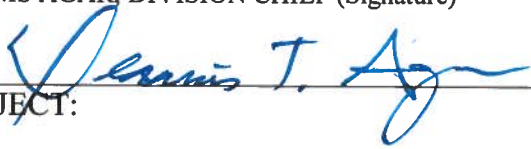


POLICY DIRECTIVE

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TRAFFIC OPERATIONS POLICY DIRECTIVE	14-01	PAGE: 1 of 11
DENNIS AGAR, DIVISION CHIEF (Signature) 	DATE ISSUED: February 5, 2014	EFFECTIVE DATE: February 5, 2014
SUBJECT: Installation and Use of Automated Red Light Enforcement Systems on the State Highway System	DISTRIBUTION <input checked="" type="checkbox"/> All District Directors <input checked="" type="checkbox"/> All Deputy District Directors - Traffic Operations <input checked="" type="checkbox"/> All Deputy District Directors - Maintenance <input checked="" type="checkbox"/> All Deputy District Directors - Construction <input checked="" type="checkbox"/> All Deputy District Directors - Design <input type="checkbox"/> All Deputy District Directors - Transportation Planning <input checked="" type="checkbox"/> Chief, Division of Engineering Services <input checked="" type="checkbox"/> Chief Counsel, Legal Division <input type="checkbox"/> Publications (California MUTCD Website) www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca_mutcd.htm <input checked="" type="checkbox"/> Headquarters Division Chiefs for: <u>Construction, Maintenance, Design</u>	
DOES THIS DIRECTIVE AFFECT OR SUPERSEDE ANOTHER DOCUMENT? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	IF YES, DESCRIBE Traffic Operations Policy Directive 09-03 Use of Automated Red Light Enforcement Systems on the State Highway System Traffic Operations Policy Directive 05-01 Minimum Yellow Light Change Interval	
WILL THIS DIRECTIVE BE INCORPORATED IN THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	IF YES, DESCRIBE	

DIRECTIVE

Automated red light enforcement (ARLE) systems as described within California Vehicle Code (CVC) section 21455.5 may be owned and operated by governmental agencies in cooperation with a law enforcement agency if such systems meet the following criteria:

1. A compelling need for these systems is demonstrated through a traffic engineering study of area intersections. Governmental agencies are required to make and adopt a finding of fact establishing that the system is required at a specific location for safety improvement purposes. Continuation of a permit for operation of a system must demonstrate a continued safety need at a location based upon a traffic engineering study.

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2. A new maintenance agreement or an amendment to an existing maintenance agreement shall be executed between Caltrans and the governmental agency which clearly defines the maintenance responsibilities for the ARLE system.
3. When ARLE systems are proposed for installation under an encroachment permit a complete set of design drawings and installation plans shall be submitted by the governmental agency for review by Caltrans.
4. A traffic engineering study shall be submitted to the District Deputy Director for Traffic Operations for evaluation and approval. Upon approval of the traffic engineering study, the governmental agency may submit the application for an encroachment permit to install, operate, and maintain the ARLE system.
5. An annual permit shall be required for each ARLE installation.
6. The ARLE systems shall be operated independently of Caltrans equipment and systems. Electrical connections with Caltrans equipment and systems are limited to traffic signal outputs as specified by Caltrans. These connections must be optically or otherwise isolated. Caltrans will not provide electrical power to these systems.
7. Caltrans is held harmless and indemnified from any and all liabilities or losses resulting from the use of or presence of said systems.
8. The ARLE systems shall meet all current safety requirements pertaining to intersection operations and all applicable codes.
9. District Encroachment Permit Engineers will inform the governmental agencies to apply for new permit for all existing ARLE installations by April 1, 2014.
10. All existing ARLE installations shall be in compliance with this policy by January 1, 2015.
11. Additional site specific performance evaluation requirements may be developed and included in the permit agreement for each ARLE system installed upon the State Highway System.

An evaluation report shall be prepared by the governmental agency permitted to operate the system every five years. The evaluation report will include documentation of safety performance based upon a systematic comparison of the intersection's performance before and after the treatment with the ARLE system.

Caltrans reserves the right to remove said systems at the owners cost if and when the above criteria or related requirements as outlined within this policy are not appropriately met.

POLICY DIRECTIVE**IMPLEMENTATION REQUIREMENTS**

- 1) Installation of ARLE systems by a governmental agency on State highways may be allowed to improve safety performance at intersections. The installation of ARLE systems by a governmental agency in accordance with the 2013 CVC § 21455.5 shall be in cooperation with a law enforcement agency. The law enforcement agency will be responsible for administering the data and issuing traffic citations.
- 2) The need for an ARLE system shall be determined by a traffic engineering study which takes into account enforcement data and traffic collisions associated to specific vehicular phase(s).
- 3) The encroachment permit process will be used for instances when a governmental agency wishes to install, operate, and maintain the operation of an ARLE system at an intersection of a State highway and local road.
- 4) Annual performance reporting requirements for governmental agencies which operate ARLE systems on the state highway system are pursuant to CVC Section 21455.5, amended in January 2013. Copies of this annual report for ARLE systems installed on a state highway shall be provided to the District Deputy Director for Traffic Operations to be kept on file for use in evaluating the need for a continued permit and the operation of the ARLE system. The annual report shall be submitted to the California Judicial Council and the District Encroachment Permit Engineer by the governmental agency that operates the ARLE system.
- 5) Key implementation requirements to consider in the evaluation of the ARLE system are:
 - a) Revenue generation shall not be considered beyond recovery of actual operating costs of the ARLE system, this shall be included within the annual report prepared.
 - b) The number of alleged violations captured by the system or systems.
 - c) The number of citations issued by a law enforcement agency based on information collected from the ARLE system.
 - d) For citations identified in (c) the number of violations that involved traveling straight through the intersection, turning right, and turning left.
 - e) The number and percentage of citations that are dismissed by the court.
 - f) The number of collisions at each intersection that occurred one year prior to, and one year after the installation of, the automated traffic enforcement system.

INSTALLATION

1. ARLE systems installed by a governmental agency shall be operated and maintained by that governmental agency. The governmental agency shall be responsible for all the costs of their ARLE system installation, operation, maintenance, and any expenses with relocation of an ARLE system. Administration of the data and citations shall be the responsibility of the appropriate law enforcement agency.
2. Under an encroachment permit, the following criteria must be met:
 - a. The ARLE system installed on state highways by a governmental agency shall be installed and operated independently of Department equipment and systems.
 - b. The ARLE system shall not interfere with the operation or visibility of the traffic signal.

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- c. The traffic signal cabinets shall not be accessed without the presence of a representative from the Department's Traffic Signal Operations or Electrical Maintenance staff.
 - d. Maintenance of the ARLE system and signal cabinet must be coordinated with the Department's Electrical Maintenance and/or Traffic Signal Operations staff to determine if or when a representative of the Department should be on site when the maintenance tasks are completed.
 - e. In the event of future modifications to the traffic signal system by the Department, the governmental agency which operates the system is responsible for all removal, relocation, modifications and restoration costs for the ARLE system, the time period for proposed modification work will be provided by the District Traffic Engineer to the governmental agency, the governmental agency will coordinate necessary removal, relocation, modification and restoration work for the ARLE system to be completed at their expense with the planned modifications.
 - f. The Department will provide yellow interval information to the governmental agency installing the ARLE system upon request, any subsequent need for verification of the yellow intervals will be the responsibility of the governmental agency.
 - g. Red output information only will be made available for the ARLE operation.
3. The Department may disconnect the ARLE system from the traffic signal and revoke the encroachment permit for any of the following reasons:
 - The ARLE system interferes with the visibility or operation of the traffic signal.
 - There is an increase in severe collisions at the traffic signal after installation of the ARLE systems.
 - Observed interference with pedestrian or vehicle movement within the intersection.
 - Unauthorized access to Caltrans equipment and systems.
 4. The Department will not be responsible for handling complaints for governmental agency ARLE systems. The governmental agency will provide contact information to be used for referring complaints regarding ARLE system operation to the governmental agency, this information will be kept current by the governmental agency.
 5. Any damages to Department traffic signal equipment during installation, maintenance, or removal of an ARLE system by a governmental agency shall be repaired by the governmental agency at their expense. This includes detection, communications, cabinet and contents, poles, power, wiring, signal mast arms, and signal indicators.
 6. The Department does not need the approval of the governmental agency which operates an ARLE for maintenance and operations of traffic signals on the state highway system which may have an ARLE system in place.
 7. The Department will oversee the establishment and changes to signal timing on the state highway system and at its discretion may change timing without notification to the governmental agency.

SITE APPROVAL

1. Signal maintenance is the responsibility of the owner of the roadway, unless otherwise dictated by specific maintenance agreement or permit. If an ARLE system is proposed on a State highway by a governmental
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agency under an encroachment permit, an amendment to an existing maintenance agreement or a new agreement must be executed between the Department and the governmental agency, which clearly defines the scope of said systems and certifies that the criteria described within this policy and the CVC § 21455.5 are met prior to the installation of ARLE system.

2. If an ARLE system is proposed on a State highway by a governmental agency under an encroachment permit, a traffic engineering study under the direction of and signed by a licensed professional engineer shall be conducted by the government agency at their expense and submitted to the Department for review as part of the permit approval. The appropriate District traffic unit(s) will review the study and make its recommendation to the District Encroachment Permit Engineer regarding site approval for the installation of an ARLE system under an encroachment permit.

The traffic engineering study for installation and the follow up evaluation of an ARLE system shall consider the following steps:

- Consideration of the original signal warrant (if available) that precipitated the installation of the signal as outlined in the California Manual on Uniform Traffic Control Devices Chapter 4C. Traffic Control Signal Needs Studies.
- Signal Timing in general.
- Determination of yellow change interval in accordance to the CA MUTCD Section 4D.26.
- Analysis of collision data and identification of collision patterns and the expected reductions in severe collisions that will be obtained through implementation of the ARLE system, using the latest scientific methods to quantify the expected changes in intersection safety performance.
- Comparison of collision frequency and rates to other similar type intersections in the area and on similar road types on the state highway system.
- Contacting parties familiar with the intersection, including law enforcement and maintenance personnel, to determine their observations and comments regarding the collisions.
- Field review to observe site conditions and observe drivers to determine their behavior patterns.
- Evaluation of previous countermeasure(s) implemented to address collision or driver behavior patterns.
- Identification and evaluation of possible countermeasure(s) to address collision or driver behavior patterns.
- Evaluation of citations being issued at the intersection, specifically through movement on red, left turn on red, and right turns where right turns are prohibited on red.

In all applications of this policy, engineering judgment must be exercised. The objective is to provide uniform applications of ARLE on the State Highway System. If there are any questions regarding implementation, Districts should consult with the Headquarters' Office of Traffic Engineering.

INSTALLATION APPROVAL BY GOVERNMENTAL AGENCIES

If an ARLE system is proposed on a State highway by a governmental agency under an encroachment permit, upon meeting the requirements for site approval, a complete set of design drawings and installation plans along with a traffic engineering study of the site shall be submitted for review and approval by the Department. These plans shall include the following:

1. All electrical, electronic, civil, and mechanical work pertaining to the ARLE system. The plans submitted shall

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be signed and sealed by a Professional Engineer licensed to practice within the state of California. The installation plans shall include all electrical, electronics, civil, and mechanical work pertaining to said systems. The Caltrans review is intended to discover only obvious errors and defects and does not confer liability for the completed plans to the department.

2. The plans provided will illustrate this isolation from the state system of all electrical connections from the traffic signal cabinet to the ARLE system.
3. If the existing detection system doesn't meet the requirements for the ARLE system, an independent detection system must be used and installed by the governmental agency. The detection system specifications shall be provided as part of the complete set of drawings and submitted for site approval.
4. The Department will not provide electrical power to these systems.
5. The system will be installed in separate conduit with distinctively marked pull boxes.
6. ARLE systems shall in no way affect the display, signal timing or operation of the signal.

ANNUAL REPORT

Pursuant to CVC Section 21455.5, amended in January 2013, the following shall be part of the ongoing effort to evaluate the effectiveness of the ARLE systems.

A manufacturer or supplier that operates an automated traffic enforcement system pursuant to this section shall, in cooperation with the governmental agency, submit an annual report to the Judicial Council that includes, but is not limited to, all of the following information if this information is in the possession of, or readily available to, the manufacturer or supplier:

- (1) The number of alleged violations captured by the systems they operate.
- (2) The number of citations issued by a law enforcement agency based on information collected from the automated traffic enforcement system.
- (3) For citations identified in paragraph (2), the number of violations that involved traveling straight through the intersection, turning right, and turning left.
- (4) The number and percentage of citations that are dismissed by the court.
- (5) The number and types of traffic collisions at each intersection that occurred prior to, and after the installation of, the automated traffic enforcement system.

Governmental agencies operating the ARLE systems on the state highway system shall provide a copy of this annual report to the appropriate Caltrans District Encroachment Permit Engineer. The annual report shall be

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provided at least six weeks prior to the permit expiration date with the minimum information provided as part of the annual report for the Judicial Council and with any site specific performance evaluation requirements documented as outlined within the permit agreement for installation on the State highway system. The District Encroachment Permit Engineer should provide a copy to the District Deputy Director for Traffic Operations to use in the evaluation of the systems performance. Caltrans reserves the right to remove said systems at the owners cost if and when the above criteria or related requirements as outlined within this policy are not appropriately met.

EVALUATION OF ARLE SYSTEMS

An evaluation report shall be prepared by the governmental agency permitted to operate the system every five years. The evaluation report shall be prepared under the leadership and guidance of a California licensed professional engineer which documents and quantifies the safety performance of the system. The evaluation report will include documentation of safety performance based upon a systematic comparison of the intersection's performance before and after the treatment with the ARLE system.

The effectiveness of the ARLE system on traffic safety shall consider the following information:

- Evaluation of the original study which justified the systems installation (if available) and any changes in collision patterns or types.
- Analysis of collision data and identification of collision patterns and types using the methods of quantifying the safety impact of design alternatives at an intersection as outlined within the American Association of State Highway and Transportation Officials Highway Safety Manual or through a similar method.
- Comparison of collision frequency and rates to other similar type intersections in the area or on the state highway system.
- Evaluation of citations being issued at the intersection, specifically through movement on red, left turn on red and right turns where right turns are prohibited on red.
- Contacting parties familiar with the intersection, including reviewing citation history with law enforcement and operational issues with maintenance personnel to determine their observations and comments regarding collisions and driver behavior.
- Field reviews to observe site conditions and observe drivers to determine their behavior patterns.
- Evaluation of untreated intersections which are similar within the region or on the state highway system to determine collision patterns and citation histories which may be considered as a means of performance comparison.
- The degree of public acceptance of the use of the ARLE system.
- The process of administration of the ARLE system.

The evaluation report and the annual permit application shall be submitted to the District Encroachment Permit Engineer at least sixty calendar days prior to the expiration of the fifth annual permit. The District Encroachment Permit Engineer shall distribute the evaluation report for review per the Caltrans Encroachment Permits Manual. Upon review of the evaluation report, if Caltrans concurs with the recommendation of the governmental agency and there is a demonstrated safety need for the ARLE system to continue, a new permit will be issued and a new five year evaluation cycle will begin. If the evaluation report indicates that the signalized intersection no longer needs an ARLE system, then the system shall be discontinued and all equipment shall be removed at the permittee's expense.

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DELEGATION

No new delegations of authority are created under this policy.

BACKGROUND

ARLE systems can be an effective tool for reducing the intentional running of red lights and decreasing collisions related to red light running.

Per the Texas Transportation Institute, there are more than 100,000 collisions per year in the United States of America involving drivers running a red light resulting in 90,000 injuries and 1,000 fatalities annually. Over half of red light running fatalities are pedestrians and occupants in other vehicles who are hit by red light runners.

National Cooperation Highway Research Program (NCHRP) Report 729 Automated Enforcement for Speeding and Red Light Running, December 2012, notes that the key elements of a successful automated enforcement program includes having a solid engineering foundation, employing a multidisciplinary approach, regular monitoring and evaluation, and ensuring that the entire program is transparent to the public and the media. The overall goal of any automated enforcement program should be to reduce collisions.

NCHRP 731 Guidelines for Timing Yellow and All Red Intervals at Signalized Intersections provided an evaluation of signal timing practices used across the nation with an objective for the project to prepare a comprehensive and uniform set of recommended guidelines for determining safe and operationally efficient yellow and red clearance intervals at signalized intersections. The recommendations from NCHRP 731 are currently being considered for inclusion within the CA MUTCD 2012 as an update.

This policy will be retired when it is revised or incorporated into other documentation within the Department.

ATTACHMENTS

2013 CVC § 21455.5 Traffic Signal Automated Enforcement: Photographic Records

TOPD 05-01 Minimum Yellow Light Change Interval- now superseded by CA MUTCD 2012 Section 4D-26.

Traffic Signal Automated Enforcement: Photographic Records

California Vehicle Code Effective January 1, 2013

21455.5. (a) The limit line, the intersection, or a place designated in Section 21455, where a driver is required to stop, may be equipped with an automated traffic enforcement system if the governmental agency utilizing the system meets all of the following requirements:

(1) Identifies the system by signs posted within 200 feet of an intersection where a system is operating that clearly indicate the system's presence and are visible to traffic approaching from all directions in which the automated

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traffic enforcement system is being utilized to issue citations. A governmental agency utilizing such a system does not need to post signs visible to traffic approaching the intersection from directions not subject to the automated traffic enforcement system. Automated traffic enforcement systems installed as of January 1, 2013, shall be identified no later than January 1, 2014.

(2) Locates the system at an intersection and ensures that the system meets the criteria specified in Section 21455.7.

(b) Prior to issuing citations under this section, a local jurisdiction utilizing an automated traffic enforcement system shall commence a program to issue only warning notices for 30 days. The local jurisdiction shall also make a public announcement of the automated traffic enforcement system at least 30 days prior to the commencement of the enforcement program.

(c) Only a governmental agency, in cooperation with a law enforcement agency, may operate an automated traffic enforcement system. A governmental agency that operates an automated traffic enforcement system shall do all of the following:

(1) Develop uniform guidelines for screening and issuing violations and for the processing and storage of confidential information, and establish procedures to ensure compliance with those guidelines. For systems installed as of January 1, 2013, a governmental agency that operates an automated traffic enforcement system shall establish those guidelines by January 1, 2014.

(2) Perform administrative functions and day-to-day functions, including, but not limited to, all of the following:

(A) Establishing guidelines for the selection of a location. Prior to installing an automated traffic enforcement system after January 1, 2013, the governmental agency shall make and adopt a finding of fact establishing that the system is needed at a specific location for reasons related to safety.

(B) Ensuring that the equipment is regularly inspected.

(C) Certifying that the equipment is properly installed and calibrated, and is operating properly.

(D) Regularly inspecting and maintaining warning signs placed under paragraph (1) of subdivision (a).

(E) Overseeing the establishment or change of signal phases and the timing thereof.

(F) Maintaining controls necessary to ensure that only those citations that have been reviewed and approved by law enforcement are delivered to violators.

(d) The activities listed in subdivision (c) that relate to the operation of the system may be contracted out by the governmental agency, if it maintains overall control and supervision of the system. However, the activities listed in paragraph (1) of, and subparagraphs (A), (D), (E), and (F) of paragraph (2) of, subdivision (c) shall not be contracted out to the manufacturer or supplier of the automated traffic enforcement system.

(e) The printed representation of computer generated information, video, or photographic images stored by an automated traffic enforcement system does not constitute an out-of-court hearsay statement by a declarant under

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Division 10 (commencing with Section 1200) of the Evidence Code.

(f) (1) Notwithstanding Section 6253 of the Government Code, or any other law, photographic records made by an automated traffic enforcement system shall be confidential, and shall be made available only to governmental agencies and law enforcement agencies and only for the purposes of this article.

(2) Confidential information obtained from the Department of Motor Vehicles for the administration or enforcement of this article shall be held confidential, and shall not be used for any other purpose.

(3) Except for court records described in Section 68152 of the Government Code, the confidential records and information described in paragraphs (1) and (2) may be retained for up to six months from the date the information was first obtained, or until final disposition of the citation, whichever date is later, after which time the information shall be destroyed in a manner that will preserve the confidentiality of any person included in the record or information.

(g) Notwithstanding subdivision (f), the registered owner or any individual identified by the registered owner as the driver of the vehicle at the time of the alleged violation shall be permitted to review the photographic evidence of the alleged violation.

(h) (1) A contract between a governmental agency and a manufacturer or supplier of automated traffic enforcement equipment shall not include provision for the payment or compensation to the manufacturer or supplier based on the number of citations generated, or as a percentage of the revenue generated, as a result of the use of the equipment authorized under this section.

(2) Paragraph (1) does not apply to a contract that was entered into by a governmental agency and a manufacturer or supplier of automated traffic enforcement equipment before January 1, 2004, unless that contract is renewed, extended, or amended on or after January 1, 2004.

(3) A governmental agency that proposes to install or operate an automated traffic enforcement system shall not consider revenue generation, beyond recovering its actual costs of operating the system, as a factor when considering whether or not to install or operate a system within its local jurisdiction.

(i) A manufacturer or supplier that operates an automated traffic enforcement system pursuant to this section shall, in cooperation with the governmental agency, submit an annual report to the Judicial Council that includes, but is not limited to, all of the following information if this information is in the possession of, or readily available to, the manufacturer or supplier:

(1) The number of alleged violations captured by the systems they operate.

(2) The number of citations issued by a law enforcement agency based on information collected from the automated traffic enforcement system.

(3) For citations identified in paragraph (2), the number of violations that involved traveling straight through the intersection, turning right, and turning left.

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(4) The number and percentage of citations that are dismissed by the court.

(5) The number of traffic collisions at each intersection that occurred prior to, and after the installation of, the automated traffic enforcement system.

(j) If a governmental agency utilizing an automated traffic enforcement system has posted signs on or before January 1, 2013, that met the requirements of paragraph (1) of subdivision (a) of this section, as it read on January 1, 2012, the governmental agency shall not remove those signs until signs are posted that meet the requirements specified in this section, as it reads on January 1, 2013.

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