

LONG BEACH POLICE DEPARTMENT TRAINING BULLETIN

Robert G. Luna, Chief of Police

**57 – Automated License Plate
Recognition (ALPR)**

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AUTOMATED LICENSE PLATE RECOGNITION (ALPR)

INTRODUCTION

A fundamental element of policing is finding vehicles that are wanted because the vehicle is stolen, wanted in connection with a crime, or driven by a subject who is wanted or suspected of committing a crime or otherwise of interest to law enforcement. The Long Beach Police Department utilizes Automated License Plate Recognition (ALPR) technology to impact criminal activity directly. ALPR systems play an increasingly important role in public safety by enhancing productivity, effectiveness, and officer safety. ALPR systems can recognize, read and compare, motor vehicle license plates against various “hot lists” much more efficiently than officers manually scanning and making comparisons while on routine patrol.

THE ALPR SYSTEM

ALPR systems utilize specialized cameras designed to capture images of license plates, either from static positions or mobile patrol vehicles. Factors which pose difficulty for license plate imaging cameras include the speed of the vehicles being recorded, the distance and angle of the vehicles from the camera, varying ambient lighting conditions, headlight glare, and harsh environmental conditions. In order to address these difficulties, the ALPR system uses infrared cameras operating in addition to visible light cameras.

The mobile ALPR systems are equipped with global positioning system (GPS) receivers, allowing the mobile units to record the date, time, and location of the license plate images captured. Data such as date and time stamps and GPS coordinates can be reviewed in relation to investigations leading to critical investigative breaks, such as placing a suspect at a scene, witness identification, pattern recognition, or the tracking of previously identified suspects.

Images of vehicles and license plates are the primary form of information collected by the ALPR system. Optical character recognition (OCR) is performed on these images, and the alphanumeric characters on each license plate are rendered into an electronically readable format. The information that is gathered from the ALPR system is not considered personally identifiable information; the system collects only the public display of a license plate which exists in part to assist law enforcement to more readily verify the vehicle complies with the law.

Databases may contain plates of stolen vehicles, wanted felony vehicles, vehicles with lost or stolen plates, vehicles wanted for a crime, missing persons, Amber Alerts or any

other lawful reason. Officers are also able to enter wanted plates into the ALPR system manually. The ALPR system may assist in the investigation of any crime with an identified license plate.

When the ALPR system scans and a vehicle is a match to a wanted vehicle, the system will alert the officer with both an audible and visual alert. Images of the license plate and vehicle, as well as a brief explanation of what the vehicle is wanted for, will be displayed. This process is entirely automatic and takes less than a second.

ALPR ACCURACY

Many variables affect OCR accuracy. Poor image resolution, and thus poor character recognition, can be the result of several factors. License plates can be too far away for the capabilities of the ALPR camera to capture, and motion blur can also occur. Poor lighting and low contrast due to overexposure, reflection, adverse weather conditions, or shadows can also result in poor image quality. Occasionally, an object might obscure all or a portion of the license plate and interfere with accurate OCR. Often the object is a tow bar, dirt on the license plate, or a loaded bike rack.

Sometimes the letter D is mistaken for a Q or an O. Other times, the characters on the license plate are sometimes cut off from the frame of the image; when this occurs, the OCR software may incorrectly read an E as an F or a Z as a 7. Some colors, especially reddish tones, may be difficult for ALPR system OCR software to read. Learning the type of mistakes ALPR system's OCR software might make, can help investigators run queries on potentially misread license plate numbers. For these reasons, officers should visually verify that the license plate on the vehicle of interest matches identically with the image captured by the ALPR system, including both the alphanumeric characters of the license plate and the state of issue.

CAPABILITIES

Officers should note that the ALPR system will not read all license plates. The system only reads plates that it sees, plates must be in the field of view of the camera and the infrared color spectrum. Specifically, to read the plate, it must have reflective characteristics. The ALPR system may not read older blue California plates, extremely dirty, mutilated, or obscured plates. The ALPR system can read out of state and motorcycle, plates, but with reduced accuracy.

AUDIT RESPONSIBILITY

Administration Bureau