LAW ENFORCEMENT USE OF AUTOMATIC LICENSE PLATE RECOGNITION (ALPR)

Law Enforcement Use of Automatic License Plate Recognition (ALPR)

Executive Summary

Automatic license plate recognition (ALPR) is being used by law enforcement, private entities, and other governmental entities across the United States. While definitions of ALPR vary, a common characterization is a system of one or more high-speed cameras combined with computer algorithms to convert images of license plates into computer-readable data. ALPR captures an image of a vehicle and its license plate, along with the location, date, and time the image was captured. While ALPR captures images, the ALPR system itself does not contain any personally identifiable information. Recent advancements in technology have enhanced the capabilities of ALPR, such as using artificial intelligence to analyze large quantities of data or powering ALPR devices by solar panels.

Law enforcement use of ALPR has grown considerably over the past 20 years, particularly across larger agencies. Numerous law enforcement agencies across Virginia are using ALPR. Law enforcement uses ALPR for two main purposes: alerts and investigations. Alerts are real-time notifications of license plates and vehicles of interest; whereas investigations involve searches of real-time or historical ALPR data to identify or locate vehicles of interest.

Most of the information on ALPR successes, errors, and misuses is anecdotal. A review of available research suggests that (i) ALPR may be particularly effective in identifying stolen vehicles and license plates, increasing the recovery of stolen vehicles and the arrests of individuals linked to those thefts, and assisting law enforcement as an investigatory tool across various types of cases, (ii) additional research is needed to more thoroughly evaluate the effectiveness of ALPR use on public safety and community outcomes, and (iii) any research measuring effectiveness may vary based on how ALPR is deployed and used.

There are various benefits and concerns relating to law enforcement use of ALPR. For example, ALPR can aid law enforcement with investigations into various crimes, stolen vehicles, and missing persons, increases the speed and efficiency of investigations, and may result in fewer citizen encounters with law enforcement. A variety of concerns have been raised over privacy, transparency, data sharing and protection, and potential disparate impacts.

At the time of this study, Virginia law did not place any restrictions on how law enforcement could use ALPR, or any limitations on how ALPR data could be accessed, retained, or shared. Staff identified 18 states that regulate law enforcement use of ALPR at a statewide level. Statewide regulations vary widely on a number of matters, such as data retention periods, whether a search

warrant is required to access ALPR data, and whether a permit is needed to install an ALPR device on a highway right-of-way. States that do not regulate ALPR at the statewide level, including Virginia, may regulate its use at the local level.

At the January 2025 Crime Commission meeting, members endorsed legislation to (i) regulate law enforcement use of ALPR in Virginia at a statewide level, (ii) create a vendor approval process, (iii) provide data sharing protections, (iv) require annual reports and public posting of data, and (v) allow Virginia's land use permit regulations to be amended so that the Virginia Department of Transportation can issue permits for the installation of ALPR devices on state highway right-of-ways.

The legislation endorsed by the Commission was introduced during the 2025 Regular Session of the General Assembly (House Bill 2724), which was amended during the legislative process and signed into law. The legislation imposes numerous safeguards on law enforcement use of ALPR that are meant to limit its use to specific purposes, promotes transparency and public awareness, and protects individual privacy and civil liberties. The majority of these safeguards will take effect on July 1, 2025. However, the provisions to create a permit process for the installation of ALPR devices on state highway right-of-ways must be reenacted during the 2026 Regular Session of the General Assembly, with the exception of ALPR devices that were installed prior to July 1, 2025, which must be retroactively permitted by August 1, 2025. The legislation also directs the Crime Commission to report on law enforcement use of ALPR for the next seven years.

Background and Methodology

During the 2024 Regular Session of the General Assembly, House Bill 775 was referred to the Crime Commission by the Senate Courts of Justice Committee.[1] The Executive Committee of the Crime Commission directed staff to study the use of ALPR by law enforcement in Virginia and the United States. Staff performed the following activities as part of this study:

- Conducted a literature review on the use and effectiveness of ALPR;
- Analyzed statewide regulation of ALPR use by law enforcement agencies in other states;[2]
- Examined Virginia laws that regulate other technologies at a statewide level;[3]
- Tracked Virginia case law regarding ALPR and search warrants;[4]
- Reviewed Virginia laws related to permitting ALPR devices on state highway right-of-ways;

[1] House Bill 775, 2024 Regular Session of the Virginia General Assembly. (Del. Charniele L. Herring). https://legacylis.virginia.gov/cgi-bin/legp604.exe?ses=241&typ=bil&val=hb775.
[2] *See* Appendices B, C, and D.
[3] *See* VA. CODE ANN. §§ 15.2-1723.2 (facial recognition technology), 18.2-267 (preliminary breath test devices), 18.2-268.9 (breath test devices), 18.2-270.1 (ignition interlock systems), 19.2-188.1 (drug field tests), 19.2-270.7 (decibel level devices), and 46.2-882 (speed monitoring devices) (2024).
[4] *See* Appendix A. Staff legal analysis as of November 14, 2024.

- Identified incidents where ALPR proved helpful to Virginia law enforcement,[5] as well as news reports of ALPR errors and misuses from outside of Virginia;[6]
- Met with ALPR vendors (Flock Safety, Axon, and Motorola Solutions);[7]
- Consulted with numerous practitioners, stakeholders, and advocates;[8]
- Visited two real-time crime centers in Virginia (Fairfax County and Newport News); and,
- Attended the International Association of Chiefs of Police Technology Conference.[9]

While definitions of ALPR vary, a common characterization is a system of one or more high-speed cameras combined with computer algorithms to convert images of license plates into computer-readable data.[10] ALPR is designed to capture an image of a vehicle and its license plate, along with the location, date, and time the image was captured.[11] ALPR devices can be fixed, mobile, or portable.[12] While ALPR captures images, the ALPR system itself does not contain any personally identifiable information. Therefore, a separate database must be accessed to identify the registered owner(s) of any vehicle in an image that is captured by ALPR.[13]

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[5] The Virginia Association of Chiefs of Police & Foundation provided Crime Commission members with a handout at the November 14, 2024, meeting that details numerous ALPR success stories from law enforcement agencies across Virginia.

[6] *See* Appendix E. While staff found a variety of new stories on ALPR errors and misuses in other states, staff did not identify any stories of errors or misuses in Virginia (as of November 14, 2024).

[7] Stakeholder meetings with representatives from Flock Safety (personal communication, June 27, 2024), Axon (personal communication, August 13, 2024), and Motorola Solutions (personal communication, August 20, 2024).

[8] Staff met with the following practitioners, stakeholders, and advocates: ACLU of Virginia, Americans for Prosperity – Virginia, Fairfax County Police Department, Justice Forward Virginia, Legal Aid Justice Center, Newport News Police Department, The Policing Project at NYU School of Law, Virginia Association of Chiefs of Police & Foundation, Virginia Association of Commonwealth's Attorneys, Virginia Coalition for Immigrant Rights, Virginia Commonwealth University Police Department, Virginia Department of State Police, Virginia Indigent Defense Commission, and the Virginia Sheriffs' Association.

[9] Staff attended the International Association of Chiefs of Police (IACP) Technology Conference, which was held in Charlotte, North Carolina, May 21-23, 2024.

[10] *See* Appendix B. Staff legal analysis as of September 8, 2024. Alabama, Arkansas, Florida, Georgia, Maine, Maryland, Nebraska, North Carolina, Tennessee, Utah, and Vermont have defined ALPR in a similar manner.

[11] Stakeholder meetings with representatives from Flock Safety (personal communication, June 27, 2024), Axon (personal communication, August 13, 2024), and Motorola Solutions (personal communication, August 20, 2024). ALPR imaging capabilities vary by vendor.

[12] *See, e.g.,* Major Cities Chiefs Association. (2023, February). *Automated license plate reader technology in law enforcement: Recommendations and considerations*. https://majorcitieschiefs.com/wp-content/uploads/2023/02/MCCA-Automated-License-Plate-Reader-Technology-in-Law-Enforcement.pdf. Electronic Frontier Foundation. (2023, October 1). *Automated license plate readers*. https://sls.eff.org/technologies/automated-license-plate-readers-alprs. A fixed ALPR device is permanently mounted in a stationary location (e.g. traffic signals, bridges, or light poles). A mobile ALPR device is mounted on or in a patrol vehicle. A portable ALPR device is movable (e.g. mobile ALPR trailer) and can be used in a variety of locations based on operational needs.

[13] Stakeholder meetings with representatives from Flock Safety (personal communication, June 27, 2024), Axon (personal communication, August 13, 2024), and Motorola Solutions (personal communication, August 20, 2024). *See also* Neal v. Fairfax County Police Department, 299 Va. 253, 849 S.E.2d 123 (Va. Sup. Ct., Oct. 22, 2020). The other databases which can be accessed to obtain information on the registered owner(s) of the vehicle may vary but can include such databases as the Virginia Department of Motor Vehicles (DMV), the Virginia Criminal Information Network (VCIN), or the National Crime Information Center (NCIC).

While this study focused on law enforcement use of ALPR, it is important to note that ALPR is being used regularly by private parties and other governmental entities for a variety of reasons, such as home and business security monitoring, business operations, insurance investigations, vehicle repossessions, toll collections, and weigh station operations.[14]

LAW ENFORCEMENT USE OF AUTOMATIC LICENSE PLATE RECOGNITION

❖ *LAW ENFORCEMENT USE OF ALPR HAS GROWN CONSIDERABLY OVER THE PAST 20 YEARS, PARTICULARLY ACROSS LARGER AGENCIES.*

Nationally representative surveys of U.S. law enforcement agencies conducted by the Bureau of Justice Statistics (BJS) between 2007 and 2020 have consistently estimated that around 20% of local police departments and sheriff's offices regularly use ALPR.[15] Similar estimates were found in other national or large-scale surveys by researchers across this same time frame.[16]

However, ALPR use by larger law enforcement agencies has grown considerably across this time period.[17] Specifically, the 2007 BJS survey of law enforcement reported that almost half of agencies

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[14] *See, e.g.,* Díaz, Á., & Levinson-Waldman, R. (2020, September 10). *Automatic license plate readers: Legal status and policy recommendations for law enforcement use*. Brennan Center for Justice. https://www.brennancenter.org/our-work/research-reports/automatic-license-plate-readers-legal-status-and-policy-recommendations. *See also* Major Cities Chiefs Association. (2023, February). *Automated license plate reader technology in law enforcement: Recommendations and considerations*. https://majorcitieschiefs.com/wp-content/uploads/2023/02/MCCA-Automated-License-Plate-Reader-Technology-in-Law-Enforcement.pdf.

[15] These nationally representative surveys of U.S. law enforcement are collectively known as part of the Law Enforcement Management and Administrative Statistics (LEMAS) survey series. LEMAS surveys are conducted every three to four years. Around 3,500 state and local police departments and sheriff's offices are sampled for each survey. A question about regular ALPR use was included in the 2007, 2012, 2016, and 2020 versions of the LEMAS survey. *See* Bureau of Justice Statistics (BJS). *Law Enforcement Management and Administrative Statistics (LEMAS)*. "Methodology." https://bjs.ojp.gov/data-collection/law-enforcement-management-and-administrative-statistics-lemas#0-0; Roberts, D. J., & Casanova, M. (2012). *Automated license plate recognition systems: Policy and operational guidance for law enforcement* (No. 239604). https://www.ojp.gov/ncjrs/virtual-library/abstracts/automated-license-plate-recognition-systems-policy-and-operational; Brooks, C. (2023, November*). Sheriffs' offices, procedures, policies, and technology, 2020 – Statistical tables*. U.S.
Department of Justice, Bureau of Justice Statistics, https://bjs.ojp.gov/document/soppt20st.pdf; and, Goodison, S.E. & Brooks, C. (2023, November). *Local police departments, procedures, policies, and technology, 2020 – Statistical tables*. U.S. Department of Justice, Bureau of Justice Statistics, https://bjs.ojp.gov/document/lpdppt20st.pdf.

[16] *See, e.g.,* Lum, C., Merola, L., Willis, J., & Cave, B. (2010, September). *License plate recognition technology (LPR): Impact evaluation and community assessment. Final report*. https://cebcp.org/wp-content/uploads/2019/09/LPR_FINAL.pdf; Roberts, D. J., & Casanova, M. (2012). *Automated license plate recognition systems: Policy and operational guidance for law enforcement* (No. 239604). https://www.ojp.gov/ncjrs/virtual-library/abstracts/automated-license-plate-recognition-systems-policy-and-operational.

[17] Roberts, D. J., & Casanova, M. (2012). *Automated license plate recognition systems: Policy and operational guidance for law enforcement* (No. 239604). https://www.ojp.gov/ncjrs/virtual-library/abstracts/automated-license-plate-recognition-systems-policy-and-operational; Brooks, C. (2023, November). *Sheriffs' offices, procedures, policies, and technology, 2020 – Statistical tables.* U.S. Department of Justice, Bureau of Justice Statistics, https://bjs.ojp.gov/document/soppt20st.pdf; Finklea, K. (2024, August 19). Law enforcement and technology: Use of automated license plate readers. (CRS Report No. R48160). https://crsreports.congress.gov/product/pdf/R/R48160; Goodison, S.E., & Brooks, C. (2023, November). *Local police departments, procedures, policies, and technology, 2020 – Statistical tables*. U.S. Department of Justice, Bureau of Justice Statistics, https://bjs.ojp.gov/document/lpdppt20st.pdf;

with more than 1,000 sworn officers and almost one-third of agencies with 501 to 1,000 sworn officers regularly used ALPR;[18] whereas, by 2020, BJS estimates grew significantly, with almost 90% of sheriff's offices with 500 or more sworn deputies, 90% of local police departments serving at least 500,000 but fewer than one million residents, and all of local police departments serving one million or more residents regularly using ALPR.[19] Using a broader categorization of agency size, surveys of law enforcement by other researchers also emphasize the rapid increase in ALPR usage across larger-sized agencies. For instance, one group of researchers estimated that slightly more than one-third of larger agencies (i.e., those with 100 or more sworn officers) used ALPR in 2009, as compared to more than two-thirds of such law enforcement agencies that would likely use ALPR by the end of 2016.[20]

VIRGINIA

Findings from Virginia's first statewide survey of surveillance technologies procured by law enforcement, which was conducted by the Virginia Department of Criminal Justice Services (DCJS) in 2024, showed that numerous law enforcement agencies across Virginia are using ALPR with varying usage across department size.[21] Of the 275 agencies that responded to the DCJS survey, 82% (14 of 17) of responding *large* departments and 74% (71 of 96) of responding *medium* departments reported they had procured ALPR.[22] Conversely, only 35% (56 of 160) of *small* departments reported they had procured ALPR.[23]

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and, Lum, C., Koper, C.S., Willis, J.J., Happeny, S., Vovak, H., & Nichols, J. (2019). The rapid diffusion of license plate readers in US law enforcement agencies. *Policing: An International Journal of Police Strategies and Management, 42*(3), 376-393.

[18] Roberts, D. J., & Casanova, M. (2012). *Automated license plate recognition systems: Policy and operational guidance for law enforcement* (No. 239604). https://www.ojp.gov/ncjrs/virtual-library/abstracts/automated-license-plate-recognition-systems-policy-and-operational.

[19] Brooks, C. (2023, November). *Sheriffs' offices, procedures, policies, and technology, 2020 – Statistical tables.* U.S. Department of Justice, Bureau of Justice Statistics, https://bjs.ojp.gov/document/soppt20st.pdf; Goodison, S.E. & Brooks, C. (2023, November). *Local police departments, procedures, policies, and technology, 2020 – Statistical tables.* U.S. Department of Justice, Bureau of Justice Statistics, https://bjs.ojp.gov/document/lpdppt20st.pdf.

[20] *See* Lum, C., Merola, L., Willis, J., & Cave, B. (2010, September). *License plate recognition technology (LPR): Impact evaluation and community assessment. Final report.* https://cebcp.org/wp-content/uploads/2019/09/LPR_FINAL.pdf; Lum, C. Koper, S., Willis, J., Happeny, S., Vovak, H., & Nichols, J. (2016, December). *The rapid diffusion of license plate readers in U.S. law enforcement agencies: A national survey.* Center for Evidence-Based Crime Policy, George Mason University. https://cebcp.org/wp-content/uploads/2019/09/LPR-National-Survey-Report-2016.pdf. *See also* Police Executive Research Forum (PERF). (2012, January). *Critical Issues in Policing Series: "How are innovated in technology transforming policing?"* In this 2011 survey conducted by PERF, 71% of agencies "with an average of 949 sworn officers serving a population of 531,000" reported having ALPR, at p.1.

[21] Virginia Department of Criminal Justice Services. (2024, December 16). *Findings from the 2024 surveillance technology equipment reporting*. [Slides 6 and 11]. Presentation at the December 16, 2024 Virginia State Crime Commission meeting (Richmond, VA). https://vscc.virginia.gov/2024/Dec16Mtg/DCJS%20-%20Findings%20from%202024%20Surveillance%20Technology%20Equipment%20Reporting.pdf.

[22] *Id.* Large departments were defined as agencies with 200 or more sworn officers. Medium departments were defined as agencies with 30 to 199 sworn officers.

[23] *Id.* Small departments were defined as agencies with 29 or fewer sworn officers.

In sum, survey estimates across both the United States and Virginia illustrate that ALPR use is far more commonly reported amongst the largest law enforcement agencies than amongst smaller law enforcement agencies.

❖ *LAW ENFORCEMENT USES ALPR FOR TWO MAIN PURPOSES: ALERTS (REAL-TIME NOTIFICATIONS) AND INVESTIGATIONS (SEARCHES OF REAL-TIME OR HISTORICAL DATA).*[24]

ALERTS

Alerts are real-time notifications of license plates and vehicles of interest based on a "hot list." [25] A hot list includes information on stolen vehicles and license plates, vehicles associated with individuals who are known to be or potentially involved in criminal activity, and vehicles associated with missing or wanted individuals.[26] Hot lists may be generated based on information derived from a variety of sources, such as the National Crime Information Center (NCIC) maintained by the Federal Bureau of Investigation (FBI), individual state lists, or customized lists assembled by a law enforcement agency.[27] For example, the FBI extracts vehicle data from the following NCIC files that can be used to generate hot lists:[28]

- Vehicle
- License Plate
- Wanted Person
- Protection Order
- Extreme Risk Protection Order
- Missing Person
- Gang
- Threat Screening Center
- Supervised Release
- National Sex Offender Registry
- Immigration Violator
- Protective Interest
- Violent Person

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[24] *See, e.g.,* Finklea, K. (2024, August 19). *Law enforcement and technology: Use of automated license plate readers*. (CRS Report No. R48160). https://crsreports.congress.gov/product/pdf/R/R48160; Roberts, D. J., & Casanova, M. (2012). *Automated license plate recognition systems: Policy and operational guidance for law enforcement* (No. 239604). https://www.ojp.gov/ncjrs/virtual-library/abstracts/automated-license-plate-recognition-systems-policy-and-operational; Major Cities Chiefs Association. (2023, February). *Automated license plate reader technology in law enforcement: Recommendations and considerations*. https://majorcitieschiefs.com/wp-content/uploads/2023/02/MCCA-Automated-License-Plate-Reader-Technology-in-Law-Enforcement.pdf; Electronic Frontier Foundation. (2023, October 1). *Street level surveillance*. "Automated license plate readers." https://sls.eff.org/technologies/automated-license-plate-readers-alprs.

[25] *See, e.g.,* Axon Enterprise, Inc. (2025, April 11). *Hotlists in Axon Evidence – ALPR*. https://my.axon.com/apex/MyAxonArticlePDF?Id=ka0Rl000000RlQfIAO; Charlottesville Police Department (2024, August 27). *General policy order 427 -Automated License Plate Readers*. https://charlottesville.gov/DocumentCenter/View/12584/Automated-License-Plate-Reader-FLOCK-Policy-8272024; Henrico County Police. (2024, July 1). *Line procedure LP-59-24: Automatic license plate reader*. https://henrico.gov/public-data/police-policy-automatic-license-plate-reader/; United States Department of Justice, Bureau of Justice Statistics. (1986, November). *Criminal justice "hot" files*. https://bjs.ojp.gov/content/pub/pdf/cjhf.pdf.

[26] *Id*.

[27] *Id*.

[28] FBI CJIS Division. (2024, June 4). *License plate reader data extract in NCIC*. https://le.fbi.gov/cjis-division/cjis-link/license-plate-reader-data-extract-in-ncic.

An alert is a tool meant to assist law enforcement. When a law enforcement officer receives an alert, the officer should verify that the alert matches the license plate and vehicle information contained in the hot list before conducting a traffic stop of the vehicle.[29]

INVESTIGATIONS

An investigation is a search of real-time or historical ALPR data to identify or locate vehicles of interest.[30] This search can be conducted using data captured from a single ALPR device or a network of devices to develop leads when attempting to solve crimes or to locate missing persons, wanted individuals, or vehicles of interest.[31] The network of devices can include ALPR data shared between law enforcement agencies, as well as ALPR data captured by another private or government entity and shared with law enforcement.

ALPR database search capabilities vary by vendor, but can include such categories as license plate number (full or partial), temporary license plate, issuing state, vehicle information (make, model, color, or other characteristics), vehicles that appear in the same location at the same time, or location(s) where a vehicle commonly appears.[32]

❖ *LIMITED RESEARCH EXISTS ON THE EFFECTIVENESS OF ALPR.*

Most of the information on ALPR successes, errors, and misuses is anecdotal. There is a relatively limited body of research that rigorously evaluates its effectiveness across various public safety outcomes.[33] Nevertheless, there are three areas of agreement across the existing body of research. First, the limited research suggests that ALPR may be particularly effective in identifying stolen vehicles and license plates, increasing the recovery of stolen vehicles and the arrests of individuals linked to those thefts, and assisting law enforcement as an investigatory tool across various types of

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[29] *See, e.g.,* IACP National Law Enforcement Policy Center. (2010, August). *License plate readers model policy, part (IV)(C)(4)*. https://www.ncpea.org/wp-content/uploads/IACP-LPR-Policy-Sample.pdf.

[30] *See, e.g.,* Finklea, K. (2024, August 19). *Law enforcement and technology: Use of automated license plate readers*. (CRS Report No. R48160). https://crsreports.congress.gov/product/pdf/R/R48160; Policing Project at NYU School of Law. *Automated license plate readers: A roadmap for regulation*. https://static1.squarespace.com/static/58a33e881b631bc60d4f8b31/t/65e72148b0a5da750e03346f/1709646380237/2024+ALPRs+-+A+Roadmap+for+Regulation.pdf.

[31] *Id*.

[32] Stakeholder meetings with representatives from Flock Safety (personal communication, June 27, 2024), Axon (personal communication, August 13, 2024), and Motorola Solutions (personal communication, August 20, 2024). *See also* International Association of Chiefs of Police. (2024). *License plate reader (LPR) systems: Use cases*. https://www.theiacp.org/sites/default/files/LPRUseCases%202024.01.pdf.

[33] *See, e.g.,* Koper et al. (2022). Do license plate readers enhance the initial and residual deterrent effects of police patrol? A quasi-randomized test. *Journal of Experimental Criminology, 18*, 725-746; Koper, C., & Lum, C. (2019). The impacts of large-scale license plate reader deployment on criminal investigations. *Police Quarterly, 22*(3), 305-329; and, Shjarback, J.A. (2024). Examining police officers' perceptions of automated license plate readers before technology explanation. *Criminal Justice Policy Review, 35*(1), 3-21.

cases.[34] Second, there is clear agreement that additional research is needed to more thoroughly evaluate the effectiveness of ALPR use on public safety and community outcomes, such as its impact on crime rates, clearance rates, deterrence, displacement, and community perceptions and concerns, as well as logistics relating to costs, benefits, privacy, and data protection.[35] Third, any research measuring the effectiveness of ALPR may vary based on several factors, such as the number and concentration of ALPR devices deployed, the type of ALPR devices deployed,[36] the location and position of ALPR devices,[37] the integration of ALPR with other law enforcement tools and technologies,[38] and the deployment and operation of ALPR by officers in the field.[39]

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[34] *See, e.g.,* Koper, C., & Lum, C. (2019). The impacts of large-scale license plate reader deployment on criminal investigations. *Police Quarterly, 22*(3), 305-329; Koper et al. (2022). Do license plate readers enhance the initial and residual deterrent effects of police patrol? A quasi-randomized test. *Journal of Experimental Criminology, 18*, 725-746; Koper et al. (2019). Optimizing the geographic deployment of hot spot patrols with license plate readers. *Journal of Experimental Criminology, 15,* 641-650; Shjarback, J. A., & Sarkos, J. A. (2025). An evaluation of a major expansion in automated license plate reader (ALPR) technology. *Justice Evaluation Journal*, 1–18. https://doi.org/10.1080/24751979.2025.2473363; Taylor, B., Koper, C., & Woods, D. (2012). Combating vehicle theft in Arizona: A randomized experiment with license plate recognition technology. *Criminal Justice Review, 37* (1), 24-50; and, Willis, J.J., Koper, C., & Lum, C. (2018). The adaptation of license-plate readers for investigative purposes: Police technology and innovation re-invention. *Justice Quarterly, 35*(4), 614-638.

[35] *See, e.g.,* Koper et al. (2022). Do license plate readers enhance the initial and residual deterrent effects of police patrol? A quasi-randomized test. *Journal of Experimental Criminology, 18*, 725-746; Koper et al. (2019). Optimizing the geographic deployment of hot spot patrols with license plate readers. *Journal of Experimental Criminology, 15,* 641-650; Shjarback, J.A. (2024). Examining police officers' perceptions of automated license plate readers before technology explanation. *Criminal Justice Policy Review, 35*(1), 3-21.

[36] An agency may deploy various types of ALPR devices, such as fixed, mobile, or a combination thereof.

[37] Vendors can assist law enforcement in strategically determining the location and position of ALPR devices. For a list of considerations for ALPR device placement, *see* La Vigne, N., Lowery, S., Dwyer, A., & Markman, J. (2011) *Using public surveillance systems for crime control and prevention*. U.S. Department of Justice, Office of Community Oriented Policing Services. https://portal.cops.usdoj.gov/resourcecenter/content.ashx/cops-p211-pub.pdf, at pp.31-36.

[38] For instance, additional technology and tools that could be considered include CCTV, law enforcement body worn cameras, gunshot detection systems, and forensic technology advancements.

[39] Koper, C., & Lum, C. (2019). The impacts of large-scale license plate reader deployment on criminal investigations. *Police Quarterly, 22*(3), 305-329; Koper et al. (2022). Do license plate readers enhance the initial and residual deterrent effects of police patrol? A quasi-randomized test. *Journal of Experimental Criminology, 18*, 725-746; Koper et al. (2019). Optimizing the geographic deployment of hot spot patrols with license plate readers. *Journal of Experimental Criminology, 15,* 641-650; Lum, C., Hibdon, J., Cave, B., Koper, C.S., & Merola, L. (2011). License plate reader (LPR) police patrols in crime hot spots: An experimental evaluation in two adjacent jurisdictions. *Journal of Experimental Criminology,* 7(4), 321-345; Taylor, B., Koper, C., & Woods, D. (2012). Combating vehicle theft in Arizona: A randomized experiment with license plate recognition technology. *Criminal Justice Review, 37* (1), 24-50; and, Shjarback, J.A. (2024). Examining police officers' perceptions of automated license plate readers before technology explanation. *Criminal Justice Policy Review, 35*(1), 3-21. Further, it should be noted that a national multi-site, quasi-experimental study by the National Policing Institute is currently underway that will capture the following key issues in their national ALPR evaluation: "the crime reduction impact of LPRs, the investigative value of LPRs, cost benefits, how to optimize use and placement of fixed-location LPRs, and best practices for privacy and data collection," at https://www.policinginstitute.org/projects/a-multi-site-evaluation-of-automated-license-plate-readers/.

❖ *THERE ARE BENEFITS AND CONCERNS RELATING TO LAW ENFORCEMENT USE OF ALPR.*

Various benefits and concerns exist in relation to law enforcement use of ALPR.[40] Staff met with numerous practitioners and advocates over the course of the study to learn more about these benefits and concerns.[41] Some of the benefits identified were that ALPR:

- Helps to locate stolen vehicles and vehicles linked to missing or wanted persons;
- Develops leads and corroborates evidence;
- Increases the speed and efficiency of investigations;
- Results in fewer interactions with the public while conducting investigations; and,
- Produces evidence for use in court.

Conversely, concerns were raised that ALPR:

- Collects and retains data on a vast number of vehicles, regardless of whether the driver or any occupants are engaged in criminal activity;
- Lacks transparency and uniformity in the collection and retention of data;[42]
- Advancements in artificial intelligence allow it to track a vehicle in real time or analyze vehicle movements and patterns of behavior;
- May result in erroneous license plate reads or misuse of data;

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[40] *See, e.g.,* Duong, M. (2024, May). *In detail: Automated license plate readers (ALPR).* Colorado Division of Criminal Justice. https://cdpsdocs.state.co.us/ors/Docs/Briefs/2024-05_InDetail-ALPR.pdf; Gierlack, K., Williams, S., LaTourrette, T., Anderson, J.M., Mayer, L.A., & Zmud, J. (2014). *License plate readers for law enforcement: Opportunities and obstacles*. Rand Corporation. https://www.ojp.gov/pdffiles1/nij/grants/247283.pdf, at pp. 13-21; Klawans, J. (2023, December 17). The pros and cons of license-plate reader technology. *The Week*. https://theweek.com/tech/automatic-license-plate-readers. *But see, e.g.,* American Civil Liberties Union. (2013, July). *You are being tracked*. https://www.aclu.org/you-are-being-tracked; Policing Project at NYU School of Law. *Automated license plate readers*. https://www.policingproject.org/automated-license-plate-readers#:~:text=Absent%20regulation%2C%20the%20use%20of,resulting%20in%20unnecessary%20police%20contact ; Rushton, B. (2023, November 20). License plate readers target minority neighborhoods. *Investigative Post*. https://www.investigativepost.org/2023/11/20/license-plate-readers-target-minority-neighborhoods/.

[41] Staff met with the following practitioners, stakeholders, and advocates: ACLU of Virginia, Americans for Prosperity – Virginia, Fairfax County Police Department, Justice Forward Virginia, Legal Aid Justice Center, Newport News Police Department, The Policing Project at NYU School of Law, Virginia Association of Chiefs of Police & Foundation, Virginia Association of Commonwealth's Attorneys, Virginia Coalition for Immigrant Rights, Virginia Commonwealth University Police Department, Virginia State Police, Virginia Indigent Defense Commission, and the Virginia Sheriffs' Association.

[42] *See, e.g.,* "Policy concerns: Lack of transparency and access controls" section in Díaz, Á. & Levinson-Waldman, R. (2020, September 10). *Automatic license plate readers: Legal status and policy recommendations for law enforcement use*. Brennan Center for Justice. https://www.brennancenter.org/our-work/research-reports/automatic-license-plate-readers-legal-status-and-policy-recommendations; *See also* Lum, C., Koper, C. S., Willis, J., Happeny, S., Vovak, H., & Nichols, J. (2019). The rapid diffusion of license plate readers in U.S. law enforcement agencies. *Policing: An International Journal, 42*(3), 376-393. https://cebcp.org/wp-content/lpr/LPR-National-Survey-Report-2016.pdf. As discussed in this body of literature, large amounts of data on vehicle characteristics and patterns can be captured by ALPR systems for use by law enforcement agencies; however, the lack of public access to this data fuels concerns about its transparency and general usage. Data captured by ALPR systems is accessible to the law enforcement agency that procured the system, to any other law enforcement agency that has been given permission to access the system, and to any other entities with whom the procuring agency shares the data. An agency's internal accessibility of the data depends on the types of hot lists and any other data sources downloaded into the system.

- May lead to disparate impacts on communities of color, disadvantaged communities, and other vulnerable populations;[43] and,
- Gives rise to certain privacy and data protection issues, such as what data is collected, how long data is retained, and whether data is sold or shared.[44]

To promote data transparency, some states, such as Nebraska and Vermont, enacted legislation requiring law enforcement agencies to annually report on ALPR usage.[45] In addition, ALPR system vendors may host a webpage or portal for local law enforcement agencies to report this information in a publicly accessible format.[46]

STATEWIDE REGULATION OF ALPR USE BY LAW ENFORCEMENT

❖ *MOST STATES DO NOT REGULATE ALPR USE BY LAW ENFORCEMENT AT A STATEWIDE LEVEL.*

At the time of the study, Virginia did not have any statewide policies or laws that governed law enforcement use of ALPR; therefore, law enforcement could collect and search ALPR data for any purpose, keep data for an indefinite time period, and share data without any restrictions. Staff found

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[43] *See, e.g.,* Major Cities Chiefs Association. (2023, February). *Automated license plate reader technology in law enforcement: Recommendations and considerations*. https://majorcitieschiefs.com/wp-content/uploads/2023/02/MCCA-Automated-License-Plate-Reader-Technology-in-Law-Enforcement.pdf, at p. 12. Joh, E. E. (2022). The unexpected consequences of automation in policing, *Southern Methodist University Law Review, 75*(3). https://scholar.smu.edu/smulr/vol75/iss3/3; Maass, D., & Gillula, J. (2015, January 21). What you can learn from Oakland's raw ALPR data. Electronic Frontier Foundation. https://www.eff.org/deeplinks/2015/01/what-we-learned-oakland-raw-alpr-data. For instance, research that has examined disparate impacts of ALPR use by law enforcement often lacks generalizability and fails to isolate the impacts related to ALPR deployment and usage from the impacts of other crime reduction or prevention strategies, such as gunshot detection technologies, which may also disproportionately affect communities of color, disadvantaged communities, and other vulnerable populations.

[44] These concerns associated with ALPR use are similar to those of other technologies, like facial recognition and unmanned aircraft systems.

[45] *See* NEB. REV. STAT. ANN. § 60-3206(3)(a) (2024) and VT. STAT. ANN. TIT. 23 § 1607(e)(1) (2024). Reports on aggregated statewide ALPR usage by law enforcement are mandated by these statutes. *See also* Nebraska Commission on Law Enforcement and Criminal Justice. *Automatic License Plate Reader resources: Agency reports*. https://ncc.nebraska.gov/automatic-license-plate-reader-resources. Retrieved March 10, 2025; Loan, S. Vermont Intelligence Center (n.d.). *2020 annual report to the Vermont Senate and House Committees on Judiciary and Transportation as required by: 23 V.S.A. § 1607 automated license plate recognition systems*. https://legislature.vermont.gov/assets/Legislative-Reports/2020-ALPR-report.pdf; and, Loan, S. Vermont Intelligence Center (n.d.). *2021 annual report to the Vermont Senate and House Committees on Judiciary and Transportation as required by: 23 V.S.A. § 1607 automated license plate recognition systems*. https://legislature.vermont.gov/Documents/2022/WorkGroups/House%20Judiciary/Reports%20and%20Resources/W~Department%20of%20Public%20Safety~2021%20Annual%20Report-23%20V.S.A%20%C2%A7%201607%20Automated%20Licence%20Place%20Recognition%20Systems~3-11-2022.pdf. It should also be noted that governmental entities of other states, such as the Maine Information and Analysis Center, may include ALPR use in their broader annual reports. *See* Stevenson, T. Maine Information and Analysis Center (2022, March 15). *The Maine Information and Analysis Center annual report 2021*. https://legislature.maine.gov/doc/8513, at p.4.

[46] *See* Dayton (Ohio) Police Department (2022, June 8). *ALPR impact report*. https://www.daytonohio.gov/DocumentCenter/View/12471/ALPR-Impact-6-8-22. *See, e.g.,* Flock Safety. (2024, December 10). *Transparency portal - Richmond VA PD*, last viewed May 22, 2025, https://transparency.flocksafety.com/richmond-va-pd.

that at least 18 states have statewide regulations governing law enforcement use of ALPR.[47] In the remaining states, including Virginia, ALPR use is regulated at the local level, with policies adopted by the locality or by the individual law enforcement agency.

Staff also analyzed and compared the laws of the 18 states that have statewide regulations on ALPR use,[48] with a particular focus on three issues that were raised with House Bill 775 during the 2024 session, including (i) data retention periods, (ii) search warrant requirements, and (iii) permits to install ALPR on state highway right-of-ways.[49]

Data Retention Periods

❖ *Data retention periods vary significantly in states that regulate law enforcement use of ALPR at a statewide level.*

Virginia law does not limit the length of time that law enforcement can retain ALPR data.[50] However, as illustrated in the following table, 16 of the 18 states that regulate ALPR at a statewide level place restrictions on the time period that law enforcement can retain ALPR data.[51] These retention periods range from minutes to years; however, ALPR data can generally be retained beyond the retention period if it is needed as part of an ongoing investigation or prosecution.[52]

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[47] *See* Appendix B. Staff legal analysis as of September 8, 2024.
[48] *See* Appendix C. Specifically, staff examined how ALPR was regulated at a statewide level for these states (e.g., statute, administrative code, etc.), data retention periods, whether ALPR use was limited to criminal justice and public safety purposes, whether agency policy was required for use, whether an audit trail was required, whether routine updates to databases (hot list) was required, whether there were data sale and sharing restrictions, whether ALPR data is confidential or not subject to public record laws, whether a report on ALPR use is required, whether there is a criminal penalty or civil cause of action for misuse, whether a verification of an alert is required before a traffic stop, whether a search warrant is required for ALPR data, and whether a permit must be obtained prior to installation of an ALPR device on a roadway.
[49] ALPR encompasses cameras and any other items necessary to place or mount the cameras in the right-of-way.
[50] *See* Neal v. Fairfax County Police Department, 299 Va. 253, 849 S.E.2d 123 (Va. Sup. Ct., Oct. 22, 2020). While there is no statewide regulation of ALPR data retention periods in Virginia, there are local and state law enforcement agencies that do limit the length of time their agency retains ALPR data per internal policies. ALPR data retention time varied widely across Virginia law enforcement agencies with such internal policies at the time of this study. For example, the Virginia State Police limited ALPR data retention to 24 hours (*e.g.,* https://www.wtvr.com/news/local-news/automated-license-plate-readers-dec-2-2024#:~:text=A%20Virginia%20State%20Police%20(VSP,connected%20to%20a%20criminal%20case.%22); the Charlottesville Police Department limited ALPR data retention to 7 days (*e.g.,* https://charlottesville.org/DocumentCenter/View/12584/Automated-License-Plate-Reader-FLOCK-Policy-8272024); and, the Henrico County Police Department limited ALPR data retention to 30 days for non-vehicle mounted ALPRs and 90 days for mobile (vehicle mounted) ALPRs (*e.g.,* https://henrico.gov/assets/LP-59-24-Automatic-License-Plate-Reader-7-1-24.pdf).
[51] *See* Appendix B for state laws. Staff legal analysis as of September 8, 2024. Illinois and Maryland are the two states (of the 18) not included in Table 1, as no statewide ALPR data retention period was identified.
[52] What constitutes an ongoing or active investigation may vary by law enforcement agency.

Table 1: Statewide ALPR Data Retention Periods

State	Retention Period
New Hampshire	3 minutes
Utah	14 days
Maine	21 days
Georgia	30 days
California	60 days
Minnesota	60 days
Montana	90 days
North Carolina	90 days
Tennessee	90 days
Arkansas	150 days
Nebraska	180 days
Vermont	1 year 6 months
Colorado	3 years
Florida	3 years
New Jersey	3 years
Alabama	5 years

Source: Virginia State Crime Commission. Staff legal analysis as of September 8, 2024.

Search Warrant

- ***States that regulate ALPR use by law enforcement at a statewide level generally do not require law enforcement to obtain a search warrant to access ALPR data.***

During the 2024 Regular Session, there was debate about whether House Bill 775 should include a requirement for law enforcement to obtain a search warrant to access ALPR data. The Fourth Amendment of the U.S. Constitution protects individuals from unreasonable searches and seizures by the government.[53] The U.S. Supreme Court has held that a search warrant is required if a search involves a physical intrusion or an invasion of a reasonable expectation of privacy.[54]

[53] U.S. Const. amend. IV.
[54] Katz v. United States, 389 U.S. 347 (1967).

When House Bill 775 was referred to the Crime Commission in Feb. 2024, no court in Virginia had issued a ruling on whether a search warrant was required for law enforcement to access ALPR data. However, prior to the November 2024 Crime Commission meeting, at least four circuit courts and one federal district court in Virginia denied motions to suppress warrantless searches of ALPR data, while one circuit court granted such a motion.[55] The courts that denied the motions to suppress generally found that the defendant did not have a reasonable expectation of privacy as it relates to the ALPR data collected while driving on a public road. Based on these rulings, staff concluded that a search warrant was not necessary as part of any ALPR legislation; nevertheless, such a requirement could be included in a bill.

When reviewing the 18 states that regulate ALPR at a statewide level, none of these states generally require law enforcement to obtain a search warrant before accessing ALPR data. However, three states require a search warrant for ALPR data in specific circumstances:

- Minnesota: a search warrant is required to monitor or track an individual who is the subject of an active criminal investigation.[56]
- Montana: a search warrant or judicial exception is required to use ALPR data for an investigation or as evidence if it was collected by the Department of Transportation or a city or town for planning purposes.[57]
- Utah: a search warrant or court order is required for a governmental entity to obtain, receive, or use captured plate data from a nongovernmental entity.[58]

PERMITS TO INSTALL ALPR DEVICES ON STATE HIGHWAY RIGHT-OF-WAYS

❖ *VIRGINIA LAW DOES NOT EXPLICITLY AUTHORIZE PERMITS TO BE ISSUED TO INSTALL ALPR DEVICES ON STATE HIGHWAY RIGHT-OF-WAYS.*

In October 2022, Virginia's Attorney General issued an opinion that the Virginia Code does not explicitly authorize the Commonwealth Transportation Board (CTB) to amend its land use permit regulations to allow for permits to be issued to install ALPR devices on state highway right-of ways when requested by a law enforcement agency or local government.[59] According to this opinion, the Virginia General Assembly would have to specifically delegate authority to the CTB to allow for the

[55] *See* Appendix A. Staff legal analysis as of November 14, 2024.
[56] MINN. STAT. § 13.824(2)(d) (2024).
[57] MONT. CODE ANN. § 46-5-117(2)(a)(i) (2024).
[58] UTAH CODE ANN. § 41-6a-2005(5) (2024).
[59] Virginia Attorney General Opinion 22-033 (2022, October 14). https://www.oag.state.va.us/files/Opinions/2022/22-033-Pillion-issued.pdf.

installation of ALPR devices on state highway right-of-ways.[60] The lack of a permitting process for ALPR devices is significant because Virginia has the third largest state-maintained highway system in the nation (59,672 miles), of which approximately 1,100 miles are categorized as interstate.[61]

The Virginia Department of Transportation (VDOT) maintains state highway right-of-ways and issues land use permits to perform work or install certain items on such right-of-ways.[62] Based on the October 2022 Attorney General opinion, VDOT will not issue land use permits to install ALPR devices on state highway right-of-ways.[63] Determining whether an ALPR device is installed on a state highway right-of-way can be challenging because such right-of-ways are not always clearly marked and may require a review of historical land records or a property survey to accurately identify.[64] VDOT has identified numerous ALPR devices installed on state highway right-of-ways.[65]

It is important to note that the October 2022 Attorney General Opinion only applies to the issuance of land use permits for ALPR devices on state maintained highway right-of-ways. Therefore, ALPR devices can be installed on city- or county-maintained roadways or on private property without obtaining a permit from VDOT.

Of the 18 states that regulate ALPR at a statewide level, staff determined that at least six of these states require some type of permit or authorization for the installation of an ALPR device on a right-of-way or highway.[66]

Crime Commission Legislation

At the January 2025 Crime Commission meeting, members endorsed a policy option to enact legislation to (i) regulate law enforcement use of ALPR in Virginia at a statewide level, (ii) create a vendor approval process, (iii) provide data sharing protections, (iv) require annual reports and public posting of data, and (v) allow Virginia's land use permit regulations to be amended so that VDOT can issue permits for the installation of ALPR devices on state highway right-of-ways.

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[60] *Id*.
[61] Virginia Department of Transportation. *Highways*. https://www.vdot.virginia.gov/about/our-system/highways/#:~:text=VDOT%20operates%20the%20third%20largest,connect%20states%20and%20major%20cities.
[62] *See* Virginia Department of Transportation. *Land use permits*. https://www.vdot.virginia.gov/doing-business/technical-guidance-and-support/land-use-and-development/land-use-permits/.
[63] Meeting with representatives from the Virginia Department of Transportation (personal communication, June 11, 2024).
[64] Meetings with representatives from the Virginia Department of Transportation (personal communication, June 11, 2024), and Flock Safety (personal communication, June 26, 2024).
[65] *Id*. Meeting with representatives from the Virginia Department of Transportation (personal communication, November 1, 2024).
[66] *See* Appendix D. Staff legal analysis as of February 11, 2025.

As a result of this study, House Bill 2724 was introduced during the 2025 Regular Session of the General Assembly, which was amended during the legislative process and signed into law. [67] The bill imposes numerous safeguards on law enforcement use of ALPR that limit its use to specific purposes, promotes transparency and public awareness, and protects individual privacy and civil liberties. Specifically, the ALPR legislation:

- Limits law enforcement use of ALPR to (i) criminal investigations into violations under the Code of Virginia or any county, city, or town ordinance, (ii) active investigations into missing or endangered persons and persons associated with human trafficking, and (iii) alerts for missing or endangered persons, wanted persons, persons associated with human trafficking, and stolen vehicles and license plates;
- Requires that ALPR data be destroyed after 21 days, which is one of the shortest retention times in the country (unless it is needed for an ongoing investigation or prosecution);
- Directs law enforcement to maintain an audit trail of the ALPR system for 2 years;
- Exempts ALPR from the Virginia Freedom of Information Act,[68] prohibits the sale of ALPR data, and imposes restrictions on ALPR data sharing;
- Requires law enforcement agencies that use ALPR to adopt a policy on such use;
- Mandates ALPR data collection and reporting by law enforcement, including an amendment to the Virginia Community Policing Act to better capture data based on ALPR-related traffic stops;
- Directs law enforcement to publicly post its ALPR policy and data;
- Punishes unauthorized use of an ALPR system or disclosure of ALPR data as a Class 1 misdemeanor;
- Excludes evidence that was obtained in violation of the ALPR statute from use by the Commonwealth in criminal and civil proceedings;
- Requires law enforcement to develop independent reasonable suspicion or to verify an ALPR alert before conducting a traffic stop;

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[67] House Bill 2724, 2025 Regular Session of the General Assembly. (Del. Charniele L. Herring). https://lis.virginia.gov/bill-details/20251/HB2724.

[68] *See, e.g.,* Beyer, E. (2025, March 13). City of Roanoke, Botetourt County sheriff go to court over FOIA request. *Cardinal News.* https://cardinalnews.org/2025/03/13/city-of-roanoke-botetourt-county-sheriff-go-to-court-over-foia-request/; Schwaner, J. (2025, March 28). I drove 300 miles in rural Virginia, then asked police to send me their public surveillance footage of my car. Here's what I learned. *Cardinal News*. https://cardinalnews.org/2025/03/28/i-drove-300-miles-in-rural-virginia-then-asked-police-to-send-me-their-public-surveillance-footage-of-my-car-heres-what-i-learned/; Verrelli, S. (2025, April 25). Cardinal News wins FOIA battle for Flock footage in Roanoke circuit court. *Cardinal News*. https://cardinalnews.org/2025/04/25/cardinal-news-wins-foia-battle-for-flock-footage-in-roanoke-circuit-court/#:~:text=Posted%20inRedbird-,Cardinal%20News%20wins%20FOIA%20battle%20for%20Flock%20footage%20in%20Roanoke,any%20existing%20exemptions%20by%20police.

- Prohibits law enforcement from using ALPR to interfere with lawful activities and protected speech;
- Creates a process for the Division of Purchases and Supply to approve ALPR systems for statewide use in Virginia;
- Requires that law enforcement undertake measures to promote public awareness when implementing the use of an ALPR system;
- Directs vendors to notify the contracting law enforcement agencies upon receipt of a subpoena duces tecum, execution of a search warrant, or any other request from a third party for any ALPR system data or audit trail data, unless disclosure is prohibited by law; and,
- Authorizes VDOT to retroactively permit ALPR devices that were installed on state highway right-of-ways prior to July 1, 2025 (retroactive permitting must be completed by August 1, 2025).

Most of the provisions of the bill will take effect July 1, 2025; however, there are three significant delays in the enactment clauses:

- The Division of Purchases and Supply will have until January 1, 2026, to approve ALPR devices for statewide use in Virginia;
- The new data collection requirement under the Virginia Community Policing Act will take effect on January 1, 2026, to provide VSP time to reprogram its data collection and reporting systems; and,
- Law enforcement will be required to use ALPR devices that have been approved for statewide use by the Division of Purchases and Supply by July 1, 2026.

Lastly, the portion of the bill that allows VDOT to issue permits to law enforcement agencies for the installation of new ALPR devices on state right-of-ways is subject to reenactment during the 2026 Regular Session. The law provides that the Virginia State Police has the sole and exclusive authority to install ALPR in the right-of-way on any limited access highways or any bridge, tunnel, or special structure under the jurisdiction of the Commonwealth Transportation Board or the Department of Transportation.

As part of 2025 Reconvened Session, the Governor proposed two amendments which were not taken up by the General Assembly that would have increased the data retention period from 21 days to 30 days, and converted the 2026 reenactment clause to a delayed enactment clause until July 1, 2026.[69] The House of Delegates voted to pass by the Governor's proposed amendments for the day, thus

[69] House Bill 2724, 2025 Regular Session of the General Assembly, Governor's Recommendation. https://lis.virginia.gov/bill-details/20251/HB2724.

returning House Bill 2724 to the Governor in the same form that it passed the General Assembly.[70] The Governor ultimately signed the bill as it originally passed the General Assembly outlined above.[71]

CONCLUSION

Law enforcement, private parties, and other government entities can use ALPR to collect and analyze large amounts of vehicle data. While ALPR systems do not contain personally identifiable information about the registered owner(s) of a vehicle, such systems can capture images and location information on many vehicles.

Law enforcement agencies in Virginia and across the United States are using ALPR as a tool to solve crimes, locate stolen vehicles, and recover missing persons. Law enforcement primarily uses ALPR to receive alerts (real-time notifications) and conduct investigations (searches of real-time or historical data). Limited research exists on the effectiveness of ALPR; however, national studies on ALPR use by law enforcement are currently being conducted. Various benefits and concerns have been cited with regard to law enforcement use of ALPR.

While Virginia did not have any statewide laws or policies governing ALPR use by law enforcement at the time of this study, at least 18 states were identified with some level of statewide regulation. As a result of the study, the Crime Commission endorsed legislation to regulate law enforcement use of ALPR in Virginia at a statewide level. Legislation was introduced and enacted into law during the 2025 Regular Session of the General Assembly. Thus, ALPR use by law enforcement in Virginia will be regulated statewide beginning July 1, 2025. Virginia now has one of the most comprehensive ALPR laws in the nation.

The Crime Commission will continue to examine law enforcement use of ALPR in Virginia and report its findings (i) prior to the first day of the 2026 Regular Session of the General Assembly, (ii) prior to November 1, 2026, and (iii) by July 1, 2027, and for each of the five years thereafter.

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[70] House Bill 2724, 2025 Regular Session of the General Assembly. (Del. Charniele L. Herring). https://lis.virginia.gov/bill-details/20251/HB2724.

[71] 2025 Va. Acts ch. 720. House Bill 2724, 2025 Regular Session of the General Assembly, Chaptered. https://lis.virginia.gov/bill-details/20251/HB2724.

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Axon

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Virginia Association of Chiefs of Police & Foundation

Virginia Association of Commonwealth's Attorneys

Virginia Coalition for Immigrant Rights

Virginia Commonwealth University Police Department

Virginia Department of Motor Vehicles

Virginia Freedom of Information Advisory Council

Virginia State Police

Virginia Department of Transportation

Virginia Indigent Defense Commission

Virginia Sheriffs' Association

APPENDIX A: VIRGINIA ALPR COURT OPINIONS (AS OF 11/14/24)

OPINIONS DENYING A DEFENDANT'S MOTION TO SUPPRESS A WARRANTLESS SEARCH OF ALPR DATA:

- *Commonwealth v. Eddie Robinson*, 113 Va. Cir. 494 (Jul. 26, 2024) (Norfolk).
  - Charges: burglary (x9), felony attempt to obtain money by false pretenses, felony larceny of lottery tickets, grand larceny (x2), petit larceny (x7), and possession of a firearm by a convicted felon.

- *Commonwealth v. Jonah Leon Adams*, 113 Va. Cir. 505 (Aug. 1, 2024) (Chesterfield).
  - Charges: aggravated murder of multiple persons, aggravated murder of a person under age 14 (x3), murder - first degree (x4), use of a sawed off shotgun in a crime (x4), use of a firearm in a felony (x4), armed burglary with intent to commit murder, and wear body armor while committing a crime (x4).

- *Commonwealth v. Isaiah Roberson*, 113 Va. Cir. 565 (Aug. 23, 2024) (Norfolk).
  - Charges: first degree murder, second degree murder, and use of a firearm in a felony.

- *U.S. v. Kumiko L. Martin, Jr.*, 753 F. Supp. 3d 454 (Oct. 11, 2024) (Eastern District).
  - Charges: robbery, use of a firearm by brandishing during and in relation to a crime of violence, and possession of a firearm by a convicted felon.

- *Commonwealth v. Javon Jerome Reap*, (Oct. 16, 2024) (Norfolk Circuit Court).
  - Charges: second degree murder, conspiracy to commit second degree murder, and use of a firearm in a felony.

OPINION GRANTING A DEFENDANT'S MOTION TO SUPPRESS A WARRANTLESS SEARCH OF ALPR DATA:

- *Commonwealth v. Jayvon Antonio Bell*, 113 Va. Cir. 316 (May 10, 2024) (Norfolk).
  - Charges: robbery by using or displaying a firearm, use of a firearm in felony, and conspiracy to commit robbery by using or displaying a firearm.

VIRGINIA SUPREME COURT OPINION ON USE OF ALPR:

- The Fairfax County Police Department's use of ALPR to passively collect data did not violate Virginia's Government Data Collection and Dissemination Practices Act (§§ 2.2-3800 to 2.2-3809). *Neal v. Fairfax County Police Department*, 299 Va. 253, 849 S.E.2d 123 (Oct. 22, 2020).

APPENDIX B: STATE ALPR STATUTES (AS OF 9/8/24)

STATE	STATUTE(S)
Alabama	Ala. Admin. Code R. § 265-X-6
Arkansas	Ark. Code Ann. § 12-12-1801 et seq.
California	Cal. Civil Code § 1798.90.5 et seq. Cal. Civil Code § 1798.29 Cal. Veh. Code § 2413
Colorado	Colo. Rev. Stat. § 24-72-113
Florida	Fla. Stat. Ann. §§ 316.0777 and 316.0778
Georgia	Ga. Code Ann. § 35-1-22
Illinois	625 Ill. Comp. Stat. Ann. 5/2-130
Maine	Me. Stat. tit. 29-A, § 2117-A
Maryland	Md. Code Ann., Public Safety § 3-509
Minnesota	Minn. Stat. §§ 13.82, 13.824, and 626.8472
Montana	Mont. Code Ann. § 46-5-117 et seq.
Nebraska	Neb. Rev. Stat. Ann. § 60-3201 et seq.
New Hampshire	N.H. Rev. Stat. Ann. § 261:75-b
New Jersey	A.G. Directive No. 2022-12
North Carolina	N.C. Gen. Stat. § 20-183.30 et seq.
Tennessee	Tenn. Code Ann. § 55-10-302
Utah	Utah Code Ann. § 41-6a-2001 et seq.
Vermont	Vt. Stat. Ann. tit. 23, § 1607 et seq.

Source: Table prepared by Virginia State Crime Commission. Staff legal analysis as of September 8, 2024.

Note: Iowa (traffic enforcement), Kansas (definition in the Kansas Open Records Act), Michigan (included in General Schedule #11 for data retention by local law enforcement), and Oklahoma (uninsured vehicle enforcement program) reference ALPR, but those references were narrower in scope than the other states examined in the Crime Commission study.

APPENDIX C: COMPARISON OF STATE ALPR STATUTES (AS OF 9/8/24)

STATEWIDE REGULATION OF ALPR USE BY LAW ENFORCEMENT:

- **18 states** regulate ALPR use by law enforcement at the statewide level:
  - 16 states by statute: Arkansas, California, Colorado, Florida, Georgia, Illinois, Maine, Maryland, Minnesota, Montana, Nebraska, New Hampshire, North Carolina, Tennessee, Utah, and Vermont.
  - 1 state by Administrative Code: Alabama.
  - 1 state by Attorney General Directive: New Jersey.

DATA RETENTION PERIODS:

- **16 states** limit how long law enforcement agencies can retain ALPR data:

STATE	RETENTION PERIOD
New Hampshire	3 minutes
Utah	14 days
Maine	21 days
Georgia	30 days
California	60 days
Minnesota	60 days
Montana	90 days
North Carolina	90 days
Tennessee	90 days
Arkansas	150 days
Nebraska	180 days
Vermont	1 year 6 months
Colorado	3 years
Florida	3 years
New Jersey	3 years
Alabama	5 years

Source: Table prepared by Virginia State Crime Commission. Staff legal analysis as of September 8, 2024.

USE LIMITED TO CRIMINAL JUSTICE AND PUBLIC SAFETY PURPOSES:

- **14 states** – Alabama, Arkansas, Florida, Georgia, Maine, Maryland, Minnesota, Montana, Nebraska, New Hampshire, New Jersey, North Carolina, Utah, and Vermont.
  - All 14 states include "criminal investigations" in the definition of such purpose.
  - 4 states (Arkansas, Georgia, Maryland, Nebraska) include other states or federal agencies in the definition of law enforcement or government entity.

AGENCY POLICY ON ALPR USE REQUIRED:

- **11 states** – Alabama, Arkansas, California, Georgia, Maryland, Minnesota, Montana, Nebraska, New Jersey, North Carolina, and Utah.

AUDIT TRAIL REQUIRED:

- **8 states** – Alabama, California, Maryland, Minnesota, Montana, New Hampshire, New Jersey, and Vermont.

ROUTINE UPDATES TO DATABASES (HOT LIST) REQUIRED:

- **6 states** – Arkansas, Montana, Nebraska, New Hampshire, New Jersey, and North Carolina.

DATA SALE AND SHARING RESTRICTIONS:

- **12 states** – Alabama, Arkansas, California, Florida, Georgia, Illinois, Minnesota, Nebraska, New Jersey, North Carolina, Utah, and Vermont.
  - 5 states explicitly restrict sale – Alabama, Arkansas, California, North Carolina, and Utah.
  - 8 states limit sharing to other criminal justice agencies – Alabama, Arkansas, Florida, Georgia, Illinois, Minnesota, North Carolina, and Vermont.
  - Other important notes on ALPR data sharing:
    - Illinois prohibits sharing with other states if the data relates to reproductive health or immigration status.
    - The California Department of Criminal Justice has interpreted California law as prohibiting the sharing of ALPR data with out-of-state or federal agencies.
    - None of the other states appear to explicitly restrict sharing with out-of-state law enforcement agencies.
    - New Jersey and Utah allow out-of-state government agencies to enter into contracts or memorandums of understanding to receive ALPR data.
      - 3 states (Arkansas, Florida, Nebraska) allow sharing with the registered vehicle owner.

ALPR Data is Confidential or Not Subject to Public Record Laws:

- **11 states** – Arkansas, Florida, Georgia, Illinois, North Carolina, Maine, Maryland, Montana, Nebraska, Tennessee, and Utah.

Report on Use Required:

- **10 states** – Alabama, Arkansas, California, Maryland, Minnesota, Montana, Nebraska, New Hampshire, New Jersey, and Vermont.

Criminal Penalty for Misuse:

- **6 states** – Georgia, Maine, Maryland, Montana, North Carolina, and Utah.

Civil Cause of Action for Misuse:

- **3 states** – Arkansas, California, and Nebraska.

Verification of an Alert Required Before a Traffic Stop:

- **2 states** – Montana and New Hampshire.

Search Warrant Required for Data:

- No state generally requires law enforcement to obtain a search warrant for ALPR data; however, three states require a search warrant in specific instances:
  - Minnesota Stat. § 13.824(2)(d): search warrant required to monitor or track an individual who is the subject of an active criminal investigation.
  - Montana Code § 46-5-117(2)(a)(i): a search warrant or judicial exception is required to use ALPR data for an investigation or as evidence if it was collected by the department of transportation or a city or town for planning purposes.
  - Utah Code § 41-6a-2005(5): search warrant or court order required for a governmental entity to obtain, receive, or use captured plate data from a nongovernmental entity.

Obtain Permit Prior to Installation of ALPR on Roadway:

- **6 states** – Colorado, Florida, Georgia, Illinois, Tennessee, and Utah.
  - 3 states in statute (Florida, Tennessee, and Utah).
  - 3 states through a requirement in the Department of Transportation process (Colorado, Georgia, and Illinois).

APPENDIX D: INSTALLATION OF ALPR ON STATE HIGHWAYS (AS OF 2/11/25)

STATE	ALPR PLACEMENT REQUIREMENT
Colorado	A permit is required for the installation of an ALPR in CODOT maintained right-of-ways. *See* Colorado Department of Transportation- Terms and Conditions of Automated License Plate Reader Permits.
Florida	ALPR may be installed at the discretion of FDOT on a right-of-way of a road on the State Highway System when installed at the request of a law enforcement agency for the purpose of collecting active criminal intelligence information or active criminal investigative information. *See* Fla. Stat. Ann. § 316.0777(2)(b).
Georgia	A permit is required for the installation of an ALPR along Georgia state right-of-ways by state, local, and university police agencies through a GDOT permitting process. *See* Georgia Department of Transportation ALPR Permit.
Illinois	A permit is required for the installation of an ALPR along Illinois state right-of-ways by law enforcement agencies through an IDOT permitting process. *See* Illinois Department of Transportation Installation of License Plate Readers within State Right-of-Way Memorandum.
Tennessee	The Tennessee Department of Transportation is authorized, but not required, to permit the installation of ALPR on highways and right-of-ways to assist in criminal investigations or searches for missing or endangered persons. *See* Tenn. Code Ann. § 55-8-198(f)(2). *See also* Information Sheet from TDOT on ALPR Installation.
Utah	A law enforcement agency must obtain a special use permit from the Department of Transportation before installing any stationary ALPR device for the purpose of capturing license plate data of vehicles traveling on a state highway. *See* Utah Code Ann. § 41-6a-2003(3)(b).

Source: Table prepared by Virginia State Crime Commission. Staff legal analysis as of February 11, 2025.

APPENDIX E: ALPR ERRORS AND MISUSES (AS OF 11/14/24)

EXAMPLES OF ALPR ERRORS (INACCURATE READS OR ALERTS):

- California (2009): Denise Green was pulled over by multiple San Francisco Police Department officers after they received an alert from an ALPR that she was driving a stolen vehicle. Green was held at gunpoint, ordered to exit her vehicle, placed in handcuffs, and watched while officers searched her vehicle. This encounter lasted about 20 minutes before officers let her go. The ALPR misread a "7" as a "3." Green was driving a burgundy Lexus and the stolen vehicle was a gray GMC truck. Officers failed to verify the alert by comparing the license plates or the color, make, and model of the stolen vehicle to Green's vehicle. Green sued the San Francisco Police Department, the city of San Francisco, and the Sergeant who initiated the stop. The City settled for $495,000.
- Kansas (2014): Attorney Mark Molner was driving to his office when two Prairie Village Police officers blocked his vehicle at an intersection. One of the officers had his gun out of its holster as he approached Molner's vehicle. Officers initiated the stop because an ALPR mounted on one of their vehicles alerted that Molner was driving a stolen vehicle. The ALPR misread a "7" as a "2." The ALPR alert was related to a stolen Oldsmobile, and Molner was driving a BMW. The officer indicated that because it was rush hour, he was unable to compare the two license plates before initiating the traffic stop. Molner did not take any action against the Prairie Village Police Department.
- California (2018): Brian Hofer, chairman of the Oakland Privacy Advisory Commission, and his brother were driving a rental car back from a trip when an ALPR alerted law enforcement officers that the rental car was reported stolen. Hofer and his brother were pulled over and surrounded by three officers with their guns drawn, placed in handcuffs, and put in the back of a squad car. The car was reported stolen earlier in the year, but it had not been removed from the stolen vehicle "hot list" after it was recovered. Hofer filed suit in federal court and received $49,500.
- Colorado (2020): Law enforcement officers held a woman and four children at gunpoint because an ALPR alert matched her SUV's license plate to an out-of-state stolen motorcycle. While the license plate numbers matched those of the stolen motorcycle, the officers failed to compare the type of stolen vehicle. The case was settled and the family received $1.9 million.
- New Mexico (2022): Two separate incidents occurred involving the Española Police Department, which resulted in lawsuits against the City of Española, New Mexico. These cases are still pending.
    - Two minors riding in the same vehicle alleged that the ALPR misread their license plate for a vehicle that was reported stolen. The ALPR misread a "2" as a "7." The minors were

held at gunpoint, handcuffed, and placed in a patrol car before the mistaken vehicle identification was confirmed.

  - A minor was driving a white Toyota Tacoma when officers received a BOLO alert for the same color/make/model vehicle that had been implicated in a series of armed robberies. After reviewing ALPR camera footage of vehicles passing through an intersection near the crime scene, an officer wrongly concluded that the minor's vehicle was the suspect vehicle and issued a BOLO. A felony traffic stop was conducted, and the minor was ordered at gunpoint to get out of the truck, handcuffed, and detained at the scene until officers determined he was not the suspect.

- North Carolina (2022): Jacqueline McNeill was arrested by Fayetteville police after detectives using license plate reader technology mistakenly identified her vehicle as being involved in a shooting two days prior. Officers initiated a traffic stop of McNeill, arrested her, and transported her downtown where she was subject to interrogation for several hours. Finally, detectives realized they captured license plate reader images of two similar cars (the suspect car and McNeill's car) and arrested the wrong person. McNeill brought a suit against the Fayetteville Police Department and received a $60,000 settlement.

EXAMPLES OF ALPR MISUSES (UNAUTHORIZED USES OR VIOLATIONS OF CIVIL RIGHTS):

- New York (2001 to 2011): The NYPD took photographs and collected license plate information of congregants at New York City mosques for fear of protests from Muslim communities. Law enforcement officers in unmarked vehicles with attached license plate readers recorded the license plates from the vehicles parked near the mosques.
- Connecticut (February 2019 to August 2023): A law enforcement officer (who was a serial burglar and later convicted) ran license plate information through a law enforcement database for vehicles belonging to him and his wife to determine if he had been identified as a suspect for his crimes.
- California (2020 to 2021): The Marin County Sheriff's Office (the "Office") collected several hundred thousand license plate reads and shared them with federal agencies such as ICE, CBP, FBI, and DEA along with more than 400 out-of-state law enforcement agencies. Three pro-immigration activists sued the Office claiming that it violated the California Values Act, which prohibits state and local law enforcement agencies from using their resources against non-violent immigrants, and a California law which prohibits non-California law enforcement agencies from accessing information collected by ALPRs. A settlement was reached to pay attorney fees and to stop sharing immigration information.
- Pennsylvania (2021): A law enforcement officer used ALPR to track the movements of his estranged wife and other family members.

- Kansas (2022): A lieutenant with the Kechi Police Department used the Wichita Police Department ALPR to stalk his estranged wife.
- Kansas (2024): A Sedgewick police chief used ALPR to track his ex-girlfriend and her new boyfriend's vehicles 228 times over four months and used his police vehicle to follow them out of town.


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