

OAKLAND POLICE DEPARTMENT

Surveillance Impact Use Report for the Automated License Plate Reader

A. Description: *Information Describing the Automated License Plate Reader (ALPR) and How It Works*

ALPR technology consists of cameras that can automatically scan license plates on vehicles that are publicly visible (in the public right of way and/or on public streets). The Oakland Police Department (OPD) uses only ALPR cameras mounted to patrol vehicles so that license plates can be photographed during routine police patrol operations. Each camera housing (two housings per vehicle) consists of a regular color photograph camera as well as an infrared camera (for better photography during darkness). ALPR reads these license plates with a lens and charge-coupled device (CCD) that sense and records the image (can be parked or moving vehicle plates) and connects the image to an optical character recognition (OCR) system that can connect the image to that actual license plate characters.

The ALPR system in a patrol vehicle is turned on automatically when authorized personnel turn on their vehicle-based computer at the beginning of a police patrol shift. Once initiated, the system runs continuously and photographs vehicles until turned off manually;¹ ALPR cameras typically records hundreds of license plates each hour but exact recording rates depend on vehicle activity and how many vehicles are encountered. The system compares license plate characters against specific databases, and stores the characters along with the date, time, and location of the license plate in a database. Authorized personnel within OPD can also enter specific license plate numbers into the system so that active vehicle ALPR systems will alert the officer in the vehicle if there is a real-time match between the entered license plate and the photographed license plate. OPD personnel will contact OPD Communications Division (dispatch) anytime the ALPR system signals that a license plate on a database has been seen; OPD personnel always personally check with Communications before actually stopping a vehicle based on a ALPR license plate match.

The platform software allows authorized personnel to query the system to see if a certain license plate (and associated vehicle) have been photographed. The system will show the geographic location within Oakland for license

¹ Data captured by the ALPR system will be uploaded onto the OPD ALPR database when the computer is turned off – typically at the end of a patrol shift.

plates that have been photographed, as well as time and date. Authorized personnel can see the actual photographs that match a particular license plate query – the OCR system can incorrectly match letter and numerical characters so the actual photographs are vital for ensuring the accuracy of the license plate query.

B. Purpose: *How OPD intends to Use ALPR Technology*

OPD uses ALPR for two purposes:

1. The immediate (real time) comparison of the license plate characters against specific databases such as those provided by the California Department of Justice listing vehicles that are stolen or sought in connection with a crime or missing persons; and
2. Storage of the license plate characters – along with the date, time, and location of the license plate – in a database that is accessible by law enforcement (LEA) agencies for investigative purposes.

ALPR technology helps OPD personnel to leverage their public presence and to more effectively use their limited time for more critical activity. The technology can alert officers to vehicles that are stolen or connected to a serious felony crime (e.g. aggravated assault, homicide, robbery, sexual assault) immediately (by automatically connected to criminal databases). Officers can then use the information to notify OPD personnel and/or stop the vehicle as justified by the information. The automatic process can free officers from laborious data entry processes allowing more time for observing public activity and speaking with members of the public.

ALPR also provides an important tool for criminal investigations. The information collected by analysts and investigators can locate locations where a plate has been in the past, which can help to confirm whether or not a vehicle has been at the scene of a crime. Additionally, accurate photos of vehicle from the ALPR system make searching for vehicles much easier – how the vehicle differs from every other vehicle of the same make and model. The photos frequently show distinctive dents, scratches, stickers, etc. ALPR also allows investigators to review photos which depict what the vehicle looks like, or more importantly, how the vehicle differs from every other vehicle of the same make and model. The photos frequently show distinctive dents, scratches, stickers, etc. Investigators can also confirm that the vehicle matches the license plate and whether the license plate has been switched from a different vehicle. Such information may help personnel to find new leads in a felony crime investigation.

OPD has not historically quantified ALPR usage for vehicle stops, nor for

later criminal investigations² in a way that easily allows for impact analysis. However, OPD is developing more automated processes for tracking ALPR usage in connection with investigations – OPD and the City’s IT Department are currently engaged in a multi-year new CAD/RMS implementation which will greatly improve this type of data tracking.

OPD’s Criminal Investigations Division (CID), in preparation for this report, has found cases where ALPR license plate locational data was instrumental in the ultimate arrest and arraignment of at least two homicide suspects, and with the conviction of at least one of them. The following list highlights specific cases from the year 2020 where ALPR played a pivotal role in supporting CID investigations:

- Missing Person + Homicide Case – A female was reported missing. During the CID investigation, a positive hit was recorded by an ALPR system (based on the vehicle license plate registered to the missing person). Officers responded, and her deceased remains were found in the truck of the vehicle. There is an ongoing homicide investigation.
- Human Trafficking Case – A juvenile was a victim of human trafficking. The CID investigator utilized ALPR to identify the suspect. The victim was safely relocated. A Ramey warrant³ was authorized for the suspect’s arrest.
- Human Trafficking Case – A DOE was kidnapped and the victim was able to provide investigators with a license plate. Investigators inputted the license number into the OPD ALPR system so officers could identify a suspect if there was an ALPR hit.
- Human Trafficking Case – undercover OPD officers were working a sting operation when they were approached by a subject who attempted to kidnap them. The suspect was arrested and taken into custody, but his accomplice fled the scene. Body-worn camera (BWC) footage and officer observation captured the suspect vehicle. A Ramey warrant is now pending for the outstanding suspect.
- Sexual Assault – A person was sexually assaulted. ALPR was used to locate and arrest the suspect. This case has been charged by the DA’s Office.

There are also documented cases where other LEA contact OPD to make specific queries regarding serious crimes which have occurred in their

² Current policies mandate documenting reasons for vehicle stops and reported race and gender of persons stopped. OPD is reviewing how to ensure that investigators note when ALPR was instrumental in criminal investigations for documenting ALPR impact.

³ A Ramey Warrant is an arrest warrant that is obtained by a police agency directly from a judge and bypassing the district attorney (DA) (who otherwise issues arrest warrants). In the interest of faster processing due to the nature of the crime and/or DA availability, a police agency may skip the district attorney and go directly to a judge. The police agency must submit a declaration, along with a report, to the judge setting out their reasons for requesting that the judge issue the warrant; the judge must believe that there is probable cause, and sufficient evidence that the suspect has committed a crime.

jurisdictions. OPD personnel believe that ALPR has provided critical information for many other felony cases but cannot currently document them.

C. Locations Where, and Situations in which ALPR Camera Technology may be deployed or utilized.

OPD owns 35 sets (left and right) of ALPR vehicle-mounted cameras. Authorized personnel (as described in the Mitigations Section below) may operate ALPR camera technology on public streets in the City of Oakland.

D. Privacy Impact: How is the OPD ALPR Use Policy Adequate in Protecting Civil Rights and Liberties and whether ALPR was used or deployed, intentionally or inadvertently, in a manner that is discriminatory, viewpoint-based, or biased via algorithm

OPD recognizes that the use of ALPR technology raises significant privacy concerns. There is concern that the use of ALPR technology can be utilized to ascertain vehicle travel patterns over periods of time. People are generally creatures of habit and often drive in their vehicles the same way to work, to visit friends and associates, to houses of worship, and neighborhood grocery stores. Research shows that “metadata”, individual data points such as phone numbers called, and time of day or vehicle locations can be combined to create patterns that identify individuals. Using a simple algorithm, Stanford University lawyer and computer scientist Jonathan Mayer was able to accurately identify 80 percent of the volunteers in his study, using only open source databases such as Yelp, Facebook, and Google⁴.

OPD can use the ALPR technology to see if a particular license plate (and thus the associated vehicle) was photographed in particular places during particular times; however, OPD can only develop such by manually querying the system based upon a right to know (see Mitigation section below). OPD also recognizes that ALPR cameras may photograph extraneous data such as images of the vehicle, the vehicle driver and/or bumper stickers or other details that affiliate the vehicle or driver with particular groups. As explained in the Description Section (A) above and the Mitigation (E) section below, authorized personnel can only manually query the ALPR system for particular license plates (or all plates within a defined area) and only for particular reasons as outlined in OPD policy. Therefore, technology cannot be used to query data based upon vehicle drivers, type of vehicle, or based on any type of article (e.g. bumper sticker) affixed to a vehicle. Additionally, OPD has instituted many protocols (see Mitigation section below) to safeguard against the unauthorized access to any ALPR data.

⁴ Today, data scientists can accurately identify over 95% of individuals based solely on four geospatial (time, location) data points.

There is concern that ALPR camera use may cause disparate impacts if used more intensely in certain areas such as areas with higher crime and greater clusters of less-advantaged communities. OPD does not affix ALPR cameras to fixed infrastructure. OPD deploys ALPR camera-affixed vehicles through every area of Oakland⁵, even though there may be times when OPD Commanders request that ALPR cameras be used in particular areas for short periods of time to address crime patterns. Additionally, ALPR usage does not lead to greater levels of discretionary police stops; ALPR use leads to vehicle stops only where a real-time photographed license plate matches a stop warrant for a stolen vehicle or serious crime in a criminal database.

Databases such from the State of California Department of Justice (DOJ) can contain some outdated or inaccurate data. ALPR systems, just as in the case of a manual query in a police vehicle computer, will provide the license plate data from the related database. ALPR systems simply make the query faster. In such cases personnel will follow standard policies and procedures for stopping a motorist and requesting personal identification (explained on page 1 above).

E. Mitigations: specific, affirmative technical and procedural measures that will be implemented to safeguard the public

Oakland residents and visitors have an expectation of privacy and anonymity, even though OPD as well as members of the public have a right to photograph state-issued license plates. In recognition of these concerns, OPD ALPR policy provides several mitigations which limit the use real-time and aggregated ALPR data.

OPD's ALPR system, (as mentioned in Section 1 above), uses OCR to capture license plate data. ALPR cameras are designed to focus on license plates cameras, and the OCR only records the license plate characters. Extraneous data (e.g. human faces, car type, bumper stickers, etc.) may be captured in an ALPR image capture as well. However, OPD's BOSS ALPR database can only query license plate numbers.

ALPR can only be used to investigate criminal activity, as explained in DGO I-12.B-2 "Restriction on Use." Additionally, OPD is required to provide an annual report to the PAC (per OMC 9.64) documenting ALPR usage during the prior calendar year. The annual report will contain audit data of system queries (e.g. document aspects of use activity - time, date, and what is searched).

DGO I.12.B-2 also provides a number of internal safeguards, including:

1. Department members shall not use, or allow others to use, the equipment or database records for any unauthorized purpose (Civil Code § 1798.90.51;

⁵ OPD often must use ALPR camera-equipped vehicles for standard patrol activity regardless of location because of limited fleet reserves.

Civil Code § 1798.90.53); authorized purposes consist only of queries related to criminal investigations and other authorized law enforcement functions

2. No member of this department shall operate ALPR equipment or access ALPR data without first completing department-approved training.
3. No ALPR operator may access department, state or federal data unless otherwise authorized to do so pursuant to Section D1 below.
4. Accessing data collected by ALPR requires a right to know and a need to know. A right to know is the legal authority to receive information pursuant to a court order, statutory law, or case law. A need to know is a compelling reason to request information such as direct involvement in an investigation.

F. Data Types and Sources: *A list of all types and sources of data to be collected, analyzed, or processed by the surveillance technology, including “open source” data, scores, reports, logic or algorithm used, and any additional information derived therefrom.*

ALPR data is composed of photographs of license plates, which can be linked through OCR software to identify license plate letter and digit characters. License plate photographs, as detailed in Section One above, may contain images of the vehicle with particular visual details of the vehicle (such as vehicle make or model or bumper stickers). Photographs may also contain images of the vehicle driver. However, the ALPR system only annotates photographs based on license plate characters; therefore, authorized personnel can only query license plate numbers – there is no way to query the system based on type of vehicle, vehicle details (such as bumper stickers) or individuals associated with a vehicle.

All ALPR data downloaded to the server shall be purged in the server at the point of 730 days in the server system, in alignment with Government Code section 34090. Data may be retained outside the database for the following purposes:

- a. A criminal investigation;
- b. An administrative investigation;
- c. Research;
- d. Civil litigation;
- e. Training; and/or
- f. Other Departmental need.

G. Data Security: *Steps taken to ensure that adequate security measures are used to safeguard ALPR data collected or generated from unauthorized access or disclosure*

OPD takes data security seriously and safeguards ALPR data by both procedural and technological means. OPD will observe the following safeguards regarding access to and use of stored data (Civil Code § 1798.90.51; Civil Code § 1798.90.53):

1. All ALPR data downloaded to the mobile workstation and in storage shall be accessible only through a login/password-protected system capable of documenting all access of information by username, license number or other data elements used in the search, name, date, time and purpose (Civil Code § 1798.90.52).
2. Members approved to access ALPR data under these guidelines are permitted to access the data for legitimate LEA purposes only, such as when the data relate to a specific criminal investigation or department-related civil or administrative action.

OPD ALPR's system is connected to the City's virtual private network (VPN) gateway, and is encrypted through the transport. The encrypted data ends at the VPN gateway and the ALPR data goes into the internal SQL database where records can be search using the OPD internal BOSS3 server. Both the BOSS3 server and ALPR SQL database are internal services that can only be accessible within the OPDnet network.

The current OPD BOSS ALPR system is not-cloud based; ALPR-camera equipped vehicle computers can download (not upload) State DOJ databases as described above. However, OPD will look to upgrade this outdated system should the City Council approve DGO I-12.

Limited OPD personnel have access to OPD the ALPR BOSS system. The ALPR coordinator is responsible for providing training including the verification of potentially malicious email or other forms of computer hacking. OPD also conducts regular ALPR system audits to ensure the accuracy of ALPR data.

H. Fiscal Cost: *The fiscal costs for the surveillance technology, including initial purchase, personnel and other ongoing costs, and any current or potential sources of funding;*

OPD spent \$293,500 in 2014 to purchase the ALPR system from 3M. Neology later purchased the ALPR product line from 3M. OPD does not have a maintenance contract with Neology and therefore relies on EVO for ALPR maintenance. OPD has spent approximately \$50,000 annually with EVO-Emergency Vehicle Outfitters Inc. for ALPR vehicle camera maintenance. OPD

relies on EVO to outfit police vehicles with many standard police technology upgrades (e.g. vehicle computers) as well as ALPR camera maintenance. However, OPD's current ALPR camera fleet are no longer covered by a maintenance contract and OPD now only spends approximately \$3,000 annual for software support.

The following information is a financial estimate to upgrade OPD's entire ALPR system:

- New Hardware and support for 35 vehicles: \$363,000
- New BOSS4 software (On premise on year license): \$15,000
- New BOSS4 software (Hosted storage 1 year license): \$43,000

I. Third Party Dependence: *Whether use or maintenance of ALPR technology will require data gathered by the technology to be handled or stored by a third-party vendor on an ongoing basis*

OPD relies upon third party technology company EVO as explained above in Section H.

J. Alternatives Considered: *A summary of all alternative methods considered in-lieu of ALPR, including the costs and benefits associated with each alternative and an explanation of the reasons why each alternative is inadequate*

OPD officers and investigators rely primarily on traditional policing techniques to gather evidence related to criminal investigations such as speaking to witnesses and suspects, gathering information from observations, and using standard data aggregation systems. These methods will continue to be employed as primary investigative tools that will be supplemented by use of BWCs to document police activity.

ALPR technology provides LEA personnel with a fast and efficient way to connect vehicles to violent and felonious criminal activity. This tool helps OPD's authorized personnel increase their ability to find wanted suspects and help solve crimes in a way that is unique – by creating a time map of vehicle locational activity. OPD recognizes the privacy concerns inherent in such a technology but has in place the numerous mitigations and data security protocols described in sections five and seven above respectively. However, OPD believes that the alternative to ALPR usage would be to forgo its observational and investigatory benefits. OPD LEA personnel, without access to ALPR data, would rely patrol officer observations and other basic investigatory processes. OPD data suggest that some future violent

felonies would remain unsolved if only for the inability to use ALPR technology.

K. Track Record of Other Entities

Numerous local and state government entities have researched and evaluated the use of ALPR cameras. The International Association of Chiefs of Police (IACP) documents many recent reports⁶. The IACP report, “News Stories about Law Enforcement ALPR Successes September 2017 - September, 2018”⁷ presents scores of cases from different national LEA jurisdictions where ALPR data helped lead to the capture of violent criminals. A July 2014 study⁸ from the Rand Corporation research organization found that ALPR cameras have proven useful for crime investigations in numerous cities and states, and that systems with the most database access and longest retention policies provide the greatest use in terms of providing real-time information as well as useful investigation data. This report also find that privacy mitigations are critical to ensuring legal use of ALPR and public privacy protections. The RAND report, in considering privacy concerns discusses the difference between collecting only license plate data and other personally identifiable information (PII); OPD ALPR system does not collect PII. The RAND report also cites a 2013 ACLU report (page 17) which raises First Amendment concerns and that such concerns are increased in proportion to longer data retention periods (increased potential for tracking vehicle travel patterns and locations) as well as less controlled database access (greater risk of improper use).

⁶ <https://www.theiacp.org/projects/automated-license-plate-recognition>

⁷ <https://www.theiacp.org/sites/default/files/ALPR%20Success%20News%20Stories%202018.pdf>

⁸ https://www.rand.org/pubs/research_reports/RR467.html