed for proactive and anticipatory service.

- **SOFTWARE UPDATES** – systems are updated with latest software releases automatically "pushed" to include new upgrades, features and enhancements.

- **HELP DESK** – Knowledgeable staff ready to handle proactive system alerts, troubleshooting and problem resolution issues; frequently before they can affect system performance.

- **REMOTE SUPPORT** – significantly reduce time to resolve an issue through secure remote access. 90% of support issues are resolved within 15 minutes of a remote support session.

- **ON-DEMAND TRAINING** – new system users benefit from proven and structured system training services and video tutorials.

- **HARDWARE DEPOT** – replacement equipment is shipped in advance upon completion of remote diagnostics in order to minimize downtime and reduce field service visits.

SUCCESS FACTORS AND METRICS

Critical Success Factors

- Instituting a project manager role for the purpose of monitoring and reviewing project progress and success.

- Solicit feedback specifically from public and private sector stakeholders.

Success Metrics

The following are some of the proposed data points to be factored into the overall ROI Model for the Project:

- Examples of incidents resolved successfully using video footage.
- Number of requests and retrievals over time.
- Number of times video was used successfully in prosecution.
- Change in crime levels in the area where cameras were installed before and after installation.
- Community member survey responses prior to and following the installation of the camera network.
- Closer levels of collaboration with community members, law enforcement, and other stakeholders.
- Other metrics may include - changes in foot traffic patterns and operational efficiency gains through the use of the video network (i.e. street cleaning services).

Important Note*:* Achieving statistically significant reductions in crime can be difficult (i.e., crime reductions that clearly go beyond the level that might occur due to the normal fluctuations in the crime rate are difficult to prove).

About SafeCity Connect

SafeCity Connect, Inc. is a professional services and systems integration firm specializing in Network Video and Public-Private Collaboration Programs for a range of Cities and districts. SafeCity Connect also offers unique next-generation architecture that enables quality assurance for geographically distributed deployments. We assist our clients in all phases of technology deployment lifecycle, ranging from strategic planning through system design, implementation, and training.

Our Team

SafeCity Connect is a professional services and systems integration firm specializing in design, deployment, and management of community-based forensic-grade video networks. Our team is composed of experts in network technology, forensic video and crime scene investigations. We are uniquely qualified to assist customers in all phases of the program lifecycle from strategic planning, network design, project management, program launch, and ongoing technical support and reporting.

Our Expertise

We are experts in the latest technologies for local and wide-area networking, telecommunications, system integration, and business process modeling and automation. The team has been responsible for hundreds of projects in the areas of physical security, business intelligence, and global enterprise-grade IT project deployments.

PROGRAM REFERENCES

SafeCity Connect specializes in delivering turn-key public-private camera programs to districts and municipalities.

As of 2024, SafeCity Connect had deployed and networked over 1,500 camera sensors as part of geographically focused, public-private, community programs throughout the San Francisco Bay Area region. The approximate area of coverage now spans over 100 City Blocks throughout 6 Community Benefit Districts.

Union Square Business Improvement District (San Francisco, CA)

- 480+ camera sensors across 50+ participating locations, covering over **25** city blocks.
- Successful public safety video surveillance project covering high-traffic and high-risk areas with high-definition video surveillance
- Broad range of professional services supporting implementation and use of video surveillance technology

Uptown Downtown Oakland, CA (Oakland, CA)

- 200+ camera sensors covering over 12 city blocks.
- Successful public safety video surveillance project covering high-traffic and high-risk areas with high-definition video surveillance
- Broad range of professional services supporting implementation and use of video surveillance technology

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REFERENCES AND ATTACHMENTS

a. White Paper on Forensic Video Best Practices – CSI Perspective

b. Technology Architecture Blueprint

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RESEARCH ARTICLE

SHOOTING CLEARANCE RATES

Why do gun murders have a higher clearance rate than gunshot assaults?

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Research Summary: The prevailing view is that follow-up investigations are of limited value as crimes are primarily cleared by patrol officers making on-scene arrests and through the presence of eyewitnesses and forensic evidence at the initial crime scene. We use a quasi-experimental design to compare investigative resources invested in clearing gun homicide cases relative to nonfatal gun assaults in Boston. We find the large gap in clearances (43% for gun murders vs. 19% for nonfatal gun assaults) is primarily a result of sustained investigative effort in homicide cases made after the first 2 days.

Policy Implications: Police departments should invest additional resources in the investigation of nonfatal gun assaults. When additional investigative effort is expended, law enforcement improves its success in gaining the cooperation of key witnesses and increases the amount of forensic evidence collected and analyzed. In turn, the capacity of the police to hold violent gun offenders accountable, deliver justice to victims, and prevent future gun attacks is enhanced.

KEYWORDS
clearance, detectives, homicide, investigations, shootings

Fatal and nonfatal gunshot assaults are similar with respect to victim characteristics and circumstances, yet the clearance-by-arrest rates tend to be considerably higher for fatal cases. One plausible reason for this disparity is that police departments give higher priority to the fatal cases, which in larger cities are assigned to homicide detective squads. In comparison with the detectives who are assigned aggravated assault cases, homicide detectives tend to have a lighter case load and greater access to forensic

evidence. A second possibility is witnesses are more inclined to cooperate with a police investigation if the victim dies.[1]

The following contrast between police investigations of fatal and nonfatal gunshot cases is potentially useful both for basic research on police science and for informing policy:

- From a research perspective, the contrast provides evidence on the extent to which the success rates of police investigations of serious violent crimes may be affected by the resources expended in these investigations.

- From a policy perspective, the contrast provides a basis for assessing the value of increasing police resources allocated to investigation of gun violence, in particular, for nonfatal gunshot cases. For the prevention of future gun attacks, clearing nonfatal gunshot assault cases is as important as clearing homicides.

In this article, we use 5 years of data (2010–2014) from the Boston Police Department (BPD) that include all gun homicides and a sample of criminal cases in which the victim survived a gunshot wound. In particular, we analyze the 204 shooting cases that included at least one homicide, as well as a representative sample of 231 shooting cases in which no one died. Detailed data were collected from police investigation files, forensic evidence databases, and interviews with detectives. Data items included information on the circumstances and medical outcome of the shooting, characteristics of the victim, measures of the amount of evidence collected during the investigation by the BPD, and detective reports of the key reasons for the success or failure of the investigation. Our quasi-experimental analysis of these data results in the following findings relevant to the research and policy:

- The two groups of cases, fatal and nonfatal, are statistically indistinguishable with respect to circumstances, with the sole exception of whether the shooting was indoors or outdoors. The former is more lethal.

- The clearance-by-arrest rate for gun homicide cases was more than twice as high as the corresponding rate for gunshot assault cases (43% and 19%, respectively). That difference would possibly be still larger except for the fact that homicide arrests (but not assault cases) were subject to prior review for probable cause by the district attorney.

- For both fatal and nonfatal cases, the likelihood of arrest is higher for cases involving personal disputes or domestic violence than for cases arising from gang- and drug-related disputes. But regardless of circumstance, fatal cases have a higher clearance rate compared with nonfatal.

- The arrest rates during the 2 days immediately following the shooting, however, are the same for fatal and nonfatal cases, 11%. The fatal–nonfatal difference in arrest rates emerges in the much higher rate of homicide arrests that occur subsequently, sometimes months after the shooting. We tentatively interpret the equal success rate during the first 2 days as reflecting the importance of a latent dimension of shooting cases, which we label the "intrinsic difficulty of solution." Easy cases are solved quickly and without the need for the extra resources deployed in homicide investigations. Given the similarity in fatal and nonfatal case distributions, we expect that the prevalence of easy cases would be about the same in homicides as in nonfatal cases.

- As in other cities, BPD's homicide unit has lighter caseloads and priority access to the crime lab and other units of the police force. Based on a variety of indicators, the initial crime-scene investigations yielded more evidence of various sorts. The commitment of additional resources to homicide cases is also evident from comparing the amount of evidence collected outside of the crime scene.

- Most successful investigations have as one key source of evidence the information provided by a cooperating eyewitness. Excluding exceptional clearances, that source was named as the key in

solving the case for 28% of all homicide investigations (67% of arrests) compared with just 14% of all nonfatal investigations (77% of arrests).

- The direct connection with effort is clear for collecting other types of evidence, such as ballistic and video evidence, latent prints, and analysis of phone calls. One or more of those were mentioned as the key to success more than 100 times in homicide cases but only 24 times in nonfatal cases.

- In sum, the comparison of these similar groups of cases, distinguished by the random event of whether a gunshot wound proves fatal, allows for us to quantify how much more evidence is collected in fatal than in nonfatal cases, and to bracket the effect of the additional effort on the clearance rate. The observed difference in clearance by arrest is 24 percentage points (43% vs. 19%). This gap is entirely a result of arrests made after the first 2 days, which suggests that the more sustained effort in homicide cases is an important part of the difference. Much of that difference is associated with the greater success in gaining the cooperation of key witnesses.

1 | EVOLVING EVIDENCE BASE ON THE PRODUCTIVITY OF POLICE INVESTIGATIONS

Early researchers on criminal investigators were divided on the effectiveness of criminal investigators in solving crime. Eck (1992) categorized these two competing perspectives as (1) the circumstance–result hypothesis, in which circumstances determine case outcomes, with little or no contribution from investigative effort; and (2) the effort–result hypothesis, in which the work of criminal investigators substantially affects the likelihood of solving a crime. Although the findings of several studies demonstrate support to the former claim (Ericson, 1982; Reiss, 1971; Reiss & Bordua, 1967; Royal Commission on Criminal Procedure, 1981), the most prominent was a landmark study conducted by the RAND Corporation. The authors of the study concluded that investigators contributed little to solving a case (Greenwood, Chaiken, & Petersilia, 1977; Greenwood & Petersilia, 1975). In several studies of that era, however, researchers found that investigative activities and management practices could positively affect the odds of clearing a case (Bloch & Bell, 1976; Bloch & Weidman, 1975; Folk, 1971; Ward, 1971). The Police Executive Research Forum examined investigative practices in three U.S. cities in 1979 and found that even though circumstances are important, investigative practices did influence the probability of a case being cleared (Eck, 1983, 1992).

In evaluating the techniques and overall efficacy of crime investigation, it is important to distinguish between types of crime. Unlike most property crimes, violent crimes typically involve eyewitnesses (the victim, for one), and so eyewitnesses figure importantly in successful investigations. The RAND study mentioned earlier (Greenwood & Petersilia, 1975) included a detailed study of investigation data from Kansas City, Missouri, and the authors found that in 35% of successful homicide investigations, and in fully 63% of successful investigations of aggravated assault, the victim or a witness identified the suspect (Chaiken, Greenwood, & Petersilia, 1976). But it should be pointed out that the importance of witnesses in solving these cases does not imply that detective work gets none of the credit. Not infrequently, key witnesses are reluctant to talk, so that success requires locating witnesses and persuading them to cooperate.

More recently, researchers have analyzed the specific techniques used by investigators in serious crimes. It should be noted that most of this research has been descriptive and has not included clear statistical identification of a causal effect. For example, on the basis of an analysis of homicides in four large cities in 1994 and 1995, Wellford and Cronin (1999) identified several investigation-related factors that were associated with the likelihood of arrest, including what the first responding officer did at the scene, how quickly a detective arrived on the scene, whether the crime lab and medical

examiner's officer were informed, the number of detectives assigned to the case, and how the scene was documented. Other research results have indicated police departments can improve homicide clearance rates by training detectives and other personnel involved in investigations (Keel, Jarvis, & Muirhead, 2009), implementing case management systems (Richardson & Kosa, 2001), establishing collaborative relationships with external agencies (Carter & Carter, 2016; Richardson & Kosa, 2001), and having a strong community presence (Carter & Carter, 2016).

Some researchers have found that forensic analysis of physical evidence collected at the initial crime scene has little statistical association with clearance rates (Baskin & Sommers, 2010; McEwen, 2010; McEwen &d Regoeczi, 2015; Peterson, Sommers, Baskin, & Johnson, 2010; Schroeder & White, 2009). The value of forensic evidence may be attenuated by long delays in processing such evidence. But in a recent analysis of homicide in Boston, using a data set that overlaps with the data used in the current study, researchers found a strong statistical association with a variety of investigative actions, including forensics testing conducted both before and after arrest (Braga, Turchan, & Barao, 2019).[2]

Experimental and quasi-experimental studies in this area have been rare. The descriptive studies cited earlier provide suggestive evidence, but they were not designed to identify reliably whether the observed statistical associations are a result of a direct causal effect, reverse causation, or some other process. For example, investigators may tend to devote more effort to promising cases, with the implication that the positive association between effort and success would be partly the result of reverse causation. Given the ambiguity of correlational evidence regarding causal process, it is important to study the effect of interventions, but we know of only one study in which the authors have done so. Following a study and the recommendations of an expert panel, the Boston PD launched several reforms affecting homicide investigations beginning on January 1, 2012. The reforms included the assignment of additional detectives to the homicide unit, the standardization of investigative procedures and forensic reviews, improved training for investigative personnel, and peer review of open investigations (Braga & Dusseault, 2018; Braga et al., 2019). Several measures of investigative activity in homicide cases increased, and the homicide clearance rate increased from 47% during the 5 years before the reform to 57% during the 3 years after it. Other jurisdictions that served as plausible control groups were tracked and did not exhibit a comparable jump in clearance rates.

Finally, no published study has yet been designed to consider the role of the large differential in investigation resources in accounting for why gun homicide cases have a higher clearance rate than nonfatal gunshot cases. This clearance-rate gap is apparently ubiquitous, but it has only been established systematically for a handful of jurisdictions: For example, from 2006 to 2016 in Milwaukee, annual clearance rates ranged between 56% and 78% for homicides and between 13% and 31% for nonfatal shootings; furthermore, for any given year during this period, clearance rates were 29–65 percentage points lower for nonfatal shootings than for homicides (Abadin & O'Brien, 2017).[3] A comparable but less pronounced discrepancy was observed in Chicago between 2010 and 2016 when annual clearance rates for homicide ranged from 26% to 46% and from 5% to 11% for nonfatal shootings, with a yearly disparity of 21–35 percentage points (Kapustin et al., 2017). In Durham in 2015, half of all gun homicides resulted in an arrest but an arrest was made in just 10% of the 145 nonfatal shootings that occurred (Cook, Ho, & Shilling, 2017).

In the Durham study, Cook et al. (2017), incidentally, provided a different sort of evidence: a survey of expert opinion. The survey consisted of interviews with 17 investigators, including 6 homicide investigators and 11 district investigators whose caseload included nonfatal shootings. All respondents were asked for their views of why gun homicides were more likely to be cleared by arrest than were nonfatal shootings, despite the fact that these cases are so similar with respect to the characteristics of victims and assailants, and of the circumstances of the attack. Most respondents mentioned that homicide investigators have a far lighter caseload, or more resources generally, compared with district

investigators. As a result, the homicide investigators can spend more time working a case, tracking down witnesses, and creating a relationship with potential witnesses. The other common answer (11 respondents) was that witnesses were more likely to cooperate with homicide investigations than with investigations of nonfatal shootings. Potential witnesses may view homicides as more serious, especially than nonfatal cases in which the victim seems to have recovered completely. And if a survivor, the victim may warn potential witnesses not to cooperate, and in other ways undercut the strength of the case.

In the old RAND study, Greenwood and Petersilia (1975) cast doubt on the efficacy of detective work in clearing cases. Their findings, although challenged even at the time, may have contributed to a trend in policing toward an increased focus on crime prevention rather than on making arrests (Mastrofski, 2015; Skogan & Frydl, 1994; Sparrow, Moore, & Kennedy, 1990; Weisburd & Majmundar, 2018). The findings from recent studies, including those by the present authors, can be used by researchers to help make a case that investigative resources and technique have an effect on clearance rates with respect to homicide. The findings from the current study can be used to strengthen the case that resources matter in crimes of gun violence.

2 | IMPORTANCE OF CHANCE IN DETERMINING WHETHER A SHOOTING VICTIM SURVIVES

The design of the current analysis is valid to the extent that fatal and nonfatal cases are similar in relevant respects. Here we develop this claim and subsequently provide some empirical evidence.

Nationwide, the victim dies in one out of six or seven criminal assaults in which the victim suffers at least one gunshot wound (Cook, 1985).[4] There seems to be a large element of chance in whether the victim lives or dies in a given set of circumstances (Zimring, 1972). For example, in a drive-by shooting in which a passenger fires several times at a pedestrian, whether the victim is hit in a vital organ is not predetermined. If the event could be repeated (in simulation) 1,000 times, the outcome would differ, and some percentage of the trials would result in death. That percentage provides an intuitive notion of the *ex ante* probability of death given the circumstances. The *ex ante* probability may be very high in an attack in which a skilled assailant who is determined to kill his victim engages at close range and has the opportunity to follow up. Far more common are unsustained attacks with ambiguous motivation, which will typically have a low *ex ante* probability of death. The national case–fatality rate (of ∼14%) can be viewed as the average of the *ex ante* probabilities for all criminal assaults in which the victim suffers a gunshot wound.

If the outcome (life or death) were pure chance, then the average *ex ante* probability for the nonfatal cases would be the same as for the fatal cases. In effect, the fatalities would be drawn from an urn and, for a large sample, would tend to be similar to the universe of all gunshot cases. But in reality we expect some differentiation among cases, certainly with respect to such immediate factors as the number of shots fired, the caliber of the gun, the skill of the shooter, whether the shooter was in control of the situation, and so forth (Braga & Cook, 2018). In that sense, the average *ex ante* probability of the fatal cases would be higher than the average for the nonfatal cases. Of greatest interest in the current study is whether the circumstances of the shooting that affect the "intrinsic difficulty of solution" are correlated with the *ex ante* probability of death. That is an empirical question, and in what follows, we provide some evidence that reveals that the distribution of fatal cases is statistically indistinguishable from the distribution of nonfatal cases in several relevant dimensions, and that the likelihood of solution follows the same statistical pattern for fatal and nonfatal cases.

Given that fatal and nonfatal assault cases are similar with respect to circumstance and victim characteristics, but that more police resources are devoted to investigating fatal cases, it is reasonable to

view this process as a quasi-experiment in the productivity of those additional investigation resources. One potential confounding factor in this experiment is the willingness of witnesses to cooperate with the investigation. If the victim survives, the victim is often in a position to provide useful information about the identity of the assailant—a source that ordinarily is not available in fatal shootings (the likely exception being homicide cases when there are multiple victims including at least one survivor). But in practice, it is somewhat unusual for victims of gun violence to cooperate, especially in cases of gang violence. Other witnesses may be potentially helpful, but their cooperation is far from assured. Interestingly, there is some indication that other witnesses are more inclined to cooperate if the victim dies; perhaps their sense of the seriousness of the case helps overcome negative attitudes toward the police in general and the "no snitching" cultural prerogative in particular (Police Executive Research Forum, 2009). More directly, if the victim survives, he may warn family and friends not to speak with the police (Cook et al., 2017). So the quasi-experiment is far from a perfect tool for identifying the relationship between investigative effort and probability of arrest. Nevertheless, use of the comparison does result in some robust conclusions about how investigative effort affects the amount and types of evidence collected, as well as result in documenting the importance of sustained investigations in solving cases.

The statistical similarity between fatal and nonfatal cases is still more relevant in policy evaluation. The principal mechanisms by which police investigations prevent crime are through arrest, conviction, and punishment. If the BPD increased its arrest rate and subsequent conviction and punishment for shootings, the presumed result would be incapacitation of past shooters (assuming imprisonment as the punishment) and deterrence of future would-be shooters. When it comes to deterrence and incapacitation, it is entirely plausible that increasing the likelihood of punishment for a nonfatal shooting would be on an equal footing with increasing the likelihood of punishment for fatal shootings. In addition, arresting shooters may help disrupt the cycle of violence by serving as an alternative to private retaliation. There is no reason to believe that the effect is any less important for nonfatal cases than for homicides. And additional resources directed to nonfatal shootings may be more productive (in terms of additional arrests) than the same resources directed to fatal shootings simply because the marginal unsolved case is likely to be intrinsically more difficult for fatal than for nonfatal shootings, given the current disparity in investigative effort.

3 | DIFFERENCES IN LAW ENFORCEMENT RESPONSE TO FATAL VERSUS NONFATAL SHOOTINGS

As with other states, the Massachusetts criminal code specifies more severe sentences for gun assaults if the victim happens to die, thereby converting an aggravated assault into a criminal homicide. At the extreme, a conviction for first-degree murder (felony murder or premeditated murder) carries a sentence of life imprisonment without parole. The same set of circumstances would typically result in a much lighter sentence if the victim survived.

In line with this distinction, BPD, like the departments of other large cities, devotes greater investigative resources to homicides than to aggravated assaults, such as follows:

- If the gunshot victim dies (or is deemed likely to die), then the case is investigated by one of the homicide squads and has a strong claim on other police units and forensic services.
- If the victim survives, then the case goes to district investigators, who have a heavy caseload that includes a variety of felony cases.

In Suffolk County, where Boston is located, the district attorney (DA) oversees homicide investigations (but not investigations of aggravated assaults).[5] The BPD consults with the DA's office before making an arrest. Authorization for the arrest is contingent on the DA's determination that there is probable cause for the suspect to be arrested and charged with homicide—a process that in some cases can delay an arrest for weeks or even months, particularly if the DA deems it necessary to take the case to the grand jury. But on-scene arrests are possible after a quick consultation with an assistant DA in the field or on the phone. Note that the DA's participation in this process should, if working smoothly, ensure that all homicide arrests are of high quality, in the sense of being likely to lead to conviction. It is reasonable to suppose that homicide arrests have met a somewhat more stringent standard compared with arrests in nonfatal shootings, which suggests that the gap in arrest rates between fatal and nonfatal cases would be larger if the decision to arrest followed the same process.

4 | CONCEPTS, MEASURES, AND PLAN OF ANALYSIS

Our goal is to conduct an exploratory analysis of how investigative resources affect the likelihood that an investigation will be successful. "Success" is defined relative to the "case," which typically stems from a single event in which one or more perpetrators shoot at one or more victims, wounding (and perhaps killing) at least one. A drive-by shooting in which two passengers shoot out of a vehicle into a group of pedestrians would, for investigative purposes, represent a single case. A successful outcome would entail at least one arrest, without regard to the number of perpetrators or whether the arrest resulted in conviction. In addition to an arrest, a case can be cleared by "exceptional means," which for our sample occurs only if the prime suspect dies, which is a rare event.

We have gathered extensive data on the circumstances of each case and the resources devoted to the police investigation. Both may be important in determining whether there is an arrest. It is useful to view the cases in our sample as occupying a spectrum in terms of what might be called the "intrinsic difficulty of solution." This remains a latent variable in our analysis, and we make no attempt to give it a precise definition. It is clear, however, that some cases are "easy" (such as a domestic killing in which the prime suspect confesses to the first officer on the scene) and others are "hard" (such as the case of an unidentified body pulled from the Charles River long after death).

The easy cases will include those that are solved quickly—on scene or within the first few days. Our speculation is that investigative resources will matter less in solving easy cases and, more generally, that the easy end of the spectrum for both fatal and nonfatal cases will have similar (high) arrest rates. For cases that are not solved in the first few days, investigative resources may matter more. Figure 1 illustrates this concept. In the figure, the *y*-axis is the cumulative percentage of cases that are cleared and the *x*-axis is the BPD resources committed to investigating the case. "Resource commitment" is an *ex ante* measure of what BPD's routine operating procedures imply about what it is willing to expend in an investigation, rather than what it ends up spending *ex post*. Actual *ex post* expenditures depend on the intrinsic difficulty of a solution, and whether the case does in fact result in an arrest and hence requires additional detective work to develop it for trial.

Figure 1 illustrates the possibility that for the intrinsically more difficult cases, the hypothesized relationship between resource commitment and clearance rate for nonfatal cases may lie below the relationship for fatal cases, as a result of the tendency of the relevant community to be less inclined to cooperate with the investigation if the victim survives. The resulting clearance rate is depicted as higher for fatal than for nonfatal cases, both because of the difference in the resource–clearance schedules and the fact that BPD typically mobilizes a greater resource commitment to fatal than to nonfatal cases. Our
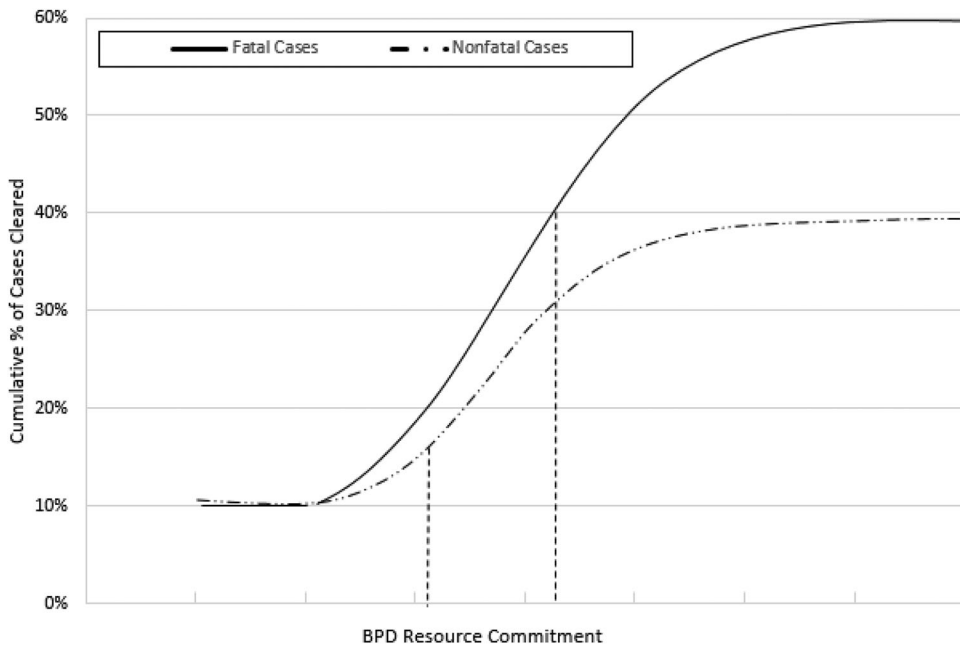
FIGURE 1   Cumulative probability of solution (*y*-axis) plotted against resource commitment (*x*-axis)

basic analytic approach seeks to compare clearance outcomes for investigations of fatal and nonfatal shooting cases that are seemingly alike but differ significantly in the investigative resources applied to identify shooting suspects.

We will explore the nature of these relationships using data on the circumstances of the shooting, whether there was an arrest and if so how quickly it occurred, several measures of investigative effort or resources, and BPD investigators' observations on what were the keys to success or failure in an investigation. We also illustrate the processes behind the data with the aid of several case descriptions, which are presented in Appendix A.

5 | DATA

Official incident reports for 221 homicides and 1012 nonfatal gun assaults in which victims sustained gunshot wounds were accessed through the BPD. These represent all cases known to the BPD for the period January 1, 2010, to December 31, 2014, that were deemed to be criminal by the BPD (not justified or self- inflicted). The research team did not have the resources to code all of the nonfatal cases, and instead, members selected a stratified random sample of 300 gunshot survivors by randomly selecting 60 survivors per year. Of the selected cases, 1 was excluded because the event did not occur in the BPD's jurisdiction and 6 were excluded because it was determined that the survivor had not been shot. The yearly number of Boston gun homicide victims decreased over the course of the study period: 55 victims in 2010, 48 victims in 2011, 36 victims in 2012, 30 victims in 2013, and 35 victims in 2014.

The research team attempted to acquire detailed information on the 511 fatal and nonfatal shootings by interviewing investigators and reviewing incident reports and detective case files (including emergency medical response and coroner reports). Appendix A presents narrative details on four cases

representing cleared fatal and nonfatal shooting investigations that differ on whether the suspect was apprehended immediately or after longer periods of time elapsed. Some identities and details have been slightly modified in each case to preserve confidentiality. It is worth saying again that detectives, forensic analysts, and others play active roles in continuing investigations even after arrests are made. This post-clearance investigative work is intended to both safeguard against miscarriages of justice by ensuring that the "right" person has been apprehended and promote an effective prosecution. These important investigative activities are often ignored by scholars in the existing literature when they appraise the effectiveness of detectives.

Note that we have a random sample of nonfatal victims and a census of fatal victims. But our unit of analysis is the case. A case may involve multiple victims, sometimes with a mixture of fatal and nonfatal. (During the 5-year period of our study, 4% of surviving victims were part of homicide cases.) Cases with at least one fatality are included with certainty, whereas cases in which the victim or victims all survived are selected with a probability that depends on the total number of victims in that year, the number of victims included in the case, and the number of nonfatal victims who were part of a homicide case. We conducted analyses in which we considered the sample weights associated with these probabilities and we found that the weighting had little effect on parameter estimates. For that reason, and for the sake of simplicity, we present unweighted estimates in what follows.

6 | ANALYTICAL RESULTS

6.1 | Comparison of fatal and nonfatal cases

In Table 1, we report a statistical comparison between fatal and nonfatal cases in our sample. In all, 45 (22%) of the 204 homicide cases had more than one victim, whereas 39 (17%) of the 231 nonfatal cases had multiple victims. (When a case includes both a homicide and a nonfatal shooting, it is included under the "homicide" category.) For the variables included, there is no discernible difference, with one exception—fatal shootings are significantly more likely to occur indoors (23% vs. 14%). The importance of the "similarity" finding is that it can be used by researchers to help establish the claim that any difference in clearance rates is not a result of the variables considered here (see also Braga & Cook, 2018).

The statistics on case characteristics can be used to provide insight into the nature of gun violence in Boston. With respect to circumstances, 83% of known-circumstance cases (both fatal and nonfatal) were deemed by BPD analysts to involve gang- or drug-distribution-related disputes. The category of personal disputes is also common (11% and 13%), whereas there are only a handful of shootings in domestic violence or in a robbery. Most cases involved male victims (greater than 90%) with a criminal record (greater than 80%). The average age of victims is 27.

6.2 | Patterns in clearance rates

Cases are considered "cleared" if there is at least one arrest or, in exceptional cases, if the BPD has identified a suspect who cannot be arrested. The key outcome variable used in this analysis was binary: homicides were either cleared (1) or not cleared (0) as of June 1, 2017. As reported in Table 2, the clearance-by-arrest rates were 43% (gun homicide cases) and 19% (nonfatal cases). In a handful of cases, the BPD designates a case as "exceptionally cleared." For the shooting cases in our sample, all 7 exceptional clearances are the result of the fact that the main suspect has died. In what follows, our focus is on clearance by arrest. In most of our analyses, the cases that were exceptionally cleared are

TABLE 1 Characteristics of fatal and nonfatal shooting cases in Boston, 2010–2014

Characteristic	One or More Gun Homicides	Nonfatal Only	Test Statistic
N	204	231	
Circumstance[a]			
Gang / drug	167 (83.5%)	161 (83.0%)	$X^2(4) = 4.126$
Personal dispute	21 (10.5%)	25 (12.9%)	$p = 0.389$
Robbery (nondrug)	8 (4.0%)	3 (1.5%)	
Domestic	3 (1.5%)	5 (2.6%)	
Other	1 (0.5%)	0 (0.0%)	
Crime Scene Location			
Outdoor	157 (77.0%)	198 (85.7%)	$X^2(1) = 5.531$
Indoor	47 (23.0%)	33 (14.3%)	$p = 0.019$
Number of Victims			
One victim	159 (77.9%)	192 (83.1%)	$X^2(2) = 1.978$
Two victims	36 (17.7%)	30 (13.0%)	$p = 0.372$
Three or more victims	9 (4.4%)	9 (3.9%)	
Victim Attributes			
Gender			
Male victim(s) only	187 (91.7%)	215 (93.1%)	$X^2(1) = 0.306$
At least one female victim	17 (8.3%)	16 (6.9%)	$p = 0.580$
Criminal record			
At least one victim w/ record	168 (82.4%)	196 (84.8%)	$X^2(1) = 0.494$
No criminal record	36 (17.6%)	35 (15.2%)	$p = 0.482$
Mean age (standard deviation)	26.9 (9.8)	26.7 (8.8)	$t = 0.244$
			$p = 0.827$

[a]Excludes cases with unknown circumstances: 4 homicides and 37 nonfatal shootings.

TABLE 2 Clearance status and percentage of cases cleared for each circumstance of fatal and nonfatal shooting cases in Boston, 2010–2014

Status	One or More Gun Homicides	Nonfatal Only
Cleared	91 (44.6%)	46 (19.9%)
Cleared by Arrest	87 (42.6%)	43 (18.6%)
Exceptional Clearance	4 (2.0%)	3 (1.3%)
Open Investigation	113 (55.4%)	185 (80.1%)
% Cleared, Circumstance		
Gang/drug	163 (39.9%)	158 (12.0%)
Personal dispute	21 (66.7%)	25 (56.0%)
Robbery (nondrug)	8 (50.0%)	3 (33.3%)
Domestic	3 (100.0%)	5 (100.0%)
All circumstances[a]	204 (44.6%)	231 (19.9%)
Total	204 (100.0%)	231 (100.0%)

Notes. The shooter died in all seven exceptional clearances. There were 41 cases with unknown circumstance: 4 homicides and 37 nonfatal shootings.

[a]Including "other" and "unknown".

TABLE 3   Multivariate regressions of clearance by arrest on circumstances, number of victims, at least one female victim, and indoor crime scene location with interaction terms

Covariates	Logistic Regression		OLS Regression
	OR	Coef. (RSE)	Coef. (RSE)
Fatal Shooting	1.364	0.311 (.121)[**]	0.249 (.045)[**]
Gang / Drug Dispute	0.105	−2.257 (.477)[**]	−0.435 (.101)[**]
Indoor Crime Scene	1.777	0.575 (.232)[**]	0.076 (.029)[**]
At Least One Female Victim	3.636	1.291 (.492)[**]	0.196 (.051)[**]
Two or More Victims	1.149	0.139 (.289)	0.052 (.065)
Interactions			
Fatal × gang / drug	2.125	0.754 (.511)	0.168 (.148)
Fatal × indoor	0.776	−0.253 (.653)	0.001 (.115)
Fatal × at least one female victim	0.903	−0.101 (.599)	−0.041 (.147)
Fatal * two or more victims	0.749	−0.288 (.619)	−0.035 (.111)
Constant	1.244	0.219 (.106)[*]	0.469 (.076)[**]
Wald X^2 (df = 9)	1433.48[**]		
Log pseudolikelihood	−191.792		
Pseudo R^2	0.151		
F test			14.65[*]
R^2			0.170

Notes. $N = 373$. OR = odds ratio, Coef. = coefficient, RSE = robust standard error. Samples were limited to gang/drug and personal dispute cases and excluded cases with exceptional clearances. Robust standard errors clustered by police district. Police district and year dummy variables included but not shown. Nonfatal shooting was the reference category for the fatal shooting dummy variable. Personal disputes (nongang, nondrug) was the reference category for the gang/drug dispute dummy variable. Outdoor crime scene was the reference category for the indoor crime scene dummy variable. Male victim(s) only was the reference category for the at least one female victim dummy variable. One victim was the reference category for the two victims or more victims' dummy variable.
[*]$p < .05$; [**]$p < .01$.

excluded simply because they represent neither success nor failure of the investigative process. Since exceptional clearance is rare, that exclusion has little effect on rates.

Our next step is to analyze the possible influence of observable case characteristics on the likelihood of arrest. Table 2 also demonstrates a simple breakdown by circumstance. Again, most cases are gang or drug related, so unsurprisingly the arrest rates are similar to those for the overall sample. It is interesting to note that all of the domestic cases were solved (3 fatal, 5 nonfatal), and that the personal dispute cases tend to have somewhat higher clearance rates than do the gang/drug cases.

We elaborate on these results with a multivariate analysis of arrest in a sample that includes only gang/drug and personal-dispute cases, and it excludes the exceptional clearances. (The resulting subsample includes 85% of all cases.) We report the results of both a logit analysis and ordinary least squares (OLS) in Table 3. In both estimators, the specification includes whether the case was fatal or nonfatal, gun/drug versus personal dispute, indoor versus outdoor, sex of the victim, and number of victims. Also included are interaction terms for each of these case characteristics with whether it was fatal or nonfatal. Year of incident dummy variables was included but not shown in both models.[6] The pattern of coefficient estimates is identical for the two estimators, but the OLS results are easier to interpret. What we find from the OLS is that other things equal, fatal cases have a greater probability of arrest (an added 25 percentage points). When we control for the other predictor variables, we find that the marginal change in clearing a shooting investigation increases by 27 percentage points from

TABLE 4 Time to clearance in fatal and nonfatal shooting cases in Boston, 2010–2014

Clearance Time	One or More Gun Homicides		Nonfatal Only	
	N	Cum. %	N	Cum. %
Scene, Leaving Scene	12	(6.0%)	13	(5.7%)
Not Scene, Same Day	5	(8.5%)	6	(8.3%)
1–2 Days	5	(11.0%)	6	(11.0%)
>2–7 Days	1	(11.5%)	5	(13.2%)
>1 Week–1 Month	10	(16.5%)	3	(14.5%)
>1–6 Months	30	(31.5%)	6	(17.1%)
>6 Months–1 Year	11	(37.0%)	3	(18.4%)
>1 Year	13	(43.5%)	1	(18.9%)
Open Investigation	113	(100.0%)	185	(100.0%)
Total	*200*		*228*	

.195 for nonfatal cases to .467 for fatal cases. None of the coefficient estimates for the interaction terms are statistically significantly different from zero, which indicates that the pattern of arrest probabilities for fatal and nonfatal cases is similar enough that there is no distinction in a statistical sense.

The covariates provide some insight into the intrinsic difficulty of solution. The gang/drug cases are much less likely to be solved than the personal-dispute cases. (Given the OLS point estimates, the gap in arrest rates is 43 percentage points for nonfatal cases and 27 percentage points for fatal cases.) Indoor shootings and those with female victims were somewhat more likely to be solved compared with their counterparts. (Recall that domestic cases, all of which were solved, are excluded from this analysis.) Perhaps, surprisingly, cases with two or more victims are no more likely to be solved than are those with one.

6.3 | Time to arrest

"Time to arrest" indicates a strong signal regarding both the intrinsic difficulty of solution and the importance of investigation resources. We find that 6% of both fatal and nonfatal cases result in an on-scene arrest and that 11% of both fatal and nonfatal cases have an arrest within 2 days of the crime. These clearance rates subsequently diverge and increasingly favor the fatal cases. Indeed, the arrests during the first 2 days account for just one quarter of arrests in fatal cases but for more than half of arrests in nonfatal cases. Between 2 days and 6 months, there is an arrest in 20% of the fatal cases but in only 6% of the nonfatals. An additional 12% of fatal cases are solved after 6 months have elapsed but for only a handful of nonfatal cases (2%). These results are shown in Table 4 and graphically in Figure 2.

The time-to-arrest results can be interpreted by reference to the conceptual framework represented in Figure 1 although it is a bit more complicated in practice. On-scene and other arrests within 2 days presumably include those cases that are intrinsically easy to solve. The extra resources available for fatal cases are not needed to make the arrest. Given our presumption that the fatal and nonfatal cases are similar in relevant respects (and in particular follow the same distributions of intrinsic difficulty of solution), it is then predictable that the rate of quick arrest is the same for the two types of cases. Where the extra resources available for homicide investigations may become relevant is for the more complex, less transparent cases.

It is necessary to introduce several caveats to this analysis. The first is with respect to the possible delays in making an arrest that are introduced by the requirement that homicide arrests be approved
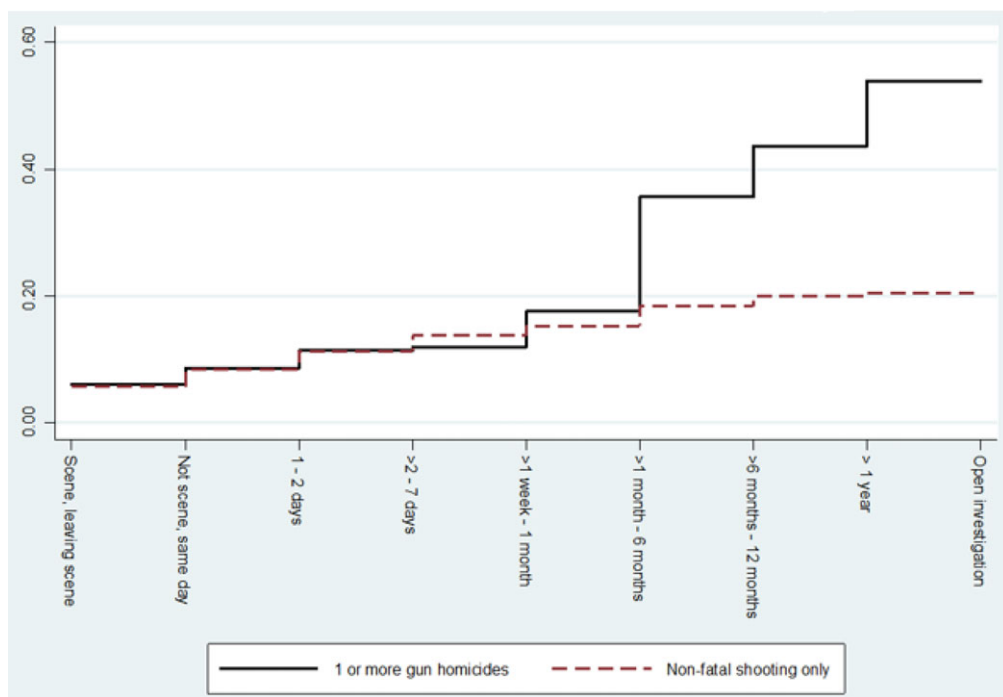
FIGURE 2 Nelson-Aalen cumulative hazard estimates for time-to-arrest categories [Color figure can be viewed at wileyonlinelibrary.com]

by an assistant district attorney, which is not necessary for arrests in nonfatal cases. In some homicide cases, the DA may take a case to the grand jury to establish probable cause, which can add weeks or even months to the time line. In clear-cut cases, such as a literal "smoking gun" in the hands of a likely perpetrator, however, the DA's office tends to move quickly. Assistant DAs responsible for prosecuting homicides are called to the scene of the crime to participate in the investigation and can approve an arrest quickly when probable cause seems obvious. So even though it is possible that the homicide arrest rate would have been higher in the first 2 days without the requirement of DA approval, that seems unlikely. One clue is that there was only one homicide arrest during the 2–7-day period, which indicates that taking into account the possibility of a delay of a few days in homicide arrests would not have changed the basic result.

Figure 2 presents a graph of the Nelson–Aalen cumulative hazard estimates for the time-to-arrest categories presented in Table 4. The graph illustrates a large increase in the cumulative proportion of gun homicide cases cleared beginning at the 1–6-month interval that is not evident in the cumulative proportion of nonfatal shooting cases cleared. This gap in clearances for fatal cases relative to nonfatal cases increases further in the subsequent 6 months-to-1-year and greater-than-1-year intervals. The results of a Wilcoxon test of equality for survivor functions reveals the significant gap in time to arrests for gun homicide cases relative to nonfatal shooting cases ($X^2 = 21.46$, $p < .001$). The results of a bivariate log logistic regression in which the difference in the odds of timing to arrest by shooting case type is predicted reveals that gun homicide cases are cleared ~51% quicker when compared with nonfatal shooting cases.[7]

The large difference in time to arrest indicates that increased investigative resources in gun homicide cases generate considerable value in identifying suspected shooters. The influence of the DA on the timing of gun homicide arrests, however, introduces some uncertainty in the precision of our

time-to-arrest data in fatal cases relative to our time-to-arrest data in nonfatal cases. As such, we do not pursue formal survival analyses, such as Cox proportional hazard models, to estimate the influence of specific investigative factors on the time to arrest in fatal shooting cases relative to nonfatal shooting cases. Future research conducted in jurisdictions that do not have laws mandating DA control of homicide investigations should be aimed at pursuing these kinds of analyses.

The much higher arrest rate in fatal cases after the initial 2-day period is evidence that the extra resources committed to such cases by BPD are important. If the investigation of a nonfatal shooting is not successful quickly, the investigator may move on to the next case. But for a homicide, the cases are sufficiently high priority to allow for greater persistence and scope to the investigation. This interpretation is speculative, but it receives support from the analysis of evidence reported as follows.

6.4 | Evidence collected

In this section, we document the proximate results of the BPD's committing more resources to investigation of fatal than of nonfatal shootings. In particular, the amount of evidence collected in homicide cases is greater than in nonfatal cases. Following Braga et al. (2019), the various types of evidence are classified as resulting either from the crime scene investigation or from subsequent actions including forensic tests. It should be noted that in these measures, the evidence collected to make an arrest (identify a suspect and establish probable cause) is not explicitly distinguished from, when there is an arrest, the evidence collected to make a stronger case for trial. For that reason, the fatal–nonfatal comparisons are made for both successful and unsuccessful investigations.

The detailed results are presented in four tables in Appendix B (Tables A1–A4) and summarized by two bar charts (Figures 3 and 4). As shown in Figure 3, for each of six categories of evidence collected at the crime scene, the mean for fatal cases is much higher than that for nonfatal cases, typically twice as high. This difference is confirmed by the results on medians for each of these categories (Table A1), except for "firearms recovered," which interestingly has a median of zero. Investigating detectives interview more witnesses, run more computer checks, and collect more videos and other tangible evidence (cartridge cases, pieces of clothing, and so forth). The number of officers providing information relevant to the investigation, with a median of just one for nonfatal cases, is 3 for fatal cases.

Similar statistics are broken down by whether the case was cleared by arrest and, if so, how quickly, in Table A2. The large fatal–nonfatal gap persists for each category, and thus, it cannot be accounted for by the fact that a higher percentage of homicides are solved so that the investigators' job includes developing the case for trial. For example, in a fatal–nonfatal comparison for cases that are not cleared, there were more than twice as many interviews with witnesses at the scene, almost three times as much tangible evidence collected, and four times as many videos collected.

Figure 3 provides a summary of the results on means. For each category of evidence collection, there are three bars, representing the overall mean, the mean for cases that are cleared, and the mean for cases that are not cleared. The relevant mean for fatal cases is represented by the entire bar, and mean for nonfatal cases is shown by the cross-hatched portion of that bar.

All these tabulations are repeated for the evidence collected after the crime scene investigation. The subsequent actions of investigators include additional interviews, as well as a variety of lab work such as tests of latent prints, DNA, and ballistics, and analyzing data from phones and computerized databases. There are large gaps between fatal and nonfatal cases in every type of activity. Perhaps it is especially noteworthy that the median number of postscene witnesses interviewed in homicide cases is two, and for nonfatal cases, it is zero (Table A3).

As in the previous analysis, we break down these measures of evidence collection activity according to whether the investigation resulted in arrest and, if so, when. The fatal–nonfatal gaps persist for each
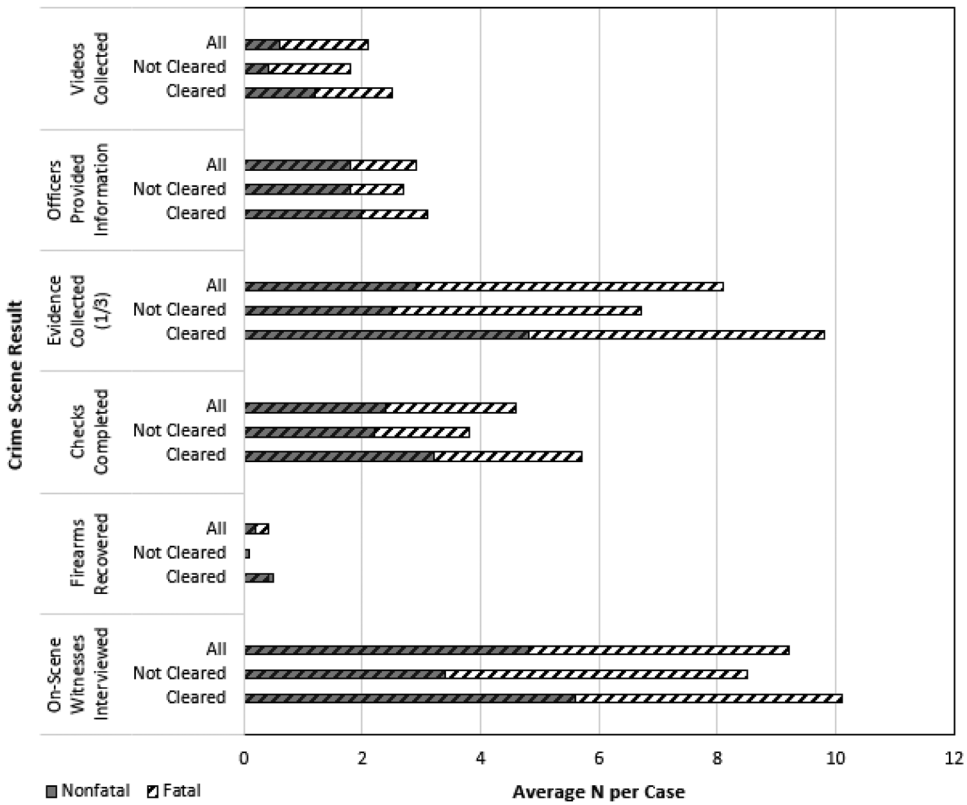
FIGURE 3 Evidence yield per case at crime scene

category of clearance. It is also of interest that when compared with unsuccessful cases, cleared cases entail more evidence collection of all types for both fatal and nonfatal cases.

The results on means are depicted in a bar chart in Figure 4 using the same scheme as before. Table A4 shows both medians and means.

What can be concluded from these comparisons? One clear conclusion is that the BPD tends to collect more evidence of all kinds in fatal than in nonfatal cases, regardless of whether there is an arrest. Granted our presumption that fatal and nonfatal cases are intrinsically similar, that finding seems to be a direct result of the fact that the BPD assigns fatal cases higher priority for investigative resources. The results of our analysis reveal confirmation that the proximate result of devoting additional resources is the production of additional evidence. That result, unsurprising though it may be, fills in an intermediate step linking investigative resources to outcome (clearance by arrest).

Note that we did not relate the probability of arrest to the amount of evidence collected on a case-by-case basis. The amount of evidence collected in any one case depends not only on effort but also on the intrinsic features of the case. Our comparison of means for fatal and nonfatal cases provides a measure of the effect of effort on evidence collection that is not confounded by variation in the intrinsic features of the case—they tend to average out (except as noted), given that fatal and nonfatal cases are similar.

6.5 | Witness cooperation and other key investigative results

For the 130 shooting cases that resulted in arrest (87 fatal, 43 nonfatal), detectives were asked what evidence was the key to identifying the suspect and establishing probable cause. In many cases, the
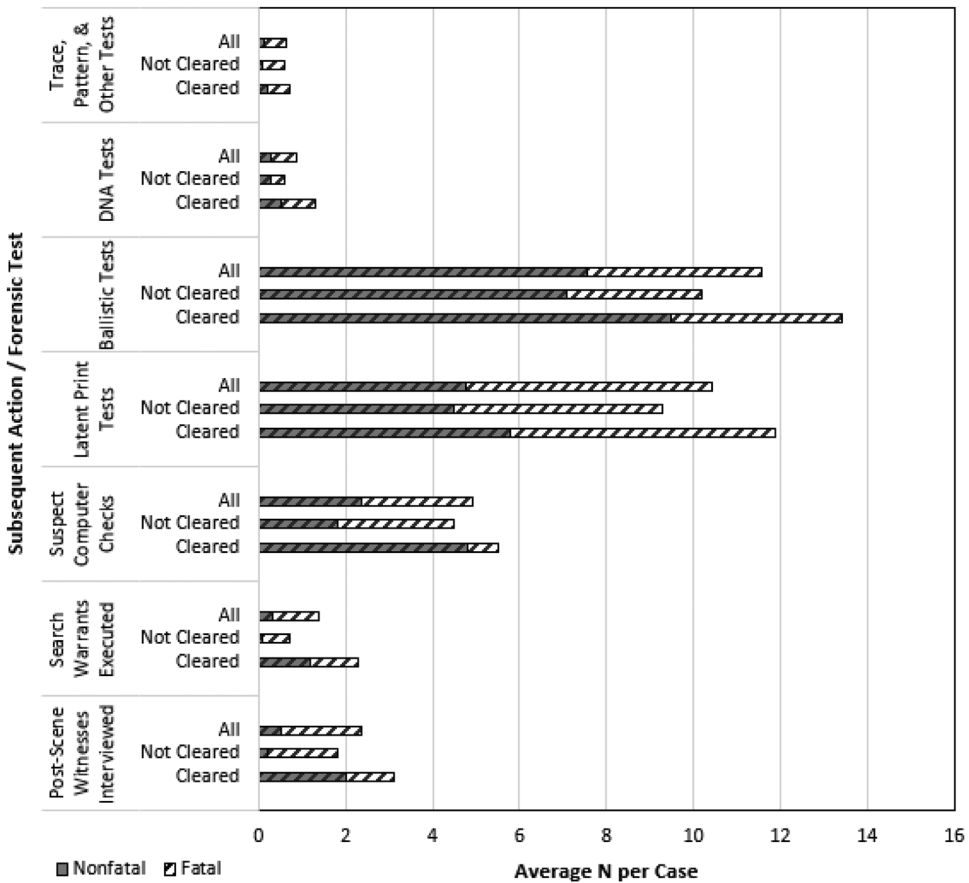
FIGURE 4 Subsequent investigative actions and forensic tests per case

respondents named more than one key. We begin with a focus on the most commonly named key to success, the evidence provided by an eyewitness. Both survivors and other eyewitnesses are included in the discussion.

6.5.1 | Eyewitnesses

Past studies of the investigative process have found that most successful investigations have resulted in detectives obtaining key evidence from one or more witnesses (Chaiken et al., 1976; Wellford & Cronin, 1999). The current sample of BPD investigations follow that pattern (see also Braga & Dusseault, 2018; Braga et al., 2019). As shown in Table 5, 62% of cleared homicide cases and 65% of cleared nonfatal cases had a cooperating witness (not including victims) from the scene of the crime as the key to solving the case.[8] In several additional cases, a key to the solution was that a victim identified the shooter. When we combine these two categories, we find that in 67% of fatal cases and 77% of nonfatal cases that resulted in an arrest, the cooperation of an eyewitness, including in some cases a victim, was the key to success.

There are several additional results to be gleaned from these data. First, the prevalence of successful cases in which eyewitnesses are vital is surprisingly similar in fatal and nonfatal cases. But that finding is contingent on success. Given that fatal cases have more than twice the clearance rate, there is logically

TABLE 5 Key Investigative results suggesting witness cooperation by time to arrest, counts and percentages of cases cleared in specified time period

Time to Arrest	Number of Cases		% Cooperative Witness From Scene (N)		% Survivor Identified Shooter (N)	
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
First 2 Days	22	25	68%	68%	14%	16%
			(15)	(17)	(3)	(4)
>2 Days	65	18	60%	61%	5%	6%
			(39)	(11)	(3)	(1)
Total Cleared Cases	87	43	62%	65%	7%	12%
			(54)	(28)	(6)	(5)
Total—All Cases	200	228	27%	12%	3%	2%
			(54)	(28)	(6)	(5)

Notes. In the fatal cases, there were six cases with survivors who identified the shooters in the "key investigative results" variable. In two cases, other cooperative witnesses from the scene were also credited. There were just 39 fatal cases in which there were survivors, and 6 / 39 = 15.4%. In the nonfatal cases, there were five cases with survivors who identified the shooters in the "key investigative results" variable. In one case, other cooperative witnesses from the scene were also credited. Note there were 231 nonfatal cases total, and 5 / 231 = 2.2%.

a much higher likelihood of cooperation by a key witness in fatal than in nonfatal cases. The relevant statistics are presented in the final row of the table.

Second, the importance of a cooperating eyewitness is about the same for cases in which there is an immediate arrest as in cases in which the arrest is delayed by more than 2 days. To some extent, that result may reflect the fact that witness cooperation is not always immediate and spontaneous—sometimes obtaining cooperation requires a good deal of effort by investigators, who may have to track down a recalcitrant witness and then "convert" him. The point here, which sometimes gets lost in discussions of the investigative process, is that cooperation is not predetermined but may change in response to the investigator's efforts.

Third, we note the intriguing finding that the likelihood a surviving victim is cooperative seems to be much higher in homicide cases than in nonfatal cases. There were 39 homicide cases in our sample with a surviving victim, and 6 of those victims (15%) helped identify the shooter. In comparison, the 231 nonfatal cases produced only 5 (2%) in which the victim helped the investigation in that fashion. That is a statistically significant difference,[9] but of course, our basic assumption of the similarity of fatal and nonfatal cases does not apply to this comparison.

6.5.2 | Forensic evidence

We now shift our attention from witnesses to forensic evidence. We have already seen (Figure 4) that much more forensic evidence is collected on average in homicide investigations than in nonfatal investigations. Here we explore the importance of this sort of evidence in solving cases. Five categories are reported in Table 6: (1) ballistic evidence from recovered firearms and from cartridges and bullets associated with the shooting; (2) evidence from video recordings that may have images of the suspect or of the attack; (3) latent fingerprints taken from the scene; (4) data downloaded from smartphones and other devices; and (5) a variety of other sources. This sort of evidence is of particular interest to our inquiry because it is a direct and clear reflection of investigative effort. In particular, it is not affected by the willingness of witnesses to cooperate.

Some type of forensic evidence was mentioned as the key to solving a homicide investigation more than 100 times, compared with just 24 mentions, in the nonfatal cases. Two or more types of forensic

TABLE 6 Key Investigative results from evidence processing, counts and percentages of all cases (excluding those that were exceptionally cleared)

Evidence Type	Fatal ($N = 200$)	Nonfatal ($N = 228$)	Test Statistic
Ballistic Evidence	14%	5%	$Z = 3.21$
	(28)	(12)	$p < .001$
Video Evidence	13.5%	2%	$Z = 4.54$
	(27)	(4)	$p < .001$
Latent Prints	8%	1%	$Z = 3.57$
	(16)	(3)	$p < .001$
Mobile Phone Data Analysis	7%	1%	$Z = 3.24$
	(14)	(2)	$p < .001$
Other[a]	9.5%	1%	$Z = 4.04$
	(19)	(3)	$p < .001$
Number of Unique Cases	34%	7%	$Z = 7.02$
	(68)	(16)	$p < .001$

[a]Includes the following categories: Gunshot residue on suspect, other forensic tests, DNA match, RMV license plate search, and database analysis linked another event.

evidence were mentioned in some of these cases: The number with at least one such mention is 68 for fatal cases and 16 for nonfatal cases.

In many of the successful cases, both forensic and eyewitness evidence were mentioned as vital by our respondents. For the fatal cases, both eyewitness evidence and at least one type of forensic evidence are mentioned in 60 cases (30%), whereas in an additional 8 cases (4%) with forensic evidence, eyewitness evidence is not mentioned. The corresponding numbers for nonfatal cases are 13 (6%) and 3 (1%).

These findings speak directly to the importance of investigative effort. Given a strong presumption that fatal and nonfatal cases are similar, the implication is that the same amounts of forensic evidence could have been collected on average from each. The higher success rate in homicide investigations is closely linked to greater effort in gathering and processing forensic evidence.

6.5.3 | Summary of key evidence

The RAND study (Greenwood & Petersilia, 1975) questioned the importance of detective work on the grounds that in most successful investigations, the arrest occurs on scene or is informed by a witness who is able to identify the prime suspect. Similarly, in our Boston sample, in most successful investigations, the arrest occurs on scene or an eyewitness (possibly including a surviving victim) provides evidence that is the key to making the arrest. That characterizes 75% of arrests in homicide cases and 84% of arrests in nonfatal shooting cases. But we disagree that such results imply that detective work is of little importance. Eliciting the cooperation of witnesses, especially when gangs are involved, may require skill and persistence on the part of investigators. (For example, 30% of the homicide arrests for which a cooperating eyewitness was the key to success occurred 6 months or more after the event.) And forensic evidence, although rarely the unique key to solving a case,[10] may be important in establishing probable cause for an arrest and in making the case for conviction beyond reasonable doubt. Given the existing scientific evidence indicating eyewitness evidence is often inaccurate (National Research Council, 2014), supplementing eyewitness testimony with forensic evidence can be helpful in avoiding miscarriages of justice.

7 | DISCUSSION AND CONCLUSION

In a large sample of shooting cases investigated by the Boston Police Department, 2010–2014, fatal and nonfatal cases were demonstrated to occur in similar circumstances, but the arrest rate for fatal cases was more than twice as high. The much higher success rate in homicide investigations may have been the direct result of the fact that the BPD, like other police departments, commits more resources to the investigation of shooting cases if the victim dies. The homicide detective unit is an elite group that has a lighter case load and better access to technical support from the crime lab and from other units within the BPD. Yet the conclusion that those additional investigation resources are productive, and can account for the large difference in outcomes, is controversial within criminology. The legacy of the old RAND study (Greenwood & Petersilia, 1975) in particular is a presumption that cases either "solve themselves" or they are not going to be solved. Given that that presumption may still be influencing staffing and priorities in some police departments, it is important to consider the evidence with care. The new evidence presented in the current study is based on a quasi-experiment—a comparison of fatal and nonfatal shootings. It is reasonable to conclude that the extra resources do indeed get much of the credit for the large fatal–nonfatal gap in arrest rates.

We find that in comparison with the investigations of nonfatal shootings, the homicide investigations resulted in the collection of more evidence of every type, at both the crime scene and elsewhere. (That is true for both successful and unsuccessful investigations.) Given that fatal and nonfatal cases occur in similar circumstances, the greater volume of evidence collected in fatal cases was likely the direct result of extra investigative resources. That result is relevant but does not settle the issue.

Besides the amount of evidence collected, the timing of the arrests is relevant to assessing the productivity of the extra investigative resources. The arrest rates for fatal and nonfatal cases were identical during the first 2 days after the crime (11%). For those cases, which presumably include most of the cases that may "solve themselves," the extra investigative resources do not seem to matter. But for the remaining cases, those that have a greater intrinsic difficulty of solution, the outcomes are entirely different. In the weeks and months after those first 2 days, an additional 32.5% of homicides were solved, compared with an additional 8.0% of nonfatal cases. It seems that persistence paid off but that staying with an investigation that may take months was a luxury that only the homicide detectives could afford.

That pattern raises an interesting question about the productivity of inputs into the investigation process. The BPD tends to deploy more resources for homicides than for nonfatal shootings for both the initial response (evidence collection at the crime scene) and the subsequent investigation. Although our evidence supports the conclusion that extra investigative inputs are productive, we cannot distinguish between different types of resources, and in particular, we cannot distinguish between the resources deployed for collecting evidence at the scene and the resources available in subsequent months to develop a case. The time profile of arrests in homicides indicates that the latter may be particularly important, but further research is needed to place that conclusion on a strong evidence base.

The role of eyewitnesses also requires further research. When detectives were asked to name the keys to success for cases in which there was an arrest, they usually included the cooperation of an eyewitness or surviving victim. But it is important to recognize that just because a key witness cooperated with the investigation does not negate the importance of investigative effort. In many cases, witnesses must be located and persuaded to cooperate. Most successful homicide investigations that included a cooperating witness from the scene were not solved in the first 2 days, and in 30% of such cases, it took more than 6 months.

In our interviews with detectives in Boston and Durham (Cook et al., 2017), we found that civilian witnesses are believed to be more likely to cooperate in gangland shootings if the victim dies. If true,

the "cooperation gap" that we have documented is not entirely a result of the difference in investigators' persistence and effort. But given the delayed timing of the arrests, that is likely an important part of it.

This exploratory analysis has yielded suggestive but not definitive results. If it is true that most of the clearance-rate gap between fatal and nonfatal cases is a result of the extra resources that police departments commit to homicides, then it should be possible to increase arrest rates for nonfatal shooting cases greatly by giving them near-equal priority to homicides. The case for doing so is that nonfatal shootings ("almoscides") involve shooters, victims, and circumstances that are usually indistinguishable from gun homicides. If true, then consideration of the preventive effects of punishment, particularly deterrence and incapacitation, makes a strong case for taking nonfatal shootings more seriously. Reducing the number of shootings through these mechanisms would reduce the number of gun homicides in proportion. Even if it is not feasible to give equal priority to fatal and nonfatal cases, at the margin, it is likely that additional resources in nonfatal shootings will have a higher payoff (in the form of more arrests) than in fatal shootings. The current regime leaves more low-hanging fruit (easy-to-solve cases) in nonfatal than in fatal cases.

These conclusions are not based on settled fact. The logical next step for learning more is a series of evaluable interventions designed to increase investigative capacity for nonfatal shootings. We submit that the evidence presented here is strong enough to justify that experimental program.

ENDNOTES

[1] These are the two most common explanations provided in individual interviews with 17 investigators from the Durham, NC Police Department (Cook et al., 2017).

[2] It should be noted that much of the forensic testing is less for the purposes of identifying a suspect than for making a case against a suspect that would hold up in court. For instance, a clearance of an offender caught at the scene with a smoking gun and cooperative eyewitnesses will still involve forensic testing. The gun will be matched to the cartridge casings and bullets, the offender will be fingerprinted as will the gun, and often the offender is tested for gunshot residue.

[3] These statistics were retrieved from annual reports on homicides and nonfatal shootings produced by the Milwaukee Homicide Review Commission and published on their website.

[4] In 2016, there were 14,415 gun homicides and an estimated 88,702 gunshot assaults in which the victim was treated in a hospital emergency department. The implied case fatality rate is 14.0% or about 1 in 7. Data taken from WISQARS (https://www.cdc.gov/injury/wisqars/).

[5] According to Massachusetts General Laws Chapter 38 Section 4, the county district attorney shall direct and control the investigation of the death and shall coordinate the investigation with the medical examiner and the police department within the jurisdiction where the death occurred.

[6] These variables were included to account for varying caseloads, policing activities, and other secular changes that might influence fatal and nonfatal shooting clearances in the same year of the incident. It is worth noting here that only ~3% (14 of 435) total shootings were cleared after 1 year of investigation had passed. As such, simple dummy variables were adequate to control for yearly changes in caseload, policing activities, and other factors net of the included covariates. None of the year of incident dummy variables were statistically significant predictors of investigative clearance.

[7] Coefficient $= -.716$, standard error $= .164$, $t = -4.36$, $p < .001$. Predicted difference in the odds of timing to arrest calculation: $100 \times (\exp(-.716) - 1) = -51.129$.

[8] Witnesses identified at the initial crime scene ranged from individuals who provided information that generally moved the investigation forward by confirming basic facts about what had happened (e.g., "a white van pulled up and a man in a mask jumped out and fired three shots at the victim" or "I heard five shots, looked out my window, and saw two black males running from the corner towards the park") to individuals who could positively identify suspects through detailed physical descriptions or by providing offender names. In essence, all were "eyewitnesses" with varying degrees of relevant information on the gun assault event.

[9] Test for difference of two sample proportions: $Z = 3.89$, $p < .001$.

[10] Forensic evidence was named as the only key evidence in three fatal shooting cases (3.4%) and one nonfatal shooting case (2.3%). Video evidence (combined with latent prints and analysis of mobile phone records) was present in all four of these cases.

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APPENDIX A: CASE DESCRIPTIONS

Gun homicide—immediate arrest

At 1:45 A.M. on a Saturday night, a 25-year-old Black male was shot seven times to the head and torso while sitting in a car at the intersection of a major thoroughfare and a side street. BPD dispatchers were immediately notified of multiple shots fired by the Shotspotter system and received several calls for service from concerned citizens who reported shots were fired. Nearby BPD district officers arrived at the scene in less than 30 seconds; these officers immediately secured the scene and attempted to administer medical aid to the victim. BPD dispatchers then issued "full notifications" for a potential homicide incident; homicide detectives arrived to the scene within 16 minutes of the initial call for service. Emergency medical services technicians pronounced the victim dead at the scene. Three members of the crime scene response unit responded to the scene and spent 3.5 hours processing the scene. Key evidence recovered from the scene included 15 cartridge casings and 6 bullet fragments. All recovered crime gun evidence came from .380 or 9 mm firearms. Nine detectives and officers canvassed the scene and surrounding area for witnesses. Eleven potential witnesses were interviewed at the scene by homicide detectives; none could make a positive identification. Several, however, confirmed that an SUV sped away from the scene after shots were fired. The Office of the Chief Medical Examiner removed the corpse from the crime scene; four bullets were removed from the cadaver during the autopsy.

As members of the citywide Youth Violence Strike (gang unit) were responding to the initial dispatch, the officers noticed an SUV speeding from the shooting location. YVSF officers pulled over the SUV and located three known gang members in the vehicle (all Black males between the ages of 18 and 30). These officers recovered two 9 mm pistols and one .380 pistol from these individuals. Homicide detectives conferred with the on-call assistant DA and were authorized to arrest these individuals for the homicide. The homicide detectives received approval for search warrants for the victim's car, the suspects' SUV, and three mobile phones (the victim's phone and two phones recovered from the suspects). The next day, homicide detectives located video of the incident from a nearby camera that revealed the SUV speeding away from the scene; the video captured the license plate of the suspect SUV. Within 2 days, ballistic analysis confirmed that the guns recovered from the suspects were the same guns used to shoot the victim. Subsequent interviews with associates of the victim and the suspects suggested that the homicide was generated by ongoing violence between feuding gangs. The interviews revealed that the victim was believed to have fired shots at the rival gang earlier in the evening and was believed to be the killer in a previous homicide of a member of the rival gang.

Gun homicide—arrest later

At 4:13 P.M. on a Thursday afternoon, a 21-year-old Black male was shot three times in the torso while in his cousin's apartment located in a Boston public housing building. BPD officers were notified of the shooting by both a Shotspotter activation and multiple citizen calls for shots fired. BPD officers arrived at the apartment within 2 minutes of the initial dispatch for shots fired, attempted to administer aid, and secured the scene; homicide detectives were present at the scene within 8 minutes of the "full notifications" dispatch. The victim was transported by emergency medical services to Boston Medical

Center where he was pronounced dead. Twelve detectives and officers canvassed the apartment building and surrounding neighborhood for potential witnesses. Twenty-four individuals were interviewed by the detectives; one witness informed officers that, after the shots, a Black male hurried out of the back door of the building and placed something in the dumpster. This witness also provided a detailed description of the clothing worn by the suspect. Three crime scene response unit officers and two crime lab scientists spent approximately 5 hours processing the indoor crime scene and dumpster area. Three .45 cartridge casings and two bullet fragments were recovered in the apartment. A .45 semiautomatic pistol was recovered from the dumpster. A bullet was recovered from the cadaver during the autopsy.

Subsequent interviews with the victim's family suggested that the victim was not the intended target. Rather, the victim was visiting his cousin who was a known marijuana dealer. A review of the cousin's criminal history confirmed that he was a convicted drug dealer; the cousin was not cooperative with the homicide detectives when interviewed. A BPD drug control unit officer, however, provided intelligence that a rival marijuana dealer had an ongoing dispute with the cousin.

Video pulled from the housing project building captured a male matching the witness description entering the building before the shooting occurred. The New England Electronic Crimes Task Force enhanced the video quality; this yielded a clear image of the suspect's face. Unfortunately, reviews of the image by officers who worked the area and witnesses from the scene did not result in a positive identification of the shooter. The findings from subsequent analyses of the ballistic evidence confirmed that the recovered casings and bullets from the crime scene and the bullet from cadaver matched the recovered .45 pistol. Fingerprints were successfully lifted from the recovered .45 pistol. When the investigation did not progress further over the next several weeks, the homicide detectives released the video to a local news station; the news station aired the video with the request for an identification of the suspect. After 2 days, a citizen called the homicide unit and identified the suspect as his brother. The accumulated evidence in the case was presented to the grand jury who indicted the suspect. Approximately 3 months after the homicide, the BPD fugitive apprehension unit located and arrested the 24-year-old Black male suspect. Subsequent fingerprints taken from the suspect matched the fingerprints on the recovered firearm. The suspect then confessed to the murder.

Nonfatal shooting—immediate arrest

At 10:05 P.M. on Saturday night, the BPD received a call for two 25-year-old Black males shot inside of a strip club. A patrol officer working a detail on the same block immediately responded to the scene and stopped a 31-year-old Black male who was fleeing from the club. The officer frisked the individual and arrested him after finding a .38 revolver in his backpack. As neither victim died, the suspect was charged with illegal gun possession and two aggravated assaults with a deadly weapon—firearm counts. Responding homicide and district detectives interviewed 28 individuals who were present in the club at the time of the shooting. A bouncer reported that the alleged shooter got into an argument with the victims after being bumped by one victim. After calming down the suspect and victims, no further conflict was observed by the bouncer. None of the interviewed individuals from the scene reported seeing the suspect shoot the victims. Shortly after the arrest, the shooter's hands were subjected to a gunshot residue test by district detectives. Two crime scene response unit officers processed the crime scene for nearly 6 hours; three bullet fragments were recovered from the scene. Club video cameras did not capture the shooting but did place the suspect in the club during the time that the shooting occurred.

Both victims were transported to the Boston Medical Center by emergency response services; one victim was shot in the back and claimed not to have seen the individual who committed the shooting. He did not provide any helpful information on any events that may have led to the shooting. This victim

reviewed a photo array and did not identify the suspect. The other victim suffered a life-threatening gunshot wound to the head and was in a coma for more than a month. A bullet fragment was recovered from the victim's jaw. Once this victim regained consciousness, he had no memory of what happened that evening. Although the victims and the suspect had criminal histories, none were documented gang members; there were also no police records that the suspect was connected to the victims via arrest or field contact reports.

The gunshot residue kit was processed by the Massachusetts State Police and confirmed that the suspect had recently fired a gun. The BPD ballistics unit confirmed that the bullet fragments were fired from the .38 revolver recovered from the suspect.

Nonfatal shooting—arrest later

At 9:30 P.M. on a Wednesday night, the BPD received multiple calls for shots fired at a residential location; the dispatch to officers was soon upgraded to a "person shot" call of service after the initial 911 call was received. BPD district officers and detectives responded to the scene within 3 minutes of the initial dispatch and found a 15-year-old Hispanic male on the front stoop of his house that was shot in the thigh. Eleven officers and detectives interviewed 15 individuals at the scene. Several witnesses reported that a young Hispanic male wearing a white t-shirt and blue jeans pulled up to the house on a bicycle and fired shots at the victim. The victim's brother chased the shooter but was not successful in stopping the individual. The family was responsive to the detectives' questions and expressed concern that the victim had recently started associating with a local gang. Unfortunately, no witnesses were able to make a positive identification of the shooter. The victim was transported to Boston Medical Center and was not cooperative with the police when interviewed at the hospital. Two crime scene response unit officers processed the crime scene and recovered three .22 shell casings.

The victim was eventually released from the hospital and re-interviewed by district detectives approximately 10 days after the initial shooting. The victim was much more cooperative and reported that he did not know the actual identity of the shooter. He just knew the shooter as "JT". The district detectives contacted the BPD Youth Violence Strike Force and asked whether officers knew a gang member who used the "JT" nickname. The YVSF officers did know an individual from a rival gang who was known by this nickname. The detectives and YVSF officers then worked with Boston Regional Intelligence Center analysis to establish the identity of "JT" via analyses of intelligence information and social media resources. After JT's identity was confirmed, the detectives applied for a search warrant for his home. The execution of the search warrant led to the recovery of a .22 semiautomatic pistol. The suspect, an 18-year-old Hispanic male, was initially charged with illegal possession of a firearm. After the BPD Ballistics Unit confirmed that the .22 semiautomatic pistol did fired the shell casings recovered at the crime scene, the suspect was charged with assault and battery with deadly weapon—firearm slightly more than 4 months after the initial shooting.

APPENDIX B: ADDITIONAL TABLES

TABLE A1   Crime scene investigation results

Result	One or More Gun Homicides (N = 200)		Nonfatal Only (N = 228)	
	Mean	Median	Mean	Median
N Scene Witnesses Interviewed	9.2	7	4.8	4
N Firearms Recovered	0.4	0	0.2	0
N Vehicle, Victim, Other Computer Checks	4.6	4	2.4	2
N Evidence Collected[*]	24.3	19	8.8	7
N Officers Providing Information	2.9	3	1.8	1
N Videos Collected	2.1	2	0.6	1

Note. Exceptional clearances excluded (4 fatal, 3 nonfatal).

[*]The variable "evidence collected" includes all evidence that is collected from the crime scene and submitted to the crime lab for documentation. The BPD logs everything it collects from the crime scene into its "Evidence Tracker" database. The crime lab analysts then log tests and results into this database. The counting is inclusive. For instance, each cartridge casing, piece of clothing, and so on, is logged separately. Items like broken glass, however, would be considered one unit (preserved in a bag) rather than counting each shard (same window or bottle, etc.; separate windows/bottles would result in separate items). A shirt could be tested for the presence of hairs or fibers (fibers that were not part of the shirt cloth). In the database, the shirt would be Piece 1 and any detected hairs or fibers would be subitems 1A, 1B, 1C. We coded the shirt as one piece of evidence, coded the trace hair/fiber analysis as a test, and then coded the test results.

TABLE A2   Crime scene results

Median of the Relevant Distribution								
	Not Cleared		Cleared by Arrest		Arrest in First Week		Arrest Later	
Result	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
Interviews with Witnesses at Scene	7	3	9	4	9	4	8	4
Firearms Recovered	0	0	0	0	0	0	0	0
Computer Checks on Vehicles, etc.	3	2	4	3	4	2	5	2
Evidence Collected	17	6	24	11	22	9	24.5	18
Officers Providing Information	2	1	2	1	2	1	2	1
Videos Collected	1	0	2	1	2	1	2	0
Total Cases	*113*	*185*	*87*	*43*	*23*	*30*	*64*	*13*
Mean of the Relevant Distribution								
	Not Cleared		Cleared by Arrest		Arrest in First Week		Arrest Later	
Result	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
Interviews with Witnesses at Scene	8.5	3.4	10.1	5.6	10.1	5.8	10.2	5.1
Firearms Recovered	0.1	0.1	0.4	0.5	0.7	0.6	0.3	0.2
Computer Checks on Vehicles, etc.	3.8	2.2	5.7	3.2	4.4	3.1	6.1	3.5
Evidence Collected	20.2	7.5	29.5	14.5	25.0	11.1	31.1	22.3
Officers Providing Information	2.7	1.8	3.1	2.0	2.8	2.1	3.2	1.6
Videos Collected	1.8	0.4	2.5	1.2	2.7	1.3	2.5	1.0
Total Cases	*113*	*185*	*87*	*43*	*23*	*30*	*64*	*13*

TABLE A3 Subsequent actions/forensic tests (exceptional clearances excluded)

Result	One or More Gun Homicides (N = 200)		Nonfatal Only (N = 228)	
	Mean	Median	Mean	Median
N Postscene Witnesses Interviewed	2.37	2	0.53	0
N Search Warrants Executed	1.38	1	0.33	0
N Suspect Computer Checks	4.92	3	2.35	1
N Latent Print Tests	10.42	7	4.76	3
N Ballistic Tests	11.58	9	7.56	5
N DNA Tests	0.88	0	0.29	0
N Trace, Pattern, Other Tests	0.63	0	0.12	0

TABLE A4 Subsequent actions/forensic tests

Median of the Relevant Distribution

Result	Not Cleared		Cleared by Arrest		Arrest in First Week		Arrest Later	
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
N Postscene Witnesses Interviewed	1	0	2	1	2	1	2	0
N Search Warrants Executed	0	0	1	0	1	0	1	1
N Suspect Computer Checks	3	1	3	2	3	3	4	3
N Latent Print Tests	7	3	9	4	8	3	10	6
N Ballistic Tests	8	5	10	7	10	7	10	9
N DNA Tests	0	0	0	0	0	0	1	0
N Trace, Pattern, Other Tests	0	0	0	0	0	0	0	0
Total Cases	*113*	*185*	*87*	*43*	*23*	*30*	*64*	*13*

Mean of the Relevant Distribution

Result	Not Cleared		Cleared by Arrest		Arrest in First Week		Arrest Later	
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
N Postscene Witnesses Interviewed	1.8	0.2	3.1	2.0	3.5	2.2	3.0	1.3
N Search Warrants Executed	0.7	0.1	2.3	1.2	1.9	0.9	2.5	1.9
N Suspect Computer Checks	4.5	1.8	5.5	4.8	4.7	4.3	5.8	5.2
N Latent Print Tests	9.3	4.5	11.9	5.8	10.5	4.5	12.4	8.8
N Ballistic Tests	10.2	7.1	13.4	9.5	12.9	8.6	13.6	11.5
N DNA Tests	0.6	0.3	1.3	0.5	0.6	0.1	1.5	0.5
N Trace, Pattern, Other Tests	0.6	0.1	0.7	0.2	0.2	0.1	0.9	0.5
Total Cases	*113*	*185*	*87*	*43*	*23*	*30*	*64*	*13*

01

Worksession Item

Office of the City Manager

WORKSESSION
March 12, 2024

To: Honorable Mayor and Members of the City Council

From: Dee Williams-Ridley, City Manager

Submitted by: Jennifer Louis, Chief of Police

Subject: 2023 Berkeley Police Department Annual Report

INTRODUCTION

At the request of City Council, the City Manager provides regular reports on crime in Berkeley. The Berkeley Police Department Annual Report details 2023 year-end crime, collision, stop data and use of force data. This annual report also serves to provide a number of status updates on Council referral items, department initiatives and legislative mandates.

CURRENT SITUATION AND ITS EFFECTS

The mission of the Berkeley Police Department is to safeguard our diverse community through proactive law enforcement and problem solving, treating all people with dignity and respect. The Department works in service to the community and in partnership with the community, the Office of the Director of Police Accountability and the Police Accountability Board, as well as other City Departments and our regional partners.

The Berkeley Police Department understands the importance of partnering with the community and maintaining accountability. We are committed to being transparent about our policies and actions, to sharing data and information, and welcoming suggestions on enhancing our service quality as we safeguard our community. To help achieve that goal, the Department launched our Transparency Hub. That hub gives the public an accessible platform to analyze critical data and insights related to policing activities, calls for service, crimes, traffic safety, and community engagement. It can be accessed at bit.ly/bpd-transparency and provides near-real-time, area-specific data directly to our community.

To further support our public safety efforts and collaboration with stakeholders and our commitment to transparency and accountability, the Department has expanded the annual crime report to provide a more comprehensive annual report which is attached here and will be presented to Council during the Special Meeting on March 12, 2024. This report will cover a range of topics beyond the traditional reporting on crime and collision data. It will include reporting on staffing levels, specific information on call volume, type and response, efforts related to fair and impartial policing initiatives, crime and public safety problem solving responses, as well as other important departmental efforts.

ENVIRONMENTAL SUSTAINABILITY
There are no identifiable environmental effects, climate impacts, or sustainability opportunities associated with the subject of this report.

FISCAL IMPLICATIONS
Specific fiscal implications related to items referred to within this report are addressed in the biennial budget process. Additional information of costs can be provided as needed.

CONTACT PERSON
Chief Jennifer Louis, Police Department, (510) 981-5700
Data and Policy Analyst Arlo Malmberg, Police Department (510) 981-5747

ATTACHMENT
1. 2023 Berkeley Police Department Annual Report

cc: Dee Williams-Ridley, City Manager
       LaTanya Bellow, Deputy City Manager
       Anne Cardwell, Deputy City Manager
       Jennifer Louis, Chief of Police
       Mark Numainville, City Clerk

2023 Berkeley Police Department Annual Report

March 12, 2024

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2023 Berkeley Police Department Annual Report

Introduction

In presenting the Berkeley Police Department's annual report, we reaffirm our enduring mission, embrace our vision for the future, and recommit to our core values. These principles guide our daily operations and strategic planning, ensuring that we serve our community with the utmost integrity, respect, and dedication.

Mission: United in service, our mission is to safeguard our diverse community through proactive law enforcement and problem solving, treating all people with dignity and respect.

Vision: The Berkeley Police Department will be a team of leaders at every level. We will foster strong relationships with our community, inspiring trust through our service, building on our historic tradition of progressive policing, and dedicated to the safety of all.

Values: Service is our calling. As members of this community, the Berkeley Police Department team is committed to proactive law enforcement and problem solving, holding these as our core values:

- *Integrity*: We are ethical, fair, and trustworthy in all we do.
- *Safety*: We strive to keep our community and each other safe.
- *Respect*: We fulfill our duties with dignity, compassion, and empathy.
- *Diversity*: We value the strength of a diverse workplace and community. We endeavor to reflect the community we serve, promoting inclusion and fairness.
- *Professionalism*: We commit to organizational excellence through progressive training, positive attitude, and superior performance.

Command Staff began the year by strategically assessing the key challenges and opportunities facing the department. We sought to align our priorities with the needs of the community, the concerns of the Council, and the principles named above. Guided by this analysis, we focused on three priorities for 2023:

Recruitment and Retention: Our priority is attracting and retaining staff who align with our core principles. We are proud of our diverse team that shares our community's values and commitment to service.

Proactivity and Problem Solving: Crime prevention and long-term problem solving is a major focus for us. That's why we emphasize being proactive, using data to spot potential issues early and working with the community to find solutions before problems escalate.

Internal Communication: This year we recommitted ourselves to clear, consistent communication so every member of our department feels informed, understands what's expected, and has the resources they need to do their jobs well.

These priorities are reflected in the work completed in 2023 and detailed below. To that end, the value of this report is multifold. To the Council, it offers a transparent, measurable account of our stewardship of public trust and resources, while also highlighting how our strategies align

2023 Berkeley Police Department Annual Report

with and complement the work of the Office of the Director of Police Accountability and the Police Accountability Board. To the community, it underscores our unwavering commitment to public safety and service, demonstrating our efforts in connecting with and uplifting the Reimagining Public Safety initiative and Fair and Impartial Policing principles. To our department, it provides a foundation for continuous improvement and a benchmark for the pursuit of excellence as we move into 2024.

As we present this annual report we invite our community and its representatives to reflect on our shared achievements, to engage with us in addressing the challenges ahead, and to contribute to the evolution of our service to better suit the needs of all those we are privileged to serve.

2023 Berkeley Police Department Annual Report

Staffing & Workload

Despite a high workload, our department has sought to enhance efficiency and service quality. Through innovative recruitment and retention strategies, community engagement, and performance analytics, we have continued to strengthen our operational effectiveness. Our ongoing commitment to strategic analysis and accountability ensures sustained care and excellence in our service to the community.

Staffing

Current Levels

As of 2/7/24, we are staffed at 151 police officers, well below our current authorized staffing level of 181 sworn personnel. Two of those positions are held by recruit officers who are currently in the academy, and 5 are in field training and will not reach solo officer status until June 2024. Twenty four of the 151 officers are eligible to retire, and at least half of these 24 have stated an intent to retire over the course of 2024.

Berkeley Police Department currently is authorized 36 dispatch positions and is currently staffed with 23 dispatchers and 4 dispatch supervisors. There are currently 2 dispatchers and 0 supervisors that are eligible to retire. The Communications Center is supported by several per diem and other dispatch-qualified employees who alleviate some of the strain of understaffing.

Sworn Staff
Annual Peak Staffing Levels
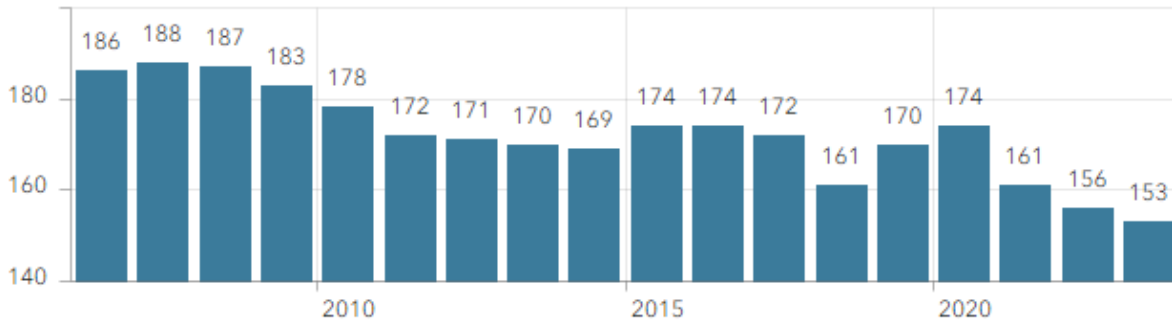
We are also in the process of hiring additional Community Service Officers (CSO). We are authorized 29 CSOs and are currently staffed with 25. For the last several years we were authorized 22 CSOs but 6 CSOs and 1 CSO Supervisor were added to the Fiscal Year 2023 budget as a recommendation stemming from the reimagining public safety process. Conceptually, the additional CSOs will be trained to respond to lower priority calls and bridge the gap between sworn and professional personnel performing a variety of tasks that would have traditionally fallen to a sworn officer. Community outreach and engagement will be part of the work of CSOs as well. Staff has encountered difficulty identifying the scope of necessary training and attracting existing CSOs to this developing position since it was only funded on a limited three-

2023 Berkeley Police Department Annual Report

year term in the FY 2023 budget. The Department is committed to supporting this reimagining public safety goal and will continue work to develop this program.

Recruitment and Retention Strategies

The Berkeley Police Department prides itself on rigorous evaluation of police officer applicants, as well as hiring and training some of the profession's best officers who exemplify the department's overall mission as well as the values of our diverse and vibrant City. Beyond the expectations to successfully complete training and education requirements, the department demands that officers hold themselves to a departmental culture of integrity, respect, and professionalism. The Department continues to actively recruit and work with Human Resources to facilitate open and continuous recruitments to reach full staffing of police officers, dispatchers and other critical positions in the department.

Recruitment and Retention Team

To help address the challenges associated with hiring, in 2022 the department committed to the creation of a Recruitment and Retention Team. That team is comprised of officers and

dispatchers who work with Personnel and Training on a part-time basis to attend job fairs, work on our social media outreach, respond to applicants who submit interest cards, and facilitate ride-alongs with officers and sit-alongs with dispatchers. In 2023, the Recruitment and Retention Team attended 111 events, corresponded with 2,600 potential applicants, and ultimately funneled 8 recruits into the academy and 4 Lateral officers into the Field Training Program. They also helped to hire 7 Public Safety Dispatchers.

Recruitment Incentives

In 2022, the department introduced the Recruitment and Retention Incentive Program, approved by City Council, to enhance our recruitment strategy and strengthen community ties. This initiative allowed all city employees to refer potential candidates, significantly increasing our recruiter base and ensuring that we are attracting candidates familiar with the community. In that way, this initiative supports our efforts to hire individuals who understand and embody Berkeley's deeply rooted values. The incentive program also boosted hiring bonuses for applicants, with 19 applicants qualifying for the incentive in 2023.

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<u>Wellness</u>

In 2023, BPD received Collaborative Reform Assistance through the COPS Office, which funded in-person financial wellness training to all employees. This also provided future virtual training for 30 new employees as they are hired. The department used funding from the BSCC Officer Wellness Grant to contract with the West Coast Post Trauma Retreat to provide confidential immersive assistance to employees to work through traumatic experiences and build resilience. We also used this funding to provide two blocks of training from The Counseling Team International. The training was called First to Respond, Last to Seek Help and Mental Health Mayday, which further assisted officers navigating vicarious trauma and negative health impacts. The BSCC grant was also used to purchase a two-year contract to provide staff with a mobile wellness application called Light House. This application provides staff with anonymous access to health and wellness resources. We renewed our Public Safety Family Counseling Group contract, which supports our Peer Support Team through training and guidance. Their clinicians are essential to assisting with our response to critical incidents, facilitation of critical incident stress debriefs, and providing individual support to employees. BPD continued our partnership with O2X staff to provide nutrition, mental health, sleep and yoga workshops to employees. Our onsite strength and conditioning coach and athletic trainer both saw improved engagement with public safety personnel. Outdated fitness equipment was replaced, a new outdoor break area was created to provide staff an area to regroup and hold meetings outdoors. The BPD Wellness and Resilience Group along with BPD leadership will continue to look for ways to provide services and opportunities to enhance the overall well-being of BPD employees.

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Workload / Calls for Service

The Berkeley Police Department (BPD) is committed to providing timely and effective responses to calls for service from our community. This section of the annual report provides a detailed analysis of the calls for service we receive and the strategies we have employed to manage and respond to these calls efficiently and effectively.

<u>Yearly</u>

In 2023, the Berkeley Police Department received a total of 63,791 calls for service (CFS). This figure gives us a sense of the community's needs and the demand for police services.

Calls for Service by Year, 2019-2023
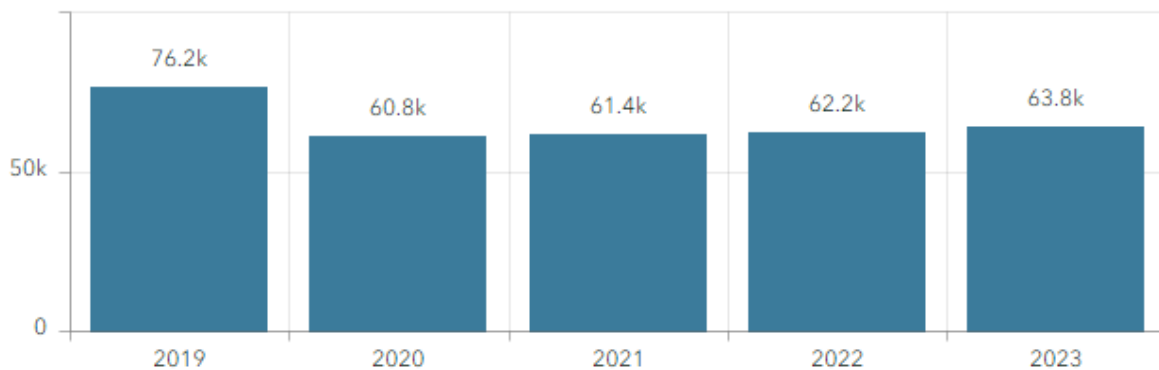
The data shows a 2.3% increase in the volume of calls compared to the previous year (62,245 total in 2022), signaling a slow increase of call volumes towards pre-pandemic levels. Over the past 5 years, BPD has managed an average of 64,868 calls for service annually.

<u>Monthly</u>

The average number of calls for service per month in 2023 was 5,308.

Calls for Service by Month, 2023
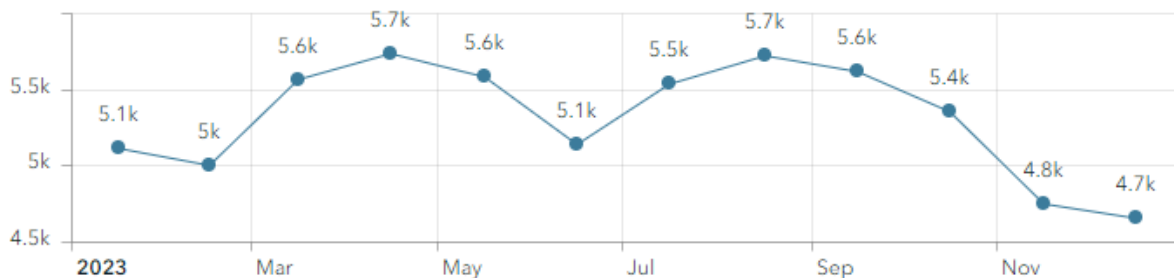
There is a discernible pattern throughout the year with peaks in May and September, reaching up to 5,737 calls. This pattern is consistent with trends observed in recent years and provides insight into seasonal variations in the frequency of calls that we may expect to see in future years.

2023 Berkeley Police Department Annual Report

Geography

Geographically, the distribution of calls for service highlights areas of higher demand within the city. In 2023, City Council District 4 registered the most calls of any council district.

This geographical pattern has informed our operational strategies, leading to adjustments in police beats (more on our beat map below) and resource allocation to ensure an appropriate and timely response to community needs.
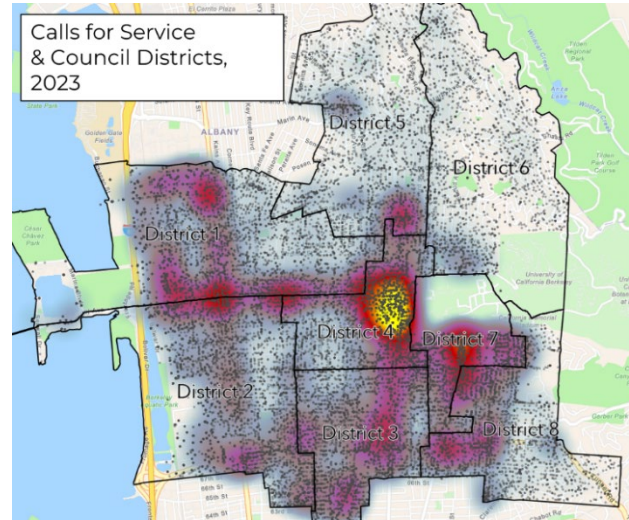
Initial Call Type

When a dispatcher receives a call for service, they determine a call type, often a penal code type, using the information immediately available from the caller. An officer may arrive on scene and determine the nature of the incident is different than that of the initial call type. Therefore, the call type data, along with priority level data (below), is useful as an indication of the information available to the call taker before an officer arrives on scene to investigate further. The most frequent non-officer-initiated call types in 2023 were:

Most Frequent Initial Call Types*	2019	2020	2021	2022	2023
Disturbance	6,833	5,578	5,493	5,450	5,378
Audible Alarm	4,207	3,405	3,671	4,007	4,231
Wireless 911	2,830	2,401	2,580	2,814	3,144
Welfare Check	3,020	2,559	2,693	2,679	2,736
Theft	2,864	2,852	2,101	2,187	2,312

Non-officer-initiated calls; 5 most frequent in 2023

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The data for 2023 shows that the most frequent call types align with the patterns observed in recent years, offering insight into the prevalent issues and concerns within the community.

Priority Level

In 2023, nearly 50% of non-officer-initiated calls for service were classified as Priority 1 or Priority 2. These categories represent the most urgent calls, requiring immediate police response due to their potential threat to life, safety, or property.

Calls for Service by Priority Level, 2023
Non-Officer-Initiated Calls

Other 4.52%
Level 1 13%
Level 4 21.81%
Level 2 36.65%
Level 3 24.02%
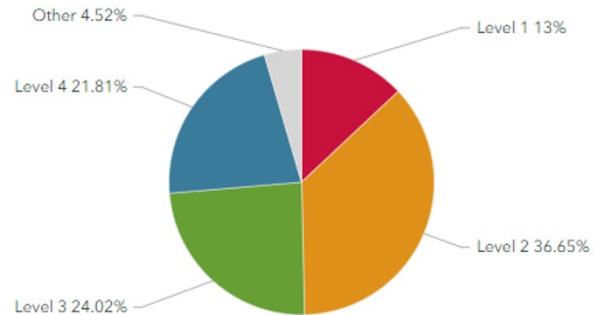
It is important to note that calls classified as lower priority, such as Priority 3 or Priority 4, often involve serious matters that are considered 'cold,' meaning there is no immediate danger to life or property. These calls might include reports of past incidents where the suspect is no longer on the scene or situations that, while serious, do not require an urgent police response. BPD is dedicated to investigating and resolving these matters with the same level of professionalism and thoroughness as higher priority calls, as every call represents a significant concern for the community members involved.

Dispositions

The disposition of a call for service is selected by officers and dispatch from a predefined list and marks the conclusion of the incident. Due to the complexity and dynamic nature of police responses, a single call may result in multiple dispositions.

Dispositions of Interest*	2019	2020	2021	2022	2023
Case Report	10,141	8,819	8,948	10,318	11,247
RIPA Survey	-	594*	1,489	1,379	1,118
Homeless-Related	-	-	1,275*	2,721	2,727
Mental-Health Related	1,573	1,133	1,840	2,912	3,109

Non-officer-initiated calls; dispositions for RIPA and Homeless-Related started in 2020 and 2021, respectively.

The disposition data shows a notable increase in "Mental-Health Related" dispositions in 2022 (reflecting a change in reporting practice) and "Case Report" dispositions in 2023 (reflecting a rise in crime). "Homeless-Related" dispositions have rapidly increased since being tracked in 2021, while "RIPA Survey" dispositions (stops) have decreased since being tracked in 2020. These trends reflect evolving community needs and the changing focus of police response efforts.

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Workload Metrics

The workload metrics below offer insights into the operational challenges and demands that BPD faces. As staffing levels grow at a slow pace in comparison to the increasing volume of calls for service, it is important to assess the impact on the workload of our officers and the quality of service provided to the community.

Calls per Officer per Shift

Average Calls Handled per Officer per Shift
Non-Officer-Initiated Calls
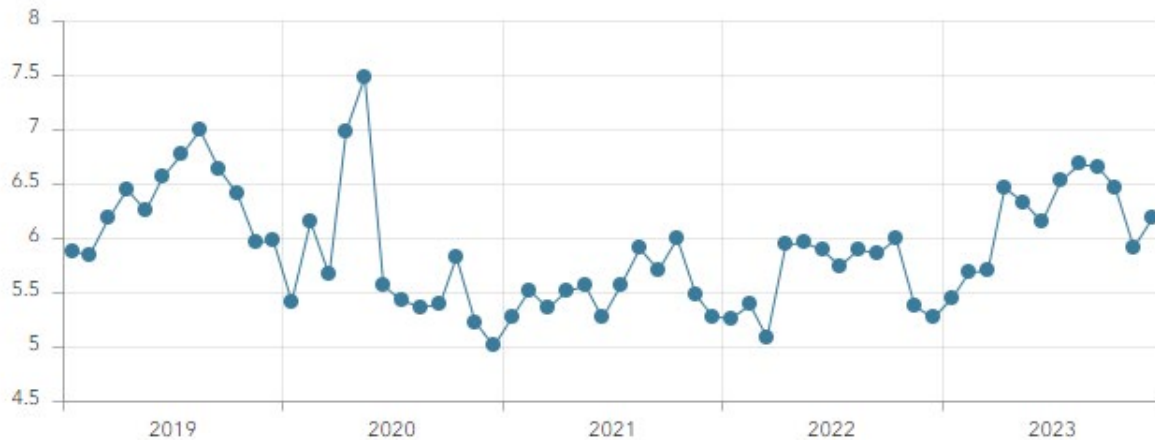
One of the primary indicators of an officer's workload is the number of calls handled per shift. Despite efforts to manage workload through backfilling shifts with overtime, officers addressed more calls per service per shift than in any year since 2019.

This trend is an indicator of the growing demands placed on our officers, highlighting the need for strategic planning and resource allocation to maintain high service standards.
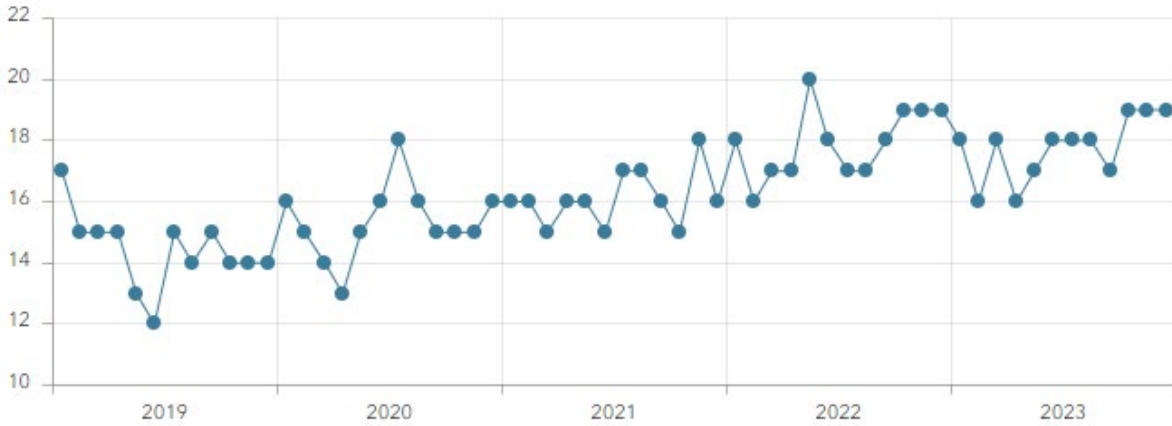
Time on Scene per Call

Another crucial aspect of an officer's workload is the time spent on scene per call. This metric is influenced by various factors, including the nature of the call and the overall activity in the city at the time of the call.

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Median Officer Time On Scene per Call
Minutes | Non-Officer-Initiated Calls

Despite the increase in calls per shift seen above, officers are dedicating more time on scene for each call. This trend reflects both the increasingly complex and demanding nature of the calls and our officers' commitment to providing thorough and quality service in response to each incident.

Department Initiatives

What We've Done

In the face of challenging staffing levels coupled with an increasing workload, the Berkeley Police Department (BPD) has proactively taken steps to prioritize our efforts and enhance organizational efficiency.

Department Priorities

In 2023, BPD identified and committed to three core priorities that guided our actions and decisions throughout the year: recruitment and retention, proactivity and problem solving, and internal communication. These priorities were carefully chosen to address the most pressing challenges and opportunities facing the department and thereby maximize the impact of our efforts

The deliberate focus on these three priorities in 2023 was instrumental in keeping the department on track amidst a myriad of challenges and decisions. By consistently revisiting and reflecting on these key areas, we strived to align critical and pivotal decisions made throughout the year with our overarching objectives and the needs of the community we serve. This strategic focus has streamlined our efforts and reinforced our commitment to excellence, innovation, and community engagement.

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Updated Beat Structure

Due to the dynamic nature of crime patterns, service demands and staffing levels, BPD recognized the necessity to re-evaluate our beat structure, which had been in place for nearly a decade. Though effective at its inception, the previous 16-beat structure placed a significant strain on our limited patrol resources and intensified a need for forced overtime.

In response to these challenges, our Strategic Analysis Team conducted a comprehensive analysis of calls for service volume, considering temporal and spatial factors. This data-driven approach culminated in the development of a more efficient 14-beat map, designed to achieve a better balance in workload distribution and service delivery across the city.
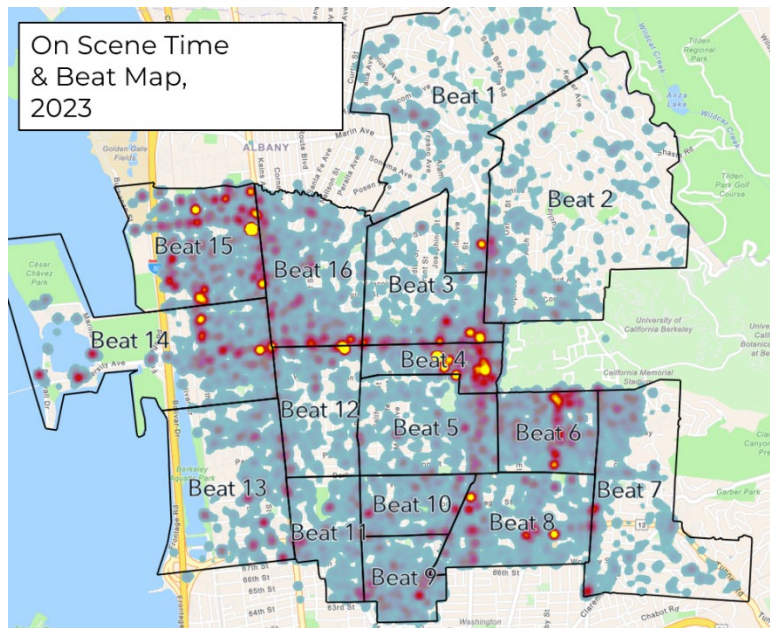
The transition to the new beat structure was implemented in April of 2023 by the Operations Division. This strategic shift not only addressed the immediate need for more manageable workloads and reduced reliance on overtime but also sets the stage for the generation of valuable data that will inform the ongoing sworn staffing study.

Early results suggest our efforts to achieve a more equitable workload distribution among officers have been successful. Nevertheless, we believe the addition of swing officers would significantly enhance the effectiveness of this new structure. This would provide the adaptability necessary to address unanticipated fluctuations in service demands.

As BPD continues to evaluate and improve its operations, we look forward to the analysis and recommendations from an impending comprehensive staffing assessment (detailed later in this report). That assessment will be invaluable as we make informed decisions about staffing levels and beat design.

Community Engagement

The limitations on officer resources puts greater emphasis on the importance of trusted relationships with our community. The Department's community engagement efforts are of

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vital necessity to maintaining and increasing an efficient workflow. The Berkeley Police Department's dedication to community engagement and connectedness was a primary focal point in 2023. From monthly Coffee with a Cop events, to numerous neighborhood meetings, city sponsored special events and strategic department Pop Up events, the diverse community engagement activities have initiated, deepened and expanded police department relationships with our community.

One program in particular which highlights our ongoing relationship with our community is the Law and Social Justice pathway, a two-year criminal law program at Berkeley High School. Now in its 8th year, Law & Social Justice brings professionals working within the criminal justice system into contact with juniors and seniors at Berkeley High. The BHS students are introduced to police officers, community service officers, dispatchers, prosecutors, defense lawyers, judges, probation officers, and parole officers, both in the classroom and in the field. The goal of the class is to introduce students to careers while creating a place of informed dialogue pertaining to the criminal justice system. At the completion of this school year the class will have educated more than 680 students.

How We're Doing

In our ongoing effort to provide transparent and accountable policing, BPD closely monitors a range of performance metrics. These metrics serve as indicators of our effectiveness and

MOMENTS OF IMPACT

Among the many opportunities offered by the Law and Social Justice class at Berkeley High, ride-alongs with Berkeley PD police officers stand out for their profound impact on students. One student recounted their experience with Officer Villaroel, saying, "*The most thrilling part about the ride along was when we went code 3 with lights and sirens and we started speeding down the street... I could just feel the adrenaline going through me."* The student went on to reflect "*people either have good experiences or bad experiences with cops and depending on the experience you've had your opinion on cops might change… being on that ride alone makes me want to become a cop.*" This firsthand experience not only highlights the challenges and skills involved in policing but also emphasizes the importance of understanding the diverse perspectives people have towards law enforcement.

Similarly, another student was moved by the personal story of Officer Valle, noting, "*he also told us that [he] could have never imagined he would become a police officer, because as a teenager he had multiple unpleasant experiences with law enforcement"* Officer Valle ultimately "*decide[d] that he wanted to be the change in the system which resulted in him doing some ride alongs, and then going to the academy*" Such stories are emblematic of the transformative potential of the Law and Social Justice pathway, bridging the gap between law enforcement and the community by fostering empathy, understanding, and dialogue.

Through these interactions and experiences, the Law and Social Justice pathway not only educates but also molds future leaders, thinkers, and change-makers in our society, reinforcing the connection between Berkeley PD and our community.

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efficiency and also offer insights into areas where we can improve. This section dives into key performance indicators including response times, time on scene by call type, and officer-initiated calls.

Response Times

Response time is a critical measure of our service to our community. BPD is committed to maintaining swift response times and ensuring that community members receive timely assistance in emergencies and other situations requiring police presence.

Median Response Times
First Unit, Minutes
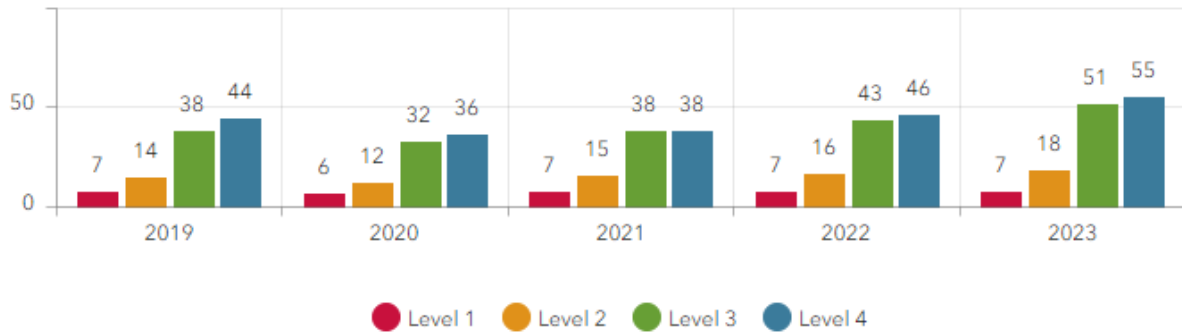
*Excludes Officer Initiated calls and call types: Audible Alarms and Traffic Stop

Below is a comparison of response times to agencies in the region that publish this data. Because every agency defines priority levels differently, we have included (where available) the percentage of calls that each priority level represents for the corresponding agency.

Our median response time for Priority 1 calls was 7 minutes, meeting or exceeding regional standards.

Median Response Times, 2023 (minutes)	Level 1 (% of all calls)	Level 2	Level 3	Level 4
Berkeley	7 (13%)	18 (37%)	51 (24%)	55 (22%)
San Francisco	9 (19%)	32 (30%)	105 (51%)	-
Oakland	14	184	443	-
San Jose	7 (5%)	24 (42%)	-	-

Comparison cities chosen based on data availability and region

Time on Scene by Call Type

The time our officers spend on the scene is indicative of the complexity of incidents and our commitment to thorough, community-centered policing. Below is a table of 5 types of calls for service and the resources that BPD allocated to those calls. Below the on-scene time is

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measured from the time that the primary unit- that is, the officer responsible for managing the scene and initial investigation- arrives on scene until that officer is no longer working on the incident.

Median Time on Scene by Call Types of Interest	Median Primary Unit On-Scene Time	Avg. Units/Call
Disturbance	17 minutes	1.9
Grand Theft	62 minutes	1.8
Robbery	116 minutes	5.3
Sexual Assault	194 minutes	2.0
Shooting	285 minutes	15.9

The call types listed above represent some of our most common (Disturbance, Grand Theft) and resource intensive (Robbery, Sexual Assault, Shooting) call types. Less severe calls like disturbances required less time on scene, while more serious crimes such as shootings demanded significantly more officer time and resources. This reflects the department's adaptive resource allocation intended to ensure that more critical situations receive the attention necessary for thorough investigation and community support.

Officer-Initiated Calls

Officer-initiated calls serve as an indicator of proactive policing practices and our dedication to ensuring community safety and preventing crime (for an analysis of the impact of our proactive stops, see the "Stop Report" section below). In 2023, the number of officer-initiated calls reflected the challenges and constraints faced by the BPD, including staffing levels and prioritization of non-officer-initiated calls for service.

Calls for Service by Year, 2019-2023
Officer-Initiated Calls
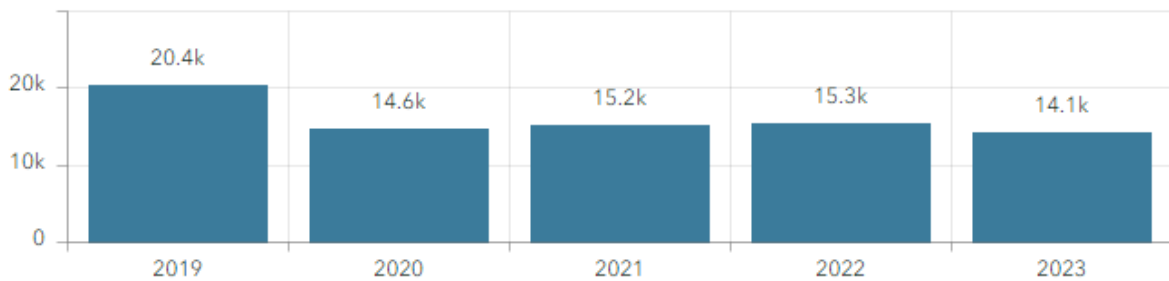
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Calls for Service by Month, 2023
Officer-Initiated Calls

The data indicates a lower volume of officer-initiated calls, with an average of 1,173 calls per month. This trend is unsurprising given the impact of staffing levels and the distribution of workload among our officers. Despite these figures, BPD remains committed to proactive community engagement and crime prevention. We are actively exploring strategi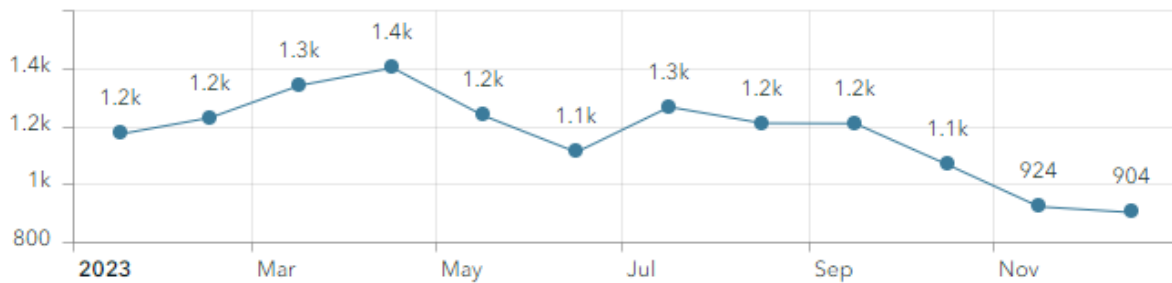es to enhance our proactive policing efforts and ensure that our officers have the support and resources they need to effectively engage in community policing and crime prevention, alongside their responsibilities in responding to non-officer-initiated calls for service.

What's Next

As the Berkeley Police Department (BPD) continues to evolve and adapt to the changing needs of our community and the broader landscape of public safety, we are focused on implementing strategic initiatives that enhance our operational capabilities, ensure accountability, and foster community trust. The upcoming initiatives outlined below represent our proactive approach to addressing current challenges and embracing opportunities for growth and innovation.

Sworn Staffing Study

In our continuous efforts to enhance operational efficiency and align our staffing strategy with the evolving needs of the community, BPD has partnered with Citygate Associates, a firm renowned for its expertise in public safety organizational strategies. Citygate is currently in the process of conducting a comprehensive and independent staffing analysis. This report will bring their extensive experience and specialized knowledge to bear on challenges surfaced by the department, the City Auditor's Audit on Police Overtime and the Fair and Impartial Policing Working Group (more details on recommendations by those bodies below).

Citygate is wrapping up the information gathering phase which involves soliciting feedback from stakeholders as well as analyzing relevant data. The study is on track to be completed by the end of the fiscal year (June 30, 2024). We are optimistic that the findings and recommendations provided by Citygate Associates will be instrumental in shaping our strategic staffing decisions. Early recommendations are being incorporated into the budget process as well as the Command Team Building Workshop we are holding in March 2024. The insights gained from this study will guide our department through this phase of rebuilding staffing levels

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and make sure that future deployment of police services in Berkeley is both effective and aligned with the principles of the Reimagining Public Safety initiative.

<u>Strategic Analysis and Accountability</u>

In a step toward institutionalizing data-driven decision-making and enhancing accountability, the department is focusing analytical efforts on strategic planning and accountability. This approach builds upon the foundational work of the Strategic Analysis Team and aims to drive the implementation of equitable, fair, and effective public safety strategies that are deeply rooted in the principles articulated by the City's Reimagining Public Safety initiative.

This organizational focus will deepen collaboration with key partners including the Police Accountability Board by providing essential data and insights that support comprehensive police accountability and oversight. Key initiatives will include the enhancement and management of our Early Intervention Systems (EIS, more information in the "Audits and Oversight" section) and the overall risk management framework, demonstrating a commitment to operational excellence and innovation in public safety. This shift represents a proactive effort to meet the emerging needs of the department and community and embodies a vision of a more accountable, transparent, and community-aligned approach to public safety.

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Crime & Investigations

Amid increasing crime rates, our department employs creative, problem-oriented solutions. Our robust clearance rates, competitive on a regional scale, reflect our commitment to delivering first-class police work from start to finish.

Crime Data

Understanding the distinctions between calls for service, case reports, and confirmed crimes is crucial for clarity when reviewing crime data. Calls for service are the initial contacts made by the public with our department, ranging from reports of suspicious activities to requests for emergency assistance. These calls often prompt further investigation.

Following an investigation, if there is reason to believe a crime has occurred, an officer writes a case report. These case reports document the investigation's details, including any evidence collected, witness statements, and the officer's observations and conclusions at that stage.

The determination of whether prosecution will be pursued falls to the District Attorney (DA). The DA reviews the case report and decides whether they can prove beyond a reasonable doubt that a crime occurred. This higher standard—beyond a reasonable doubt—is the legal benchmark used in criminal trials to determine the guilt of the accused before any criminal penalty is imposed.

The statistics presented below are derived from case reports. These reports form the backbone of our crime data analysis as they provide a comprehensive overview of our department's investigative activities and outcomes.

It is important to note that the data below utilizes the Uniform Crime Reporting (UCR) Summary Reporting System (SRS) methodology. The SRS is a national reporting standing that facilitates a summarized account of major crime categories, thereby allowing comparisons over time and across jurisdictions. In 2024 we transitioned to the National Incident-Based Reporting System (NIBRS), which is an updated national reporting standard that promises a more detailed and nuanced approach to crime data collection and analysis.

NIBRS provides several key advantages over the UCR SRS. Unlike UCR SRS, which focuses on a limited number of "Part One" crimes, NIBRS includes a broader range of crime categories, offering a more comprehensive view of crime in the community. NIBRS captures detailed

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information about each criminal incident, including the types of offenses committed, characteristics of the victims and offenders, types of property involved, and the relationship between the victim and the offender. The detailed data collected through NIBRS supports more sophisticated and nuanced analysis, enabling law enforcement agencies, policymakers, and researchers to identify trends, patterns, and correlations in crime data more effectively across jurisdictions nationwide.

Part One Crimes

Part One Crimes, as classified by the UCR, are comprised of both violent and property crimes, reflecting the most serious offenses. Part Two Crimes include a range of other offenses, providing a broader scope of the crime landscape.

Part One Crimes by Year

In 2023, there was a 10.5% overall increase in total Part One Crime in Berkeley compared to 2022. Specifically, Part One Violent Crimes saw an increase of 100 cases, while Part One Property Crimes rose by 759 cases.

Part One Crimes by Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	% Change 2022-2023
Homicide	3	1	2	1	1	0	5	0	3	1	-66.7%
Sexual Assault	35	44	54	83	65	74	47	57	89	97	+9.0%
Robbery	263	330	361	364	353	369	274	265	292	386	+32.2%
Aggravated Assault	130	155	185	218	167	175	210	210	282	282	+0.0%
Total Violent Crimes	**431**	**530**	**602**	**666**	**586**	**618**	**536**	**532**	**666**	**766**	**+15.0%**
Burglary	932	1090	805	843	829	771	797	803	1036	1228	+18.5%
Larceny	3615	4099	3965	4556	4004	4993	3933	3736	4611	4532	-1.7%
Auto Theft	555	717	650	621	548	492	805	1098	836	1350	+61.5%
Total Property Crimes	**5102**	**5906**	**5420**	**6020**	**5381**	**6256**	**5535**	**5637**	**6483**	**7110**	**+9.7%**
Arson	15	22	24	30	31	17	52	72	52	84	+61.5%
Total Part One Crimes	**5548**	**6458**	**6046**	**6716**	**5998**	**6891**	**6123**	**6241**	**7201**	**7960**	**+10.5%**

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The most significant percentage increases in Part One Crimes were observed in Auto Theft (61.48%), Arson (61.54%), and Burglary (18.53%). Conversely, decreases were recorded in Homicide (-66.7%) and Larceny (-1.71%).

Crime Categories of Interest

In 2023, we observed notable trends in specific crime categories, each presenting unique challenges and requiring tailored approaches for effective management and prevention.

Shootings

2023 marked a significant decrease in shooting incidents within Berkeley, with a total of 31 confirmed incidents compared to 53 in 2022. Confirmed shooting incidents encompass both witnessed events and instances where evidence of gunfire, such as shell casings, was discovered.

Shootings by Type

● No Injuries   ● Non-Fatal Injuries   ● Fatal
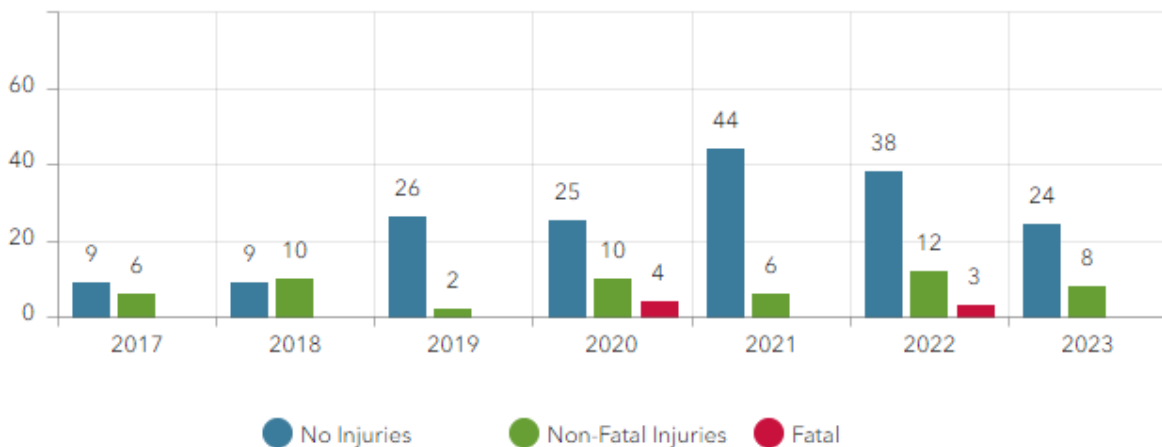
While the decline in shootings in 2023 is encouraging, the data presented in the chart above shows that the number of incidents remains substantially higher than the 15 reported in 2017. The data further indicates that the decrease in 2023 primarily stems from a reduction in 'No Injury' events, where a firearm was discharged but no individuals were struck; however, the persistent occurrence of both 'Fatal' and 'Non-Fatal Injury' shootings highlights the need for ongoing interventions to combat gun violence. For more on our efforts to recover guns and our collaboration with the City of Berkeley's Gun Violence Intervention & Prevention program see below.

Robbery

Robberies are crimes involving the unlawful taking of property from a person or their immediate presence, through the use of force or threat of force. This definition encompasses a range of scenarios, from physical confrontations where a victim is threatened or harmed to secure their belongings, to intimidation tactics where the threat of violence compels a victim to surrender their property. Robberies can occur in various settings, including but not limited to,

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public streets (pedestrian robberies), commercial establishments (commercial robberies), residences (home invasions), banks (bank robberies), and incidents involving vehicles (carjackings). The key elements that define an act as robbery include the intent to permanently deprive the owner of their property, the use or threat of force, and the direct interaction with the victim.

Robberies	2018	2019	2020	2021	2022	2023
Pedestrian	229	247	131	119	148	205
Commercial	108	97	117	118	117	135
Home Invasion	5	4	8	8	8	5
Bank	3	2	5	6	4	2
Carjacking	10	14	13	14	15	39
Total	**355**	**364**	**274**	**265**	**292**	**386**
By Gun (% of total)	82 (23%)	74 (20%)	46 (17%)	74 (28%)	69 (24%)	111 (29%)

The data for 2023 indicates a noticeable increase in robbery incidents, particularly in the pedestrian and carjacking categories. This uptick brings the total number of robberies to 386, marking a 32% rise from the 292 cases in 2022.

Hate Crimes

Hate crimes are crimes motivated by bias against race, color, religion, national origin, sexual orientation, gender, gender identity, or disability. Hate crimes in Berkeley continue to be a critical concern. The majority of hate crime reports in 2023 were characterized as crimes of intimidation, involving slurs or graffiti, rather than physical violence.

Hate incidents are acts of prejudice that are not crimes and do not involve violence, threats, or property damage. We take hate incident reports because these incidents perpetuate prejudice and intolerance, creating an environment of fear and alienation for the targeted individuals and communities, even in the absence of criminal activity.

Hate Crimes	2018	2019	2020	2021	2022	2023
Race/Ethnicity/National Origin	11	5	7	29	24	27
Religion	3	1	2	11	3	9
Sexual Orientation	3	2	1	2	11	9
Gender	1	0	2	0	0	0
Disability	0	0	0	0	0	1
Total	**18**	**8**	**12**	**42**	**38**	**46**

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Hate Incidents	2021	2022	2023
Race/Ethnicity/National Origin	16	22	24
Religion	1	5	19
Sexual Orientation	4	4	7
Gender	0	0	0
Disability	1	0	0
Total	22	31	50

Prior to October 7th, there were 29 hate crimes, 24 of which were tied to race or religion, including 5 anti-Jewish and 1 anti-Arab or anti-Muslim hate crimes. There were 31 hate incidents before this date, with 24 of these being race or religion-related, including 5 anti-Jewish and 4 anti-Arab or anti-Muslim incidents. Since October 7th, we recorded 17 hate crimes, of which 12 were directly related to race or religion, including 5 anti-Jewish hate crimes and a single hate crime targeting Arab or Muslim individuals. In the same period, hate incidents rose to 19, all related to race or religion, with a notable increase to 13 anti-Jewish hate incidents, while no anti-Arab or anti-Muslim hate incidents were reported.

Sexual Assault

The number of sexual assault cases remained at a high level in 2023, mirroring the figures from 2022. This persistent trend emphasizes the importance of providing support services, raising awareness, and implementing preventive measures to address and reduce instances of sexual assault within the community. The Department continues to take reports where the full elements of the penal code are not met, when a survivor requests a report for catharsis and in other non-investigatory situations. For a significant number of cases the survivors choose not to follow through with an investigation. There are a number of reasons for this, but it inflates our reported numbers compared to other agencies and leads to lower clearance rates. It also reflects our total commitment to providing support to survivors. Additionally, these cases are typically closed as "Suspend" not "Closed" as an added safeguard to protect information on these sensitive cases from being released; this practice directly lowers our clearance rate for sexual assaults.

Sexual Assault	2018	2019	2020	2021	2022	2023
Felony	65	74	47	57	89	97
Misdemeanor	31	64	38	50	81	62
Total	96	138	85	107	170	159

In 2023, there were 97 felony and 62 misdemeanor sexual assault cases reported, totaling 159 cases, including an increase in the number of felony cases, and a slight decrease from the previous year's total of 170 cases.

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Property Crimes

2023 saw a notable increase in certain property crimes, specifically retail thefts and vehicle thefts, while catalytic converter thefts declined significantly.

Property Crimes of Interest	2018	2019	2020	2021	2022	2023
Commercial Burglaries	275	307	324	316	435	574
Vehicle Thefts	548	492	805	1098	836	1350
Catalytic Converter Thefts	35	186	586	573	847	457

The Department works in collaboration with regional loss prevention agents to identify organized retail theft offenders. Additionally, the department has been working with the San Francisco Police Department Organized Retail Crime and Fencing units, the Oakland Police Department CRT, the CHP Organized Retail Crime Unit, the Emeryville Police Department, the Palo Alto Police Department, the Walnut Creek Police Department, and the Central Marin Police Authority. We share suspect information, including surveillance photos/videos, suspect vehicles, and suspect MO to link cases committed by the same groups of suspects throughout the Bay Area.

Department Initiatives

What We've Done
Firearm Recoveries

In 2023, a total of 69 firearms were recovered, marking a decrease of 42% from the previous year.

Firearm Recovery Methods	2019	2020	2021	2022	2023
Patrol calls for service	33	36	51	64	41
Patrol proactive traffic stops	25	17	24	12	11
Detective Follow-up investigation	29	32	43	43	17
Total	**87**	**85**	**118**	**119**	**69**

All firearms recovered are processed through the National Integrated Ballistic Information Network (NIBIN). This database is a nationwide collaboration coordinated by the Bureau of Alcohol, Tobacco and Firearms (ATF). The Department enters ballistic information for each firearm recovered and the database makes connections with evidence recovered from shooting scenes, provides information about persons who have owned and or purchased the firearm.

BPD routinely processes recovered firearms for DNA and fingerprints. This work is key to helping determine who shooters or illegal firearms possessors are.

Gun Violence Intervention & Prevention

To further address the issue of gun violence, the City of Berkeley has developed a Gun Violence Intervention & Prevention program framework as a key component of its Reimagining Public

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Safety initiative. This comprehensive program aims to significantly reduce gun violence incidents through a multifaceted approach. The strategy combines place-based interventions in critical areas, direct engagement with individuals at risk, street outreach, and the provision of robust social services. This collaborative effort, involving multiple city departments, community-based organizations and field experts, is grounded in empirical evidence and best practices. It represents Berkeley's holistic and proactive approach to fostering a safer community by addressing the proximate causes of gun violence and supporting those most at risk.

Tailored Response and Proactivity to Hate Crimes

In response to hate crimes, the Berkeley Police Department emphasizes customized and effective strategies. Each incident is carefully evaluated based on its specific details, including the people involved and the context, ensuring the response is accurately tailored.

Area Coordinators from the Community Services Bureau work closely with community leaders from the areas impacted, offering targeted safety advice. This includes specific strategies for Crime Prevention Through Environmental Design (CPTED) and personal safety, all adapted to fit the unique needs of each situation.

The department also proactively keeps an eye out for potential threats to stay ahead of any issues. To further enhance safety, patrols are increased around places of worship and sensitive locations during important events, providing extra security when it matters most.

Additionally, the Hate Crime Awareness Week campaign plays a crucial role in raising awareness about hate crimes, encouraging community resilience, and urging people to report incidents. Through these focused and anticipatory actions, the Berkeley Police Department commits to maintaining a safe and welcoming environment for everyone.

Automated Security Checks

BPD, with insights from our Strategic Analysis Team, has started using data to guide our patrols through automated security checks. These checks send officers to specific places at times where their presence can help prevent crime. By using detailed crime data to decide where and when officers should go, we are more effectively deterring crime. This careful planning of patrols is part of our larger goal to make our policing strategies smarter and more data-driven. This way, we can ensure our crime prevention efforts are not only successful but also adapt to the changing needs of our community.

Engravings

To combat a rise in catalytic converter thefts, the BPD invested in an engraving tool, marking 82 catalytic converters with unique identifiers. This initiative is meant to deter thieves by making stolen parts more identifiable and thus harder to sell.

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Through these initiatives, the Berkeley Police Department has demonstrated its resolve in adopting a forward-thinking and community-centric approach to law enforcement. Our efforts in 2023 have sought to address immediate concerns as well as lay a strong foundation for sustainable safety and security in our community.

How We're Doing

As we navigate the complexities of crime and law enforcement, the Berkeley Police Department (BPD) remains steadfast in its commitment to transparency and accountability. Our performance metrics for 2023, including Part One Crimes per capita and clearance rates, provide valuable insights into our effectiveness and our ongoing efforts to enhance public safety in our community.

Part One Crimes per Capita:

With a population of approximately 118,950 (as of July 2022), there were 669 part one crimes overall per 10,000 residents in Berkeley. There were **64 violent crimes** per 10,000 residents and **598 property crimes** per 10,000 residents in 2023. In 2022, there were 57 violent crimes per 10,000 residents and 555 property crimes per 10,000 residents.

Based on the latest data from the Department of Justice available to the public, the following crime statistics were reported in 2022 for cities selected for their proximity to Berkeley and similar population sizes:

- In Santa Clara, population 126,930, there were **31 violent crimes** (395

MOMENTS OF IMPACT

On 1/21/2023 officers responded to an assault between multiple subjects. The offender had threatened the 14-year-old survivor with a knife, twisted her wrist, causing pain and stole various items from her.

The survivor explained she had been living on the street and she had met the offender three weeks prior. The survivor had begun living with the offender and she was sexually and physically assaulted by the offender during this time. The offender also threatened to kill the survivor and prevented her from leaving the apartment. The survivor disclosed that the offender furnished and injected methamphetamine into the victim's hand. The offender was arrested at the scene.

Through extensive conversations and follow up, Detective Martinez and the survivor built trust and established a close connection. The victim disclosed that she was a victim of human trafficking in other cities prior to her arrival in Berkeley. Detective Martinez connected her with a shelter specializing in homeless and trafficked youth. Ultimately the Alameda County District Attorney's Office charged the offender with multiple sexual crimes, robbery, burglary and drug possession.

In the department's continued commitment to the survivor, Detective Martinez worked with her family to find the right family member for her to live with long term and we matched her with a social worker specializing in trafficked youth. This social worked helped get the survivor back into school, into therapy and helped obtain other resources for the survivor and her family. Throughout the department's contact with the survivor she expressed how she felt seen and heard by the department and her appreciation for the work that was done on her case.

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incidents in total) and **360 property crimes** (4,564 incidents in total) reported per 10,000 residents.

- San Leandro, population 86,762, reported **58 violent crimes** (499 incidents in total) and **490 property crimes** (4,254 incidents in total) per 10,000 residents.
- Richmond, population 114,301, reported **88 violent crimes** (1,006 incidents in total) and **272 property crimes** (3,117 incidents in total) per 10,000 residents.

Clearance Rates

Forensic and electronic evidence, diligent and detailed investigative efforts, as well as community willingness to share information are critical to developing leads and chargeable cases. The following table summarizes our clearance rates of crimes in UCR categories alongside clearance rates for Santa Clara PD (SCPD), San Leandro PD (SLPD) and Richmond PD (RPD) . A note about clearance rates: the numbers reported for BPD in the second table below only cover cases closed within one year of being reported; however, many investigations occur over an extended period and these cases will be closed after this reporting period.

Part One Crimes Clearance Rates* by Year – *DOJ*	2020 SCPD	2020 SLPD	2020 RPD	**2020 BPD**	2021 SCPD	2021 SLPD	2021 RPD	**2021 BPD**	2022 SCPD	2022 SLPD	2022 RPD	**2022 BPD**
Homicide	100%	14%	25%	**33%**	-	100%	25%	**100%**	0.0%	0.0%	35%	**67%**
Sexual Assault	23%	27%	9.1%	**6.4%**	15%	17%	67%	**5.3%**	27%	0.0%	17%	**7.9%**
Robbery	39%	20%	19%	**21%**	35%	19%	26%	**26%**	24%	12%	10%	**31%**
Aggravated Assault	57%	32%	27%	**37%**	65%	38%	44%	**44%**	64%	41%	34%	**43%**
Burglary	7.6%	5.0%	7.6%	**11%**	6.4%	4.7%	17%	**16%**	10%	5.2%	11%	**15%**
Larceny	5.5%	4.1%	2.6%	**6.8%**	4.0%	4.2%	1.5%	**4.8%**	8.5%	4.1%	1.1%	**5.4%**
Auto Theft	4.3%	2.7%	11%	**3.7%**	3.7%	2.7%	7.4%	**4.3%**	6.7%	2.4%	2.5%	**6.1%**
Arson	20%	20%	6.1%	**15%**	47%	4.5%	17%	**19%**	29%	8.3%	17%	**15%**

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Part One Crimes Clearance Rates* by Year – *1-Year*	2020 BPD	2021 BPD	2022 BPD
Homicide	100%	100%	100%
Sexual Assault	22%	10%	15%
Robbery	30%	29%	32%
Aggravated Assault	57%	61%	46%
Burglary	12%	15%	10%
Larceny	7.3%	7.0%	6.6%
Auto Theft	9.3%	8.2%	11%
Arson	25%	32%	27%

Here we are reporting both a DOJ-calculated clearance rate and a 1-year clearance rate for BPD cases. The DOJ rates are calculated by dividing the number of cases reported by the number of cases closed in the same calendar year. A 1-year clearance rate is the percentage of cases that were closed within a year of being reported.

Looking at the 1-year clearance rates, BPD consistently achieved a 100% clearance rate for homicides across all three years. For sexual assault, BPD's clearance rates ranged from 22% in 2020 to 15% in 2022. Robbery and aggravated assault rates for BPD were generally high, with robbery clearance peaking at 32% in 2022 and aggravated assault at 61% in 2021. Burglary, larceny, and auto theft clearance rates remained relatively low across all jurisdictions, with BPD maintaining consistent rates over the past 3 years.

In 2023, the Property Crimes Bureau was staffed with 3 detectives out of 5 allocated positions, the Youth Services Detail was staffed with 2 detectives of 3 allocated positions, while the Robbery, Homicide and Sex Crimes units were fully staffed.

What's Next
Gun Violence Restraining Orders

The Department recently began using a newly created tool called the Gun Violence Retraining Order (GVRO). This restraining order allows for the seizure of firearms from a person who "poses an immediate and present danger of causing personal injury to self or another by custody or control, owning, purchasing, receiving or having access to a firearm or ammunition." Thus far this tool has been used in response to calls for service where gun violence or self-harm could be an issue. Going forward we will leverage this powerful tool to proactively take guns from individuals who pose an immediate and present danger.

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<u>Automated License Plate Readers & External Fixed Surveillance Cameras</u>

As directed by City Council, in 2023 the Berkeley Police Department (BPD) took additional steps forward in acquiring fixed Automated License Plate Readers (ALPR) and External Fixed Video Surveillance Cameras. Since ALPRs and video surveillance cameras are clearly defined as surveillance technology by the City of Berkeley Surveillance Technology Ordinance (#7,592), we spent months completing the steps outlined in the ordinance to acquire these technologies, including: drafting Surveillance Use Policies; presenting those policies for recommendations to the Police Accountability Board; and receiving City Council Approval of the policies.

Fixed ALPR: After receiving Council approval of the policies (422 and 1305), Berkeley Police Department secured a contract with the preferred vendor, Flock Safety, for the acquisition and installation of 52 cameras on a two-year trial basis from the time of activation. BPD is currently working with Flock Safety and Berkeley Public Works (PW) Department to determine placement of the cameras.

External Fixed Video Surveillance Cameras: San Pablo Park, Berkeley Marina and the PW Transfer Station have had fixed cameras in place for several years. In 2021 BPD was given approval by Council to install additional cameras at ten locations. Those locations are listed in the BPD policies related to Fixed Cameras, 351 and 1304. In 2023, Public Works installed the first camera approved in Policy 351 at 6th and University Avenue and the Berkeley Police Department established procedures for tracking access that will permit an audit to be conducted annually.

Throughout 2023, BPD fielded many inquiries from the Berkeley community expressing a strong interest and support for ALPR and fixed surveillance cameras. In 2024 we will continue on our path to installing and utilizing these technologies for combatting crime with careful consideration of cost, equity, privacy and efficacy guiding us every step of the way.

<u>Regional Collaboration</u>

In January 2024, Berkeley PD participated in a regional convening on crime and public safety hosted by Mayor Arreguín. In attendance were law enforcement leaders and elected officials from across the Bay Area. We discussed the regional efforts underway to address crime and safety concerns as criminals have become more sophisticated and brazen. We identified opportunities for strengthened partnerships across jurisdictional lines and will continue our collaboration in this space to more efficiently and effectively use our resources to solve crimes. There is a lot to be gained from improving our regional approach to data collection and analysis. Investing in both real-time crime analysis for tactical purposes and to inform strategic analysis and long-term planning can enhance our efforts significantly. By sharing data and insights, we can develop more effective strategies to combat crime and ensure public safety. In 2024, we will continue this partnership further at a regional level, exploring innovative solutions and fostering a more collaborative environment for tackling these challenges together.

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Road Safety & Collisions

Leveraging detailed collision data and community insights, our department has strategically enhanced traffic safety through targeted initiatives and enforcement. As we move forward, our partnership with Vision Zero promises to further deepen our dedication to efficient and effective traffic safety solutions.

Collision Data

In 2023, there were a total of 873 collisions. They included 514 injury and 359 non-injury collisions. Total collisions increased by 23, or 2.6% from 2022. Non-injury collisions increased by 3.6% and fatal collisions decreased to 0. Injury collisions decreased by 6.2% and DUI collisions increased by 3.7%.

Collisions	2019	2020	2021	2022	2023
Fatal collisions	4	2	7	2	0
Injury collisions	520	316	431	548	514
Non-injury collisions	405	271	351	346	359
Total	**929**	**589**	**789**	**896**	**873**

The most common causes of injury collisions (the primary collision factor or PCF) were 22350 VC, 21800-21804 VC, 21950(a)VC, and 22107 VC. Bicyclists (107) and pedestrians (97) accounted for 39.7% of the injury collisions. Bicyclists were found at fault in 60 of the collisions and pedestrians in 22 of the collisions. A closer examination of the 60 at fault injury collisions involving a bicycle revealed 19 involved a solo bicyclist falling or hitting an object.

In 2023, 81 collisions (26 injury / 55 non-injury) involved a DUI driver (an increase from 53 in 2022) which resulted in 39 injured people.

2023 was the first year with no fatal collisions since 2011.

The three intersections which accounted for the highest number of collisions were University Ave/ Acton St, Ashby Ave / San Pablo Ave, and Ashby Ave / Shattuck Ave. The top twelve intersections where collisions occurred were:
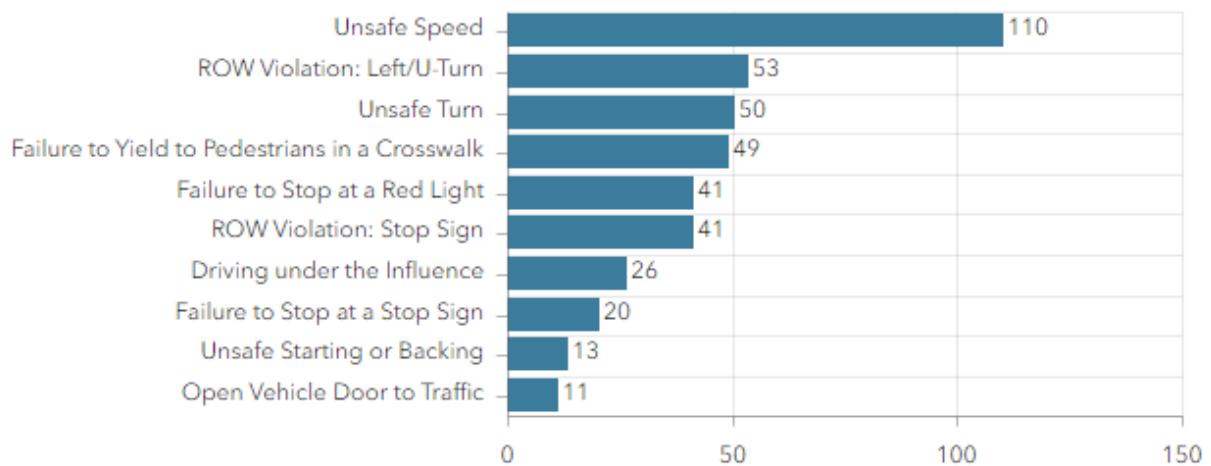
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High Collision Intersections, 2023	Total Collisions	Injury Collisions	# of People Injured	Suspected Serious Injury*
University Ave / Acton St	11	9	14	2
Ashby Ave / San Pablo Ave	11	7	11	0
Ashby Ave / Shattuck Ave	11	4	5	0
Ashby Ave / College Ave	10	6	7	1
University Ave / San Pablo Ave	9	4	8	1
University Ave / MLK Jr Way	9	5	5	0
Ashby Ave / MLK Jr Way	8	7	12	4
San Pablo Ave / Gilman St	8	7	10	0
Shattuck Ave / Channing Way	7	4	4	0
Shattuck Ave / University Ave	7	4	4	0
Mlk Jr Way / Blake St	6	6	9	0
Sacramento St / Alcatraz Ave	6	5	9	0

Suspected serious injury is any injury other than a fatality that results in significant injury as defined in the CHP Collision Investigation Manual (CHP, 2017, p. 5-5)

Primary Collision Factors, 2023
Injury Collisions

Factor	Value
Unsafe Speed	110
ROW Violation: Left/U-Turn	53
Unsafe Turn	50
Failure to Yield to Pedestrians in a Crosswalk	49
Failure to Stop at a Red Light	41
ROW Violation: Stop Sign	41
Driving under the Influence	26
Failure to Stop at a Stop Sign	20
Unsafe Starting or Backing	13
Open Vehicle Door to Traffic	11

As previously stated, bicycles were involved in 107 of the injury collisions and pedestrians were involved in 97. Of the 97 injury collisions involving a pedestrian, 22 found the pedestrian to be at fault, 74 found the driver of a vehicle to be at fault and 1 found a bicyclist to be at fault. Of the 107 injury collisions involving a bicyclist, 60 found the bicyclist at fault, 34 found the driver of a vehicle at fault, 2 found a pedestrian at fault and the remainder were either unable to

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determine fault or a person other than a driver, caused the collision. The biggest factor for this is an occupant in a parked vehicle opening a car door before it is safe/ not yielding to bicyclist in violation of 22517 VC (PCF for 10 bicycle injury collisions in Berkeley in 2023.)

Department Initiatives

What We've Done

In 2022, BPD reprioritized traffic enforcement efforts around a three-prong approach that focuses on primary collision factors, community member reports and observations reported to the BPD and community caretaking. Community caretaking functions consider safety violations that aren't always noted as the primary collision factor but can be a significant contributing factor in serious collisions. BPD will continue to collect and analyze collision data to understand and guide needs and shape future resource allocation decisions.

Primary Collision Factors

Automated Security Checks – Calls for service are automatically generated based on collision data, and time and location of occurrence to focus officer discretionary enforcement time on collision prone locations.

Community Reports

Community members are able to submit traffic safety concerns via the Transparency Hub. The submission is triaged and added to the traffic unit's enforcement requests. After launching this feature in April 2023, the traffic unit received 53 traffic concern submissions.

Community Caretaking

BPD Traffic Unit uses OTS funds to hold DUI checkpoints and DUI saturation patrols. The checkpoints are set up at strategic locations based on the DUI collision and arrest data. DUI checkpoints and saturation patrols use highly trained officers to identify and apprehend impaired drivers and educate the motoring public.

BPD Traffic Bureau just completed a full year of offering a free presentation to senior drivers focusing on the importance of roadway safety for older drivers. The unit has been using education funds from the Office of Traffic Safety (OTS) Grant to teach the program called, "Drive Safer, Drive Longer". This material was developed by the Training, Research and Education for Driving Safety (TREDS) Program at the University of California San Diego School of Medicine. The classes are held once a quarter at the north and south Berkeley Senior Centers and is designed to increase awareness of the dangers older drivers encounter and to offer strategies to keep them safe and mobile.

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In 2023, BPD applied for and was awarded grant funding that supports our efforts to reduce traffic collisions and impaired driving in Berkeley. Grant sources include the Office of Traffic Safety (Selective Traffic Enforcement Program / STEP Grant) and the California Highway Patrol Cannabis Tax Fund Grant to provide additional enforcement, education a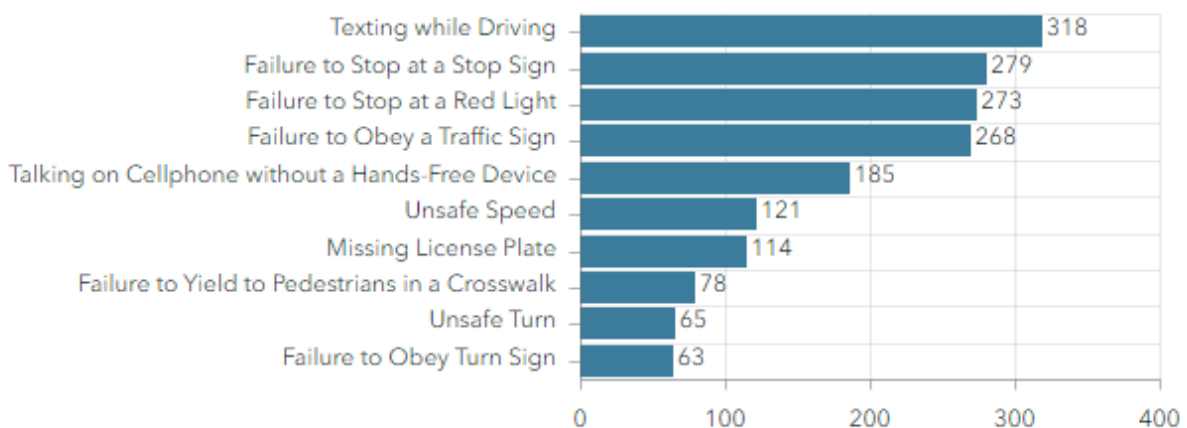nd traffic safety programs. The funding allows us to conduct DUI checkpoints, DUI saturation patrols and provide enforcement in locations identified as high collision areas targeting dangerous driving behavior. Grant funding allows officers to attend training to become proficient in field sobriety testing to detect both alcohol and drug impairment. In partnership with OTS and other law enforcement agencies throughout the state BPD participates in national campaigns such as pedestrian safety month, winter DUI mobilization, distracted driving awareness, bicycle safety, motorcycle safety, walk to school day and click it or ticket enforcement.

How We're Doing
Moving Violations and Primary Collision Factors
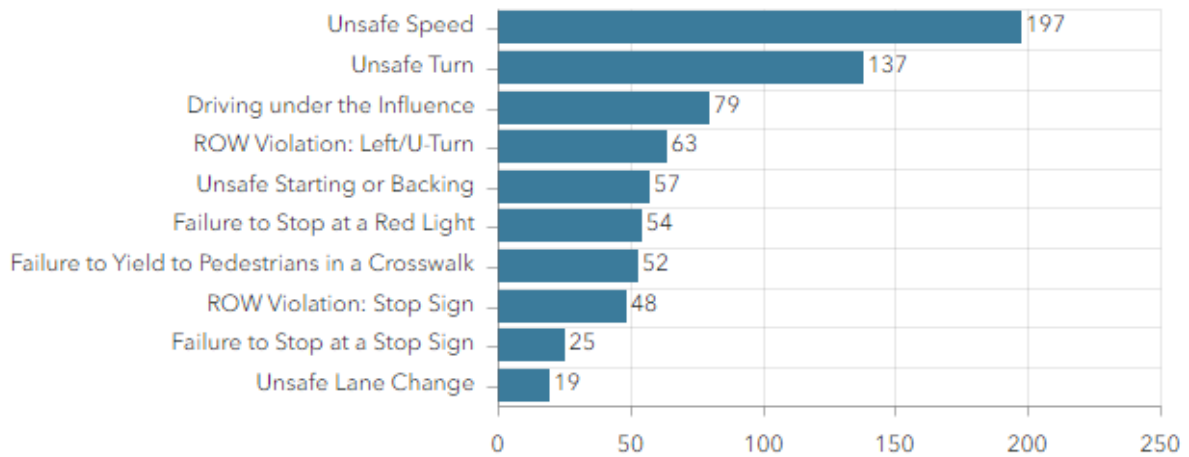
Most frequent vehicle violations, 2023

Violation	Count
Texting while Driving	318
Failure to Stop at a Stop Sign	279
Failure to Stop at a Red Light	273
Failure to Obey a Traffic Sign	268
Talking on Cellphone without a Hands-Free Device	185
Unsafe Speed	121
Missing License Plate	114
Failure to Yield to Pedestrians in a Crosswalk	78
Unsafe Turn	65
Failure to Obey Turn Sign	63

*Excludes stops made in response to calls for service and information-based stops

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Primary Collision Factors, 2023
All Collisions

Factor	Value
Unsafe Speed	197
Unsafe Turn	137
Driving under the Influence	79
ROW Violation: Left/U-Turn	63
Unsafe Starting or Backing	57
Failure to Stop at a Red Light	54
Failure to Yield to Pedestrians in a Crosswalk	52
ROW Violation: Stop Sign	48
Failure to Stop at a Stop Sign	25
Unsafe Lane Change	19

The tables above outline the moving violations associated with our vehicle stops as well as the primary collision factors for all stops. The violations related to this year's stop data correlate closely with primary collision factors as well as other serious traffic safety violations geared toward community caretaking.

Transparency Hub Survey Responses

After a community member submits a traffic safety concern via the Transparency Hub and enforcement or education is conducted at the location by the traffic unit, the submission is updated by traffic unit staff indicating the concern had been addressed. In 2023, the traffic bureau conducted 10 traffic safety interventions in response to community concern submissions.

What's Next
In 2024, BPD will continue to use Office of Traffic Safety grant funding to support traffic safety measures to enhance our enforcement and education efforts. Through grant funding, we intend to increase the number of Drive Safer, Drive Longer classes for aging drivers, increase the number of DUI checkpoints, and continue to use the Traffic Safety Transparency Hub and collision data to guide our traffic enforcement strategies. As we look for other ways to improve our strategies, we are committed to deepening our Vision Zero collaboration with key stakeholders to identify high-risk locations, analyze the causes and contributing factors of collisions, and develop meaningful interventions. Our continued partnership with Vision Zero stakeholders will allow BPD leadership to identify strategies that inform decision making around the way and areas we prioritize traffic safety, guided by our three-pronged approach for traffic enforcement.

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Accountability: Stops & Use of Force

Our department's thorough review of stop data and use of force incidents underscores our commitment to moving forward efforts supporting Fair and Impartial Policing. Performance metrics and tests for bias help ensure our practices don't perpetuate societal inequities. With ongoing enhancements in our Early Intervention System (for more, see the "Audits & Oversight" section below), we are steadfast in our mission to deliver public safety equitably to our community.

Stop Data Report

In October 2020, the Berkeley Police Department began tracking and ultimately supplying the State of California with our stop data pursuant to the Racial Identity Profiling Act (RIPA). BPD began this data collection a full two and a half years before agencies our size were required to comply with RIPA. Berkeley began this process early as part of the department's efforts to better capture, understand and share the data associated with our stops.

During 2023, BPD averaged 442 total stops including 305 vehicle stops, 129 pedestrian stops, and 7 bicycle stops per month for a yearly count of 5,306 total stops, 3,665 vehicle stops, 1,554 pedestrian stops, and 87 bicycle stops.
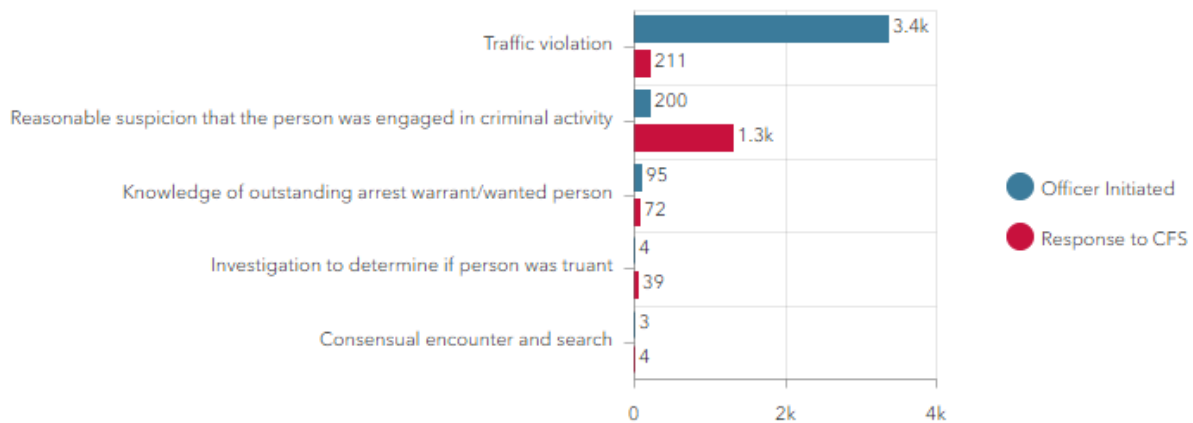
Stops by Year and Type
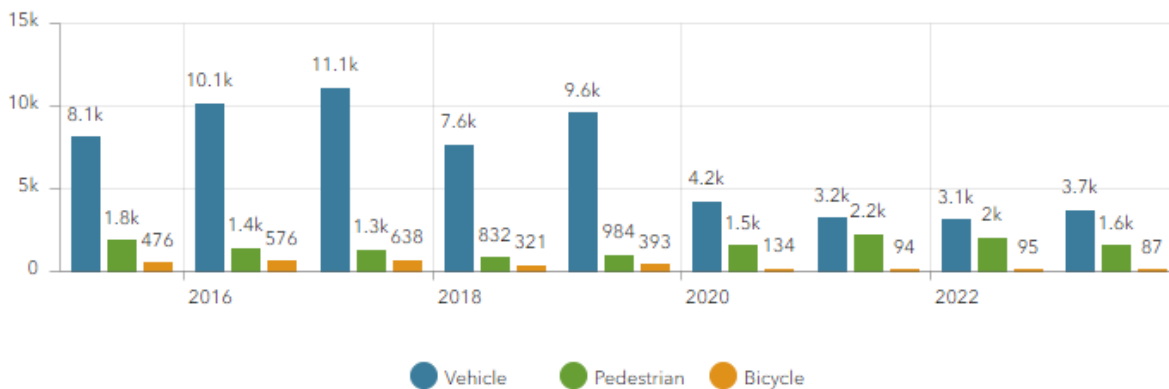
69.08% of all stops were officer-initiated, primarily focusing on traffic violations, while the remaining stops were in response to calls for service. This data, along with the breakdown of reasons for the stops, is depicted in the following graph.

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Reason for Stop, 2023

Yields

880 stops resulted in at least 1 arrest, 2,100 stops resulted in a citation and 1,661 resulted in a warning. 471 stops resulted in no enforcement action.

In 2023 BPD's search rate for all stops was 14% and had an overall contraband yield rate of 42%. Those

According to data published by the RIPA board in 2024, Berkeley's yield rate was higher than 92% of all agencies in California in 2022.

searches resulted in 82 seizures of one or more weapons, including 15 recoveries of one or more firearms. The yield rate for all discretionary searches (searches not incident to arrest, a search warrant, vehicle inventory for towing, or exigent circumstances/emergency) was 48%.

Tests for Bias

BPD is deeply committed to ensuring fairness and impartiality in all aspects of law enforcement. To uphold these values, we rigorously examine our practices for any potential biases, employing a series of analytical methods to evaluate the objectivity of our policing. This section details our approach to testing for bias. From analyzing at-fault collision demographics to employing methods like yield rate analysis and the veil of darkness test, our approach is multifaceted and data-driven, aiming to foster a culture of transparency, accountability, and equitable policing.

At the core of our analytical approach is an emphasis on discretionary decision making. Research in this field posits that moments of discretion are when implicit bias is most likely to manifest itself. For that reason, in the analyses below we focus on stops where officers were not responding to a call for service nor relying on additional information (for example, a description of a wanted vehicle) when making the decision to stop. This filtering allows us to key in on moments of maximum discretion where we would most clearly see the effects of implicit bias if such bias were to play a role in officer decision making.

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At-Fault Collision Demographics

A key component of this approach is the comparison of at-fault collision demographics with the demographics of individuals stopped for moving violations. This comparison helps us assess whether traffic stops are being conducted based on objective, race-neutral criteria. This test is particularly important because moving violations made up 81% of all discretionary stops in 2023.

Collision data gives us representative sample of who is driving in Berkeley. This information is useful because it gives us a baseline of the population that officers encounter when they make a stop. Looking at drivers who were determined to be the at-fault party in a collision further refines that baseline to give us a sample of who is driving dangerously in Berkeley. Because we expect our traffic enforcement to focus on dangerous drivers, if our traffic enforcement is unbiased, we would expect a close alignment between the demographics of those involved in at-fault collisions and those stopped for moving violations. Close alignment of those demographics would indicate that stops are influenced by driving behavior rather than implicit biases.

At-Fault Collision & Discretionary Moving Violation Demographics, 2023
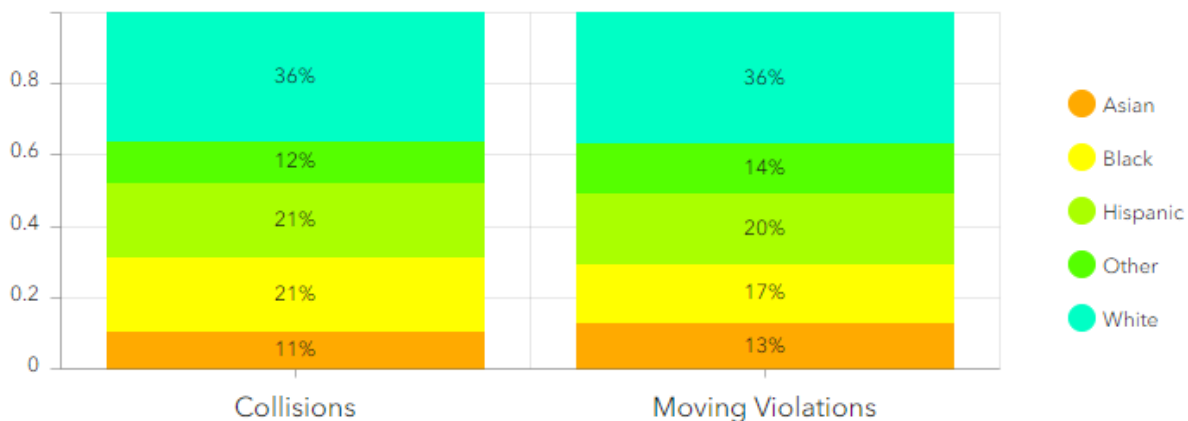
An analysis of 2023 data indicates a close alignment between these two demographic groups. This is the finding we would expect if officers are using race-neutral factors when making a discretionary stop for a moving violation.
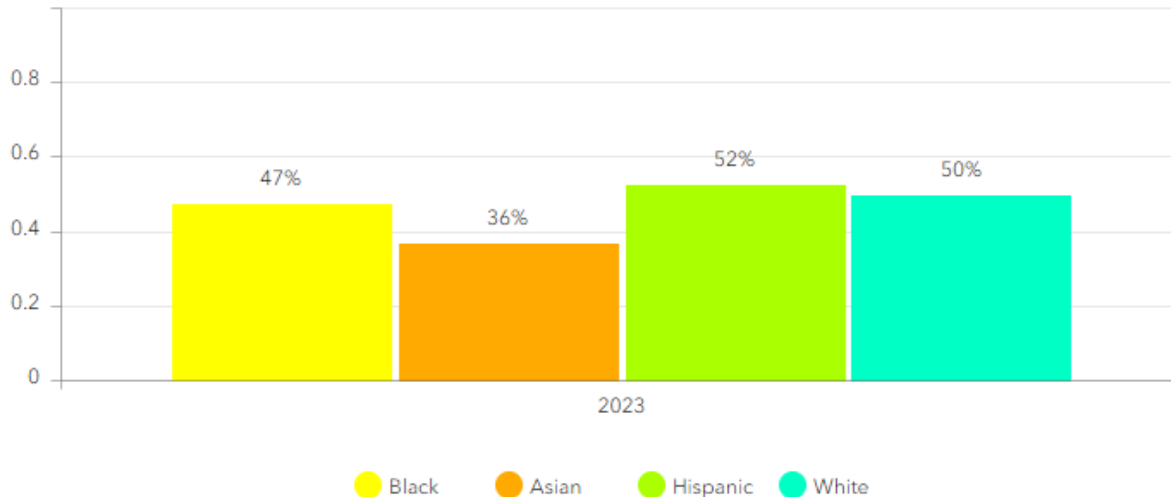
Yield Rate Analysis

Another method of determining whether officer discretion is influenced by implicit racial bias is to measure whether the officer's decision to search is subject to a lower threshold of suspicion for Black and Brown people as compared to for White people. Often called yield rate analysis, the method assumes that race-neutral indicators observable by an officer will accurately predict the probability that a search will uncover contraband. The logic follows that a search triggered by a given level of suspicion based on race-neutral factors will 'yield' contraband at the same rate across racial groups. Conversely, a higher yield rate for searches of White people

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as compared to searches of Black people would indicate that officers are deciding to search White people when they have a higher confidence of finding contraband.

Discretionary Search Yield Rate by Race, 2023

The nearly equivalent search yield rates between Black and White individuals are in line with what we would expect to see if searches conducted by officers were based on factors that do not involve race. A regression analysis conducted by the RIPA board in 2024, which examined data from 2022, found that race—specifically being Black or Hispanic as opposed to White—did not have a statistically significant effect on the likelihood of a Berkeley PD search yielding contraband. This is the result we would expect to see from search decisions being carried out without bias.

Veil of Darkness

The "veil of darkness" analysis is a test of implicit bias at the decision to stop. The analysis looks at the proportion of stops that are of a racial group when it is light outside versus when it is dark outside. If Black people are stopped more often in the light than in the dark, it could indicate that the visibility of race is playing a role in the decision to stop. The test takes advantage of daylight savings time and seasonal changes in day length by looking at times of the day (say, 6:30pm) where for part of the year it is dark outside and part of the year it is light out. Those times can be called the "inter-twilight period." In that way the test can control for any changes in the distribution of who is on the street throughout the day (as opposed to just doing day vs. night) while observing the difference in stop patterns when race is more visible or less visible to an officer.

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The graph below is a visual representation of this comparison. The test relies on the assumption that race is more apparent to the officer in the light than in the dark, and to the extent that the assumption is violated by the presence of streetlights or racially correlated characteristics of the car or neighborhood, the validity of the test is undermined. Nevertheless, as long as the assumption holds on average, the test can indicate the presence of the effect; that is, a result

Discretionary Stop Demographics during Inter-twilight Period, 2023
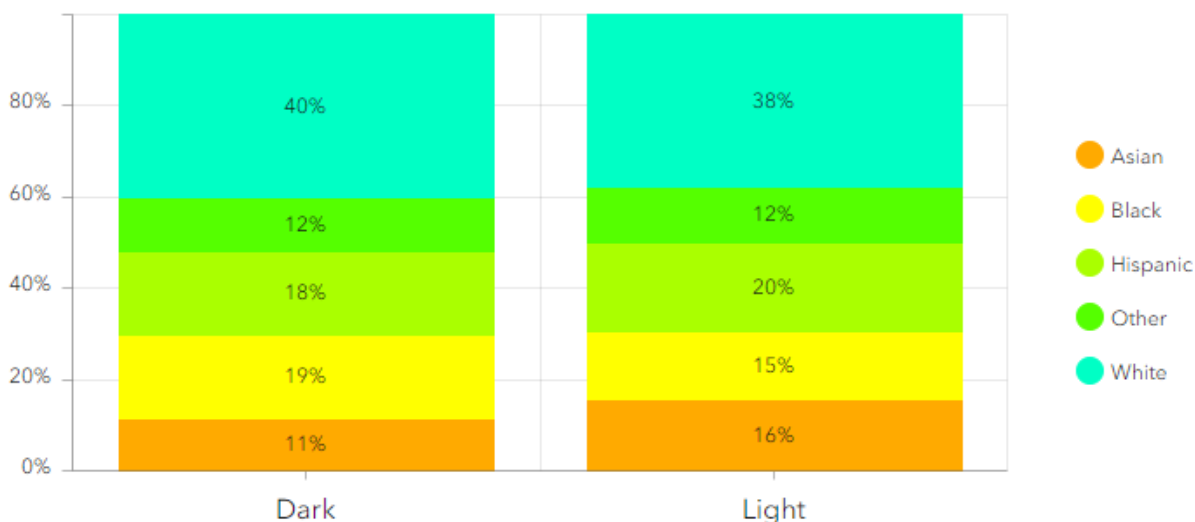
concluding a statistically significant result would be evidence of the presence of bias, while a null result would not necessarily prove the absence of bias.

The close alignment of demographic groups for discretionary stops in the dark and in the light during the "inter-twilight period" seen above is what we would expect to see if those stops were being made based on race-neutral factors.

Use of Force Report

Berkeley Police Department takes pride in our ability to accomplish our work with minimal reliance on force through approaches that include de-escalation techniques, as well as an awareness of mental health crisis issues and appropriate responses. The department reinforces these skills and strategies through regular training.

In February 2021, BPD transitioned to a new Use of Force Policy that had several substantial changes, that included a de-escalation requirement and an expanded use of force reporting standard. Under this policy, reportable force is delineated into the following four categories:

Level 1 – Involves grabs, control holds, the use of leverage, or body weight with no injury or complaint of pain.

Level 2 – Applies when an officer points or deploys a firearm while interacting with someone. It also applies to a Level 1 force that involves more than momentary discomfort but does not have an injury or complaint of pain.

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Level 3 – Parallels our old Use of Force reporting standard and involves the use of a weapon, subject injury, or complaint of pain. This category also applies to specific circumstances when an officer does not activate their body-worn camera.

Level 4 – Applies when an officer uses a firearm or when there is an in-custody death.

The department use of force policy requires officers to report uses of force to their sergeant, who documents these incidents in a formal report. A lieutenant and captain review each report, including associated body worn camera (BWC) footage, before forwarding it to Internal Affairs. In a given incident, more than one technique or type of force may be used to bring a resistant or combative individual into custody, and more than one officer may use force during the incident.

In 2023 there were 346 incidents that involved 1,214 uses of force. 68 % of all uses were Level 1 uses of force, and 28% were level two. These two categories accounted for 96% of all uses.

While the department has consistently evaluated individual use of force incidents, our expanded data collection and analysis tools allow us to understand and evaluate our use of force trends and share them with the community.

Of the 49,703 non-officer-initiated calls for service that BPD received in 2023, 0.54% (268 incidents) resulted in a use of force incident, and 0.06% (29) resulted in a use of force that produced more than a minor complaint of pain or where a weapon was used (Level 3 and 4). 77.46% of our use of force incidents occurred when officers responded to calls for service from the community, and trends show that calls for service account for a larger percentage of cases

Calls for Service and Use of Force Incidents
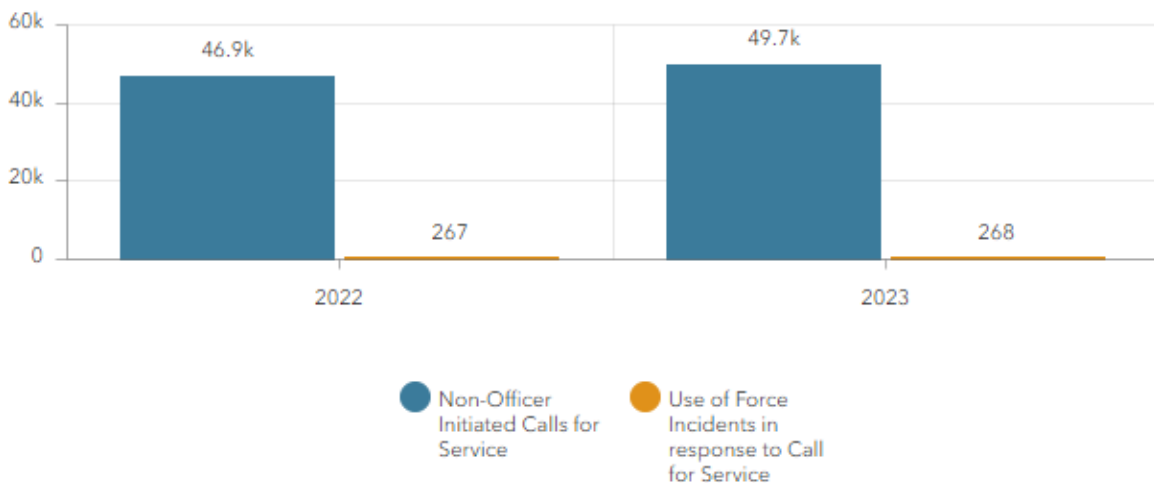
where force was used this year than in previous years: 77.46% versus 75.85% in 2022 and 68.5% in 2021.

The chart below illustrates that while carrying out arrests, the likelihood of use of force incidents occurring during arrests is relatively similar across racial groups. Specifically, the use

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of force was involved in 7% of arrests for Asian subjects, 13% for African American subjects, 11% for Hispanic subjects, and 12% for White subjects. These closely aligned rates are what we would expect if the decision to use of force is being determined by factors other than race.

Utilizing the number of arrested subjects as a baseline for comparing use of force rates is a valuable approach because it reflects the most common scenario in which force is applied. By evaluating use of force as a percentage of arrests, we can more accurately assess the frequency and circumstances in which force is used. This method helps to isolate the act of arrest as a variable and allows for a direct comparison of use of force incidents relative to that variable across different racial groups.

The close percentages across racial groups is what we would expect to observe if use of force is

Arrest Use of Force Rates
All Use of Force Levels
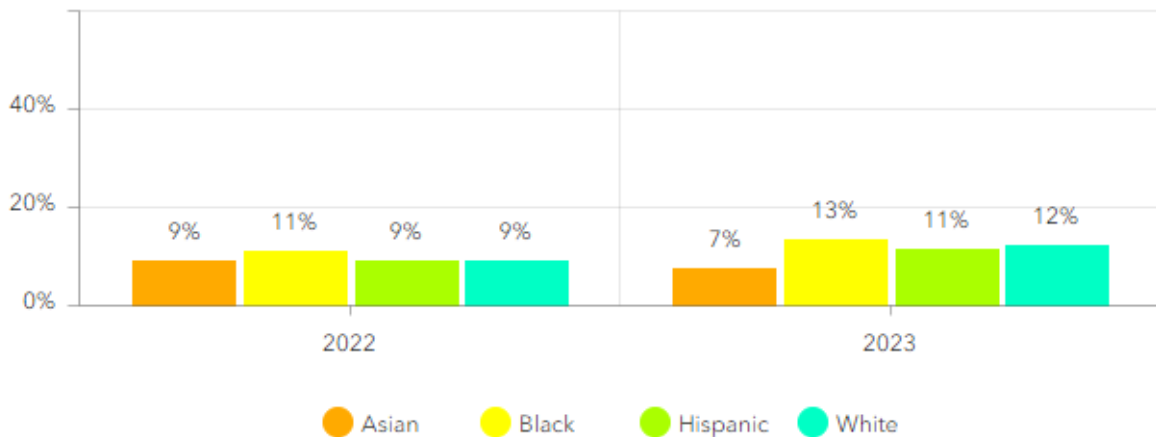
more closely associated with the dynamics of the arrest situation itself rather than the race of the individuals involved.

The department also tracks use of force complaints. While our use of force cases are always reviewed by a Lieutenant and Captain, those associated with a personnel complaint are also subject to an Internal Affairs Bureau (IAB) investigation. The results of the investigation (including BWC footage) are given to a Board of Review that evaluates the case and makes a recommendation to the Chief.

In 2023 the department received a total of 12 complaints associated with use of force incidents. To date, 7 of those investigations have been completed while 5 are still being evaluated. Additionally, 6 out of those 12 cases were also independently assessed by the Office of the Director of Police Accountability and Police Accountability Board. Of the 7 completed cases reviewed by the department or the ODPA/PAB, 0 resulted in sustained findings of misconduct.

The department will continue to collect, evaluate, and assess our use of force data and use it to inform our policies and training with a focus on achieving positive outcomes.

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Audits & Oversight

In 2023, the Berkeley Police Department significantly advanced towards fulfilling oversight directives, completing key reports, audits, and policy reviews, while actively engaging in training and collaborative efforts to ensure fair and impartial policing.

In 2023 we completed a number of reports and audits including:

- The 2022 Annual Complaint Statistics from the Internal Affairs Bureau
- The 2022 Police Equipment and Community Safety Ordinance Annual Report
- The 2022 Police Department Annual Report
- Biannual Automated License Plate Reader audits
- Quarterly Early warning system audits
- Quarterly Fair and Impartial Policing updates
- City Auditor open audit updates
- Contracted for a department-wide staffing and resources assessment with Citygate consulting

The department also actively participated in a number of subcommittees and collaborative conversations with the PAB including reviews of the policies for Body Worn Cameras, Off Duty Officer Conduct, Early Intervention System, and Departmental budget development.

Our personnel also completed annual refresher training to satisfy our policies and state requirements for continuing education.

The work mentioned here is just a portion of the 2023 efforts within the department, which also included contributions to the city's Gun Violence Intervention & Prevention program and the assessment of 911 dispatch services, alongside collaborations with Health, Housing, and Community Services on reimagining public safety projects. Much of this administrative work falls to sergeants and lieutenants, who are also responsible for the supervision and leadership of their teams.

MOMENTS OF IMPACT

One of the duties of the Police Accountability Board (PAB) is to recognize officers who demonstrate exceptional service. An illustrative example of this is the commendation awarded to Officers Gasper and Ludovico for their skilled and empathetic handling of a critical incident on April 6th.

Facing a situation where a person in crisis threatened to jump from a third-story window, the commendation highlights,

"Both [Ofc. Gasper] and Ofc. Ludovico know many of the people encountered in the west area of Berkeley and have established working relationships with many of those people which has allowed them to gain both trust and compliance in critical incidents. April 6th was one of those days where that trust mattered the most."

Their ability to deescalate the situation and secure medical and mental health support for the individual underscores the importance of community trust and engagement in policing.

This act of recognition by the PAB not only celebrates the officers' dedication but also emphasizes the board's commitment to acknowledging the positive impact of law enforcement personnel who vividly illustrate BPD's commitment to service.

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Below are updates on our progress towards completing the recent City Auditor report recommendations and our quarterly update on our implementation of the Fair and Impartial Policing Working Group recommendations.

City Auditor Reports

There were three open audits in 2023. Working with Auditor Wong and her staff, two have been fully completed. The remaining open audit contains 12 recommendations. Of these, 10 are complete leaving only 2 open recommendations. Both of these items are related to staffing and involve our in-progress work with an outside consultant (Citygate). Both are actively being worked on;

- 911 Dispatchers: Understaffing Leads to Excessive Overtime and Low Morale (Complete)
- Data Analysis of Berkeley's Police Response (Complete)
- Berkeley Police: Improvements Needed to Manage Overtime and Security Work for Outside Entities (Open/In Progress)

The Department will be submitting our next audit update to City Council in May 2024 regarding the two remaining open audit items. We look forward to continuing to work with Auditor Wong's office to accomplish all of the recommendations in this budget related audit.

Fair and Impartial Policing Recommendations

BPD has worked hard to fully implement the Fair and Impartial Policing (FIP) Working Group recommendations, and efforts in this area are ongoing and live well beyond the specific recommendations of Council. A prime example of this is the analysis presented in the "Accountability" section above, where we track key measures of fair and impartial policing outcome. The FIP Working Group recommendations have provided invaluable guidelines as we enhance our policies and protocols to ensure the highest standards of policing and are deeply aligned with our departmental values. The department will continue ensuring our personnel, policies and actions support fair, impartial and equitable treatment of all those we serve. The department is also committed to maintaining transparency and accountability in our reporting on these efforts to the community and Council. To ensure this, we will continue providing information both via our Transparency Hub as well as our annual department report.

FIP Working Group Recommendations Progress Report: March 2024

We have made significant progress in implementing the recommendations set forth for the department, with actions taken in nearly all areas specified. The final piece, an extensive staffing assessment conducted by Citygate Associates, is underway and its completion will mark the fulfillment of the last recommendation.

To date, implementation of the recommendations has led to the amendment of departmental policies and the establishment of new protocols. Some major accomplishments included a departmental policy focusing traffic stops on safety and preventing collisions, using evidence-

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based models and strong data analysis to guide enforcement actions, and our current work to strengthen and expand our Early Intervention System

The additional FIP training funds allocated as part of the reimagining process have allowed us to continue to move this important work forward. We have created a training focus on courses strengthening responses that are Constitutional, Humane, Impartial, Neighborhood and Community Oriented and DEI-Centered. We refer to this as "KIND" training.

We are also bringing Active Bystander for Law Enforcement (ABLE) training to our agency. ABLE is a nationally recognized program with the aim of creating a police culture in which officers routinely intervene and accept interventions from their peers as necessary to: prevent misconduct, avoid police mistakes, and promote officer health and wellness. ABLE guides agencies and communities on the concrete measures that must be in place to create and sustain a culture of peer intervention leading to the benefit of the community and department. The department was honored to receive letters of support and partnership for this program from community-based organizations in our city such as Dorothy Day House and the Center for Food, Faith and Justice

With this progress, we're turning our attention to further enhancing our practices. Central to this is the development of our Early Intervention System (EIS). We recognize the power of an EIS to promote transparency, proactive intervention, and a supportive environment for officer development. We have taken pride in having an EIS protocol since 2004, reflecting our long-held commitment to accountability. In 2023, guided by the recommendations of the FIP Working Group, we updated our policy, significantly broadening the scope and depth of our audits to include the incorporation of RIPA-mandated stop data. Also in 2023, after collaboration with the Police Accountability Board, the department added audits of body-worn camera footage to our quarterly audit procedure.

To accelerate the expansion of our EIS, we've recently released an RFP for design support in building a cutting-edge, real-time system. This system will give us a comprehensive overview of officer and team performance, helping us identify potential areas where proactive support would be beneficial.

Our EIS work has benefited from ongoing collaboration with the Police Accountability Board (PAB), and we understand they are preparing a comprehensive report on the subject. We look forward to continuing our engagement with the PAB on EIS implementation and improvement.

The Berkeley Police Department remains committed to equitable and unbiased policing and we are proud to have implemented almost all of the FIP recommendations. A Special Order (policy) has been released to ensure that current and future members of the Berkeley Police Department carry forward and build upon this important foundational work initiated by the FIP Working Group. Once the final recommendation of the referral is completed, the department will continue efforts related to fair and impartial policing and provide annual updates and progress in this report.

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