MARYLAND DEPARTMENT OF TRANSPORTATION
MOTOR VEHICLE ADMINISTRATION

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor
Gregory Slater
Secretary
Christine Nizer
Administrator

February 28, 2020

Ms. Stephanie Hancock
Regional Administrator
U.S. DOT NHTSA – Region 3
George H. Fallon Federal Building
31 Hopkins Plaza, Room 902
Baltimore MD 21201-2825

Dear Ms. Hancock:

As Governor Larry Hogan's Highway Safety Representative, I am pleased to present the completed "biennial survey of State automated traffic enforcement systems" from the Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) Highway Safety Office in accordance with Federal Law (Fixing America's Surface Transportation (FAST), US Code Title 23, Public Law 114-94, Title IV – Highway Safety Sub-section 4002 – Special funding Conditions for Section 402 Grants).

Attached is Maryland's final Automated Enforcement (AE) Survey report, including individual survey responses from each jurisdiction/political subdivision utilizing AE. The attached report is Maryland's baseline for the State's automated red light and speed enforcement activity.

Throughout this report, we strive to provide ample and accurate information regarding Maryland's AE systems. If you have any additional questions or concerns, please contact Mr. Timothy Kerns, MDOT MVA Highway Safety Office Director, at 410-787-4050 or tkerns@mdot.maryland.gov. You may also contact me at 410-768-7274 or cnizer@mdot.maryland.gov. Mr. Kerns and I will be happy to assist you.

Sincerely,

Christine Nizer
Administrator

Attachment

cc: Mr. Tim Kerns, Director, MHSO, MVA

MARYLAND DEPARTMENT OF TRANSPORTATION

MOTOR VEHICLE ADMINISTRATION (MDOT MVA)

Maryland Highway Safety Office

AUTOMATED ENFORCEMENT SURVEY REPORT

Prepared by:

University of Maryland

Center for Advanced Transportation Technology

February 27, 2020

1. INTRODUCTION

The Section 402 program, officially known as the State and Community Highway Safety Grant Program, provides federal funding to states for the purpose of improving driver behavior and reducing the number of injuries and fatalities from vehicle crashes. In order to comply with the funding conditions for this program, states with jurisdictions/political subdivisions that use automated enforcement (AE) systems are required to perform a biennial survey of their systems (according to §1300.13 of the Federal Register). Because Maryland is a Section 402 grant recipient with several jurisdictions/political subdivisions currently utilizing AE, the state is required to evaluate its systems as outlined in §1300.13.

This report contains the results of the evaluation for Federal Fiscal Year 2020, including an inventory of all jurisdictions / political subdivisions using Automated Speed Enforcement (ASE) or Automated Red Light Enforcement (ARLE) systems, a copy of completed survey responses from each jurisdiction/political subdivision, and a summary of the results. It should be noted that the results reported in this document are based solely on the survey responses; there was no attempt made to independently verify the answers reported.

2. TABLE OF CONTENTS

3. EXECUTIVE SUMMARY

In order to comply with the funding conditions for Section 402 grants, states must either perform a biennial survey of state AE systems, or certify that they are not using this technology on any public road in the state. Because several jurisdictions/political subdivisions within the State use AE systems, Maryland is required to administer this survey and submit the results to the National Highway Traffic Safety Administration (NHTSA).

The Maryland Department of Transportation (MDOT) Motor Vehicle Administration's (MVA) Maryland Highway Safety Office (MHSO) developed a survey tool for this purpose, which meets the requirements outlined in §1300.13 of the Federal Register, focusing on transparency, accountability, and safety aspects of AE systems and administration. Upon updating an existing inventory of relevant jurisdictions/political subdivisions in Maryland, this survey was administered electronically during February 10-21, 2020.

In total, 48 jurisdictions/political subdivisions were found to be using and managing AE systems in Maryland – of which 44 completed the survey. Multiple attempts were made to contact the four (4) jurisdictions/political subdivisions with missing responses, but they could not be reached. Of the 44 jurisdictions/political subdivisions who completed the survey, 23 reported using ASE only, five (5) using ARLE only, and sixteen (16) using both. In general, the results provided by survey respondents indicate that the vast majority of jurisdictions are following the state and federal requirements for AE systems. Table 1 summarizes these results in terms of the compliance rate for each of the three survey focus areas: transparency, accountability, and safety. The 23 jurisdictions/political subdivisions using ASE had compliance rates ranging from 89% (safety) to 91% (accountability), while the five (5) using ARLE had rates ranging from 76% (transparency) to 90% (safety), and the sixteen (16) using both had rates ranging from 86% (accountability) to 97% (safety).

Table 1: Summary of overall compliance in each of the survey categories

AE Type	**Jurisdictions / Political Subdivisions Using AE**	**Compliance Rate**		
		Transparency	*Accountability*	*Safety*
ASE	23	90%	91%	89%
ARLE	5	76%	87%	90%
Both	16	91%	86%	97%

4. MANDATING LANGUAGE FROM FEDERAL REGISTER

Federal Register / Vol. 81, No. 99 / Monday, May 23, 2016 / Rules and Regulations (pg 32584)
23 CFR Part 1300 NHTSA; Interim Final Rule

§ 1300.13 Special funding conditions for Section 402 Grants.

The State's highway safety program under Section 402 shall be subject to the following conditions, and approval under §1300.14 of this part shall be deemed to incorporate these conditions:

(d) *Biennial survey of State automated traffic enforcement systems requirement.*

(1) Beginning with fiscal year 2018 highway safety plans and biennially thereafter, the State must either—

(i) Certify, as provided in Appendix A, that automated traffic enforcement systems are not used on any public road in the State; or

(ii) (A) Conduct a survey during the fiscal year of the grant meeting the requirements of paragraph (d)(2) of this section and provide assurances, as provided in Appendix A, that it will do so; and

(B) Submit the survey results to the NHTSA Regional office no later than March 1 of the fiscal year of the grant.

(2) *Survey contents.* The survey shall include information about all automated traffic enforcement systems installed in the State, including systems installed in political subdivisions. The survey shall include:

(i) List of automated traffic enforcement systems in the State;

(ii) Adequate data to measure the transparency, accountability, and safety attributes of each automated traffic enforcement system; and

(iii) Comparison of each automated traffic enforcement system with—

(A) "Speed Enforcement Camera Systems Operational Guidelines" (DOT HS 810 916), as updated; and

(B) "Red Light Camera Systems Operational Guidelines" (FHWA-SA-05-002), as updated.

5. MARYLAND LAW AUTHORIZING ASE/ARLE

I. AUTOMATED SPEED ENFORCEMENT

As of October 1, 2009, Maryland law allows ASE in work zones and specified school zones, with key legislation found in Transportation Article §21-810 (work zones) and Transportation Article § 21-809 (school zones) of the Maryland Annotated Code.

a. *Work Zones*

The ASE program in work zones in Maryland is called Maryland *SafeZones* and is handled at the state level, governed by Transportation Article §21-810 of the Maryland Annotated Code, and also subject to state regulations (COMAR 11.04.15). The law states that cameras may be used on expressways or controlled access highways with a speed limit of 45 mph or greater, drivers must be warned about the enforcement via appropriate signage, citations may only be issued when vehicles exceed the speed limit by 12 mph or more, and the citation carries a civil penalty with fines not to exceed $40. Furthermore, the law describes equipment calibration procedures, the auditing and appeals processes, and states that vendors' fees cannot be contingent on the number of citations issued.

b. *School Zones*

ASE in school zones is handled at the local (i.e., county or municipal) level, and is governed by Transportation Article §21-809 of the Maryland Annotated Code. Eligible school zones are defined in §21-803.1 and may be created within a ½ mile radius of a school. In addition to these zones, §21-809 also authorizes ASE for a few other limited circumstances: residential districts in Montgomery County where speed limits are 35mph and less, within a ½ mile radius of institutions of higher education in Prince George's County (e.g., University of Maryland, College Park), and on Maryland Route 210 (Indian Head Highway) in Price George's County. As is the case with ASE in work zones, the citation carries a civil penalty with fines not to exceed $40. The law also describes equipment calibration procedures, outlines the signage and advanced warning requirements, describes the auditing and appeals processes, and states that vendors' fees cannot be contingent on the number of citations issued.

II. AUTOMATED RED LIGHT ENFORCEMENT

As of October 1, 1997, Maryland law (Transportation Article §21-202.1 of the Maryland Annotated Code) allows law enforcement agencies to automatically enforce red light violations at intersections (defined as violating the instructions for vehicular traffic when facing a steady circular red signal in Transportation Article §21-202 (h) of the Maryland Annotated Code) via red light cameras. In contrast to ASE (which is limited to work zones and school zones), ARLE is allowed statewide. The law includes provisions to ensure that the time the traffic signal shows a yellow light is in accordance with MDOT SHA and Federal standards, states that the violation must be signed by a sworn agent of the state, describes the documentation that must be mailed by the agency to the vehicle owner, and notes that the fine may not exceed $100. Furthermore, it describes legal options for the person receiving a citation, and lists types of defense that the District Court may consider (e.g., stolen vehicle, yielding to emergency vehicle). Finally, it notes that an ARLE violation does not affect the offender's driving record, and cannot be considered by automotive insurance companies.

6. MARYLAND POLICIES FOR APPROVAL

I. AUTOMATED SPEED ENFORCEMENT

a. *Work Zones*

ASE in work zones is enforced at the state level (Transportation Article §21-810 authorizes the MDOT State Highway Administration (MDOT SHA), MDOT Maryland Transportation Authority, and Maryland State Police to do so), and thus there are no approval policies that local jurisdictions/political subdivisions need to follow. As long as these State agencies follow the guidelines detailed in §21-810 and summarized in the previous section (e.g., signage, system calibration, etc.), there is no additional approval needed prior to their implementation of ASE in work zones.

b. *School Zones*

ASE in school zones is the responsibility of the local jurisdictions/political subdivisions, and thus must be handled by local law enforcement (or through an alternative agency if the local jurisdiction does not have a police department). The following steps are required for local jurisdictions/political subdivision interested in implementing school zone ASE:

a) Pass a local law authorizing the use of ASE in school zones (with sufficient public notice and a public hearing).
b) Officially establish school zones and mark them with appropriate signs. Eligible school zones are defined in §21-803.1, and generally contain roads within a ½ mile radius of a K-12 school (as well as around certain institutions of higher education in Prince George's County, as authorized by §21-809). However, note that all roads that meet these criteria are not school zones; they must be officially established by the authority that has jurisdiction of the road.
c) Obtain approval from the MDOT SHA if the desired enforcement location is along a State route. To do so, the jurisdiction/political subdivision must fill out a permit application and submit the following items:
    - Completed ASE Permit Application Form
    - Vicinity Map
    - Plans for the ASE system
    - Documentation of local ordinance or resolution approving the use of ASE systems
    - Evaluation plan (for before-after studies)
    - Lane Closure Permit Application (as needed)

In the case of a county, they must also alert any local jurisdictions of MDOT SHA's approval at specified location and give them 60 days enact an ordinance themselves.

d) Notify the public of speed camera locations via its website and in a local newspaper, and identify appropriate road segments as school zones (with speed limit and automated speed enforcement signage)
e) Deploy cameras, but do not begin enforcing violations with a fine until at least 15 days have passed since appropriate signage was installed. This also applies whenever an ASE system is moved to a new location where it was not previously used.

As noted in the previous section, §21-809 additionally allows ASE in residential districts of Montgomery County where the speed limit is 35 mph or less. The Montgomery County Police Department treats both school zone and residential ASE in the same manner, with each subject to the general policies outlined above. Furthermore, Montgomery County has specified an additional procedure for determining camera locations, which is applicable to both school zone and residential ASE. This process includes pre-enforcement verification, data collection, data analysis, and a Traffic Division Director site visit.

Maryland Code §21-809 also includes special instructions for Prince George's County – including rules about how to handle overlapping school zones between jurisdictions and how its local jurisdictions must request permission of the county to implement ASE systems on county roads. Additionally, it specifies that in addition to providing appropriate signage, Maryland Route 210 – one of the limited scenarios where ASE is allowable outside of school zones – requires a real-time device to show drivers how fast they are traveling.

II. AUTOMATED RED LIGHT ENFORCEMENT

Although authorized statewide, ARLE is handled by local jurisdictions/law enforcement, and can take one of three forms:

1. Local jurisdiction purchases, installs, and operates the red light camera system, and issues citations.
2. Local jurisdiction pays a vendor to set up and manage the system as well as issue citations. However, note that a local officer must check and sign the violations.
3. Local jurisdiction joins another jurisdiction who has a contract with a vendor.

The following steps outline the approval process for red light cameras on State highways or on roads that use State signals:

a. Request approval from MDOT SHA (note that this must be done by the jurisdiction, not a contractor/vendor), and include information about the proposed location as well

as documentation describing why a red light camera is important (e.g., crash, citation, observational data)

b. Obtain preliminary approval from MDOT SHA, which involves MDOT SHA reviewing the request, checking signal operations and sight distances as well as considering alternative plans.
c. Submit 8 copies of the installation plans to the MDOT SHA, Office of Traffic and Safety (OOTS), Traffic Engineering Design Division (TEDD). MDOT SHA will review, comment, and approve the plans.,
d. Pay MDOT SHA for costs associated with the review/approval process, installation, inspection, and operation.
e. Install cameras (MDOT SHA is responsible for providing connection to the signal controller) after giving OOTS 48 hours of notice, which must meet MDOT SHA requirements and pass an inspection.
f. Let public know about the implementation of ARLE systems (e.g., media announcements, websites).
g. Install signs to warn drivers of red light cameras (must be located before the first camera along a route).

For locations that are not on State highways or on roads that do not use State signals, the only mandatory step is the provision to install signs to warn drivers of red light enforcement. However, it is highly recommended to only install red light systems in locations that have been subject to an engineering review, and where there will also be public outreach.

7. INVENTORY

Based on contact information provided by MDOT, 51 jurisdictions/political subdivisions were inventoried for ASE / ARLE usage in Maryland. Table 2 summarizes these jurisdictions/political subdivisions and their automated enforcement programs, with 24 using ASE only, seven (7) using ARLE only, seventeen (17) using both, and three (3) that have neither or are not responsible for managing them. Each jurisdiction/political subdivision's corresponding county is listed in the second column of Table 2 and can be referenced to Figure 1, which shows Maryland county boundaries on a map.

It should be noted that not all 51 jurisdictions/political subdivisions that were inventoried are included in the survey results. First, the three (3) jurisdictions/political subdivisions not using (or managing) AE systems were omitted – including one that does use ASE, but contracts with its county sheriff's department that was already included in the survey. Additionally, four (4) additional jurisdictions/political subdivisions could not be included because they did not respond to the survey despite multiple outreach attempts. Footnotes are used to indicate the relevant circumstances in Table 2.

Table 2: Inventory of jurisdictions / political subdivisions

Jurisdiction/Political Subdivision	County	ASE	ARLE
Anne Arundel	Anne Arundel	No	No
Baltimore City[1]	Baltimore City	Yes	Yes
Baltimore County	Baltimore	Yes	Yes
Bel Air	Harford	No	Yes
Berwyn Heights	Prince George's	Yes	No
Bowie	Prince George's	Yes	No
Brentwood	Prince George's	No	Yes
Calvert County	Calvert	Yes	No
Capitol Heights	Prince George's	Yes	No
Charles County	Charles	Yes	Yes
Cheverly	Prince George's	Yes	Yes
Chevy Chase Village	Montgomery	Yes	No
City of Annapolis	Anne Arundel	Yes	Yes
City of Hagerstown	Washington	Yes	Yes
College Park	Prince George's	Yes	No

[1] Did not respond to survey after multiple attempts

Jurisdiction/Political Subdivision	County	ASE	ARLE
Cottage City[1]	Prince George's	No	Yes
Delmar	Wicomico	Yes	No
Denton	Caroline	Yes	No
District Heights[1]	District Heights	Yes	No
Easton	Talbot	Yes	No
Forest Heights	Prince George's	Yes	No
Frederick	Frederick	Yes	Yes
Fruitland	Wicomico	Yes	No
Gaithersburg	Prince George's	Yes	No
Glenarden	Prince George's	Yes	No
Greenbelt	Prince George's	Yes	Yes
Harford County	Harford	No	No
Howard County	Howard	Yes	Yes
Hyattsville	Prince George's	Yes	Yes
Laurel	Prince George's	Yes	Yes
MDOT-SHA	All	Yes	No
Montgomery County	Montgomery	Yes	Yes
New Carrollton	Prince George's	Yes	Yes
Prince George's County	Prince George's	Yes	Yes
Riverdale Park	Prince George's	Yes	No
Rockville	Montgomery	Yes	Yes
Salisbury	Wicomico	Yes	No
Seat Pleasant	Prince George's	Yes	Yes
Smithsburg	Washington	Yes	No
Takoma Park	Montgomery	Yes	No
Town of Centreville	Queen Anne's	Yes	No
Town of Chesapeake Beach[2]	Calvert	No	No
Town of Chestertown	Kent	Yes	No
Town of Colmar Manor[1]	Prince George's	No	Yes
Town of Edmonston	Prince George's	No	Yes
Town of Hancock	Washington	Yes	No
Town of Landover Hills	Prince George's	Yes	Yes

[2] Police services – including ASE - are contracted with the Calvert County Sherriff's Dept. Because Calvert County was already part of the survey, no AE programs were attributed to the Town of Chesapeake Beach.

Jurisdiction/Political Subdivision	County	ASE	ARLE
Town of Snow Hill	Worcester	Yes	No
University Park	Prince George's	No	Yes
Washington County	Washington	Yes	No
Westminster	Carroll	No	Yes

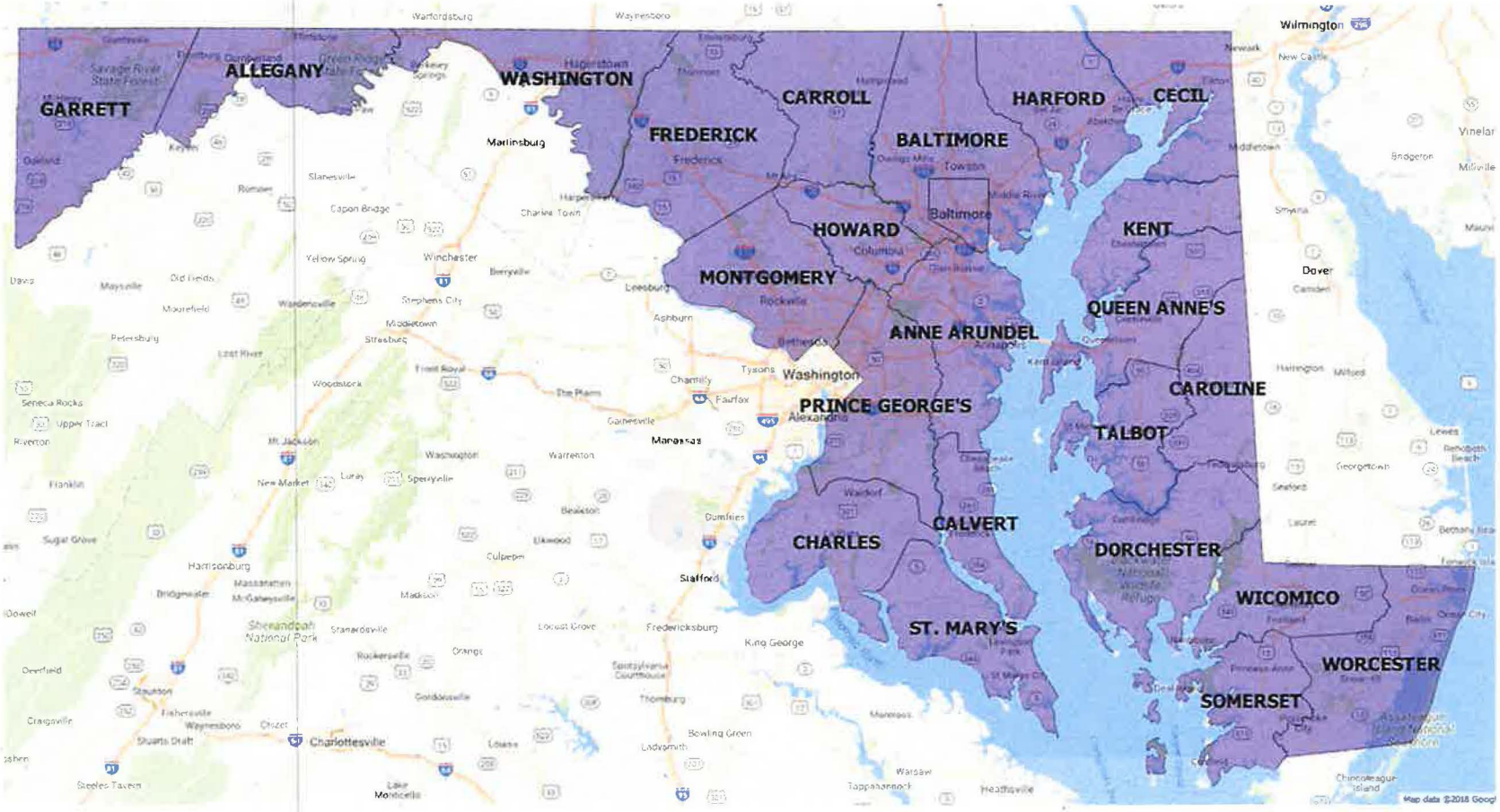

Figure 1: Maryland county boundaries

8. SURVEY

I. METHODOLOGY

The AE survey, which was provided by the MHSO, was administered by the University of Maryland Center for Advanced Transportation Technology (UMD-CATT) electronically during February 2020.

The survey instrument – a written copy of which is shown in Figure 2 - consists of 17 total questions, focusing on general information about the jurisdiction/political subdivision, and containing a series of yes/no questions broadly focused on transparency, accountability, and safety. The first seven (7) questions ask general information about the jurisdiction (e.g., jurisdiction type, ASE/ARLE usage, whether federal guidelines were followed during implementation, system ownership). The following five (5) questions focus on transparency, asking whether the jurisdictions make various types of information available to the public (e.g., placement of enforcement locations, revenue information, disbursement information, number of citations). The accountability section consists of three (3) questions, which ask whether citations are reviewed by an officer, whether there is a process for dispute resolution, and if the AE program is audited. Finally, there are two (2) questions in the safety section, which ask whether data is used to select AE placement locations, and whether it is used for safety analysis.

The jurisdictions/political subdivisions identified by MDOT were contacted by MHSO to explain the purpose of the survey, provide a link to complete it electronically, and provide clear expectations for when it should be completed to comply with Federal deadlines. MHSO determined that the survey should be completed electronically based on challenges that were experienced during 2018 when the same survey instrument was administered over the phone and in person.

Of the 51 jurisdictions/political subdivisions inventoried in Maryland, 48 were found to be using and managing AE systems – omitting two (2) not using ASE/ARLE and one (1) who subcontracts police services to its county sheriff's department who was already part of the survey. A total of 44 of the 48 possible surveys were successfully completed, with the missing four (4) attributed to jurisdictions/political subdivisions not responding to the survey despite multiple follow-up attempts. It should be noted that the results – discussed further in the next section - are entirely based on the responses provided by the jurisdictions and were not independently verified.

FIXING AMERICA'S SURFACE TRANSPORTATION (FAST)
US CODE Title 23; Public Law 114-94, Title IV – Highway Safety
§ 4002 – Special Funding Conditions for Section 402 Grants
Biennial Survey of State Automated Traffic Enforcement Systems

MARYLAND DEPARTMENT OF TRANSPORTATION
MOTOR VEHICLE ADMINISTRATION
Maryland Highway Safety Office

General

1. Name of Jurisdiction/Political Subdivision: _____
2. Type of Government Entity (city, state, etc.):
3. Population: _____
4. Type of automated enforcement system used:
   Red light camera ☐ Speed Enforcement Camera ☐ Both ☐
5. Did the jurisdiction/political subdivision refer to and follow federal DOT "*Speed Enforcement Camera Systems Operational Guidelines*" when implementing its automated enforcement system?
   Yes ☐ No ☐ Not Applicable (No Automated Speed Cameras) ☐ Don't Know ☐
6. Did the jurisdiction/political subdivision refer to and follow FHWA "*Red Light Camera Systems Operational Guidelines*" when implementing its automated enforcement system?
   Yes ☐ No ☐ Not Applicable (No Automated Red Light Cameras) ☐ Don't Know ☐
7. Ownership of system (camera & equipment):
   Speed Camera: Jurisdiction-owned ☐ Contracted/leased ☐
   Red Light Camera: Jurisdiction-owned ☐ Contracted/leased ☐

Transparency

1. Are placement locations of automated enforcement publicly available?
   Speed Camera: Yes ☐ No ☐ **Red Light Camera**: Yes ☐ No ☐
2. Is information regarding automated enforcement revenue publicly available?
   Speed Camera: Yes ☐ No ☐ **Red Light Camera**: Yes ☐ No ☐
3. Is information regarding the disbursement of this revenue publicly available?
   Speed Camera: Yes ☐ No ☐ **Red Light Camera**: Yes ☐ No ☐
4. Is the number of automated enforcement citations issued publicly available?
   Speed Camera: Yes ☐ No ☐ **Red Light Camera**: Yes ☐ No ☐
5. Upon deployment at a specific location, is there a warning period before citations are issued?
   Speed Camera: Yes ☐ No ☐ **Red Light Camera**: Yes ☐ No ☐

Accountability

1. Are citations reviewed and signed by a sworn law enforcement officer?
   Speed Camera: Yes ☐ No ☐ **Red Light Camera**: Yes ☐ No ☐
2. Is there a process in place for dispute resolution?
   Speed Camera: Yes ☐ No ☐ **Red Light Camera**: Yes ☐ No ☐
3. Is the automated enforcement program audited?
   Speed Camera: Yes ☐ No ☐ If yes, how often? _____
   Red Light Camera: Yes ☐ No ☐ If yes, how often? _____

Safety Attributes

1. Is traffic data (engineering & crash) utilized to determine placement of enforcement platforms?
   Speed Camera: Yes ☐ No ☐ **Red Light Camera**: Yes ☐ No ☐
2. Does the jurisdiction/political subdivision analyze traffic data to determine its automated enforcement's impact on safety elements (i.e. crashes, speed, etc.)?
   Speed Camera: Yes ☐ No ☐ **Red Light Camera**: Yes ☐ No ☐

Data recorded by: _____ Name _____ Date

Figure 2: Survey instrument that was administered electronically.

II. RESULTS SUMMARY

Of the 44 jurisdictions/political subdivisions who responded to the survey, 39 are currently using ASE while 21 are using ARLE (including sixteen (16) using both). The responses to the ASE and ARLE survey questions are summarized in Table 3, with answers separated into "Yes", "No", and "Unknown" categories. In addition, the same results that are tabulated in Table 3 are summarized visually in Figures 3-5, with the following abbreviations used in the graph titles to refer to specific sections of the survey: G = general, T = transparency, A = accountability, S = safety. For example, T1 referers to the first survey question in the "Transparency" section.

The results indicate that the vast majority of jurisdictions/political subdivisions are following the State and federal requirements for AE systems. In particular, Figure 3 shows that 30 of the 39 jurisdictions/political subdivisions using ASE followed the "Speed Enforcement Camera Systems Operational Guidelines", with nine (9) agencies answering "Unknown", and none answering "No". Likewise, 18 of the 21 jurisdictions/political subdivisions using ARLE indicated that they followed the "Red Light Camera Systems Operational Guidelines" when implementing their systems, with three (3) agencies responding "Unknown", and none answering "No". In both cases it is possible that the compliance is actually higher, as the only negative (i.e., non-"Yes") responses were "Unknown" – indicating that the appropriate point of contact did not know the answer to the question.

Figure 4 focuses on ASE enforcement, and shows strong compliance among most jurisdictions/ political subdivisions, with multiple questions receiving close to unanimous "Yes" responses. In particular, the jurisdictions/political subdivisions are doing well from a transparency perspective (questions T1-T5), with most agencies making speed camera locations, revenue and disbursement information, and citation information publicly available. In terms of accountability (questions A1-A3), all jurisdictions/political subdivisions had citations reviewed by an officer, and all have a process in place for dispute resolution. However, there are six (6) agencies that reported that they do not audit the AE system, which indicates room for improvement. Finally, from a safety perspective (questions S1-S2), over 90% of jurisdictions/political subdivisions are using automated enforcement traffic data to select camera locations and to perform safety analysis.

Figure 5 focuses on ARLE, and shows strong compliance from jurisdictions/political subdivisions on most questions. In terms of transparency (questions T1-T5), the jurisdictions/political subdivision are doing a good job of making information publicly available (camera locations, revenue information, AE citations), although there are a few agencies not making revenue dispursement publicly available (T3) or implementing the appropriate warning period after deployment (T5). With regard to accountability (questions A1-A3), all jurisdictions/political subdivisions have a process for dispute resolution and most audit the enforcement program (86%). However, only about 43% have citations reviewed/signed by an officer – indicating an area that can be improved. Finally, from a safety perspective (questions S1 - S2), it appears that nearly all

jurisdictions/political subdivisions are analyzing safety data and utilizing it to select enforcement locations.

Table 2: Summary of results by category

Category	Question	ASE				ARLE			
General		Yes	No	Unknown	Total	Yes	No	Unknown	Total
G-4	AE system used	39 (89%)	5 (11%)	0	44	21 (48%)	23 (52%)	0	44
G-5 & G-6	Use of Federal Guidelines	30 (77%)	0	9 (23%)	39	18 (86%)	0	3 (14%)	21
Transparency		Yes	No	Unknown	Total	Yes	No	Unknown	Total
T-1	Placement locations publicly available?	38 (97%)	1 (3%)	0	39	20 (95%)	1 (5%)	0	21
T-2	Revenue information publicly available?	36 (92%)	3 (8%)	0	39	20 (95%)	1 (5%)	0	21
T-3	Revenue disbursement publicly available?	32 (82%)	7 (18%)	0	39	16 (76%)	5 (24%)	0	21
T-4	Number of AE citations publicly available?	33 (85%)	6 (15%)	0	39	18 (86%)	3 (14%)	0	21
T-5	Warning period after deployment?	38 (97%)	1 (3%)	0	39	17 (81%)	3 (14%)	1 (5%)	21
Accountability		Yes	No	Unknown	Total	Yes	No	Unknown	Total
A-1	Citations reviewed / signed by officer?	39 (100%)	0	0	39	9 (43%)	11 (52%)	1 (5%)	21
A-2	Process for dispute resolution?	39 (100%)	0	0	39	21 (100%)	0	0	21
A-3	AE program audited?	33 (85%)	6 (15%)	0	39	18 (86%)	1 (5%)	2 (10%)	21
Safety		Yes	No	Unknown	Total	Yes	No	Unknown	Total
S-1	Data used to select AE placement?	37 (95%)	2 (5%)	0	39	20 (95%)	1 (5%)	0	21
S-2	Data used for safety analysis	35 (90%)	4 (10%)	0	39	20 (95%)	1 (5%)	0	21

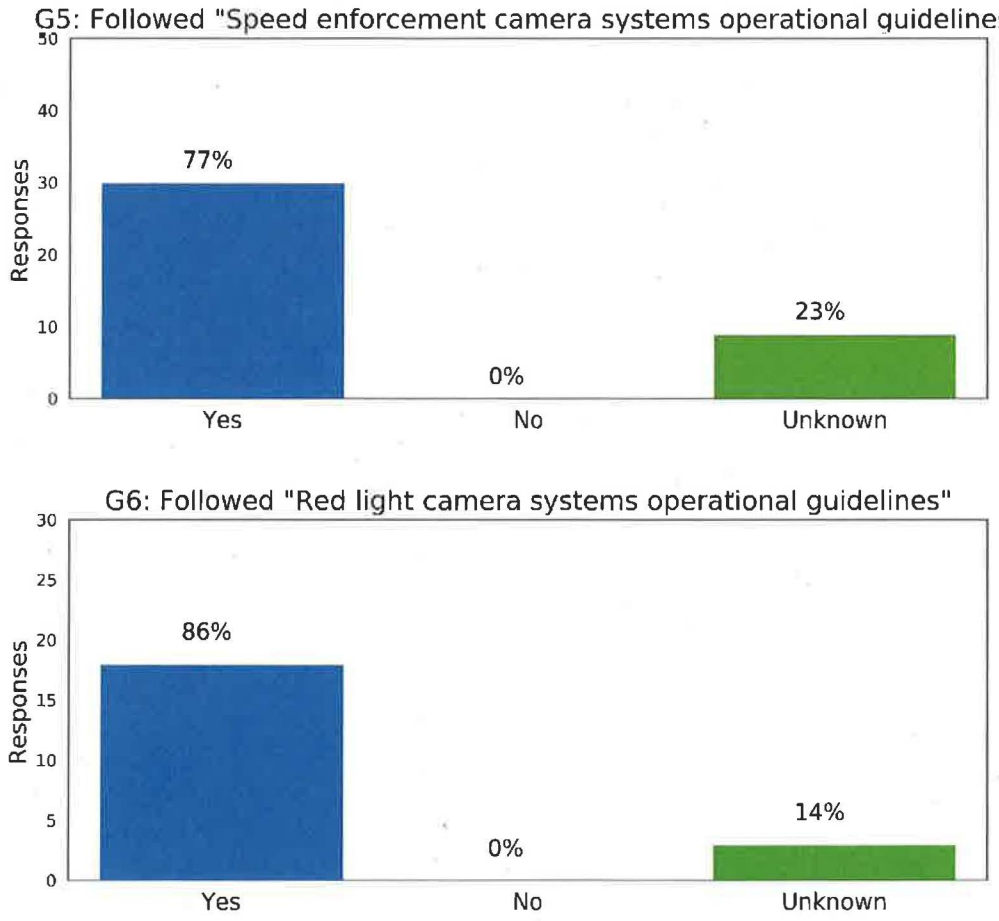

Figure 3: Followed Federal requirements while implementing ASE and ARLE

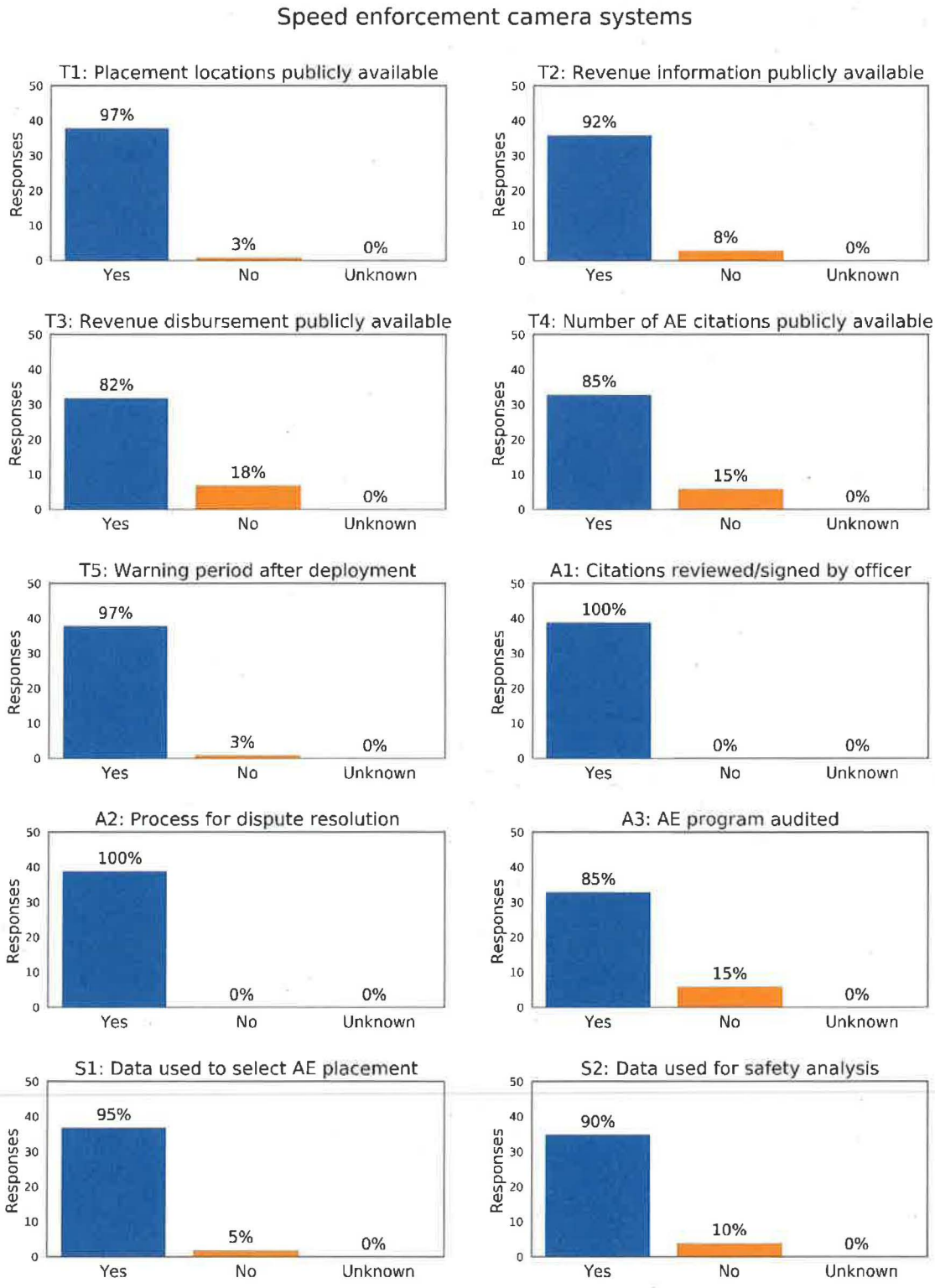

Figure 4: ASE summary results

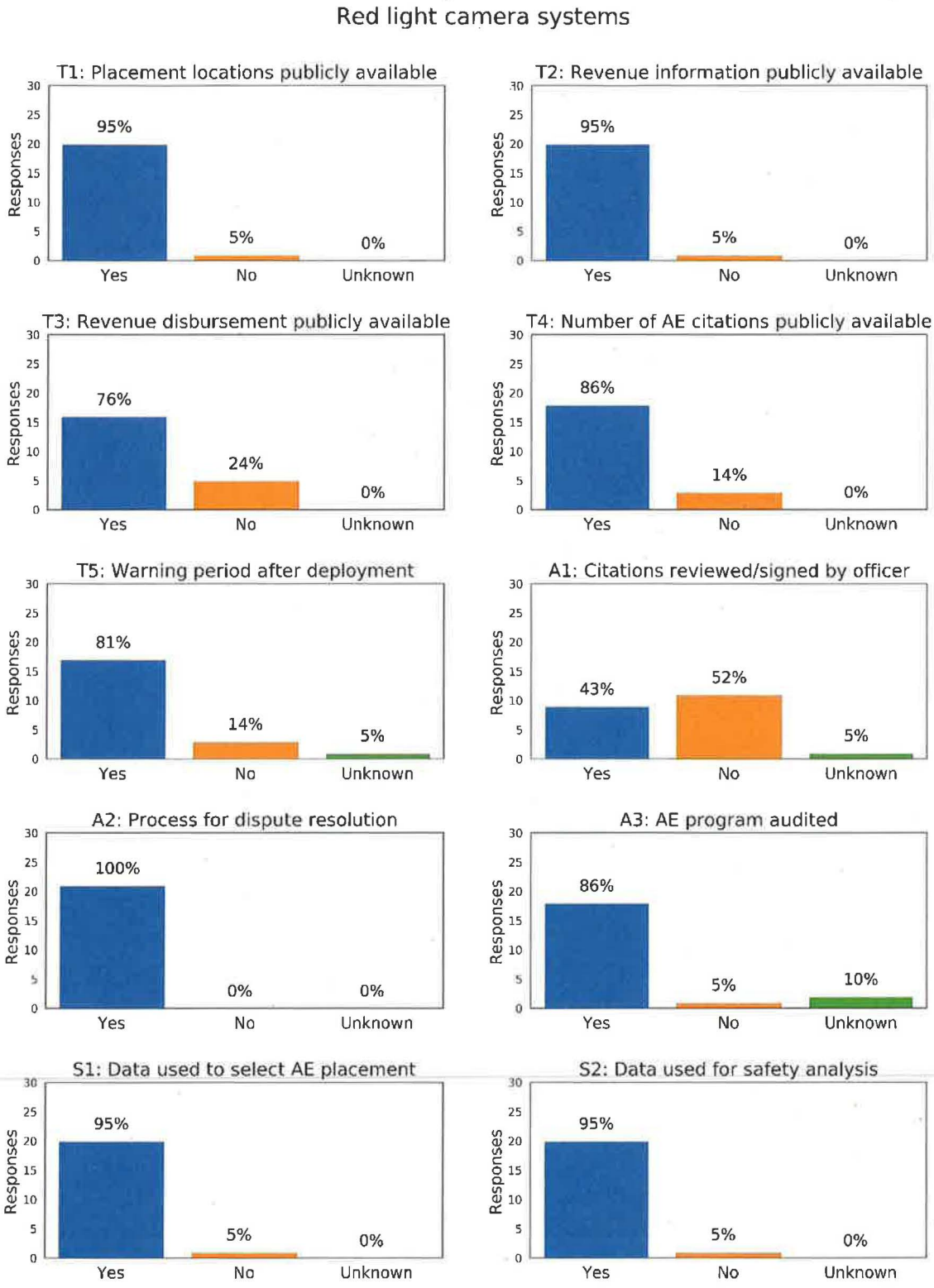

Figure 5: ARLE summary results

9. ACKNOWLEDGEMENTS

The following individuals were involved in the oversight of the project and preparation of the report:

- Dr. Tim Kerns, Director, Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) Highway Safety Office
- Myra Wieman, Deputy Director, Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) Highway Safety Office
- Mary Harmon, Section Chief, Finance and Information Systems Section, Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) Highway Safety Office
- John Hipps, Section Chief, Law Enforcement Section, Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) Highway Safety Office
- Mike Bible, Law Enforcement Program Manager, Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) Highway Safety Office
- Scott Keller, Law Enforcement Liaison, Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) Highway Safety Office
- Thomas Lubinski, Law Enforcement Liaison, Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) Highway Safety Office
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- Thomas Jacobs, Director, Center for Advanced Transportation Technology, University of Maryland
- Rodrigo Moscoso, Executive Director, CapWIN, University of Maryland
- Zachary Vander Laan, Faculty Assistant, Center for Advanced Transportation Technology, University of Maryland

10. APPENDIX: Completed Surveys

Tables A.1 and A.2 provide detailed information for all 44 jurisdictions/political subdivisions that are using/managing AE systems and completed the survey, plus two (2) that noted that they are not using either ASE or ARLE.

Table A.1 contains general information about each jurisdiction / political subdivision as well as the name and title of the survey respondent. This information corresponds to the first few questions from the "General" subsection of the survey instrument in Figure 2. Additionally, this table provides a column named Code, which can be used to link the responses in Table A.2

Table A.2 lists the responses to the remaining questions from the Accountability, Transparency, and Safety sections for each respondent. As before, abbreviations are used to note the question number for each section (e.g., T2 is the second question in the Transparency section from the survey instrument in Figure 2). Please note that the following abbreviations are used in the responses: Y = yes, N = no, Unk = Unknown, C/L = Contracted/Leased.

Table A.1: Respondent information and responses to General section of AE survey.

Code	Jurisdiction / Political Subdivision	Government Type	Population	AE Program	Respondent Name	Title
1	Annapolis Police Department	City	38394	Both	Castor J. Redondo	Sergeant/ Traffic Safety Unit
2	Anne Arundel County	County	576031	Neither	Mike Haviland	Police Lieutenant
3	Baltimore County Police Department	County	833000	Both	Pat Wilhelm	Corporal
4	Berwyn Heights	Local	3000	ASE	Dan Unger	Lieutenant
5	Brentwood	Local	3300	ARLE	Robert Althoff	Chief of Police
6	Calvert County Sheriff's Office	Local	92000	ASE	Julia Murphy	Deputy Sheriff, Automated Enforcement Program Administrator
7	Charles County	County	161500	Both	Karen Rison	Automated Enforment Specialist
8	Chestertown Police Department	Local	5500	ASE	John Dolgos	Acting Chief of Police
9	Cheverly	Local	6300	Both	Antwoine Harvey	Executive Assistant to the Chief of Police
10	Chevy Chase Village	Local	2000	ASE	E. Tiedemann	Sergeant
11	City of Bowie	City	58393	ASE	Aaron Saunders	MPO/ Traffic Safety
12	City of College Park	City	32275	ASE	Robert W. Ryan	Director of Public Services
13	City of Frederick	City	74000	Both	Lt. Sean Carr	Lieutenant
14	City of Gaithersburg Maryland	Local	70000	ASE	Scott A. Scarff	Sergeant
15	City of Greenbelt	City	30000	Both	J. LOWNDES	MPO
16	City of Hyattsville Police Department	City	18500	Both	Frank DonBullian	Lieutenant / Administrative Services Commander

Code	Jurisdiction / Political Subdivision	Government Type	Population	AE Program	Respondent Name	Title
17	City of Laurel	City	20000	Both	Sgt. ChaARLEes Boswell	Community Policing/Traffic Unit Supervisor
18	City of New Carrollton	City	13000	Both	W Everts	Major, Executive Commanding Officer
19	City of Rockville	City	68400	Both	Socrates Yiallouros	Acting Administrative Services Bureau Supervisor
20	City of Takoma Park	City	18000	ASE	Kyle Robison	Sgt. Automated Traffic Enforcement Unit
21	City of Westminster	City	19000	ARLE	Thomas Ledwell	Chief of Police
22	Easton Police Department	City	16500	ASE	1st Sgt. B.T. Hughes	1st Sgt.
23	Edmonston	Local	1543	ARLE	Rod Barnes	Town Administrator
24	Fruitland	City	5000	ASE	B. Guard	1st Sgt. B. Guard
25	Glenarden	City	7000	ASE	Philip A O'Donnell	Chief
26	Hagerstown City Police	City	40200	Both	Timothy Culp	Master Patrol Officer
27	Hancock Md.	Local	1500	ASE	Jim Robison	Chief
28	Harford County Sheriff's Office	County	250000+	Neither	R. Michael Lane	Sergeant, traffic Unit
29	Howard County Department of Police	County	325000	Both	Frederick von Briesen	ASE Camera Program Administrator
30	Landover Hills Police / Town of Landover Hills	Local	1687	Both	Robert V. Liberati Jr.	Chief of Police
31	MDOT SHA	State	6000000	ASE	Steven M. Rochon, P.E.	Division Chief

Code	Jurisdiction / Political Subdivision	Government Type	Population	AE Program	Respondent Name	Title
32	Montgomery County Maryland	County	1100000	Both	Richard L. Hetherington	Manager, Automated Traffic Enforcement Unit Montgomery County Police Department
33	Prince George's County	County	900000	Both	Captain Thomas Hendershot	Commander, PGPD- Autcmated Enforcement
34	Salisbury Police Department	Local	32807	ASE	Scott Kolb	Major
35	Seat Pleasant	Local	4721	Both	Lt. Kenneth Bragg	Commander, Special Operations Division
36	Smithsburg Maryland	Local	3000	ASE	Bruce C. DeGrange	Chief of Police
37	Snow Hill Police Department	City	2200	ASE	R.Andrew McGee	Chief of Police
38	The Town of Capitol Heights	Local	4524	ASE	Mark W. Cummings	Chief of Police
39	Town of Bel Air	Local	10000	ARLE	Robert Pfarr	Sergeant
40	Town of Centreville	City	4800	ASE	Kenneth Rhodes	Chief of Police
41	Town of Delmar	Local	3300	ASE	Wade Alexander	Lieutenant/Administration Commander
42	Town of Denton / Denton Police Department	Local	4500	ASE	Lt. George Bacorn	Deputy Chief of Police
43	Town of Forest Heights	Local	2447	ASE	Anthony Rease	Chief of Police
44	Town of Riverdale Park	Local	7000	ASE	David Morris	Chief of Police
45	University Park Police Department	Local	2385	ARLE	Elizabeth Gilead	Administrative Assistant
46	Washington County Sheriff's Office	County	150000	ASE	Sgt Daryl Sanders	Sergeant

Table A.2: Responses to Transparency, Accountability, and Safety questions from the AE survey.

Code	Automated Speed Enforcement (ASE) Questions												Automated Red Light Enforcement (ARLE) Questions											
	G5	**G7**	**T1**	**T2**	**T3**	**T4**	**T5**	**A1**	**A2**	**A3**	**S1**	**S2**	**G6**	**G7**	**T1**	**T2**	**T3**	**T4**	**T5**	**A1**	**A2**	**A3**	**S1**	**S2**
1	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
4	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y	C/L	Y	Y	Y	N	Y	Y	Y	Y	N	Y
6	Y	C/L	Y	Y	Y	N	Y	Y	Y	N	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
7	Y	C/L	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	N	N	Y	N	Y	Y	Y	Y
8	Unk	C/L	Y	N	N	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
9	Y	C/L	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	N	N	Y	N	Y	Unk	Y	Y
10	Unk	C/L	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
11	Unk	C/L	N	N	N	N	Y	Y	Y	N	Y	N	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
12	Unk	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
13	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
14	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
15	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
16	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C/L	N	Y	Y	Y	Y	N	Y	Y	Y	Y
17	Unk	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Unk	C/L	Y	Y	Y	Y	Y	N	Y	Y	Y	Y

Code	Automated Speed Enforcement (ASE) Questions												Automated Red Light Enforcement (ARLE) Questions											
	G5	G7	T1	T2	T3	T4	T5	A1	A2	A3	S1	S2	G6	G7	T1	T2	T3	T4	T5	A1	A2	A3	S1	S2
18	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
19	Unk	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Unk	C/L	Y	Y	Y	Y	Y	N	Y	Unk	Y	Y
20	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
21	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y	C/L	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
22	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y	C/L	Y	Y	Y	Y	Unk	Y	Y	Y	Y	Y
24	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
25	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
26	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
27	Unk	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
28	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
29	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
30	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	Y	Y	Y	Unk	Y	Y	Y	Y
31	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
32	Y	C/L	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	C/L	Y	Y	Y	Y	N	N	Y	Y	Y	Y
33	Unk	C/L	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Unk	C/L	Y	Y	N	Y	N	Y	Y	Y	Y	Y
34	Unk	C/L	Y	N	N	N	Y	Y	Y	N	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
35	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Code	Automated Speed Enforcement (ASE) Questions												Automated Red Light Enforcement (ARLE) Questions											
	G5	G7	T1	T2	T3	T4	T5	A1	A2	A3	S1	S2	G6	G7	T1	T2	T3	T4	T5	A1	A2	A3	S1	S2
36	Y	C/L	Y	Y	N	N	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
37	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
38	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	N	n/a	n/a	n/a	n/a	n/a	n/a
39	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y	C/L	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
40	Y	C/L	Y	Y	Y	Y	Y	Y	Y	N	N	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
41	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
42	Y	C/L	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
43	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
44	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
45	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y	C/L	Y	N	N	Y	N	N	Y	Y	Y	Y
46	Y	C/L	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Y