

Attachment F: Biometric Crime Lab

Legislative History

The PAC recommended City Council adoption of the "Oakland Police Department (OPD) Criminalistics Laboratory DNA Instrumentation and Analysis Software Biometric Technology Use Policy on October 1, 2020; following the PAC's vote, the City Council adopted Resolution No. 88388 C.M.S. on December 1, 2020. This resolution approved OPD's use of Criminalistics Laboratory DNA Instrumentation and Analysis Software Biometric Technology. In 2022, an updated Biometric Technology Use Policy and Impact Report were approved along with the required annual report adopted under Resolution No. 89458 C.M.S. filed October 20, 2022.

This memorandum is intended to serve to comply with the annual reporting mandate.

2022 Data Details

- A. A description of how the surveillance technology was used, including the type and quantity of data gathered or analyzed by the technology:

General Overview

The Oakland Police Department (OPD) Criminalistics Laboratory's (Crime Lab) Forensic Biology/DNA unit utilizes specialized DNA collection and analysis instrumentation and software to perform forensic DNA testing. During this lengthy and complicated process, one step removes and purifies DNA from cells (digestion/extraction), another quantitates how much DNA is present, and lastly, by amplifying and analyzing Short Tandem Repeats (STR) in the DNA using Polymerase Chain Reaction (PCR) and separated by Capillary Electrophoresis (CE), forensic DNA profiles are generated. Software is involved in the following processes: (i) collection and processing of STR DNA fragment data; (ii) interpretation of DNA data into DNA profiles used for comparison purposes. At the end of all processes, a determination can be made as to whether a DNA sample collected from a crime scene can be associated with a known individual through a comparison of evidentiary (crime scene) and known reference DNA profiles. Statistical weight is provided for all inclusion comparisons.

Specifics: How DNA testing was used in 2022

The Forensic Biology Unit analyzed 310 requests between January 1, 2022, to December 31, 2022. Over 1,900 items of evidence were examined, from which 4,044 samples were subjected to digestion and extraction using the Versa and EZ1 instruments. Scientist subjected 4,094 samples to quantitation analysis using the SpeedVac, Qiagility, and QuantStudio 5 instruments and 1,671 samples were subjected to amplification and typing methods using the ProFlex and 3500 instruments. The DNA profiles were processed with GMIDX or FaSTR and ArmedXpert software.

- B. Whether and how often data acquired through the use of the surveillance technology was shared with outside entities, the name of any recipient entity, the type(s) of data disclosed, under what legal standard(s) the information was disclosed, and the justification for the disclosure(s):

Discovery to the Alameda County District Attorney's Office was provided in 25 cases. A standard discovery packet includes the reports, technical and administrative review sheets,

case notes, attachments, contact log, resume, interpretation guidelines, photographs, electronic data, and any supporting documents.

- C. Where applicable, a breakdown of what physical objects the surveillance technology hardware was installed upon; using general descriptive terms so as not to reveal the specific location of such hardware; for surveillance technology software, a breakdown of what data sources the surveillance technology was applied to:

The Biometric Use Policy covers the specific technology covered. In general, the digestion, quantitation, normalization/amplification, typing, interpretation, and databasing are housed in the laboratory of the Police Administration Building (PAB). Database equipment is located in a secure location elsewhere in the PAB, as disclosed in the Use Policy. Currently, no equipment resides outside of these locations.

A CODIS cloud-based server location is under evaluation as a replacement for the server in the PAB. The details of this location and security would be handled under the auspices of the City of Oakland ITD policy and procedure and would meet or exceed industry standards for handling secure servers.

NOTE: The use of the term "secure servers" throughout this report is on the basis of working with the Information Technology Department (ITD) in 2020 to develop terminology. ITD is responsible for the preservation, fidelity, and security of the data described herein.

- D. Where applicable, a breakdown of where the surveillance technology was deployed geographically, by each police area in the relevant year:

All evidence was analyzed at the laboratory located in the PAB. No other locations are authorized. As for the geographic location of crimes, this is not collected by the laboratory in a way that can be disseminated easily. The address may be reported on the request for laboratory services form, but it is not required for analysis to proceed. The laboratory services crimes that occur in all areas of the City of Oakland.

- E. A summary of community complaints or concerns about the surveillance technology, and an analysis of the technology's adopted use policy and whether it is adequate in protecting civil rights and civil liberties. The analysis shall also identify the race of each person that was subject to the technology's use. The Privacy Advisory Commission may waive this requirement upon making a determination that the probative value in gathering this information to evaluate the technology's impact on privacy interests is outweighed by the City's administrative burden in collecting or verifying this information and the potential greater invasiveness in capturing such data. If the Privacy Advisory Commission makes such a determination, written findings in support of the determination shall be included in the annual report submitted for City Council review:

Staff reached out to each City Council office to ask about possible community complaints or concerns related to this surveillance technology. No community complaints or concerns were communicated to staff. The laboratory did not receive any complaints through its feedback process.

The laboratory request for services form does not collect race information. It could be argued that requiring information that is not necessary for analysis, such as race, could be biasing; indeed, it would be a great invasion of privacy to capture this data since it is irrelevant to the analyses performed. Furthermore, the race of individuals subject to the DNA analysis technology's use is not revealed during evaluation of evidence as non-coding regions of DNA are typed and do not contain this information. Therefore, staff recommends that the PAC waive the requirement to identify the race of each person subject to the technology's use and make a determination that the probative value in gathering this information to evaluate the technology's impact on privacy interests is outweighed by the potential greater invasiveness in capturing such data.

- F. The results of any internal audits, any information about violations or potential violations of the Surveillance Use Policy (SUP), and any actions taken in response unless the release of such information is prohibited by law, including but not limited to confidential personnel file information:

All Forensic Biology personnel and relevant management were required to review and sign that they understood and would abide by the Surveillance Use Policy and the Impact Reports. Under accreditation, the Laboratory actively seeks feedback from its customers, and no concerns were conveyed regarding violations or concerns around the SUP. Lastly, the Laboratory has a means to identify risks through Incident Response. Staff are encouraged to participate in Incident Response by filing Incident Alerts where there were concerns. No violations or potential violations were identified by any of these routes.

- G. Information about any data breaches or other unauthorized access to the data collected by the surveillance technology, including information about the scope of the breach and the actions taken in response:

The laboratory maintains an active security program where the security of alarmed portions of the laboratory are tested and results recorded. There were no unexplained alarm events, and there were no faults in the alarmed systems that were tested. There were no breaches to the laboratory space nor to the physical equipment that it houses. There were no identifiable data breaches or unauthorized access during the year 2022.

- H. Information, including crime statistics, that helps the community assess whether the surveillance technology has been effective at achieving its identified purposes:

The efficacy of the OPD Criminalistics Laboratory DNA analysis program is illustrated by citing the following compelling statistics:

*The laboratory completed 310 requests in 2022. These are further broken out by crime type in **Table 1** below:*

Table 1: OPD Crime Laboratory DNA Analysis Requests in 2022

Crime Type	Number of Requests
Homicide	99
Attempted Homicide	5

Rape	97
Other Sexual Assault (not rape)	24
Assault	29
Robbery	9
Burglary	6
Carjacking	4
Hit and run	1
Auto Theft	1
Weapons	29
Other Person	1
Other Criminal	3
Control Substance	2
Total	310

CODIS hits in 2022 – One hundred and forty-three DNA profiles were uploaded to the CODIS database. The laboratory had two hundred and twenty-seven associations (hits); eighty-two hits to named individuals whose identity was unknown, eleven hits to unsolved forensic cases, and sixty-four hits to previously solved forensic cases.

Thus, forensic DNA analysis is an important tool to investigate and provide potential leads for a variety of crimes that occur in the City of Oakland.

- I. Statistics and information about Public Records Act requests regarding the relevant subject surveillance technology, including response rates:

There were no public record requests for DNA analysis.

- J. Total annual costs for the surveillance technology, including personnel and other ongoing costs, and what source of funding will fund the technology in the coming year:

Procurement of instruments is costly and is typically amortized over many budget cycles. Ongoing maintenance is imperative to ensure the reliability of the instruments is remediated quickly should a problem occur. The reagents/kits and supplies to conduct testing are also steep. The cost/benefit analysis in the form of Return on Investment (ROI) calculations place the societal cost of each homicide at \$10,000,000 and a return seen of \$135³ per dollar spent on violence reduction. Similarly, economic studies show that investigating sexual assaults results in \$81⁴ saved per dollar spent.

The total costs of procuring and maintaining the equipment are shown by Category of testing and platform below:

Digestion/Extraction

- EZ1: \$63,000 to purchase (x3 instruments = \$189,000) and \$2,990 to maintain; 3 instruments for \$8,970 annual*

³ Abt, Thomas (2019). Bleeding Out: The devastating consequences of urban violence—and a bold new plan for peace in the streets. Chapter 11, p. 208.

⁴ Wang and Wein (2018) Journal of Forensic Sciences, Analyzing Approaches to the Backlog of Untested Sexual Assault Kits in the USA, July 2018, Vol. 63, No. 4, pp. 1110-1121.

- *EZ2: \$61,250 to purchase (x2 instruments = \$122,500 and \$3,959 to maintain; 2 instruments for 7,918 annual maintenance*
- *Versa 1100: \$85,000 to purchase and \$5,000 annual maintenance*

DNA Quantitation

- *Qiagility: \$33,100 to purchase (x3 instruments = \$99,300) and \$3,433 to maintain; 3 instruments for \$10,308 annual maintenance*
- *QuantStudio 5: \$57,000 to purchase (x2 instruments = \$114,000) and \$6,280 to maintain; 2 instruments for \$12,560 annual maintenance*

DNA Normalization / Amplification

SpeedVac: \$4,000 to purchase, no maintenance

ProFlex Thermalcyclers: \$14,000 to purchase (x2 instruments = \$28,000), no maintenance

DNA Typing

3500: \$135,000 to purchase, \$11,550 annual maintenance

DNA Interpretation

STRmix: \$66,000 to upgrade, \$31,830 annual maintenance

FaSTR: \$37,000 to purchase, \$8,000 annual maintenance

ArmedExpert: \$15,000 to purchase, no maintenance

The cost of testing reagents/kits was approximately \$131,000; however, this does not include consumables such as scalpels, masks, gloves, plastics, slides, nor serological test kits.

Total purchase cost (born over several years): \$894,800

Total maintenance cost, 2022: \$96,136

Total testing cost reagents/kits, 2022: \$131,000

Estimate of consumables: \$140,000

K. Any requested modifications to the Surveillance Use Policy and a detailed basis for the request:

The 2022 approved Surveillance Impact Report (SIR) and Biometric Technology Use Policy (SUP) were reviewed. Updates of like-for-like instrument improvements (specifically the EZ1 platform upgraded to EZ2 previously disclosed) and annual costs are included. Language about ITD's role in securing data was added to both the SIR and SUP similar to the note at the end of paragraph C above. There are no requests to substantively modify the Use Policy outside of this.